Overview

February 2024 was a mild and wet Atlantic weather dominated month. Rainfall was above average everywhere, highest in the southwest.

The monthly average river flows for February increased at half of all monitoring sites since January, with 64% of river flows being above the long-term normal for February, while 54% of lake and turlough monitoring stations observed levels above the long-term normal range for this month. Average monthly groundwater levels increased, 51% of monitoring wells recorded levels above the long-term average for February. Out of the six spring flows monitored 3 were in the 'normal' range, while 3 were classified as being 'above normal'.

Rainfall

The majority of monthly rainfall totals were above their 1981-2010 Long-Term Average (LTA). Percentage of monthly rainfall values ranged from 87% (monthly rainfall total of 83.0 mm) at Finner, Co Donegal to 222% (monthly rainfall total of 166.1 mm) at Roche's Point, Co Cork. Monthly rainfall totals ranged from 64.9 mm (134% of its LTA) at Casement Aerodrome, Co Dublin to 197.5 mm (156% of its LTA) at Newport, Co Mayo. The highest daily rainfall total was 36.4 mm at Johnstown Castle, Co Wexford on Thursday 8th (its highest daily fall for February on record (length 21 years)). The number of rain days ranged from 18 days at Dublin Airport, Co Dublin to 29 days at Malin Head, Co Donegal. The number of wet days ranged from 12 days at both Phoenix Park, Co Dublin and Dublin Airport to 25 days at Valentia Observatory, Co Kerry. The number of very wet days ranged from 1 day at a few stations to 8 days at Newport, Co Mayo.

River Flows

The average river flows for February increased at half of river monitoring stations compared to average flows observed in January. Analysis of the monthly average flows at 135 river monitoring sites, identified 14(10%) as 'particularly high', 73(54%) 'above normal', 46 (34%) as 'normal' and 2 (2%) were 'below normal'. Overall, there was an increase in 'particularly high' and 'above normal' this month, with a decrease of sites that classified as 'normal' and 'below normal'. River monitoring sites above the long-term average are observed largely in the south and west of the country.

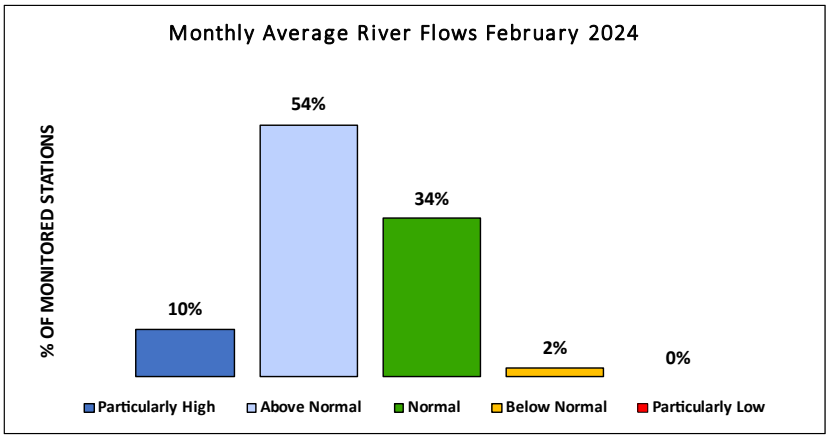


Figure 1: Percentage distribution of river flow monitoring sites within each of the percentile flow categories for February 2024.

Lake and Turlough Levels

Average water levels for February decreased at 71% of the monitored lake and turlough sites compared to average levels for January. Analysis of monthly average levels at 33 lakes and 4 turloughs were classified as being 'particularly high' at 12 (32%), 'above normal' at 8 (22%) and 'normal' at 17 (46%).

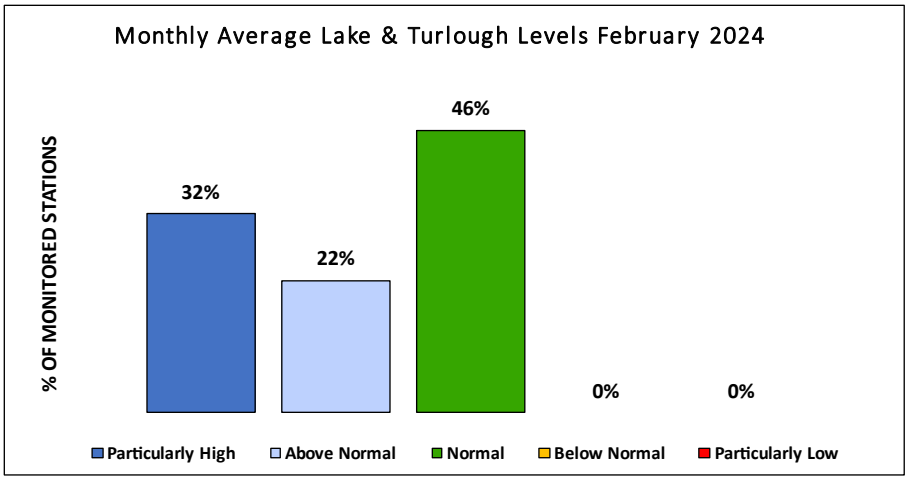


Figure 2: Percentage distribution of lake and turlough level monitoring sites within each of the percentile flow categories for February 2024.

Groundwater Levels and Spring Flows

Average groundwater levels in February were higher at 53% of monitoring wells compared to average levels observed in January. Groundwater levels for February were classified as being 'particularly high' at 6 wells (17%), 'above normal' at 12 wells (34%), 'normal' at 13 wells (37%), and 'below normal' at 4 wells (12%).

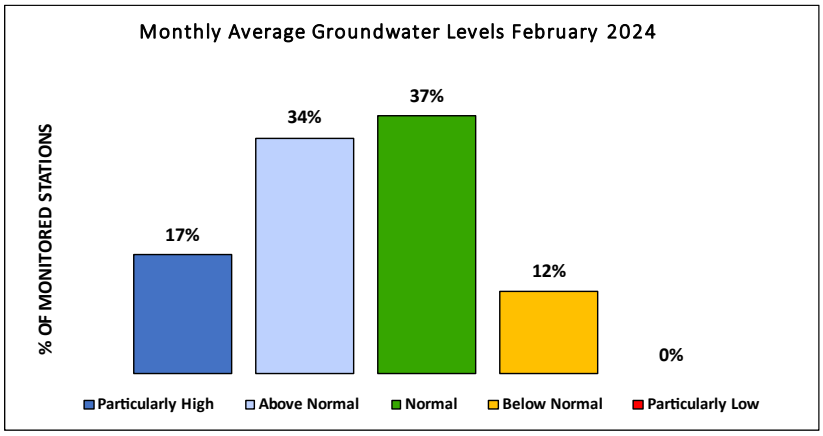


Figure 3: Percentage distribution of groundwater level sites within each of the percentile flow categories for February 2024.

Spring outflows were also monitored at 6 EPA monitoring sites for February. The outflows from these springs were compared to previously recorded February flows and were 'above normal' at 3 locations and 'normal' at 3 locations.

