

### Overview

February 2022 has been a mild, wet and windy month with rainfalls above their long-term averages and wettest in the Northwest. River flows have increased during the month of February and are 'above normal' or 'particularly high' at almost two-thirds (65%) of river monitoring stations, with 'below normal' flows observed in the Southeast only. Lake levels were 'particularly high' at 23% of monitored lake and turlough stations across the country for this time of year.

Despite increasing groundwater levels between January and February 2022, just under half of monitoring stations (45%) observed levels 'below normal' for February long-term averages. Similarly, monitored spring outflows were also 'below normal' or 'normal' compared to average monthly flows for this time of year.

### Rainfall

Nearly all rainfall totals were above their Long-Term Average (LTA) for the month [see Fig. 5]. Percentage of monthly rainfall values ranged from 100% (monthly rainfall total of 101.4 mm) at Sherkin Island, Co Cork to 206% at both Casement Aerodrome, Co Dublin (monthly rainfall total of 99.9 mm) and Newport, Co Mayo (the highest monthly total of 260.4 mm). Monthly rainfall totals were lowest at Oak Park, Co Carlow with 82.5 mm (144% of its LTA). The month's wettest day was also recorded at Newport, Co Mayo with 32.3 mm on Saturday 19th. The number of rain days ranged from 21 days at Johnstown Castle, Co Wexford to 28 days at a few stations. The number of wet days ranged from 14 days at Johnstown Castle, Co Wexford to 26 days at Belmullet, Co Mayo. The number of very wet days ranged from 1 day at Moore Park, Co Cork to 10 days at Newport, Co Mayo.

### River Flows

Average river flows in February increased at 88% of monitoring stations compared to average flows observed in January 2022. Monthly average flows were mostly above the long-term monthly average for February, except for rivers in the Southwest of the country which were in the 'below normal' to 'normal' range. Analysis of monthly average flows at 158 river monitoring sites across the country identified; 33 (21%) 'particularly high', 69 (44%) were 'above normal', 49 (31%) were 'normal' and 7 (4%) were 'classified as 'below normal' for this time of year.

## Monthly Hydrology Bulletin: Edition 022: February 2022

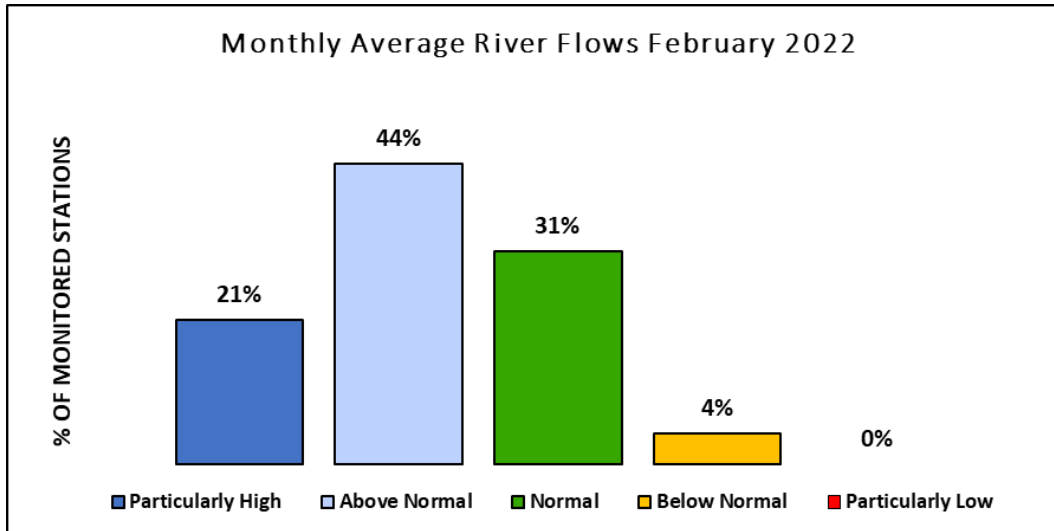


Figure 1: Percentage distribution of river flow monitoring sites within each of the percentile flow categories for February 2022.

## Lake and Turlough Levels

Average water levels increased at 78% of monitored lakes compared to levels observed in January. Analysis of monthly average levels at 43 lake and 4 turloughs were classified as ‘particularly high’ at 11 (23%), ‘above normal’ at 8 (17%), ‘normal’ at 14 (30%) and ‘below normal’ at 14 (30%) monitoring locations for the month of February.

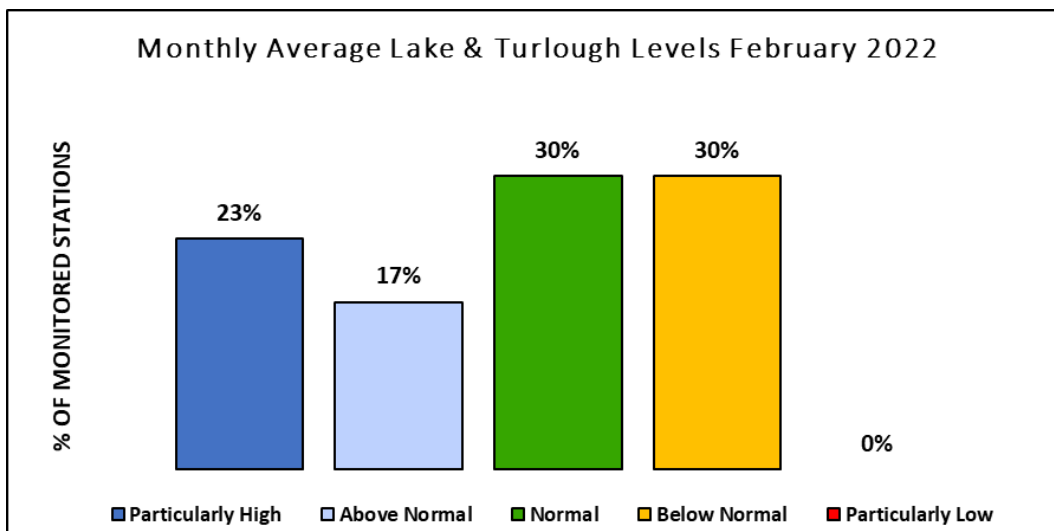


Figure 2: Percentage distribution of lake level monitoring sites within each of the percentile flow categories for February 2022.

## Groundwater Levels and Spring Flows

Average groundwater levels in February increased in 74% of monitoring wells compared to average levels observed in January 2022. February groundwater levels were classified as ‘particularly high’ at 1 (2%) [Bawn Boy Workhouse, Co. Cavan], ‘above normal’ at 7 (16%), ‘normal’ at 12 (27%), ‘below normal’ at 20 (45%) and ‘particularly low’ at 4 (9%) monitoring wells across the country.

