Overview

January 2022 has been a dry month with rainfall at all stations across the country below their long-term averages. These dry conditions over Ireland have resulted in nearly all river flow stations falling below the long-term monthly average for January. Almost three-quarters of river flows (74%) were in the 'below normal' and 'particularly low' classes for this month. The majority (57%) of monitored lake and turlough levels were also 'below normal' for this time of year.

Similarly, groundwater levels fell at 59% of groundwater monitoring stations between December 2021 and January 2022 across the country. Most groundwater monitoring stations (59%) observed levels 'below normal' and 'particularly low' for January averages. Most of the monitored spring flows were also 'below normal'' compared to average monthly flows for January.

Rainfall

All monthly rainfall totals across the country were below their Long-Term Average (LTA). Percentage of monthly rainfall values ranged from 22% (monthly rainfall total of 22.7 mm) at Johnstown Castle, Co Wexford to 78% (monthly rainfall total of 93.1 mm) at Malin Head, Co Donegal. Monthly rainfall totals ranged from 14.6 mm (23% of its LTA) at Dublin Airport, Co Dublin to 98.8 mm (59% of its LTA) at Newport, Co Mayo. The highest daily rainfall total was 22.6 mm at Malin Head, Co Donegal on Monday 3rd. The number of rain days ranged from 10 days at Phoenix Park, Co Dublin to 25 days at Belmullet, Co Mayo. The number of wet days ranged from 4 days at both Phoenix Park, Co Dublin and Casement Aerodrome, Co Dublin to 17 days at Newport, Co Mayo. The number of very wet days ranged from zero days at Phoenix Park, Co Dublin to 3 days at a few stations.

Nine stations had dry spells between Saturday 8th and Sunday 30th. These were Finner, Co Donegal (lasting 15 days), Shannon Airport, Co Clare, Dunsany, Co Meath, Johnstown Castle, Co Wexford (lasting 16 days), Moore Park, Co Cork (lasting 17 days), Dublin Airport, Co Dublin (lasting 18 days), Oak Park, Co Carlow (lasting 20 days), Phoenix Park, Co Dublin and Casement Aerodrome, Co Dublin (lasting 23 days). Sherkin Island, Co Cork had its driest January on record with 45.2 mm (34% of its LTA) (record length 49 years). Johnstown Castle, Co Wexford and Cork Airport, Co Cork had their driest January since 1964. Moore Park, Co Cork had its driest January since 1992. Four stations had their driest January since 1997. These were Dublin Airport, Co Dublin, Oak Park, Co Carlow, Belmullet, Co Mayo and Valentia Observatory, Co Kerry.

River Flows

January river flows decreased at 78% monitoring stations compared to average flows observed in December 2021. The monthly average flows remain below the long-term monthly average for January across the country. Analysis of monthly average flows at 158 river monitoring sites across the country identified; 2 (1%) 'particularly high', 40 (25%) were 'normal', 104 (66%) were 'below normal' and 12 (8%) was classed as 'particularly low' for this time of year.

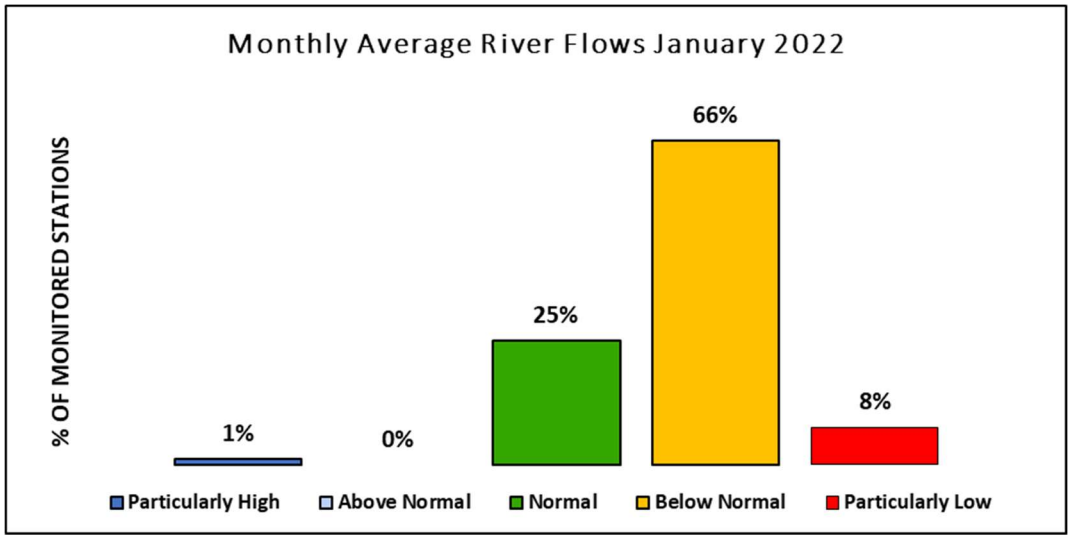


Figure 1: Percentage distribution of river flow monitoring sites within each of the percentile flow categories for January 2022.

Lake and Turlough Levels

Average lake levels were lower at 68% of monitored lakes compared to levels observed in December. Analysis of monthly average levels at 44 lake and turloughs were classified as 'above normal' at 1 (2%) [L.Eske, Co. Donegal], 'normal' at 18 (41%) and 'below normal' at 25 (57%) monitoring locations for the month of January. Four turloughs were also analysed and were 'normal' or 'below normal' for this time of year.

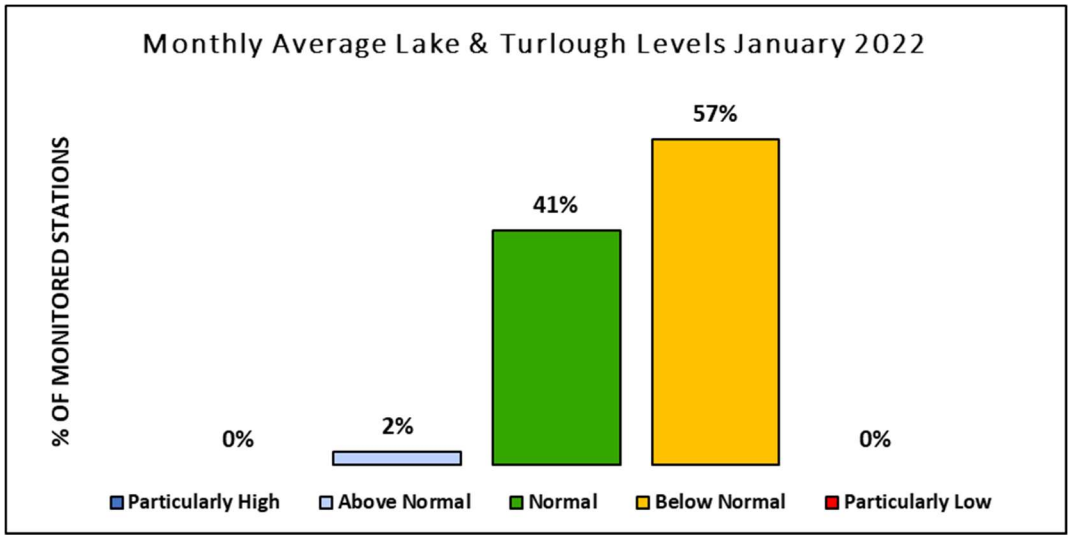


Figure 2: Percentage distribution of lake level monitoring sites within each of the percentile flow categories for January 2022.

Groundwater Levels and Spring Flows

Average groundwater levels increased between December and January 2022 in 59% of monitoring wells analysed. January groundwater levels were classified as 'above normal' at 4 (10%), 'normal' at 13 (31%), 'below normal' at 19 (45%) and 'particularly low' at 6 (14%) monitoring wells across the country.