Rainfall

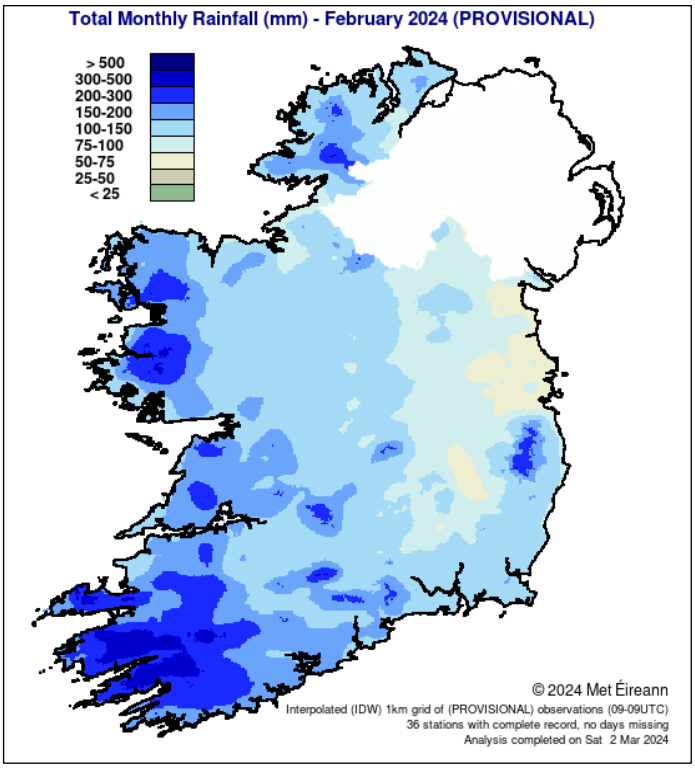


Figure 4: Rainfall map for Ireland February 2024 ***(Source: Met Eireann.ie).***

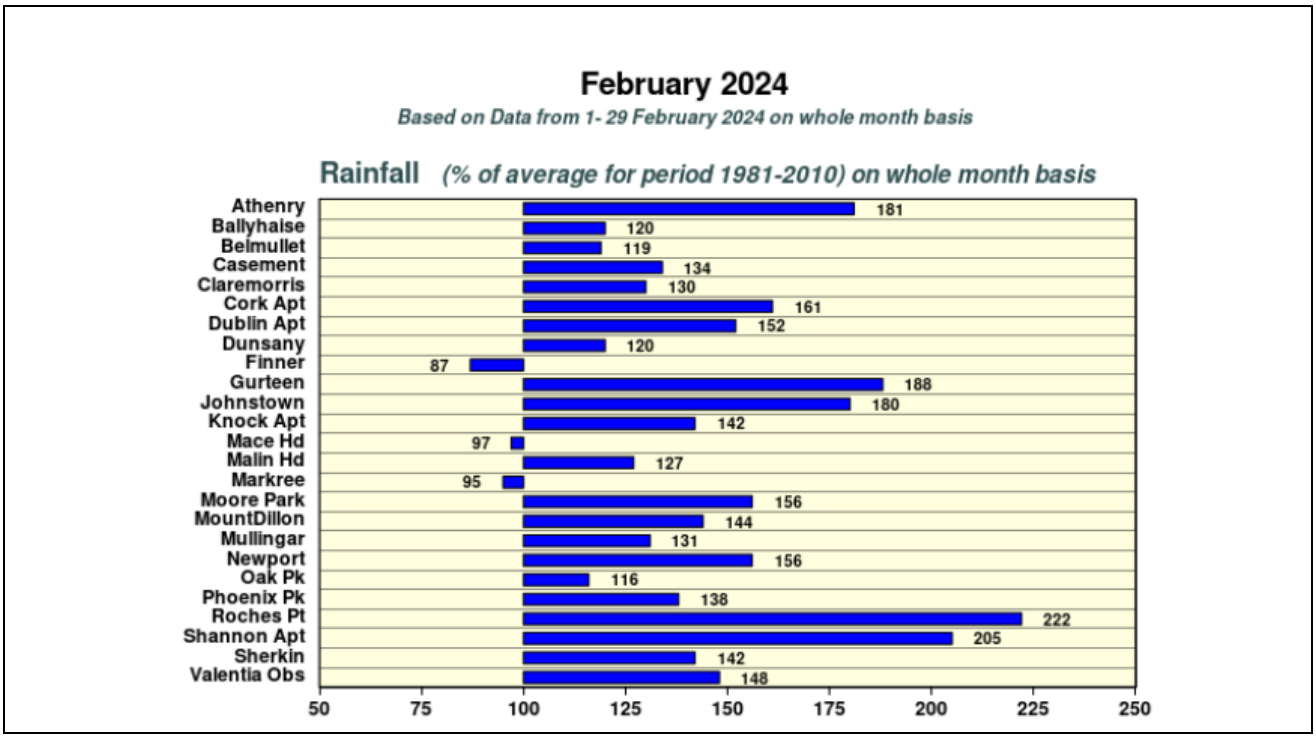


Figure 5: Summary of rainfall at synoptic stations for February 2024, figures indicate the percentage difference from the Long-Term Average rainfall for this month ***(Source: Met Eireann.ie).***