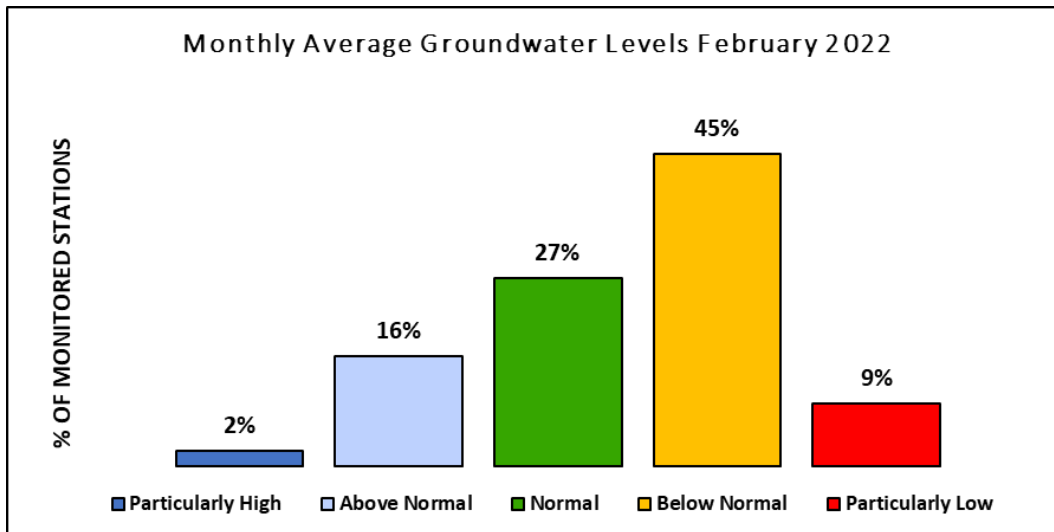


Figure 3: Percentage distribution of groundwater level sites within each of the percentile flow categories for February 2022.

Spring outflows were also monitored at 8 EPA monitoring sites. The outflows from these springs were compared to previously recorded flows for February, and 5 springs were ‘normal’ and 3 were ‘below normal’ for this time of year.

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## Rainfall

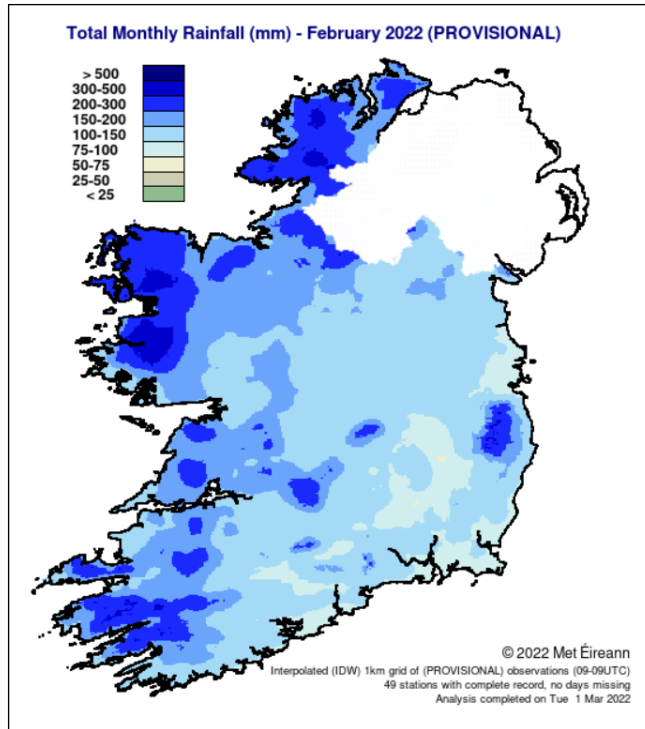


Figure 4: Rainfall map for Ireland February 2022 (Source: Met Éireann.ie).

### February 2022

Based on Data from 1- 28 February 2022 on whole month basis

#### Rainfall (% of average for period 1981-2010) on whole month basis

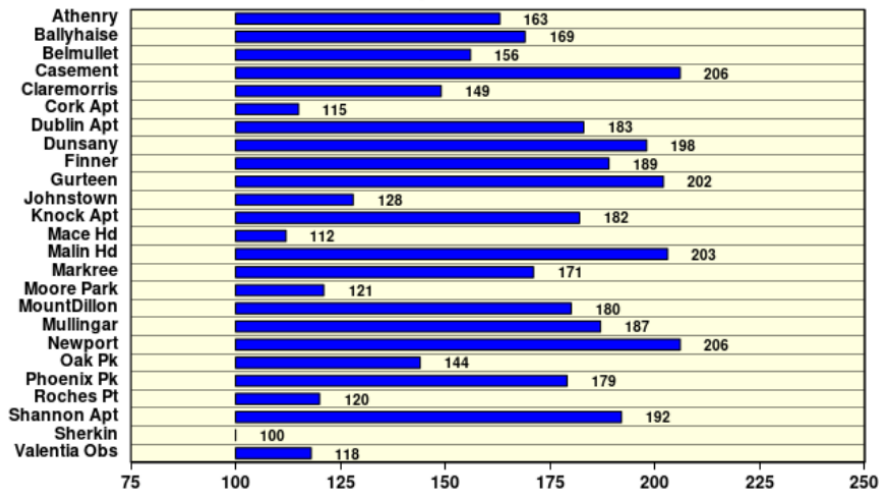


Figure 5: Summary of rainfall at synoptic stations February 2022, figures indicate the percentage difference from the Long-Term Average rainfall for this month (Source: Met Éireann.ie).

## River Flows

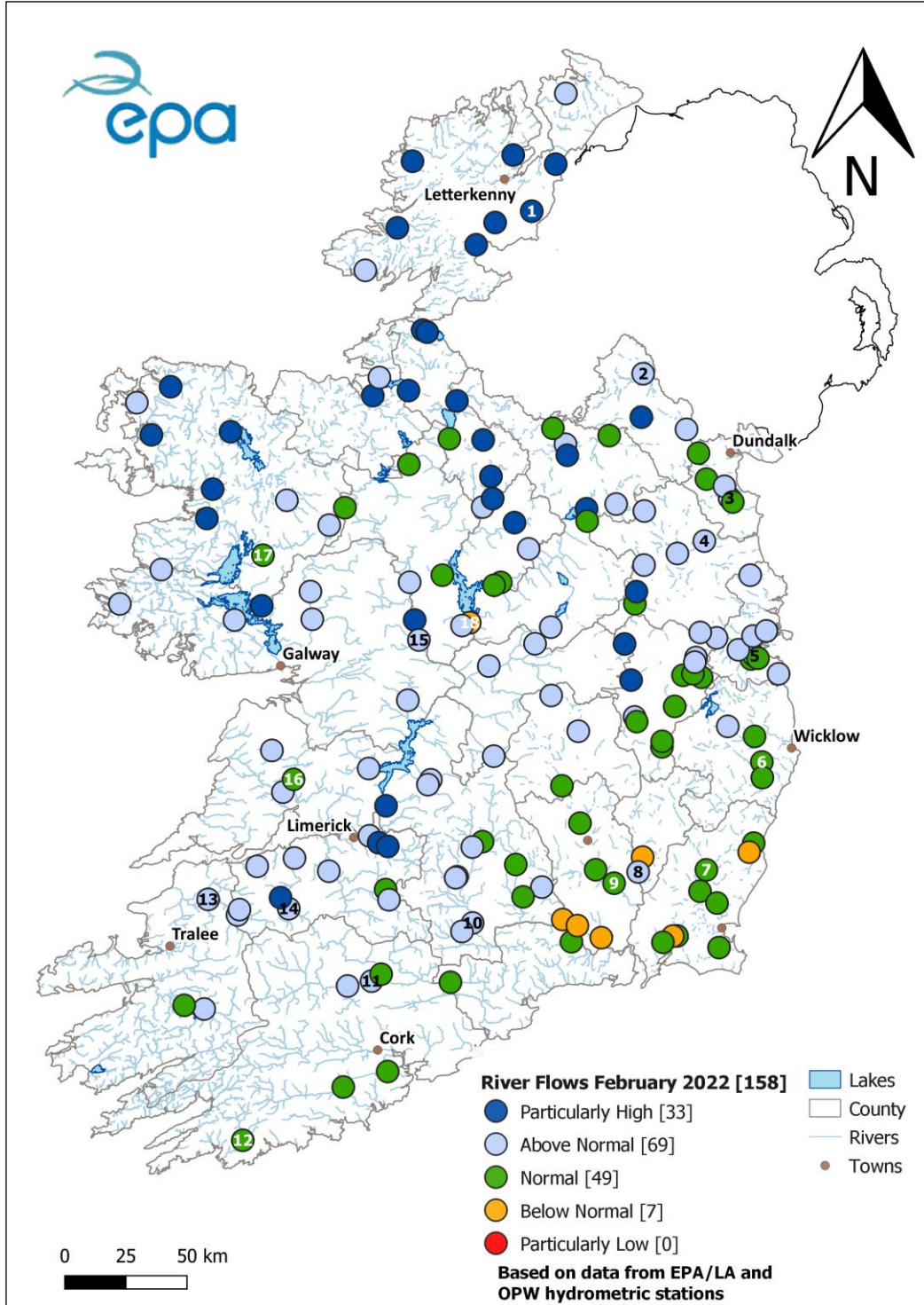


Figure 6: Monthly average river flows for February 2022 relative to historic monthly average flows expressed as percentile of the long-term values of monthly flow. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision (Source: EPA, OPW).