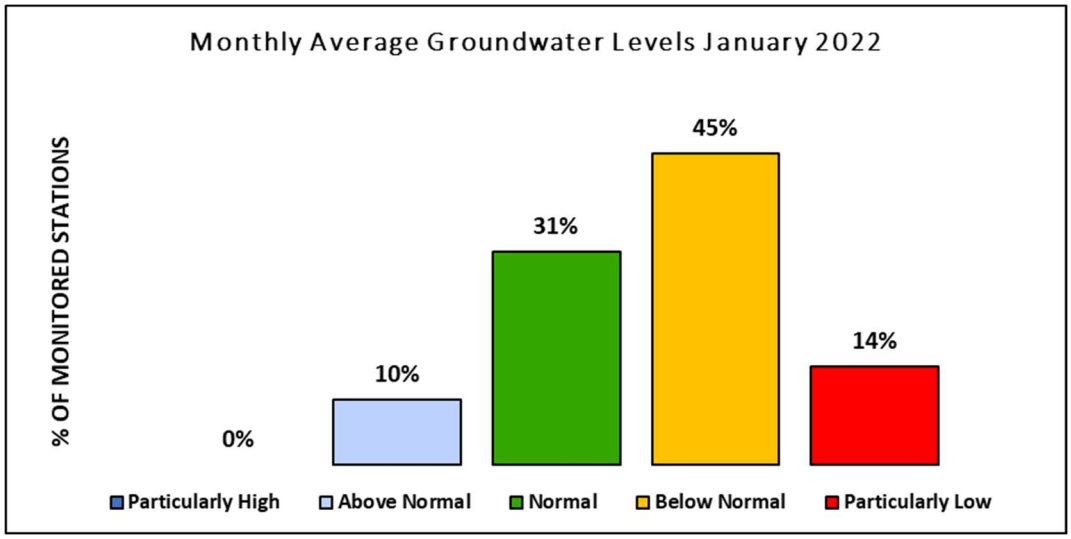


Figure 3: Percentage distribution of groundwater level sites within each of the percentile flow categories for January 2022.

Spring outflows were also monitored at 8 EPA monitoring sites. The outflows from these springs were compared to previously recorded flows for January, and 3 springs were 'normal', 4 were 'below normal' and 1 [Rockingham, Co. Roscommon] was 'particularly low' for this time of year.

Rainfall

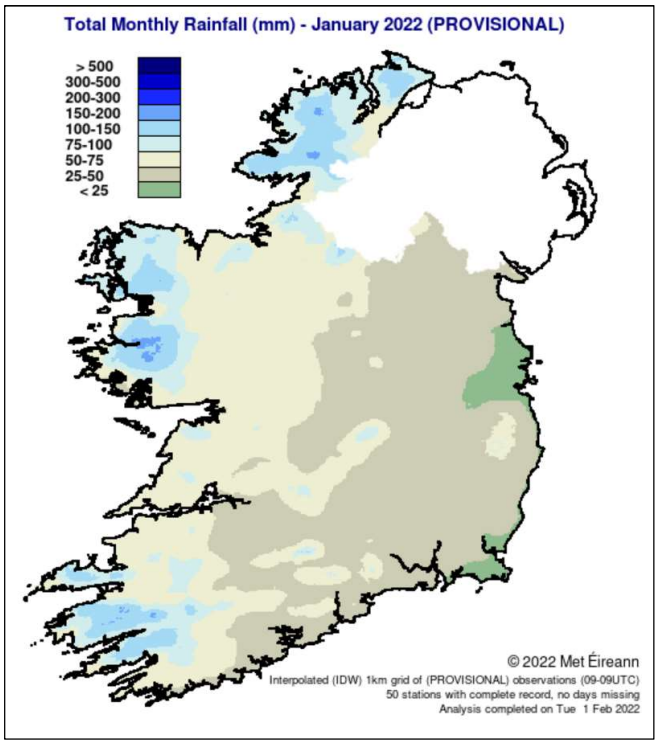


Figure 4:Rainfall map for Ireland January 2022 ***(Source: Met Eireann.ie).***

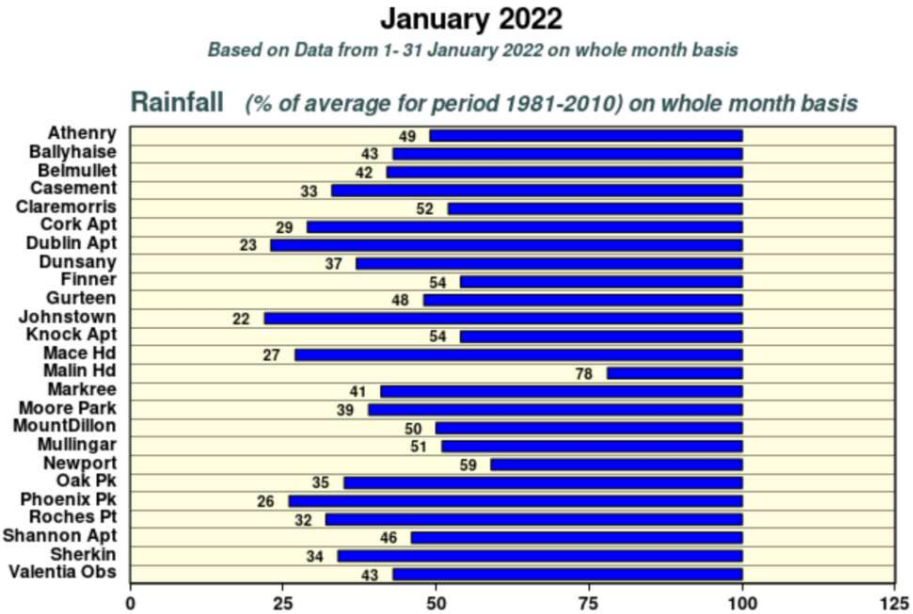


Figure 5: Summary of rainfall at synoptic stations January 2022, figures indicate the percentage difference from the Long-Term Average rainfall for this month ***(Source: Met Eireann.ie).***