River Flows

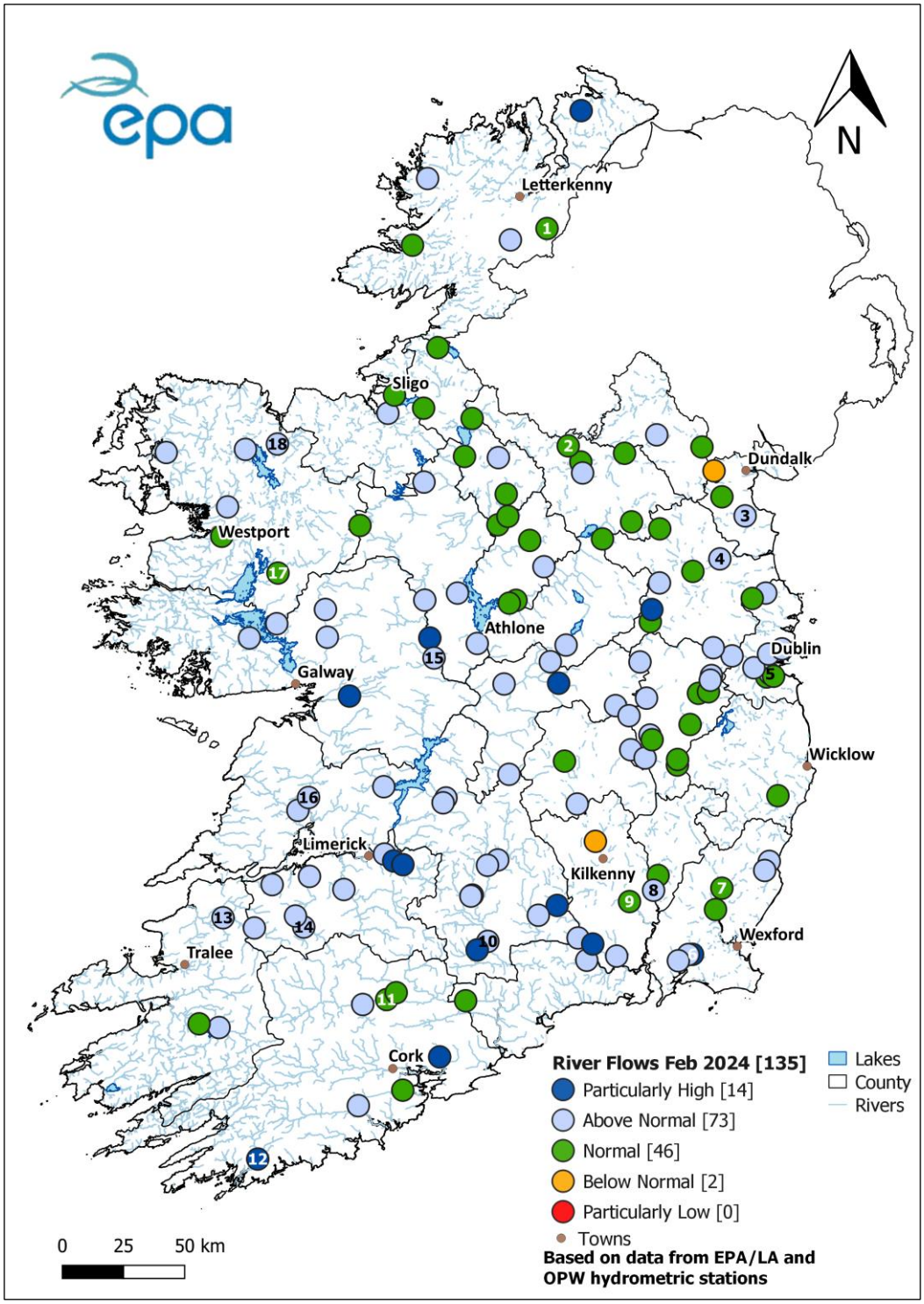


Figure 6: Monthly average river flows for February 2024 relative to historic monthly average flows expressed as percentile of the long-term values of monthly flow. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision ***(Source: EPA, OPW).***

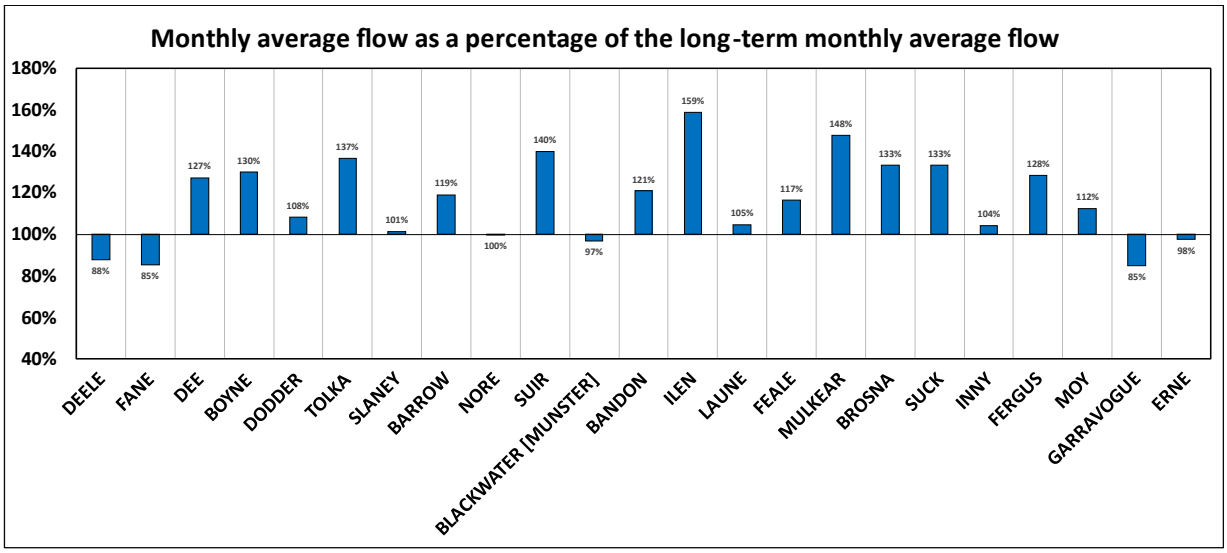
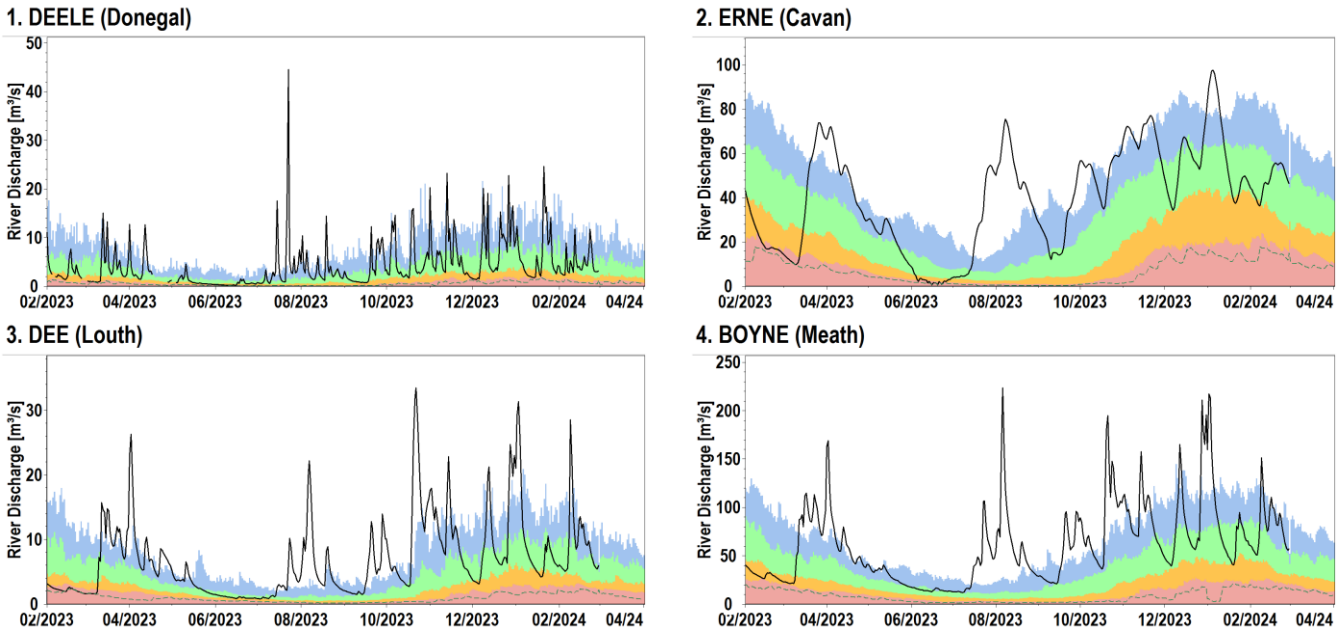
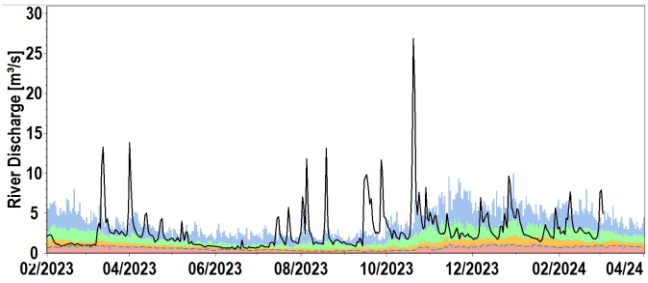