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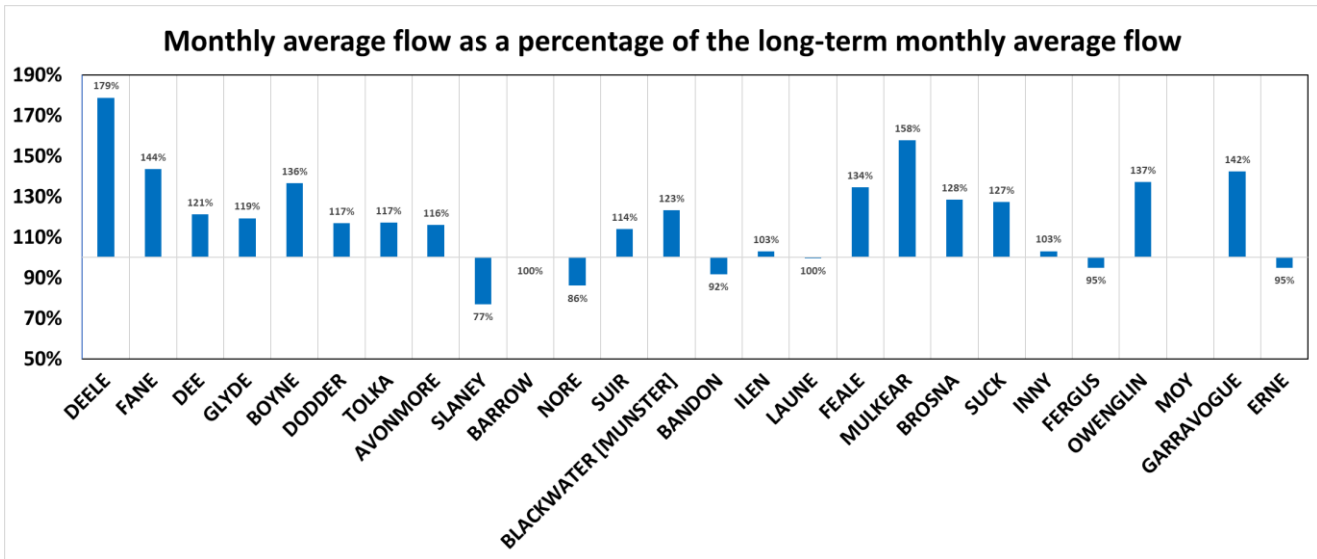
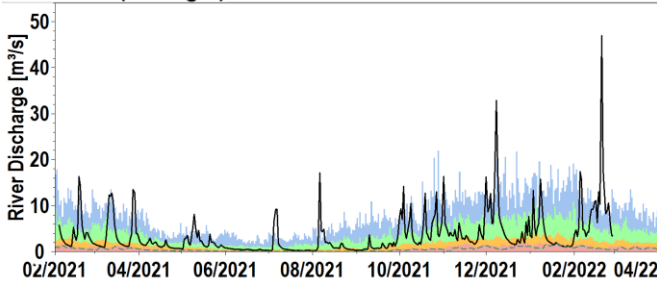


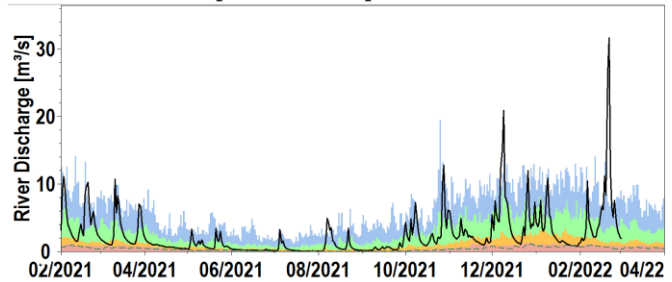
Figure 7: February 2022 average flows as a percentage of the long-term monthly average flow for this month at a selected number of stations. All data are provisional and may be subject to revision (Source: EPA, OPW).

## Flow Hydrographs for selected Rivers

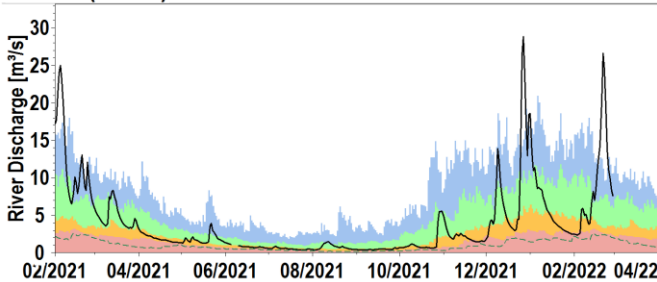
### 1. DEELE (Donegal)



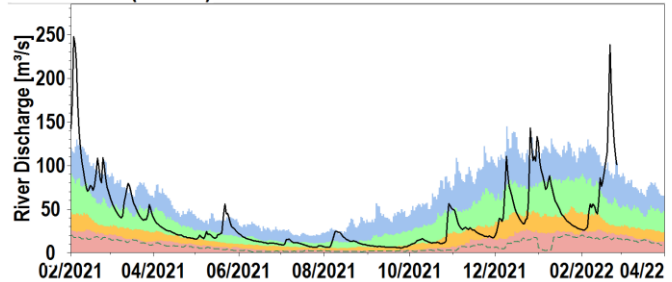
### 2. BLACKWATER [MONAGHAN]



### 3. DEE (Louth)



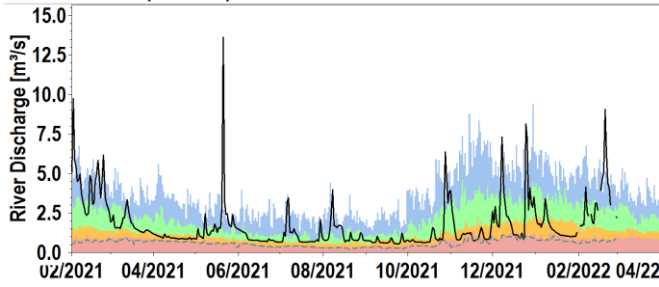
### 4. BOYNE (Meath)