River Flows

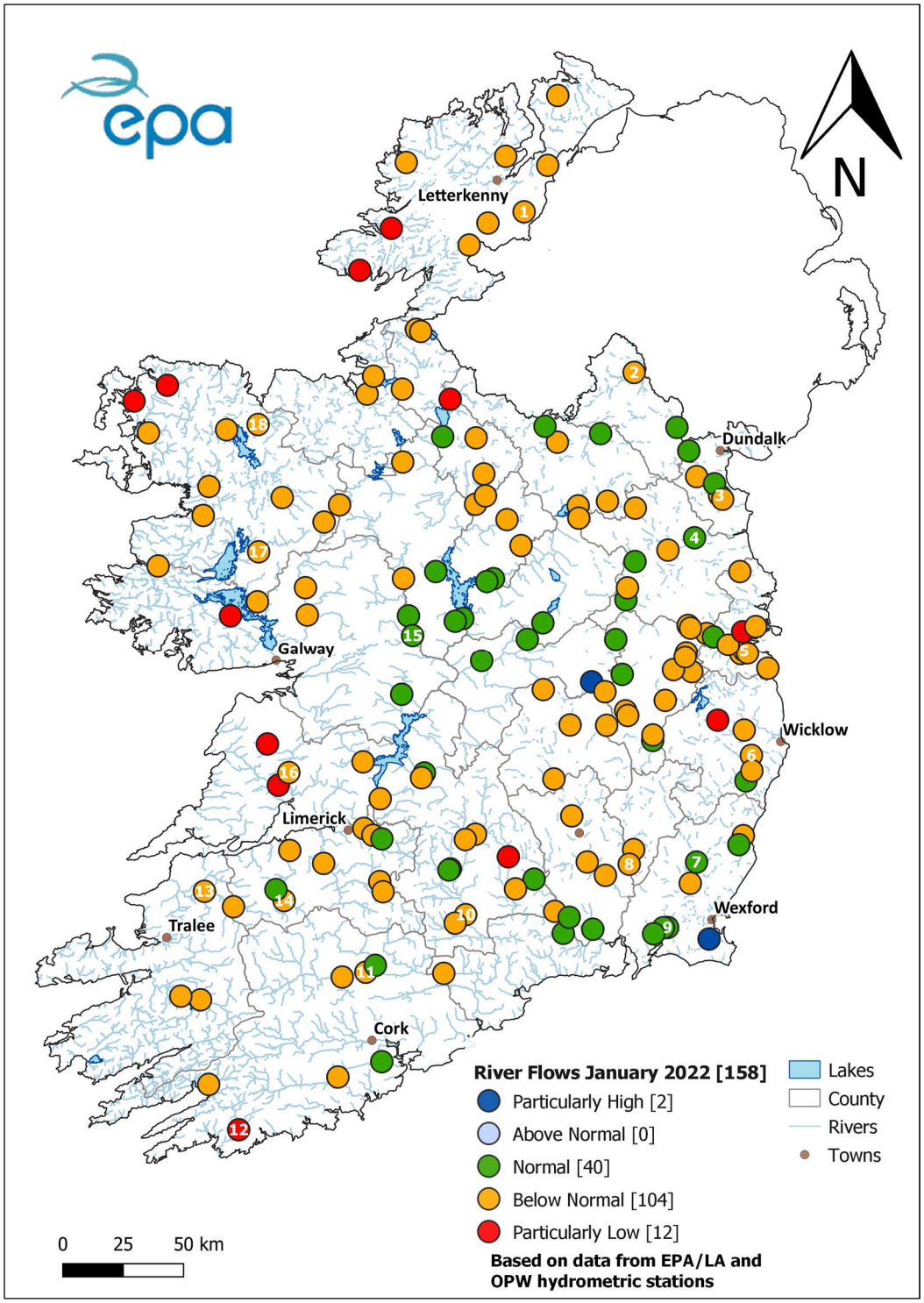


Figure 6: Monthly average river flows for January 2022 relative to historic monthly average flows expressed as percentile of the long-term values of monthly flow. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision ***(Source: EPA, OPW).***

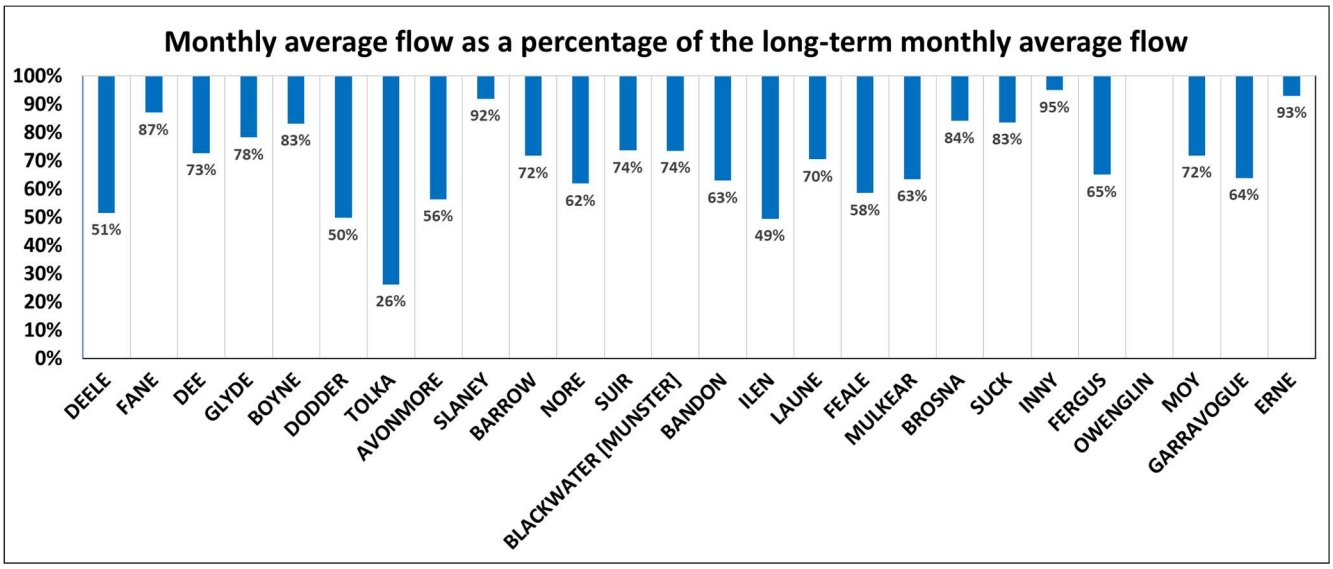
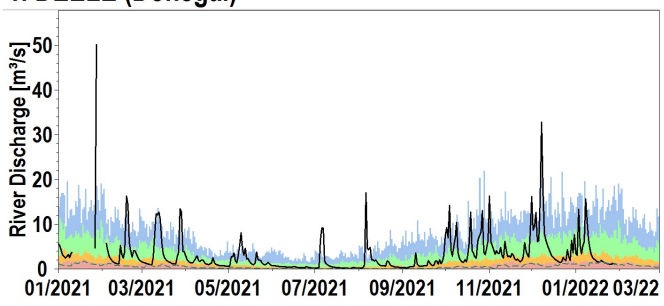


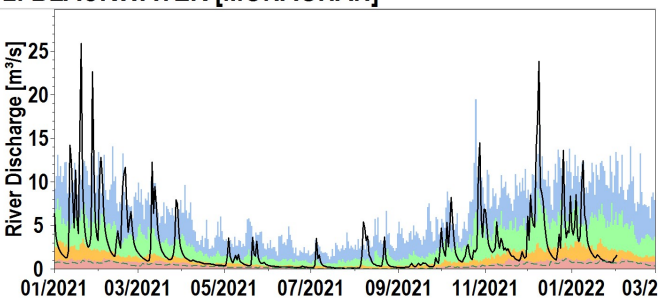
Figure 7: January 2022 average flows as a percentage of the long-term monthly average flow for this month at a selected number of stations. All data are provisional and may be subject to revision ***(Source: EPA, OPW).***

Flow Hydrographs for selected Rivers

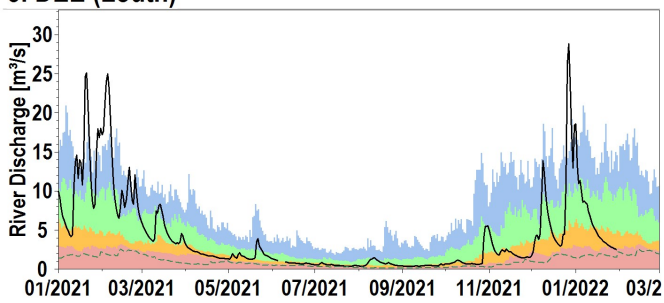
1. DEELE (Donegal)



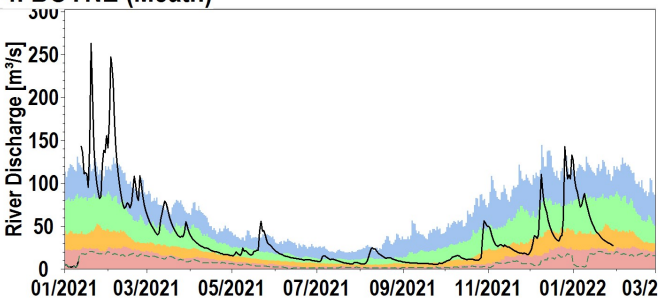
2. BLACKWATER [MONAGHAN]



