

### Overview

Recorded rainfall was above the long-term average for all stations in July. Valentia observatory, Co Kerry, recorded its wettest July since 2009 and the its wettest July day since records began in 1940. During July, most rivers were above their long-term monthly average flow, with 56% recording flows above normal for this time of year. Higher rainfall across the country, particularly in the west and northwest, allowed rivers to recover to normal or above normal flows for July apart from some rivers in the south east. Lake and groundwater levels also rose across the country with 93% of the monitored lakes and 60% of groundwater monitoring wells indicating normal or above normal levels for July.

### Rainfall

All rainfall totals were above their [Long-Term Average](#) (LTA) for the month. Percentage of rainfall values ranged from 116% (the month's lowest monthly rainfall total of 73.2 mm) at Roche's Point, Co Cork to 216 % (the month's highest monthly rainfall total of 214.0 mm) at Valentia observatory, Co Kerry (*its wettest July since 2009*). The month's wettest day was also recorded at Valentia Observatory, Co Kerry with 54.5 mm on Wednesday the 29th (*its wettest July day since 1940*). The number of rain days ranged from 14 days at Sherkin Island, Co Cork to 28 days at Markree, Co Sligo. The number of [wet days](#) ranged from 11 days at Roche's Point, Co Cork to 22 days at Finner, Co Donegal. The number of [very wet days](#) ranged from 1 day at Oak Park, Co Carlow to 9 days at both Athenry, Co Galway and Valentia Observatory, Co Kerry. Along with Valentia Observatory, three other stations recorded rainfall above 200% of their July LTA. These included Dunsany, Co Meath with 130.9 mm (213% of its LTA) (*its wettest July since 2010*), Athenry, Co Galway with 174.3 mm (202% of its LTA) (*its wettest July since 2010*) and Casement Aerodrome, Co Dublin with 114.4 mm (211% of its LTA) (*its wettest July since 2007*).

Source: <https://www.met.ie/climate/past-weather-statements>

### River Flows

Increased rainfall across the country in July meant most rivers recovered during the month. Only a small number of rivers, mainly in the south east are still [below normal](#) or [particularly low](#) for this time of year. Rivers in the west and north west especially are [above normal](#) or [particularly high](#).

Flows at 167 river monitoring sites were compared to an analysis of historic July average flows; 45 (27%) were classed as particularly high, 49 (29%) as above normal, 57 (34%) were classed as normal, 12 (7%) below normal and 4 (2%) sites as particularly low (less than the July 95<sup>th</sup> percentile flow).

### Lake Levels

Lake levels increased at 95% of lakes monitored compared to June levels. July lake levels were classified as particularly high at 23 (53%) lakes, above normal at 7 (16%), normal at 10 (23%), below normal at 2 (5%) and particularly low for this time of year at just one lake, Lough Skeagh in Monaghan.

Lough Skeagh is the source of the Bailieborough Public Water Supply Scheme and July lake levels are the lowest recorded since records began in 1975.

### Groundwater Levels

Groundwater levels increased since June at 56% of monitoring wells monitored, mainly in the north west, west and south west of the country while levels decreased in the east and south east. July groundwater levels were classified as normal at 29 (60%) of monitoring wells, below normal at 14 wells (29%) and particularly low at 5 monitoring wells analysed.