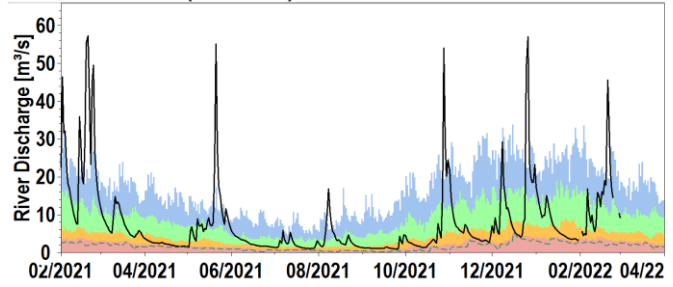


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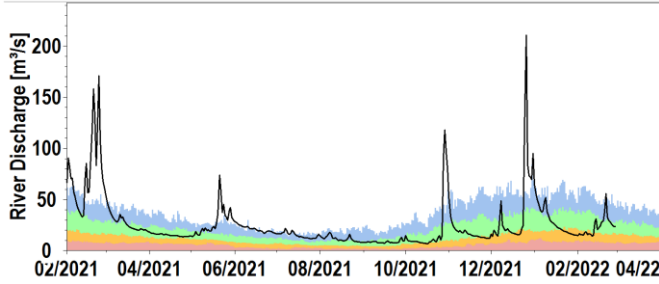
**5. DODDER (Dublin)**



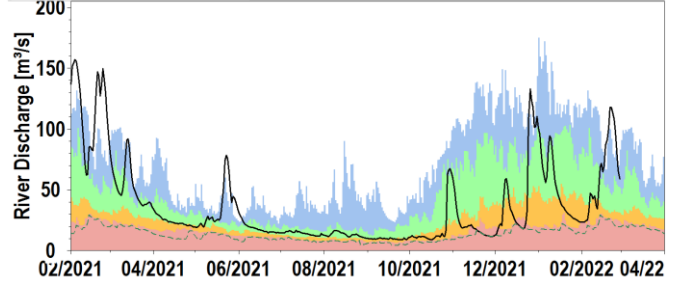
**6. AVONMORE (Wicklow)**



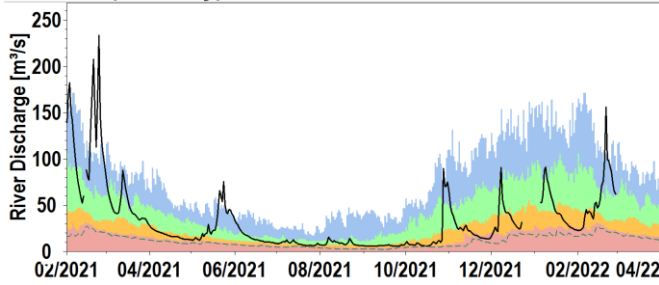
**7. SLANEY (Wexford)**



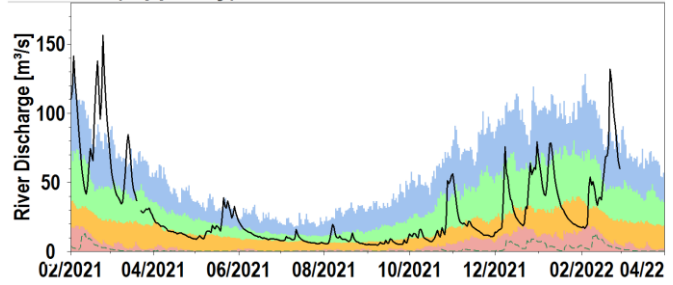
**8. BARROW (Carlow)**



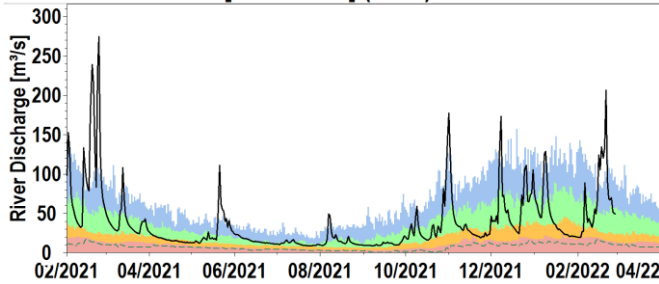
**9. NORE (Kilkenny)**



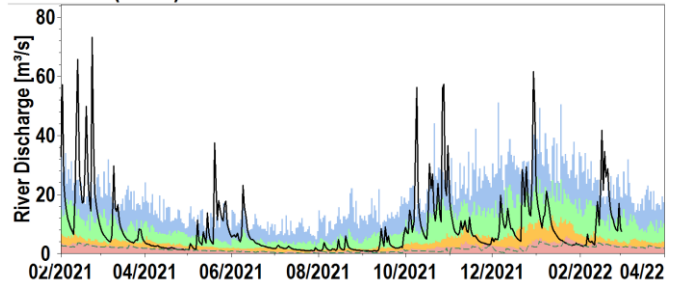
**10. SUIR (Tipperary)**



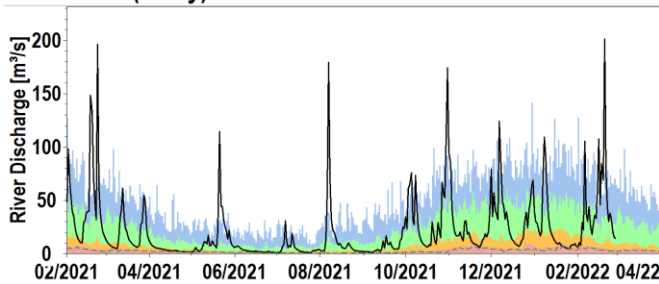
**11. BLACKWATER [MUNSTER] (Cork)**



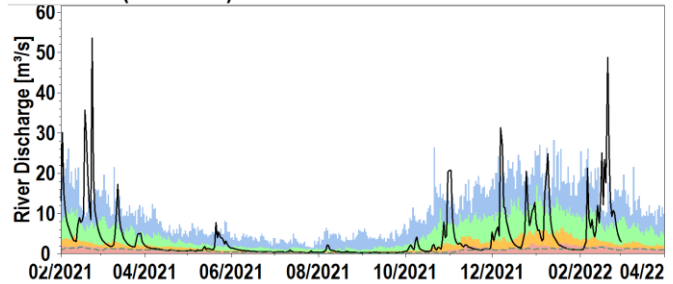
**12. ILEN (Cork)**



**13. FEALE (Kerry)**

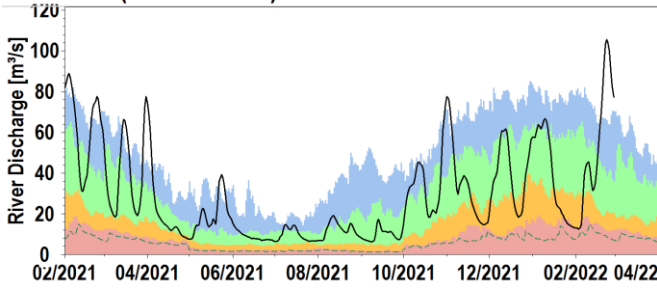


**14. DEEL (Limerick)**

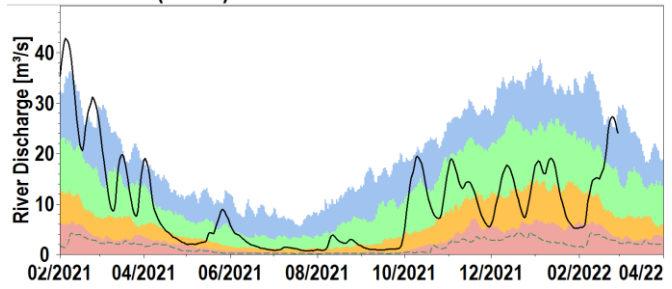


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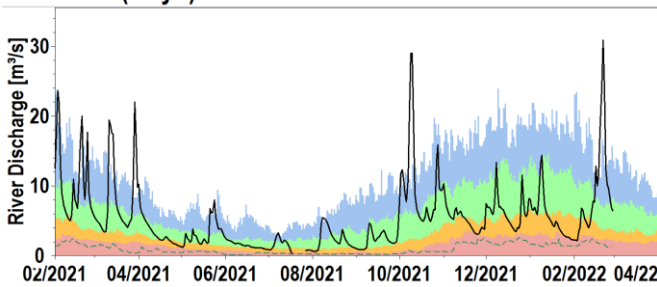
**15. SUCK (Roscommon)**