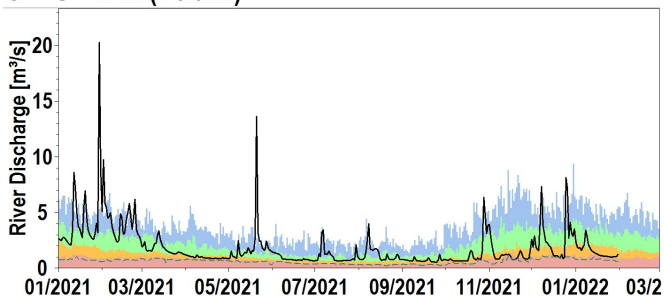
3. DEE (Louth)



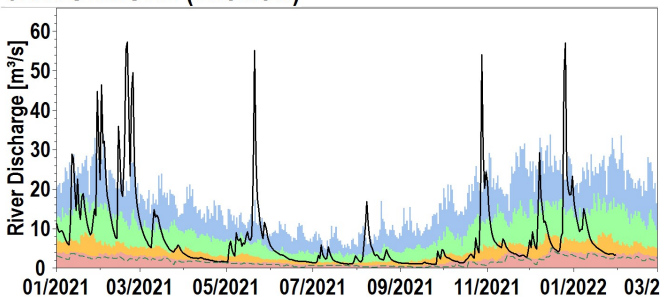
4. BOYNE (Meath)



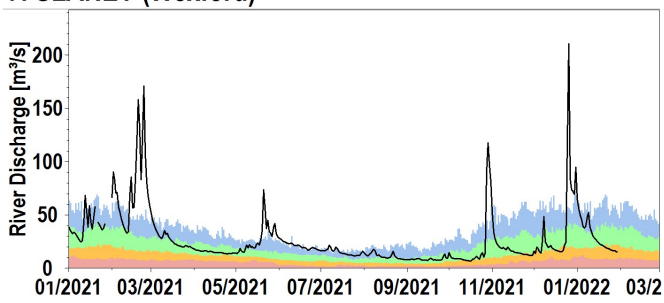
5. DODDER (Dublin)



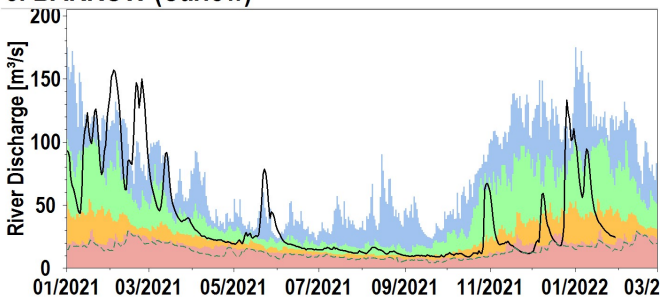
6. AVONMORE (Wicklow)



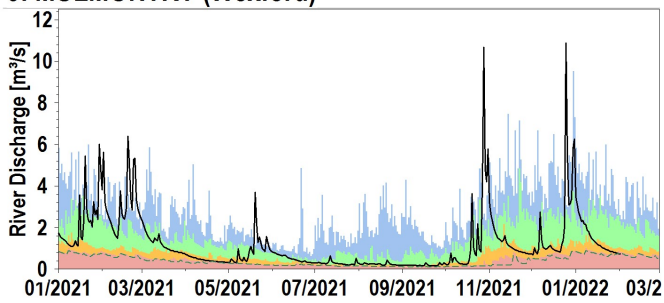
7. SLANEY (Wexford)



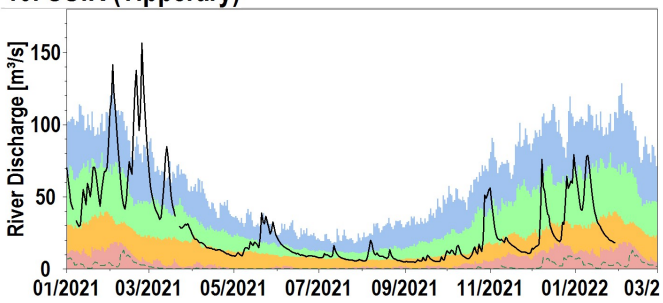
8. BARROW (Carlow)



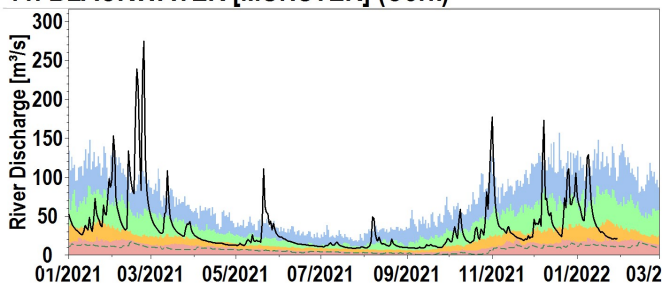
9. MULMONTRY (Wexford)



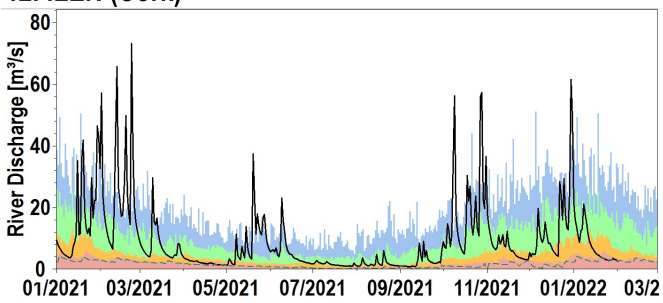
10. SUIR (Tipperary)