Figure 7: February 2024 average flows as a percentage of the long-term monthly average flow for this month at a selected number of stations. All data are provisional and may be subject to revision ***(Source: EPA, OPW).***

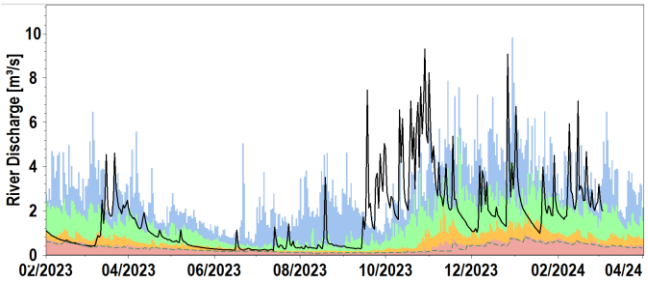
Flow hydrographs for selected rivers



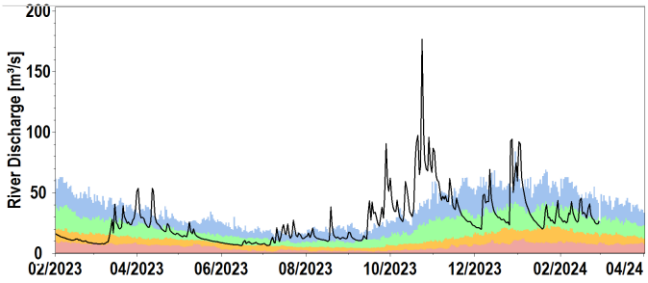
5. DODDER (Dublin)



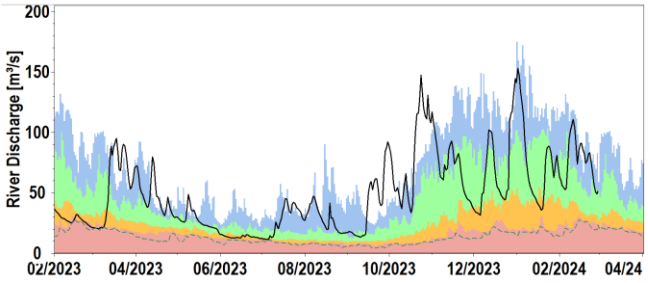
6. MULMONTRY (Wexford)



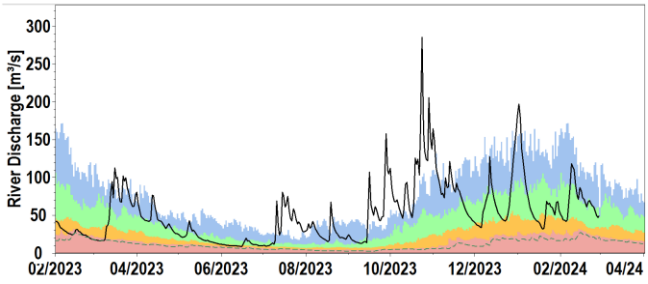
7. SLANEY (Wexford)



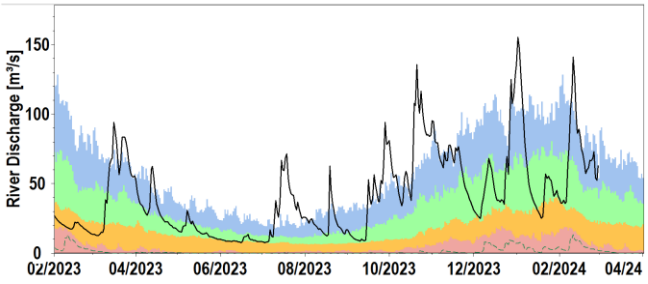
8. BARROW (Carlow)



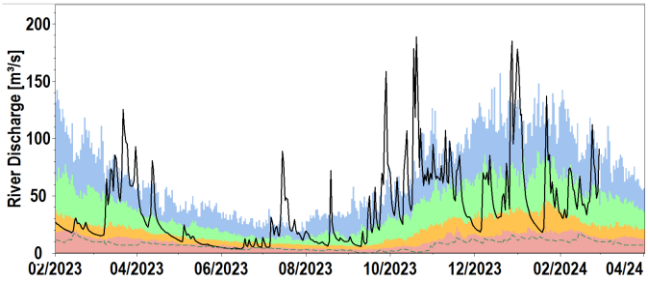
9. NORE (Kilkenny)



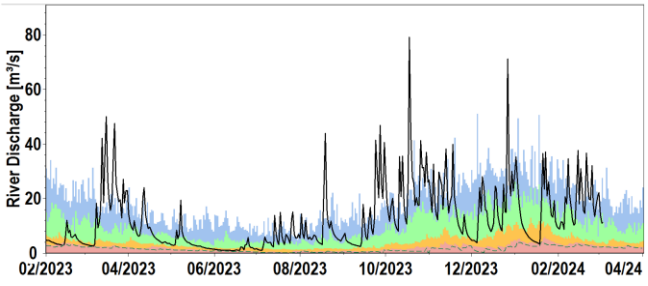
10. SUIR (Tipperary)



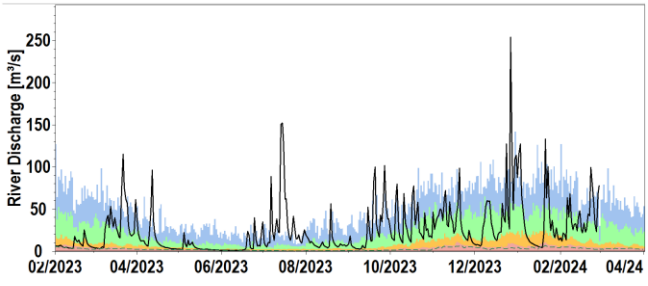
11. BLACKWATER [MUNSTER] (Cork)



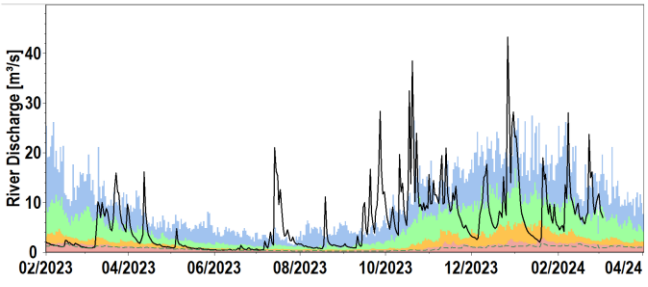
12. ILEN (Cork)