**16. FERGUS (Clare)**



**17. ROBE (Mayo)**



**18. SHANNON (Westmeath)**

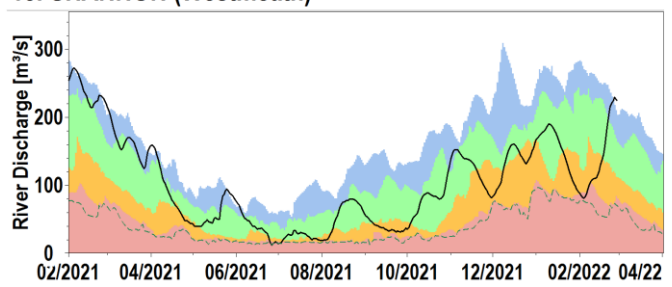
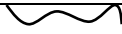
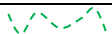


Figure 8: Daily average river flows up to February 2022 relative to historic daily average flows expressed as percentile of the long-term values of each day. All data are provisional and may be subject to revision (Source: EPA, OPW).

Explanation - Classes						
						
Particularly Low	Below Normal	Normal	Above Normal	Particularly High	Daily Mean Flow	Lowest Daily Mean Flow
<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

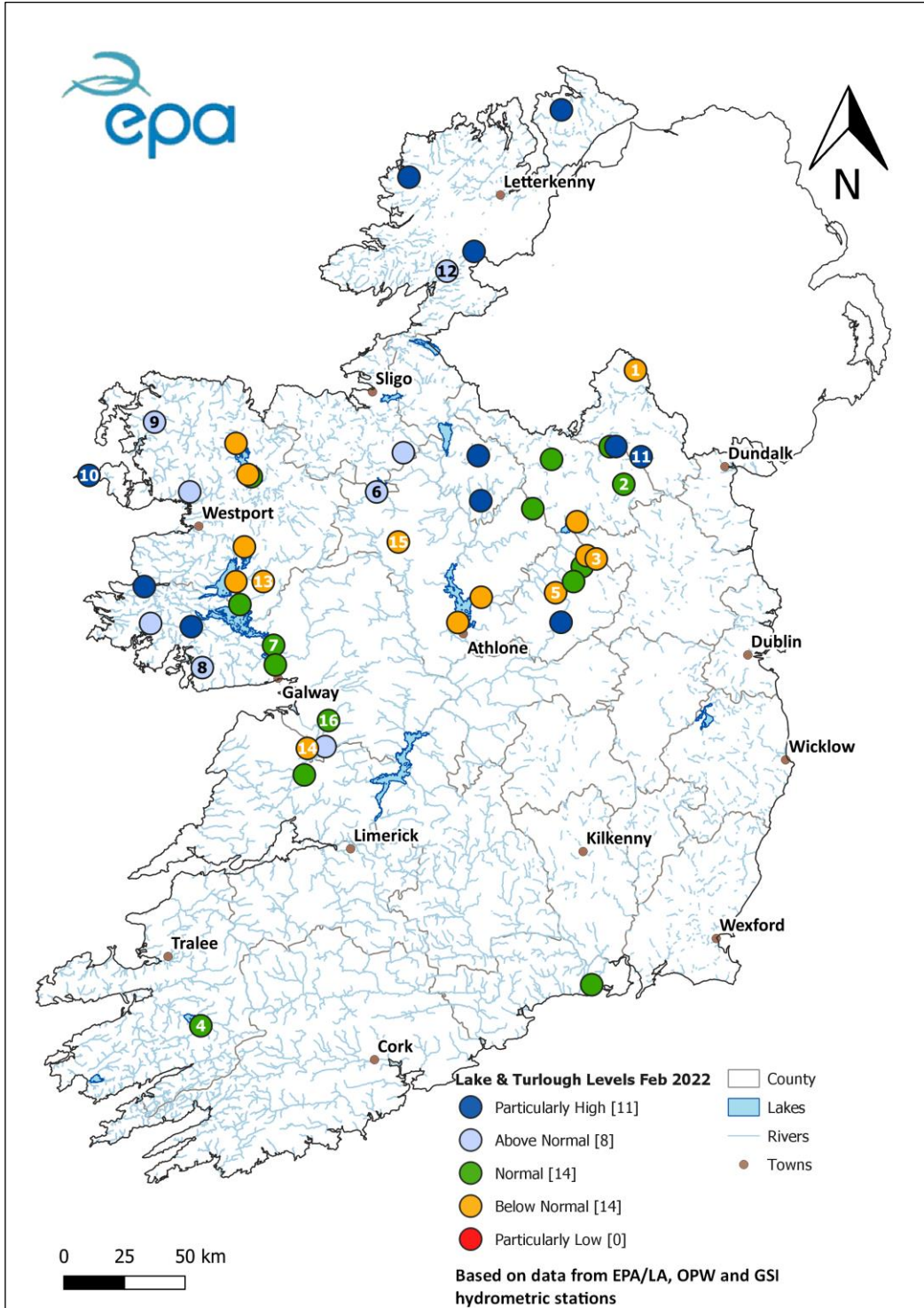
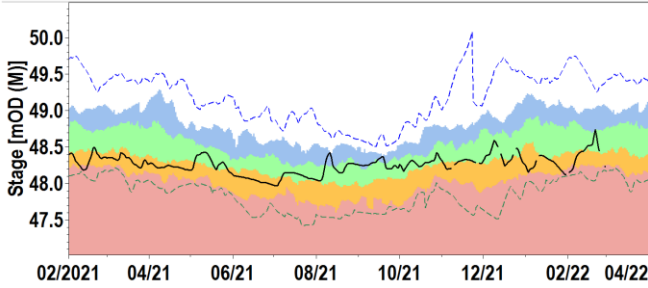


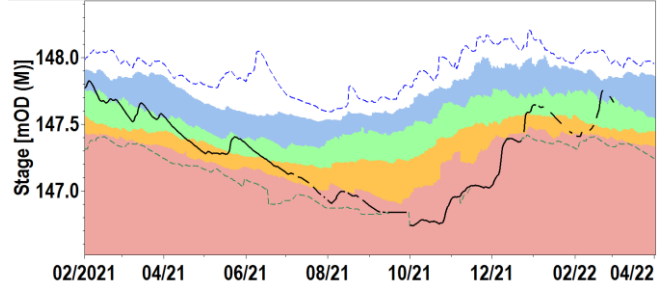
Figure 9: Monthly average lake levels for February 2022 relative to historic monthly average levels expressed as percentile of the long-term values for this month. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision (Source: EPA, OPW and GSI).