11. BLACKWATER [MUNSTER] (Cork)



12. ILEN (Cork)



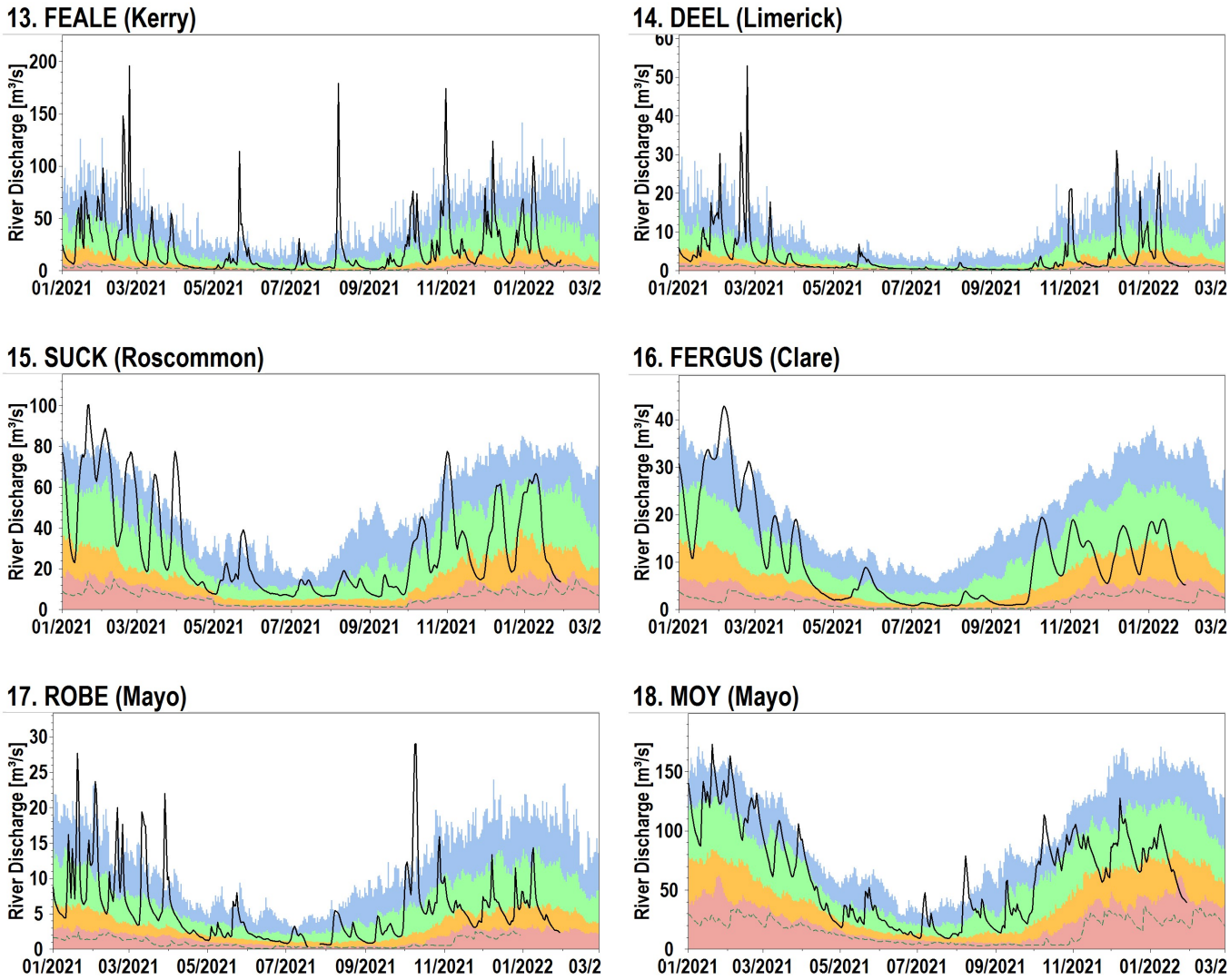


Figure 8: Daily average river flows up to January 2022 relative to historic daily average flows expressed as percentile of the long-term values of each day. All data are provisional and may be subject to revision ***(Source: EPA, OPW).***

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

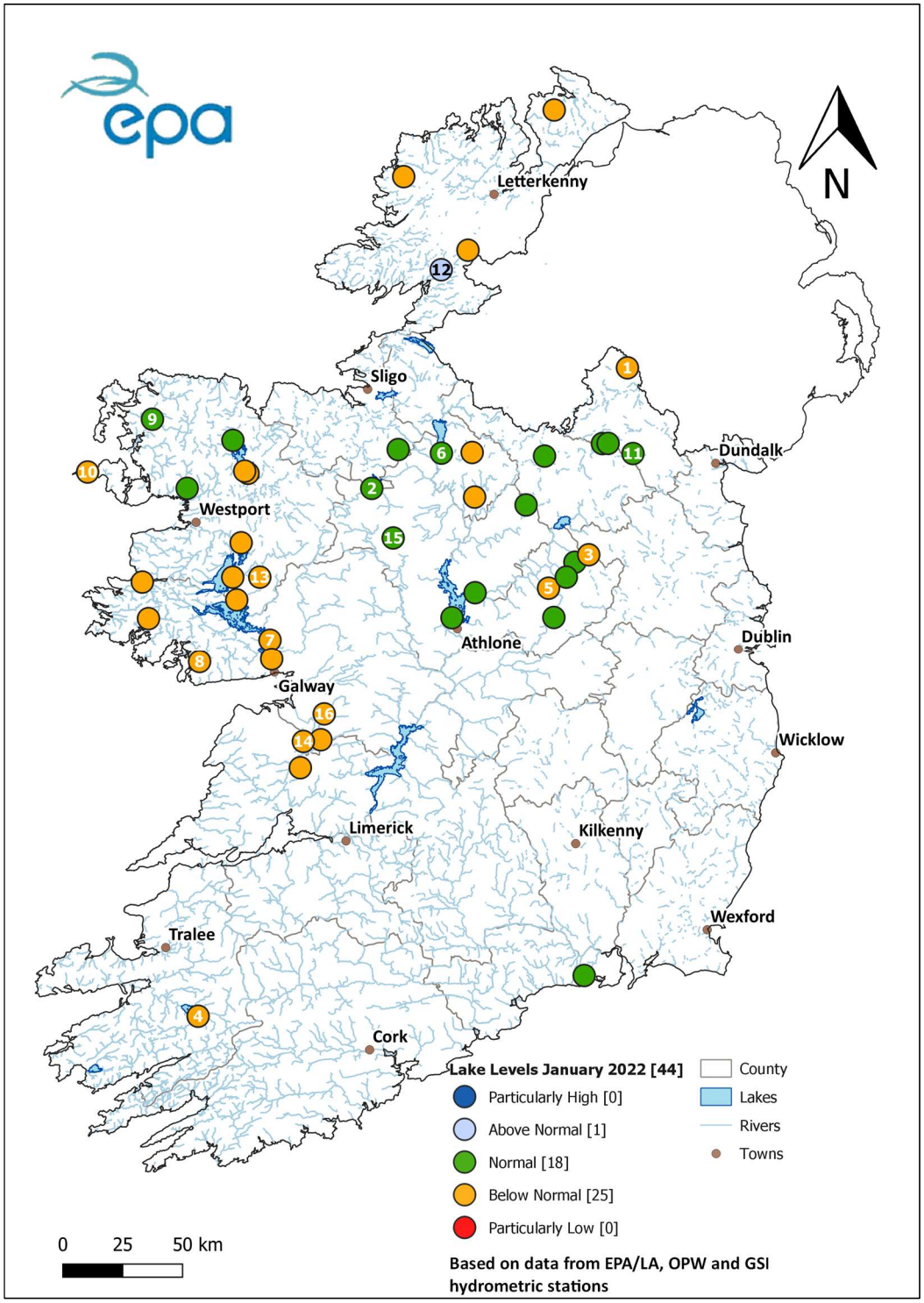
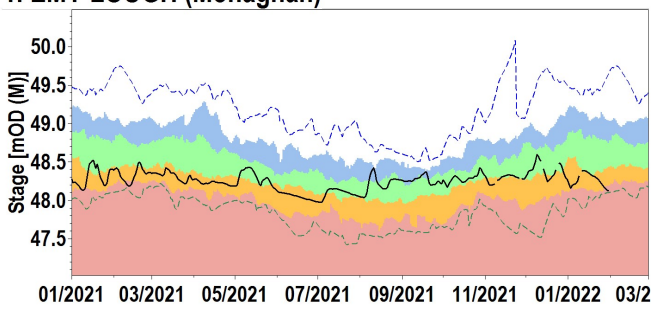


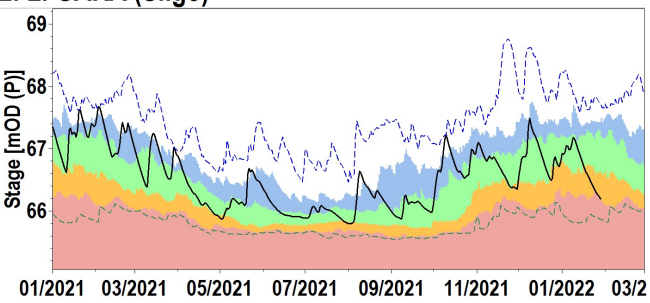
Figure 9: Monthly average lake levels for January 2022 relative to historic monthly average levels expressed as percentile of the long- term values for this month. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision ***(Source: EPA, OPW and GSI).***