13. FEALE (Kerry)



14. DEEL (Limerick)



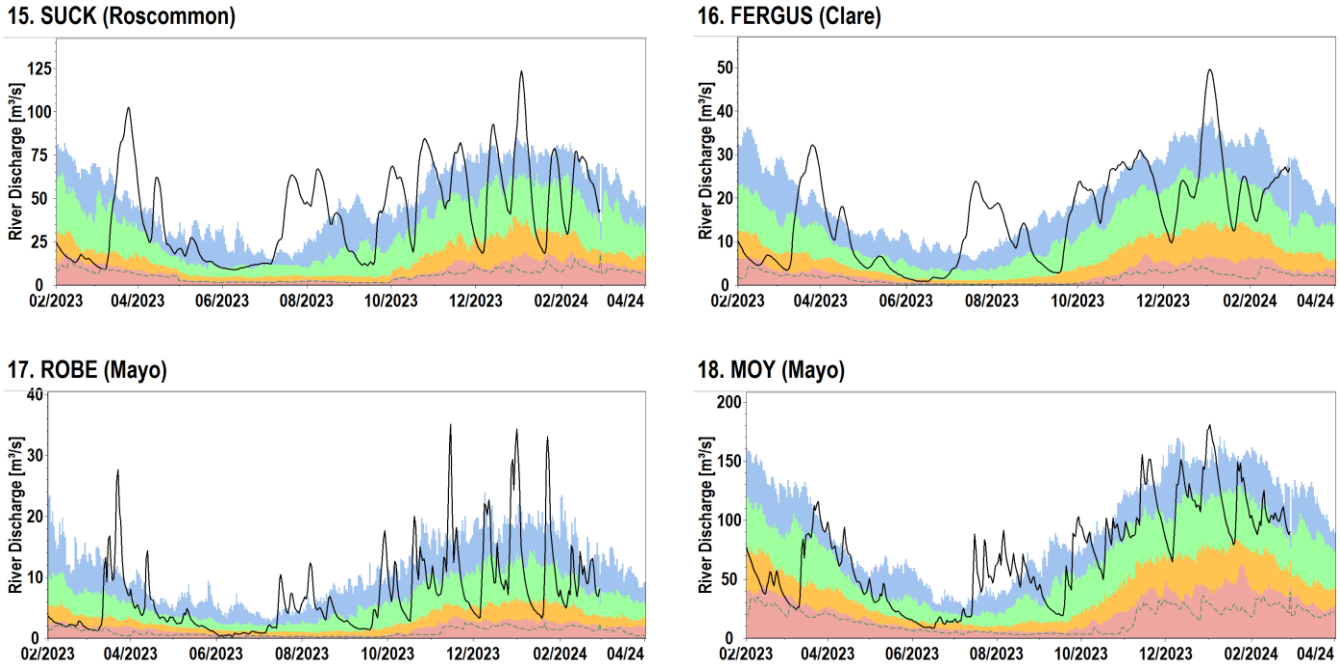


Figure 8: Daily average river flows measured in cubic metres per second relative to historic daily average flows expressed as percentile of the long-term values of each day and long-term minimum flows. All data are provisional and may be subject to revision ***(Source: EPA, OPW).***

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

Lake and Turlough Levels

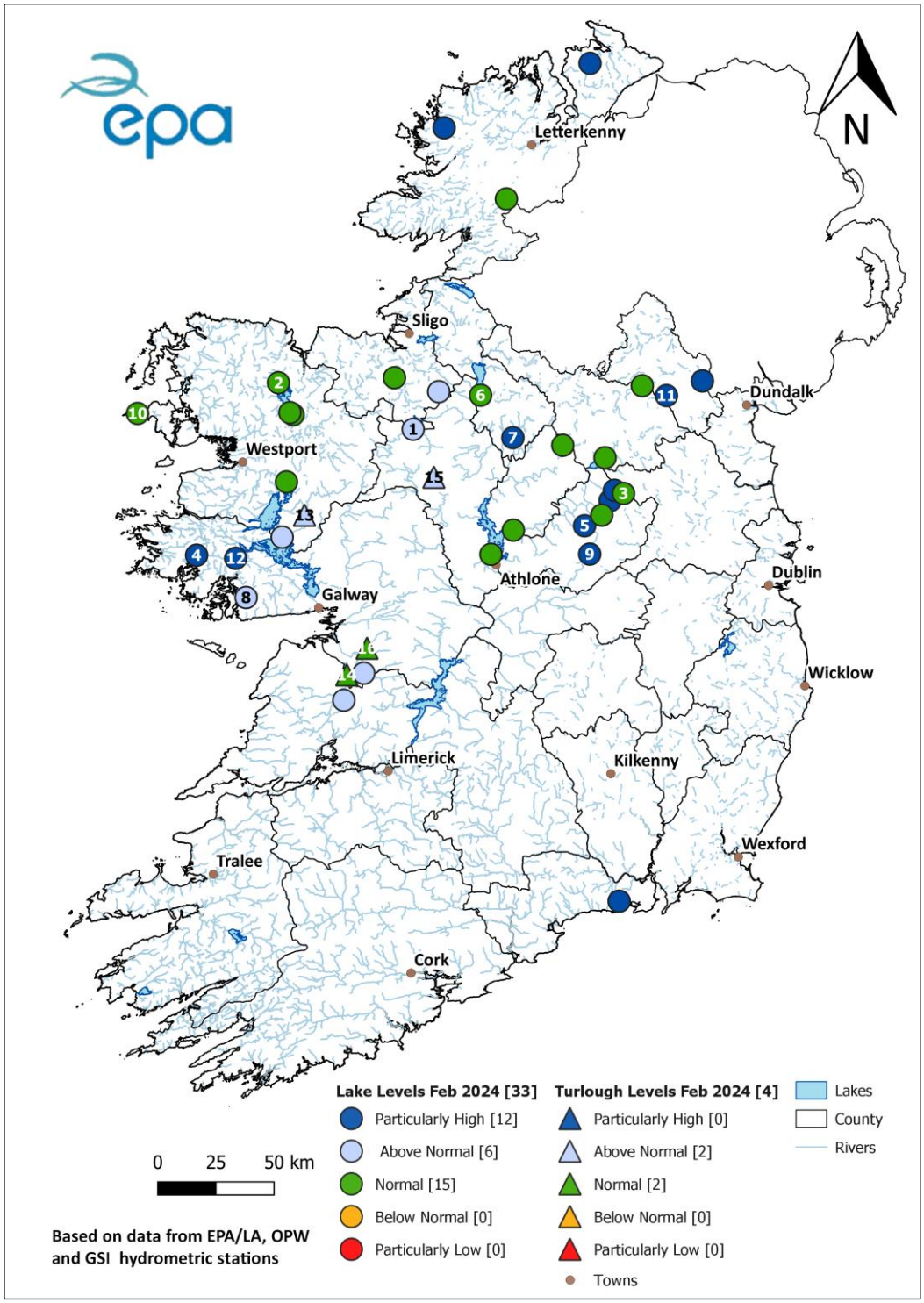
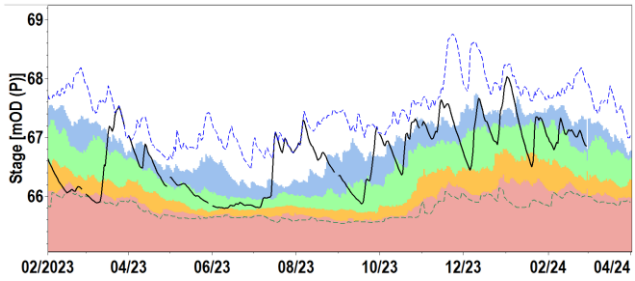