## Water Level Hydrographs for selected Lakes and Turloughs

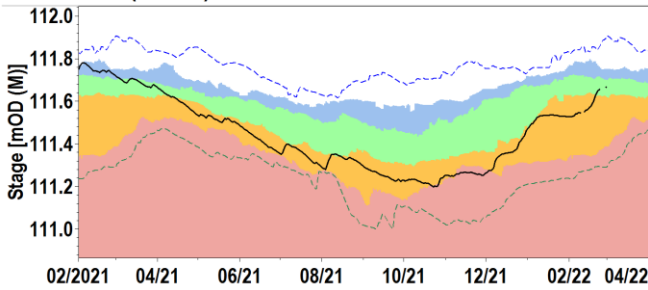
1. EMY LOUGH (Monaghan)



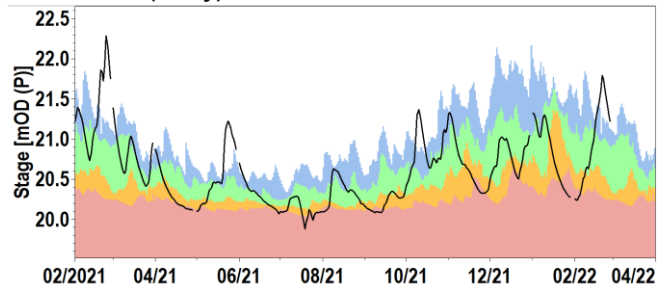
2. SKEAGH L. (Cavan)



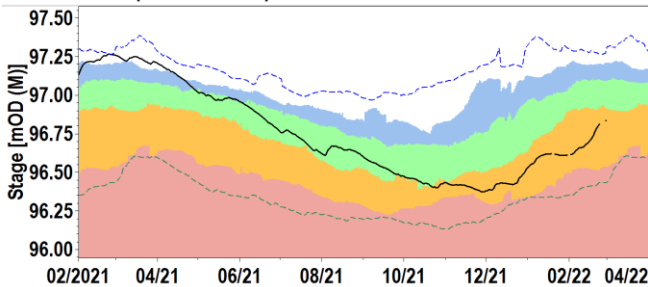
3. L. BANE (Meath)



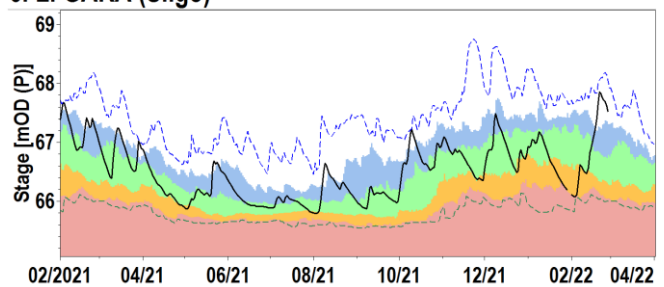
4. L. LEANE (Kerry)



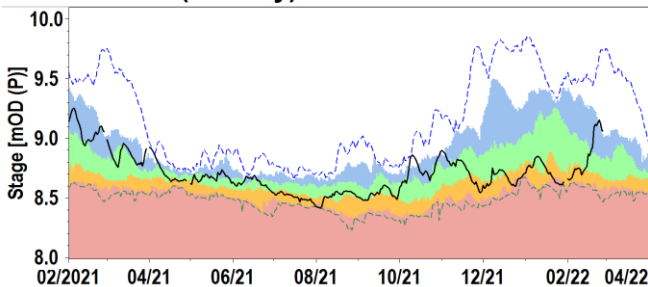
5. L. OWEL (Westmeath)



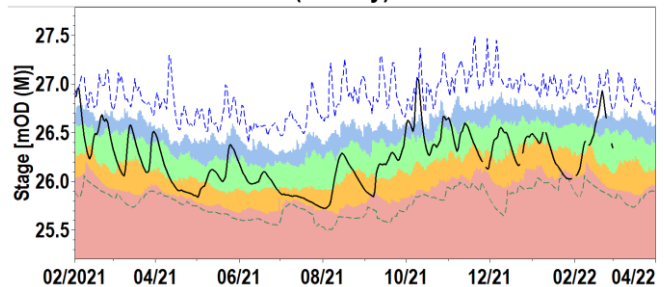
6. L. GARA (Sligo)



7. L. CORRIB (Galway)

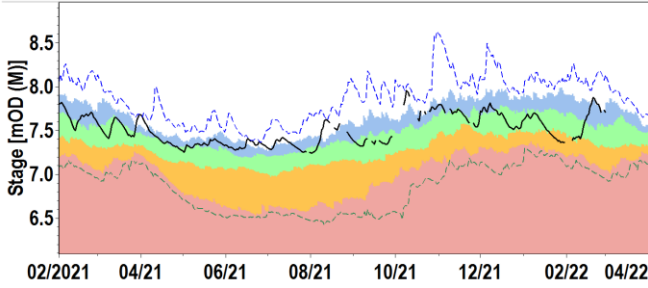


8. GLENICMURRIN LAKE (Galway)

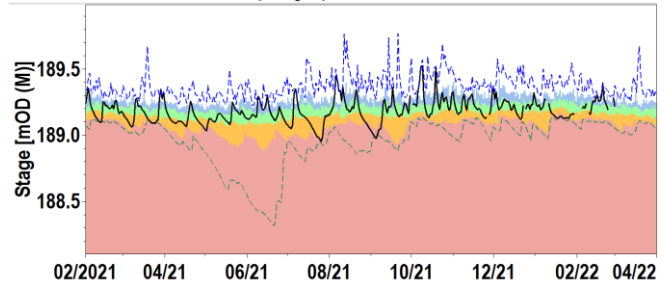


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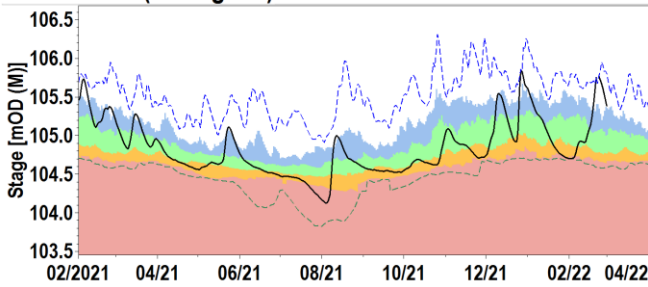
## 9. CARROWMORE L. (Mayo)



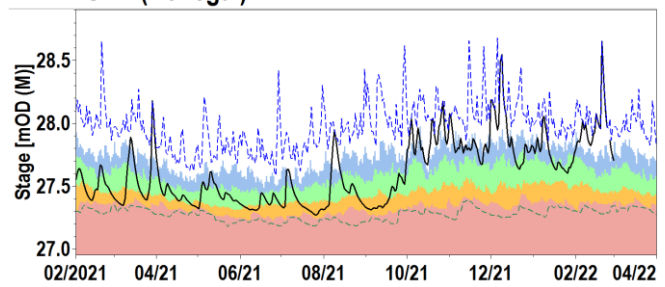
## 10. L. ACCORMORE (Mayo)



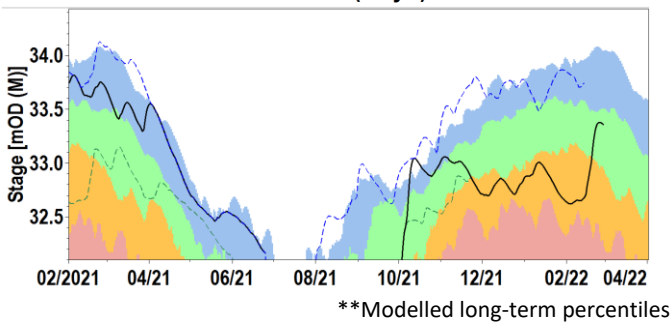
## 11. L. BAWN (Monaghan)



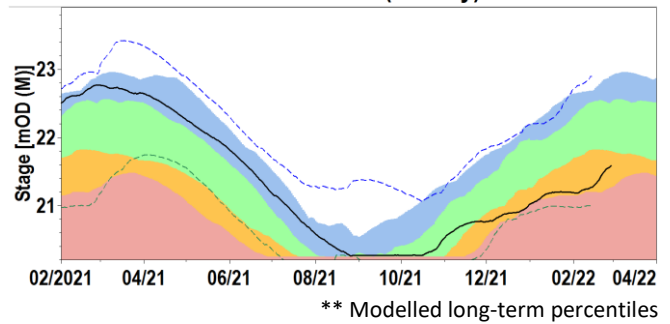
## 12. L. ESKE (Donegal)