Water Level Hydrographs for selected Lakes and Turloughs

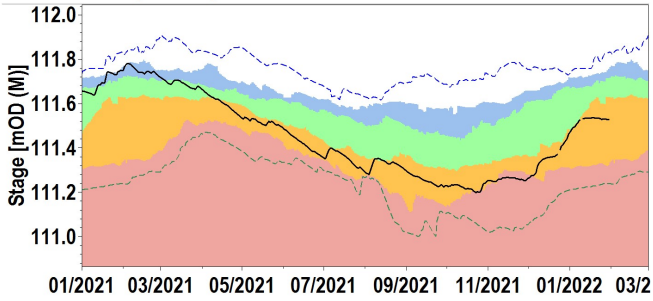
1. EMY LOUGH (Monaghan)



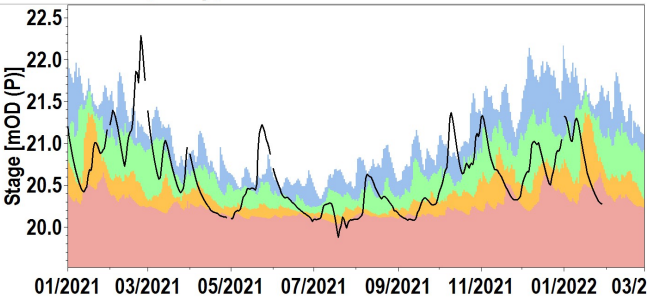
2. L. GARA (Sligo)



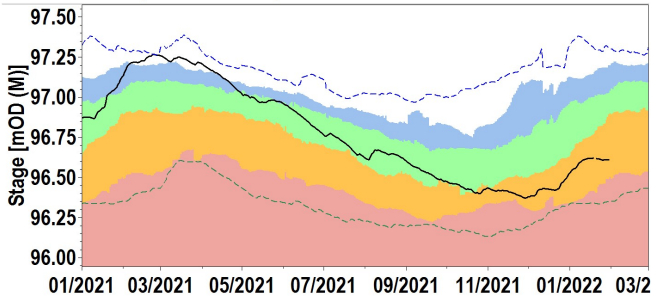
3. L. BANE (Meath)



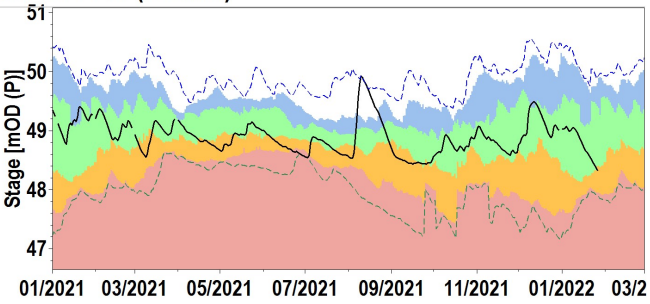
4. L. LEANE (Kerry)



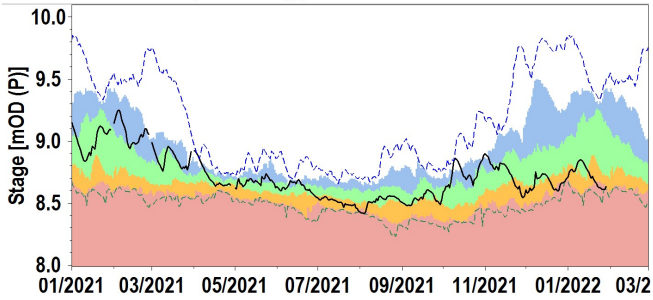
5. L. OWEL (Westmeath)



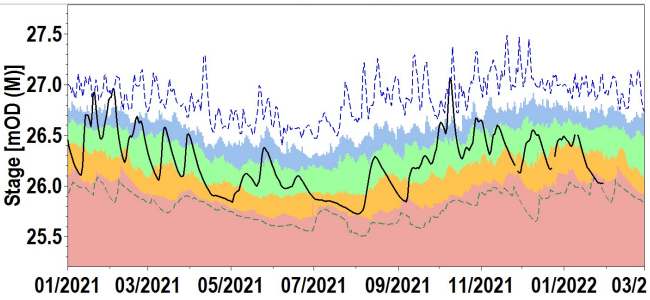
6. L.ALLEN (Leitrim)



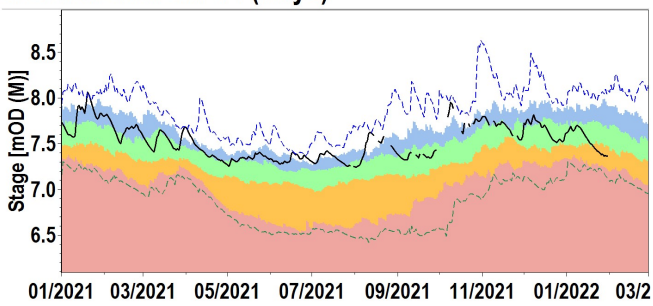
7. L.CORRIB (Galway)



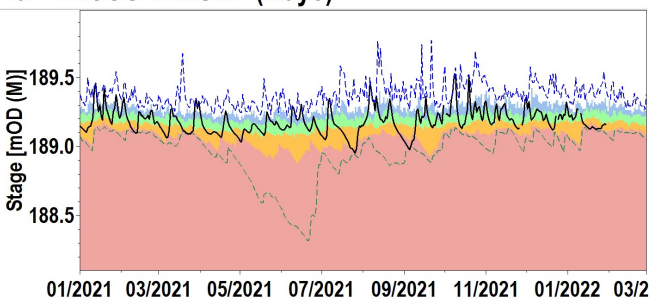
8. GLENICMURRIN LAKE (Galway)



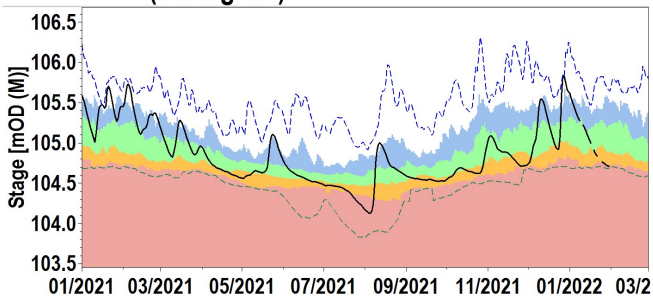
9. CARROWMORE L. (Mayo)



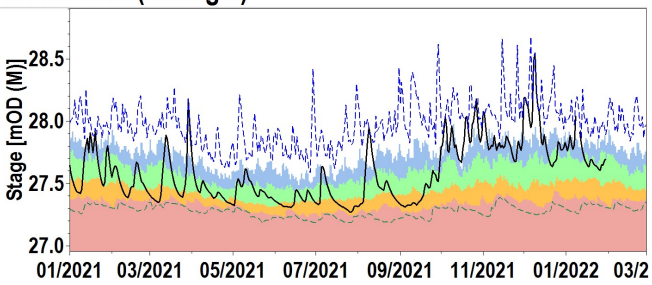
10. L. ACCORYMORE (Mayo)



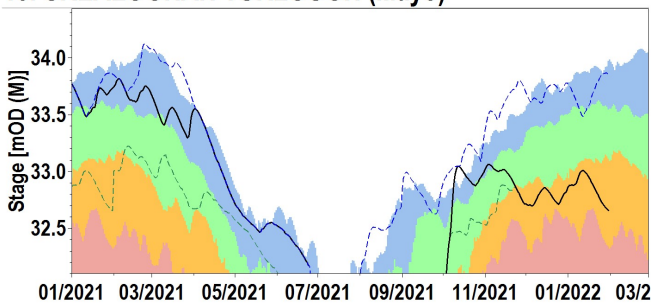
11. L.BAWN (Monaghan)