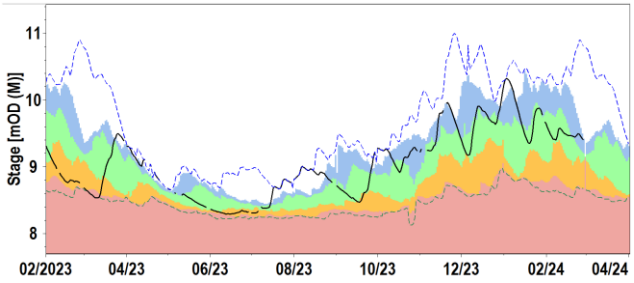
Figure 9: Monthly average lake & turlough levels for February 2024 relative to historic monthly average levels expressed as percentile of the long- term values for this month. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision ***(Source: EPA, OPW and GSI).***

Water level hydrographs for selected lakes and turloughs

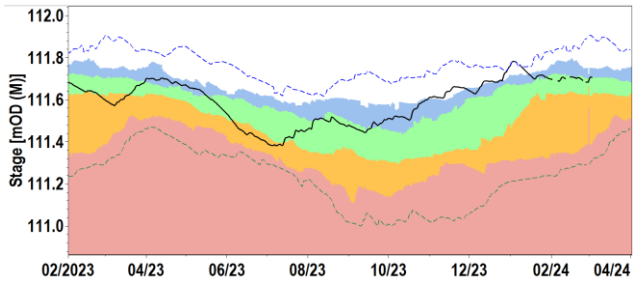
1. L. GARA (Sligo)



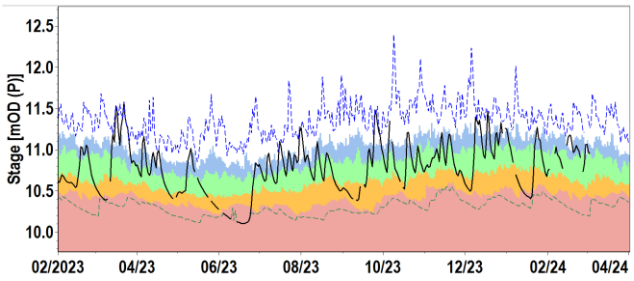
2. L.CONN (Mayo)



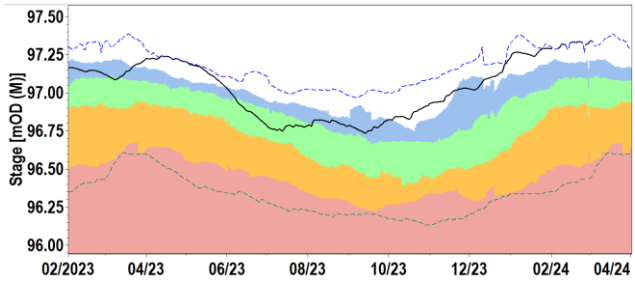
3. L. BANE (Meath)



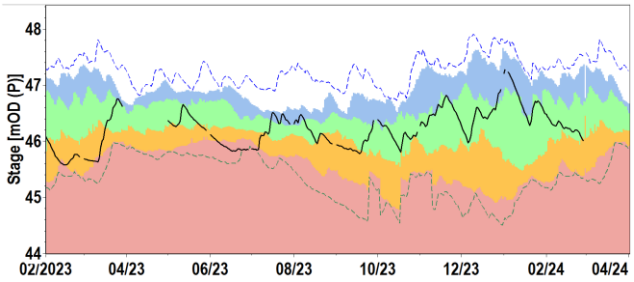
4. DERRYCLARE L. (Galway)



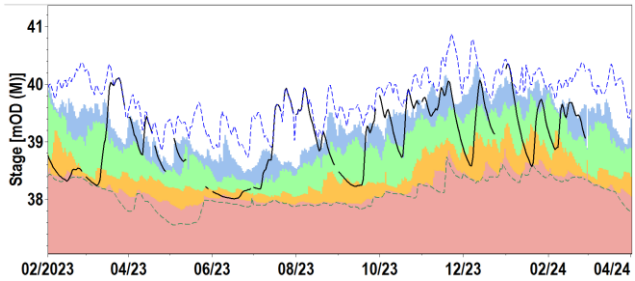
5. L. OWEL (Westmeath)



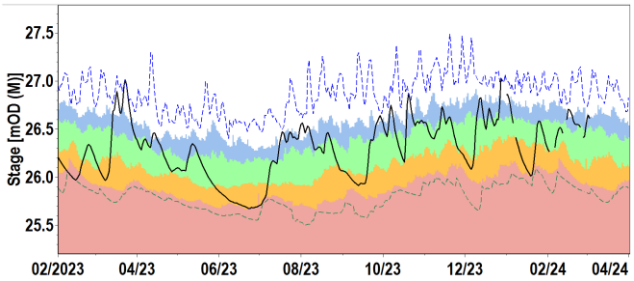
6. L.ALLEN (Leitrim)



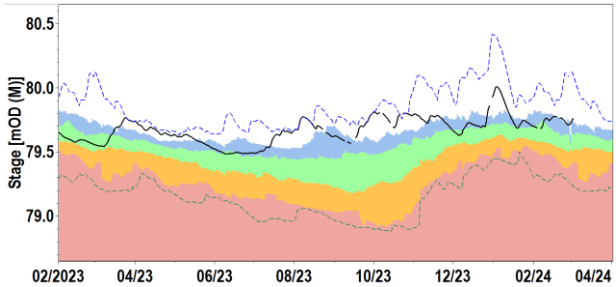
7. LOUGH RINN (Leitrim)



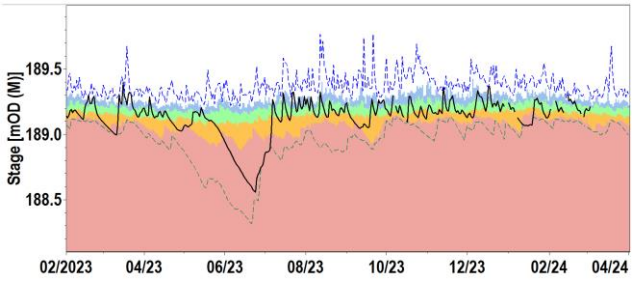
8. GLENICMURRIN LAKE (Galway)