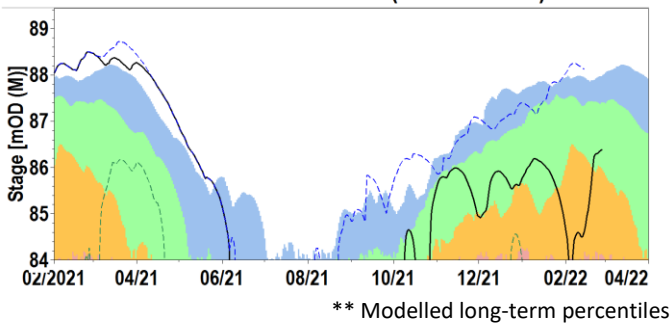
## 13. SKEALOGHAN TURLOUGH (Mayo)



## 14. TERMON SOUTH TURLOUGH (Galway)



## 15. CASTLEPLUNKET TURLOUGH (Roscommon)



## 16. BLACKROCK TURLOUGH (Galway)

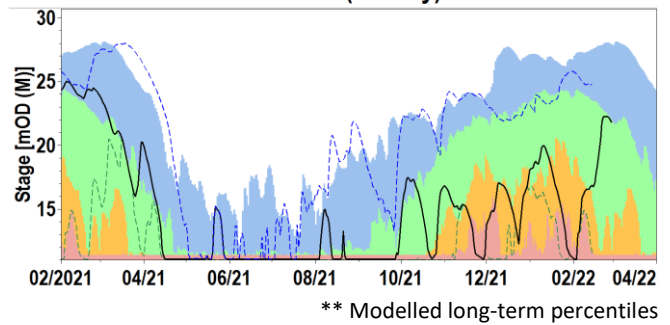





Figure 10: Observed daily mean lake and turlough levels (black trace) measured in meters above ordnance datum compared to the 10%tile, 30%tile, 70%tile and 95%tile for each month for the period of record and observed long-term maximum and minimum levels. Note historic percentiles for turloughs are based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

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Explanation - Classes							
							
<b>Particularly Low</b>	<b>Below Normal</b>	<b>Normal</b>	<b>Above Normal</b>	<b>Particularly High</b>	<b>Daily Mean Level mOD</b>	<b>Highest Daily Mean Level mOD</b>	<b>Lowest Daily Mean Level mOD</b>
<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

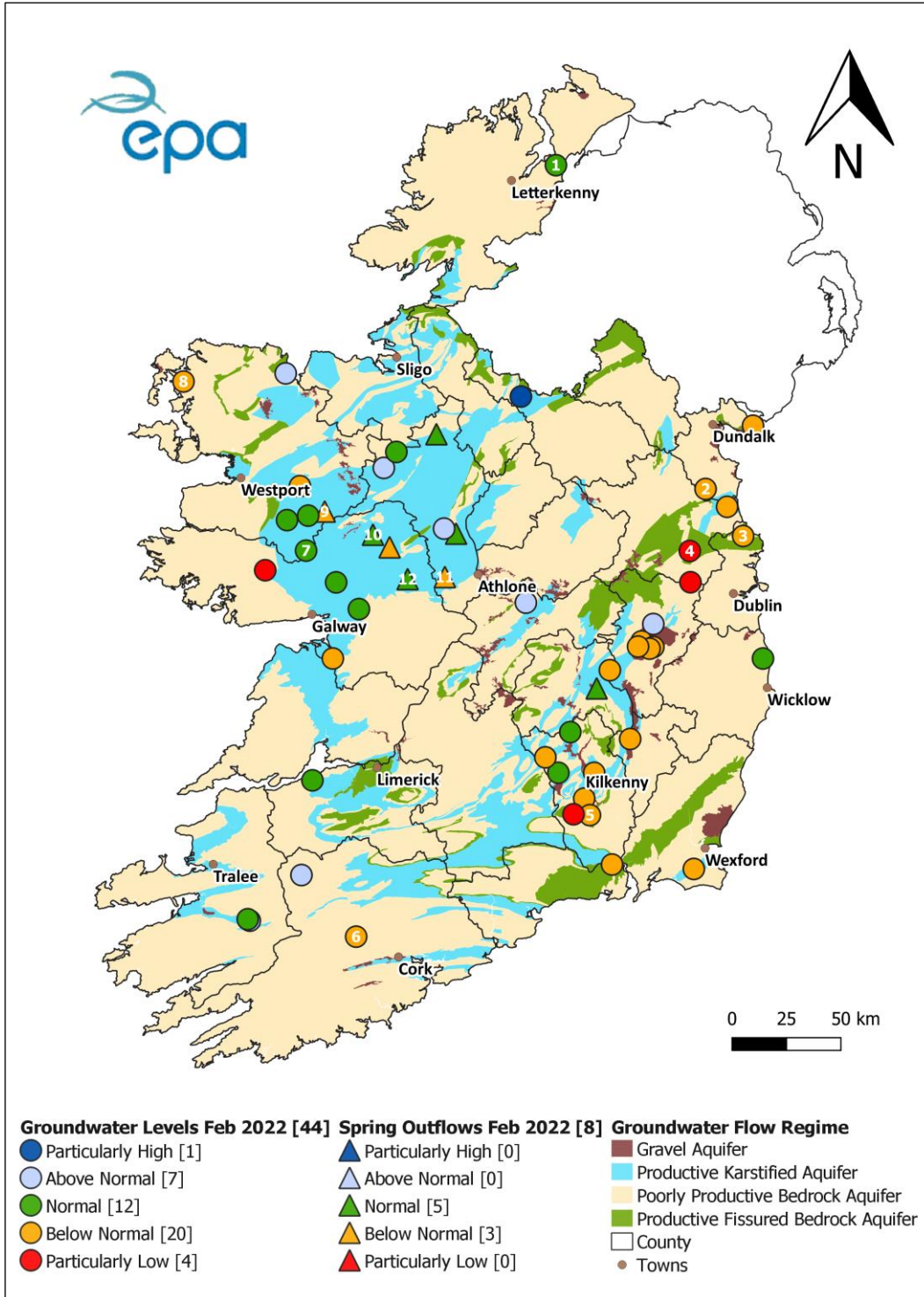
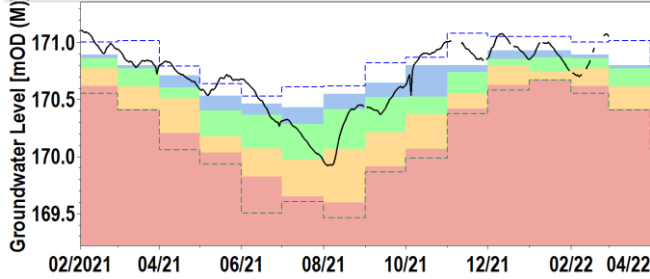


Figure 11: Groundwater level and Spring Flow status for February 2022, relative to historic February groundwater levels. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision (Source: EPA).