12. L.ESKE (Donegal)

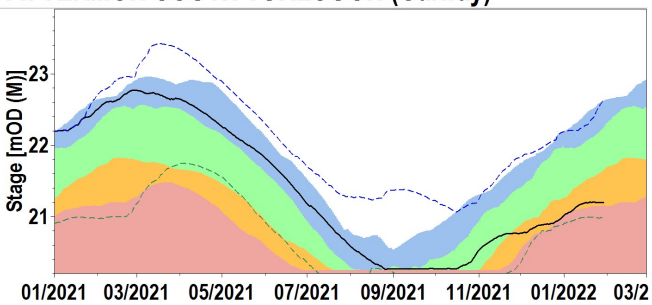


13. SKEALOGHAN TURLOUGH (Mayo)



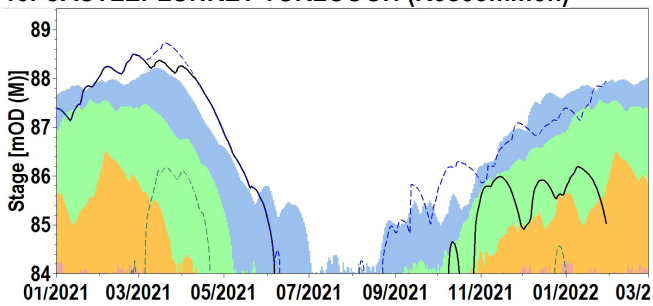
**Modelled long-term percentiles

14. TERMON SOUTH TURLOUGH (Galway)



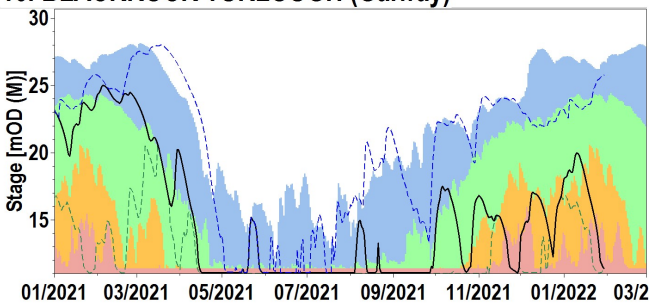
** Modelled long-term percentiles

15. CASTLEPLUNKET TURLOUGH (Roscommon)



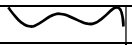
** Modelled long-term percentiles

16. BLACKROCK TURLOUGH (Galway)



** Modelled long-term percentiles

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

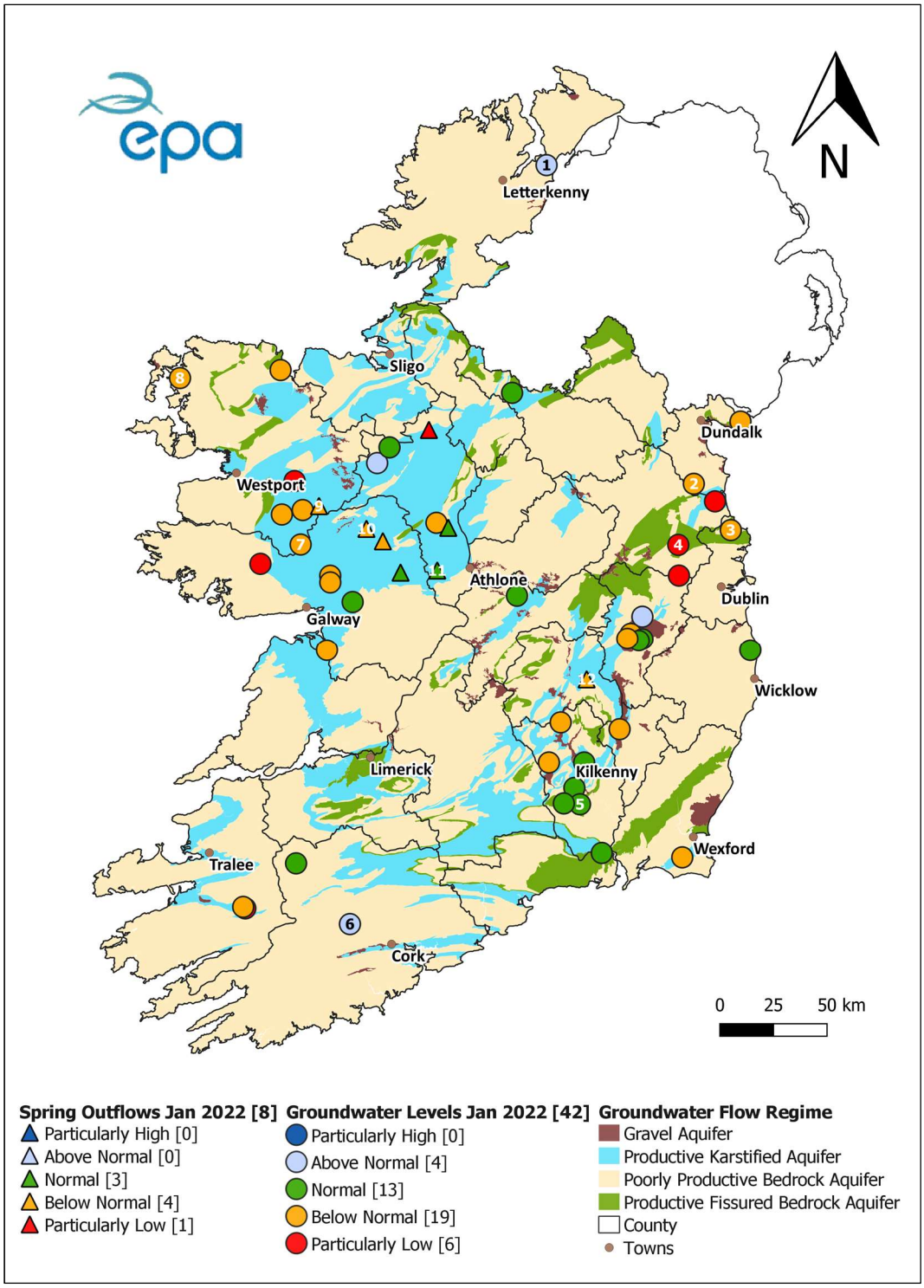
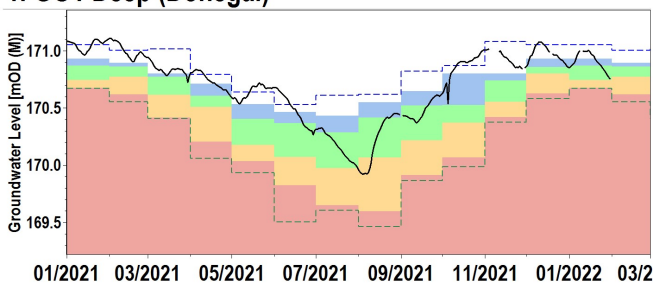


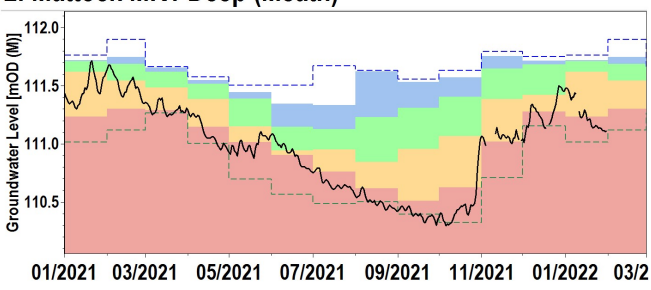
Figure 11: Groundwater level and Spring Flow status for January 2022, relative to historic January groundwater levels. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision ***(Source: EPA).***