9. L.ENNELL (Westmeath)



10. L. ACCORYMORE (Mayo)



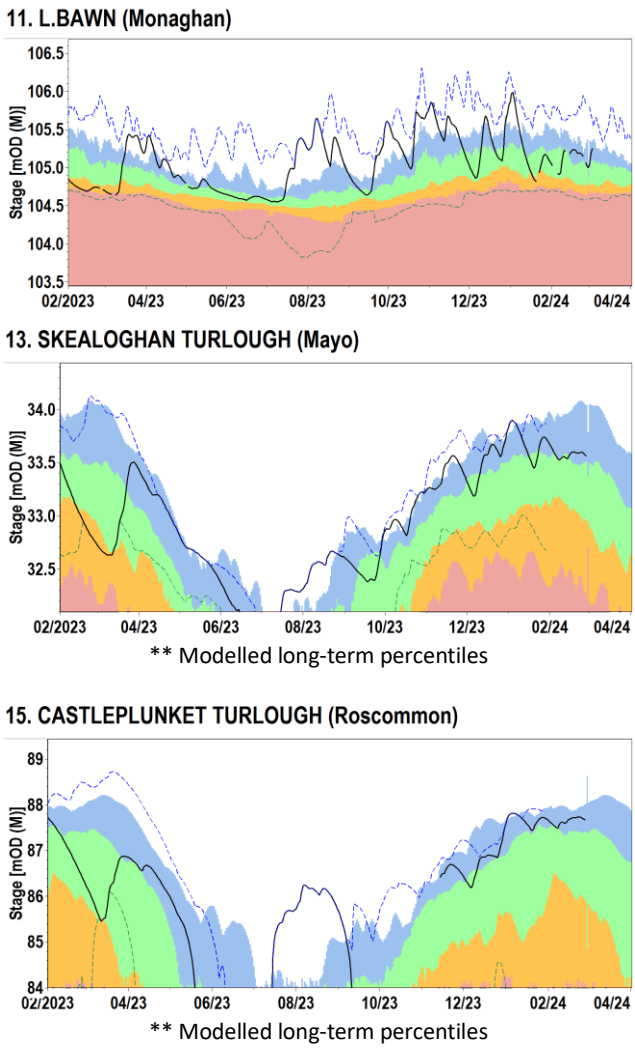


Figure 10: Observed daily mean lake and turlough levels (black trace) measured in meters above ordnance datum compared to the 10%tile, 30%tile, 70%tile and 95%tile for each month for the period of record and observed long-term maximum and minimum levels. Note historic percentiles for turloughs are based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

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

Groundwater Levels and Spring Flows

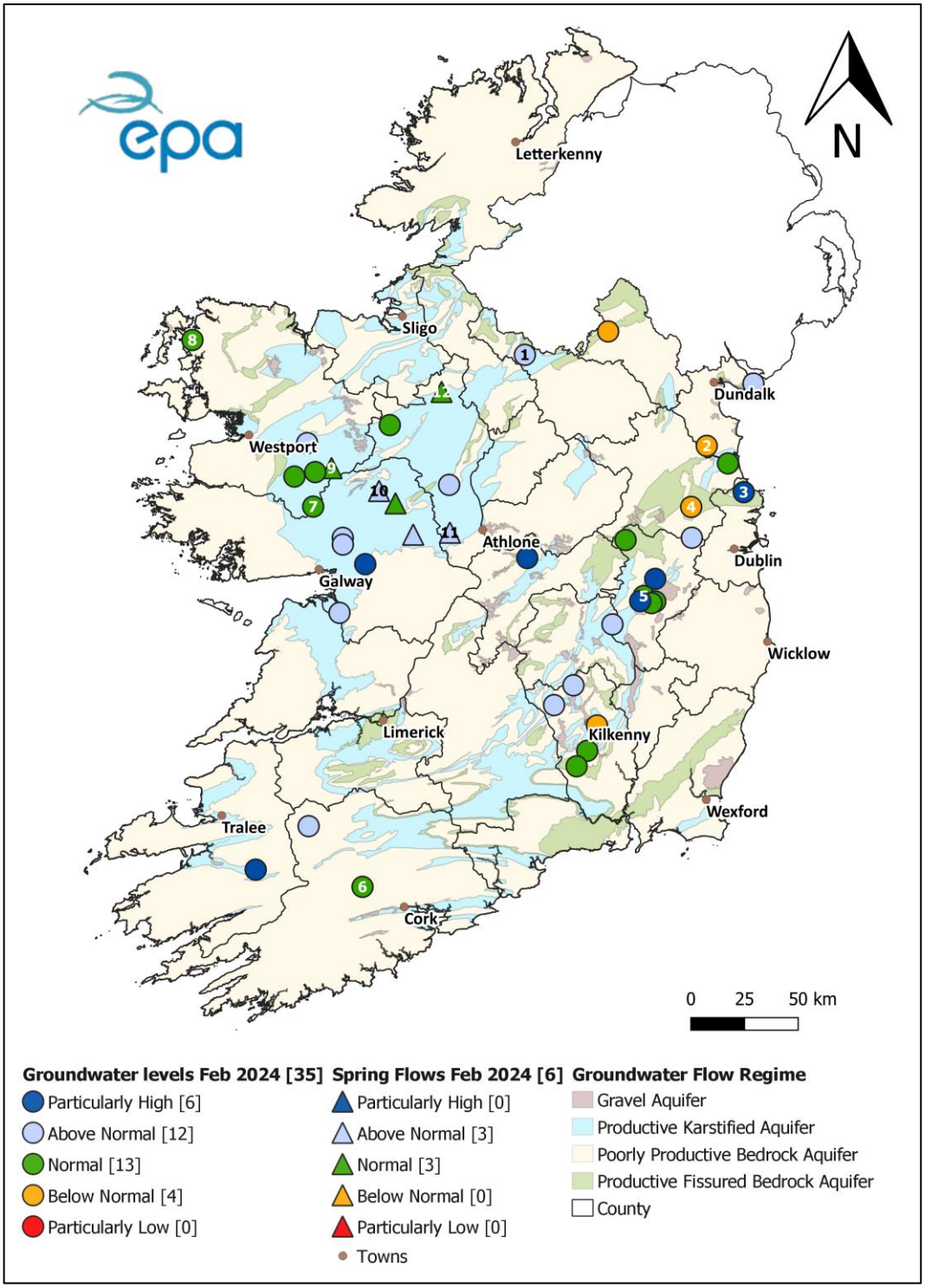
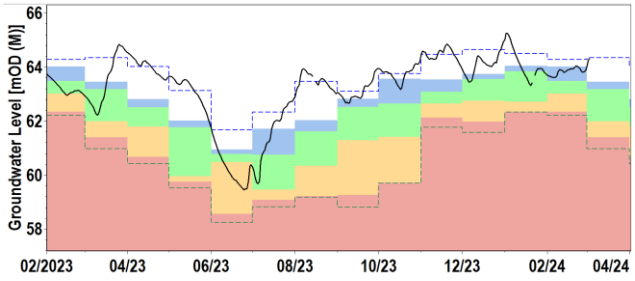


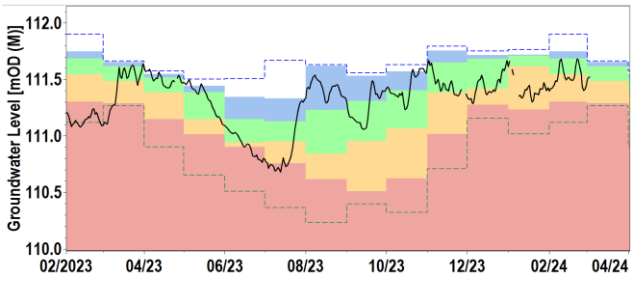
Figure 11: Groundwater level and Spring Flow status for February 2024, relative to historic monthly groundwater levels. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision ***(Source: EPA).***

Groundwater and spring hydrographs

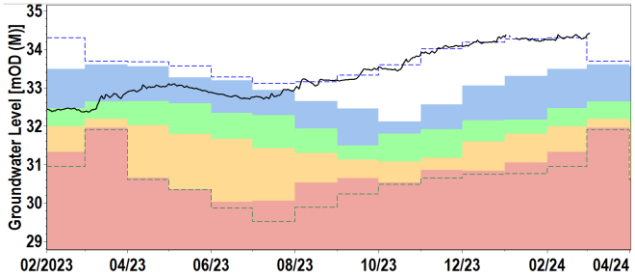
1. BAWN BOY WORKHOUSE (Cavan)