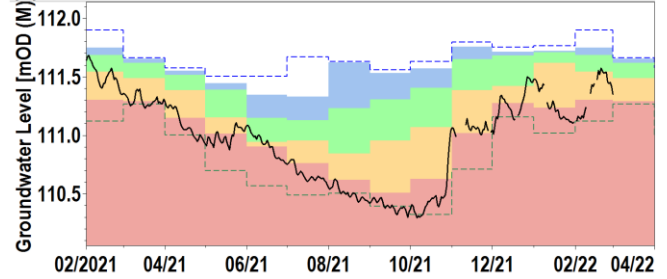


## Groundwater and Spring Hydrographs

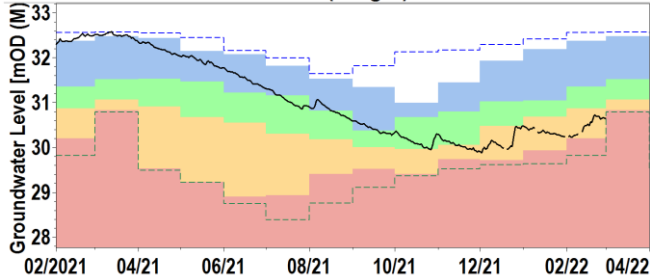
1. GO1 Deep (Donegal)



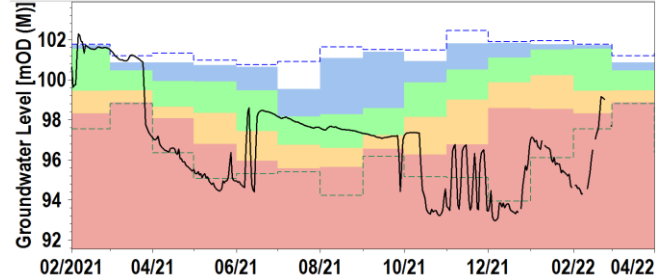
2. Mattock MK1 Deep (Meath)



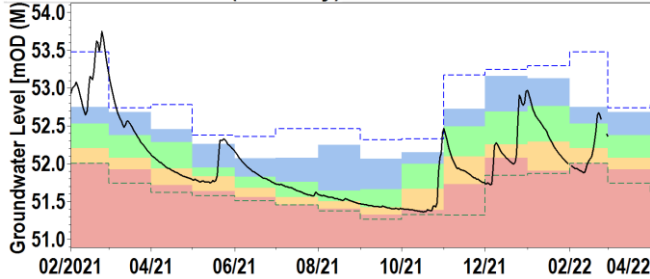
3. BOG OF THE RING OW3D (Fingal)



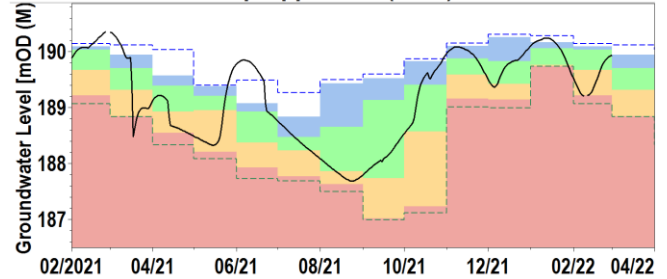
4. DUNSHAUGHLIN PW6 (Meath)



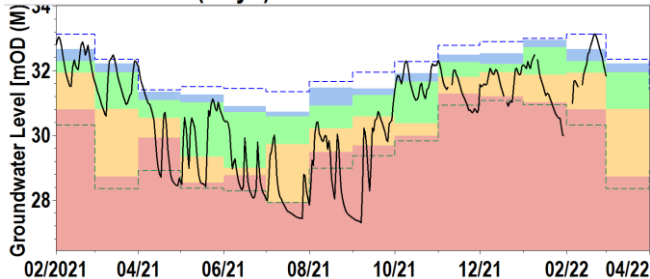
5. KNOCKTOPHER (Kilkenny)



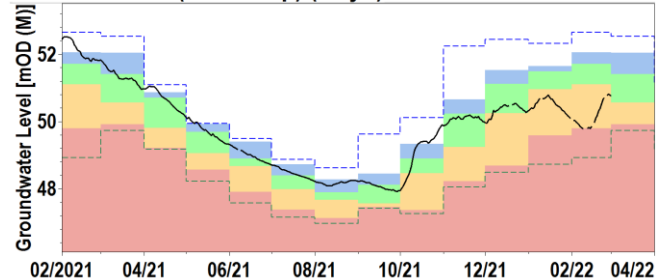
6. DRIPSEY DR1 Deep Upper Site (Cork)



7. SHRULE GWL (Mayo)

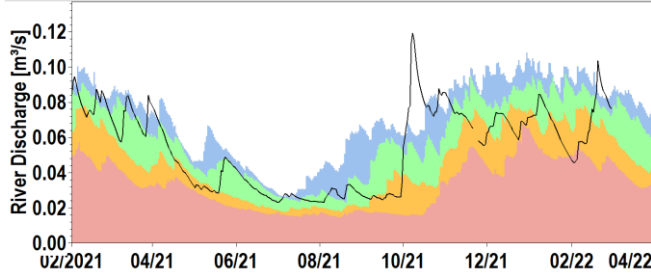


8. Glencastle - (GC1 Deep) (Mayo)

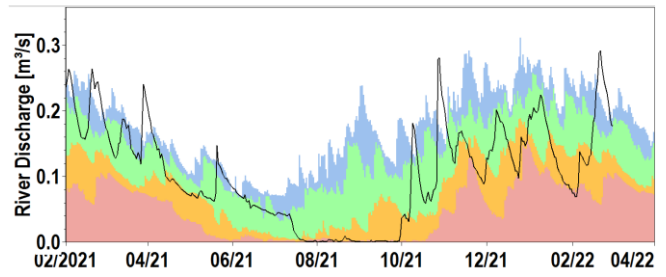


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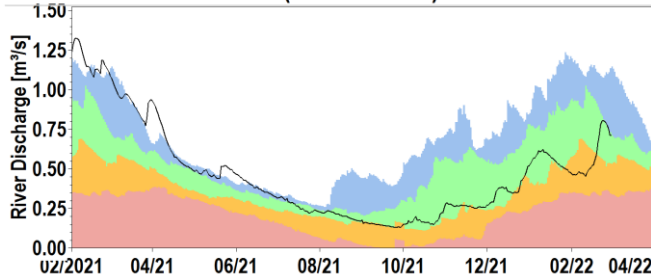
**9. BALLINDINE SPRING (Mayo)**



**10. GORTGARROW SPRING (Galway)**



**11. KILLEGLAN SPRING (Roscommon)**



**12. CALTRA SPRING (Galway)**

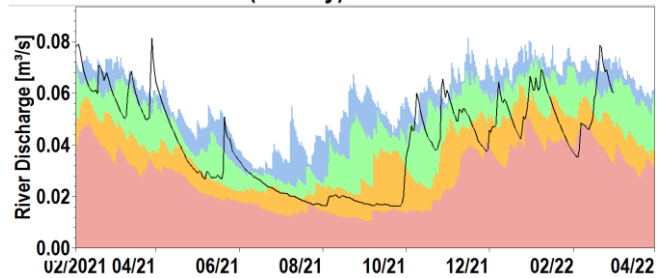





Figure 12: Daily mean groundwater levels (black trace) measured in meters above ordnance datum compared to the 10%tile, 30%tile, 70%tile and 95%tile for each month for the period of record and long-term maximum and minimum levels. All data are provisional and may be subject to revision (Source: EPA).

Explanation - Classes							
Particularly Low	Below Normal	Normal	Above Normal	Particularly High	Daily Mean Level mOD	Highest Month Mean Level mOD	Lowest Month Mean Level mOD
<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			

## 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"> <li>➤ Karstic (Rk and Lk) aquifers;</li> <li>➤ Gravel (Rg and Lg) aquifers;</li> <li>➤ Productive fractured bedrock (Rf and Lm) aquifers;</li> <li>➤ Poorly productive bedrock (LI, PI and Pu) aquifers.</li> </ul>
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](#).