Groundwater and Spring Hydrographs

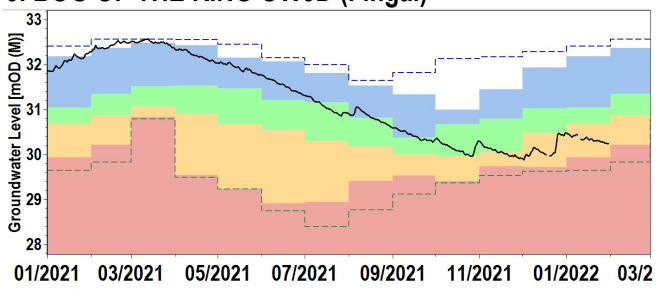
1. GO1 Deep (Donegal)



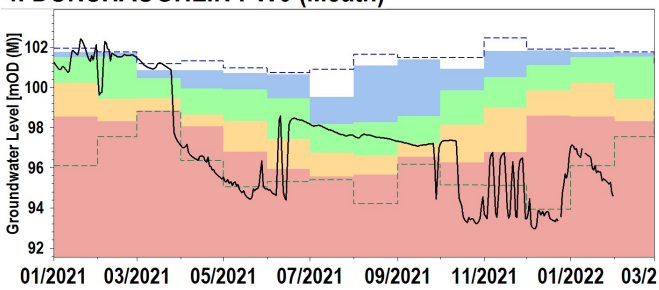
2. Mattock MK1 Deep (Meath)



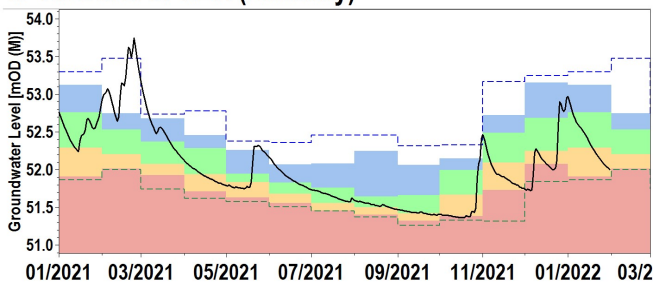
3. BOG OF THE RING OW3D (Fingal)



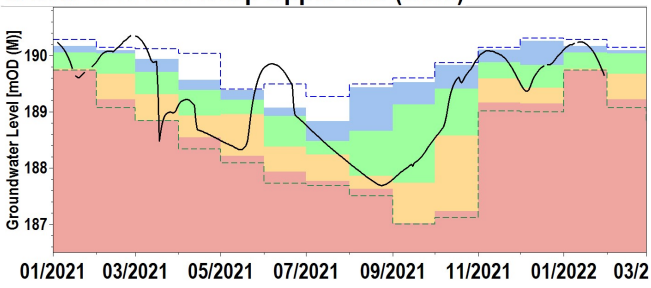
4. DUNSHAUGHLIN PW6 (Meath)



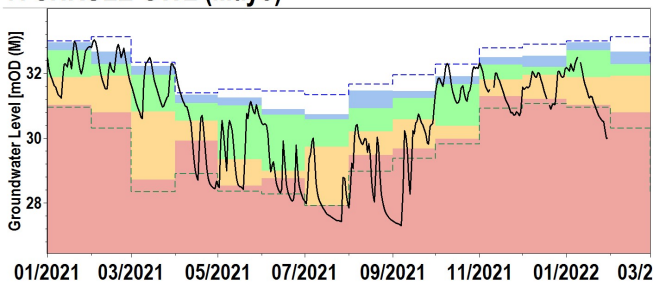
5. KNOCKTOPHER (Kilkenny)



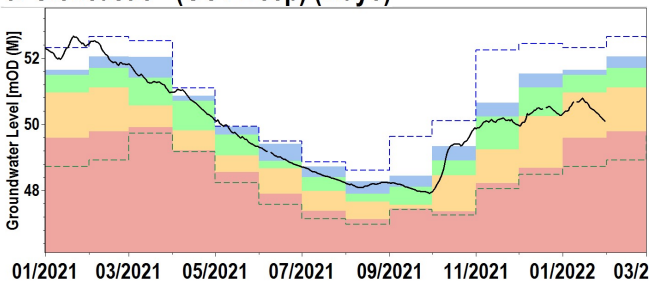
6. DRIPSEY DR1 Deep Upper Site (Cork)



7. SHRULE GWL (Mayo)



8. Glencastle - (GC1 Deep) (Mayo)



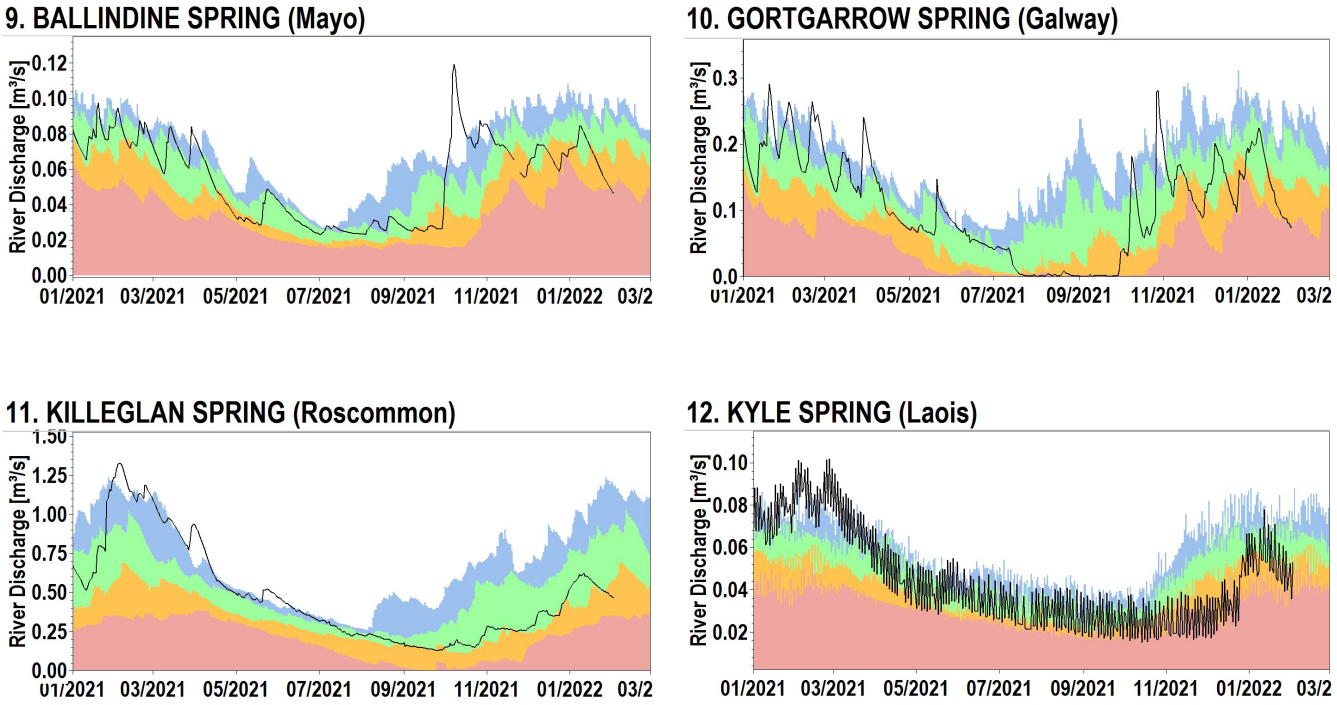


Figure 12: Daily mean groundwater levels (black trace) measured in meters above ordnance datum compared to the 10%tile, 30%tile, 70%tile and 95%tile for each month for the period of record and long-term maximum and minimum levels. All data are provisional and may be subject to revision ***(Source: EPA)****.*

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	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.

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.