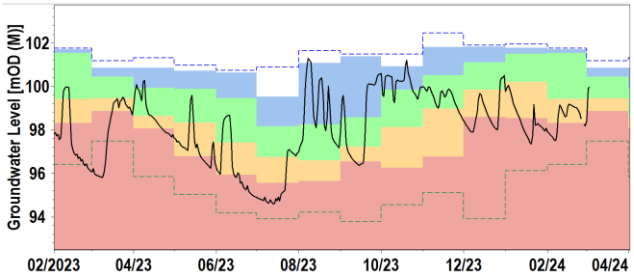
2. Mattock MK1 Deep (Meath)



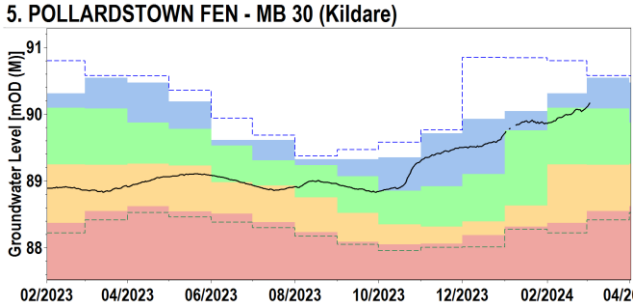
3. BOG OF THE RING OW3D (Fingal)



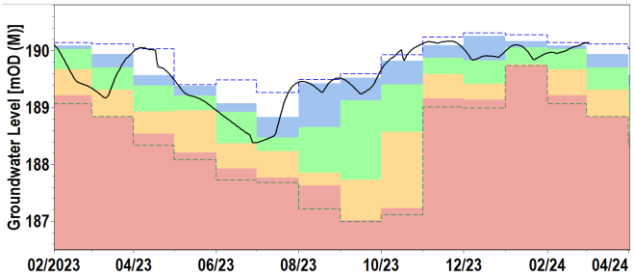
4. DUNSHAUGHLIN PW6 (Meath)



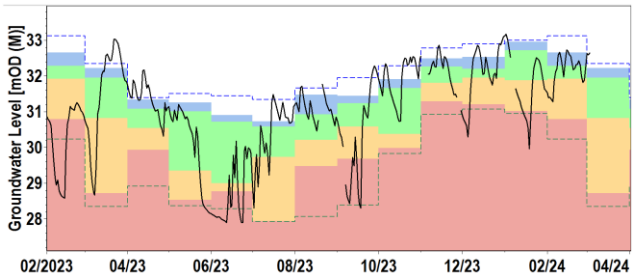
5. POLLARDSTOWN FEN - MB 30 (Kildare)



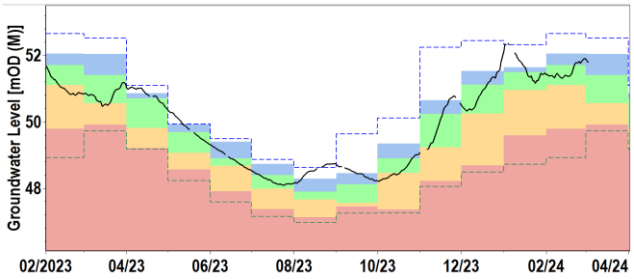
6. DRIPSEY DR1 Deep Upper Site (Cork)



7. SHRULE GWL (Mayo)



8. Glencastle - (GC1 Deep) (Mayo)



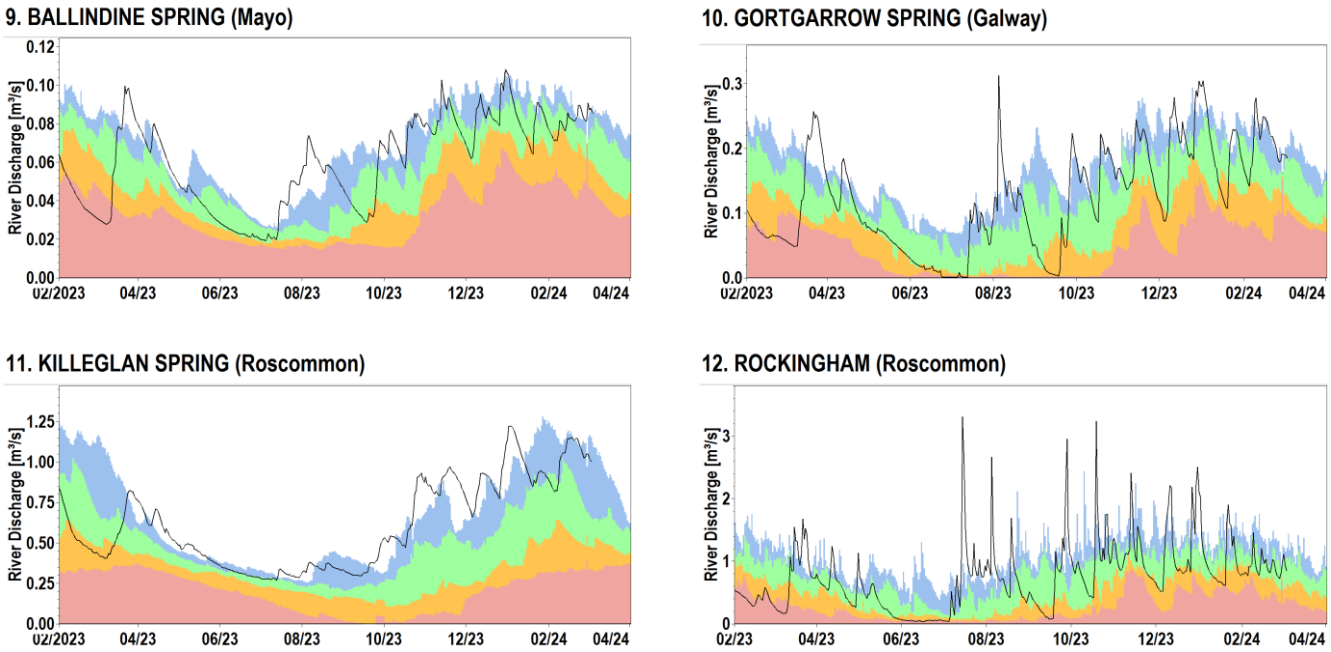


Figure 12: Daily mean groundwater levels (black trace) measured in meters above ordnance datum compared to the 10%tile, 30%tile, 70%tile and 95%tile for each month for the period of record and long-term maximum and minimum levels. All data are provisional and may be subject to revision ***(Source: EPA)****.*

Explanation - Classes							
Particularly Low <95%tile monthly average level	Below Normal >95%tile <70%tile monthly average level	Normal >70 %tile <30%tile monthly average level	Above Normal >30%tile <10%tile monthly average level	Particularly High >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: ➢ Karstic (Rk and Lk) aquifers; ➢ Gravel (Rg and Lg) aquifers; ➢ Productive fractured bedrock (Rf and Lm) aquifers; ➢ Poorly productive bedrock (Ll, Pl 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.