## Monthly Hydrology Bulletin: Edition 003: July 2020

### Rainfall

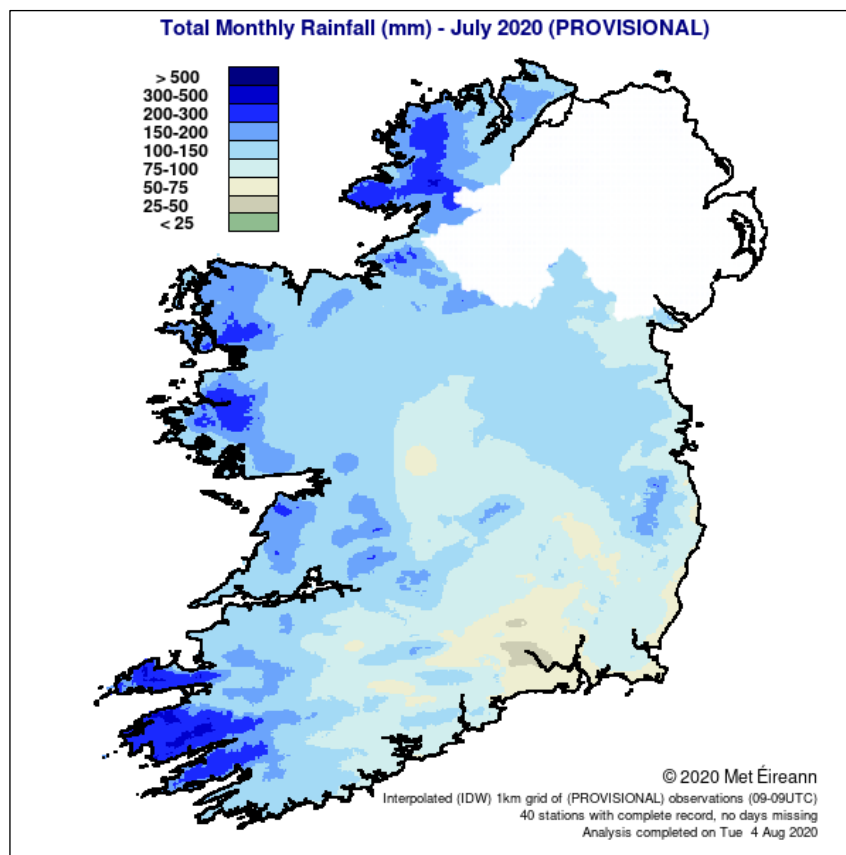


Figure 1: Rainfall map for Ireland July 2020 (Source: Met Éireann.ie)

### July 2020

Based on Data from 1- 31 July 2020 on whole month basis

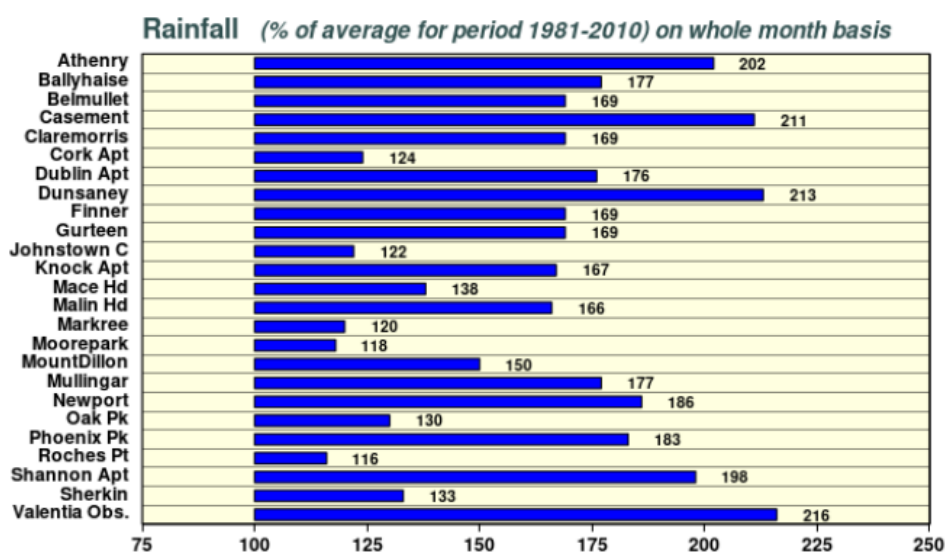


Figure 2: Summary of rainfall at synoptic stations July 2020, figures indicate the percentage difference from the Long-Term Average rainfall for July. (Source: Met Éireann.ie)

## River Flows

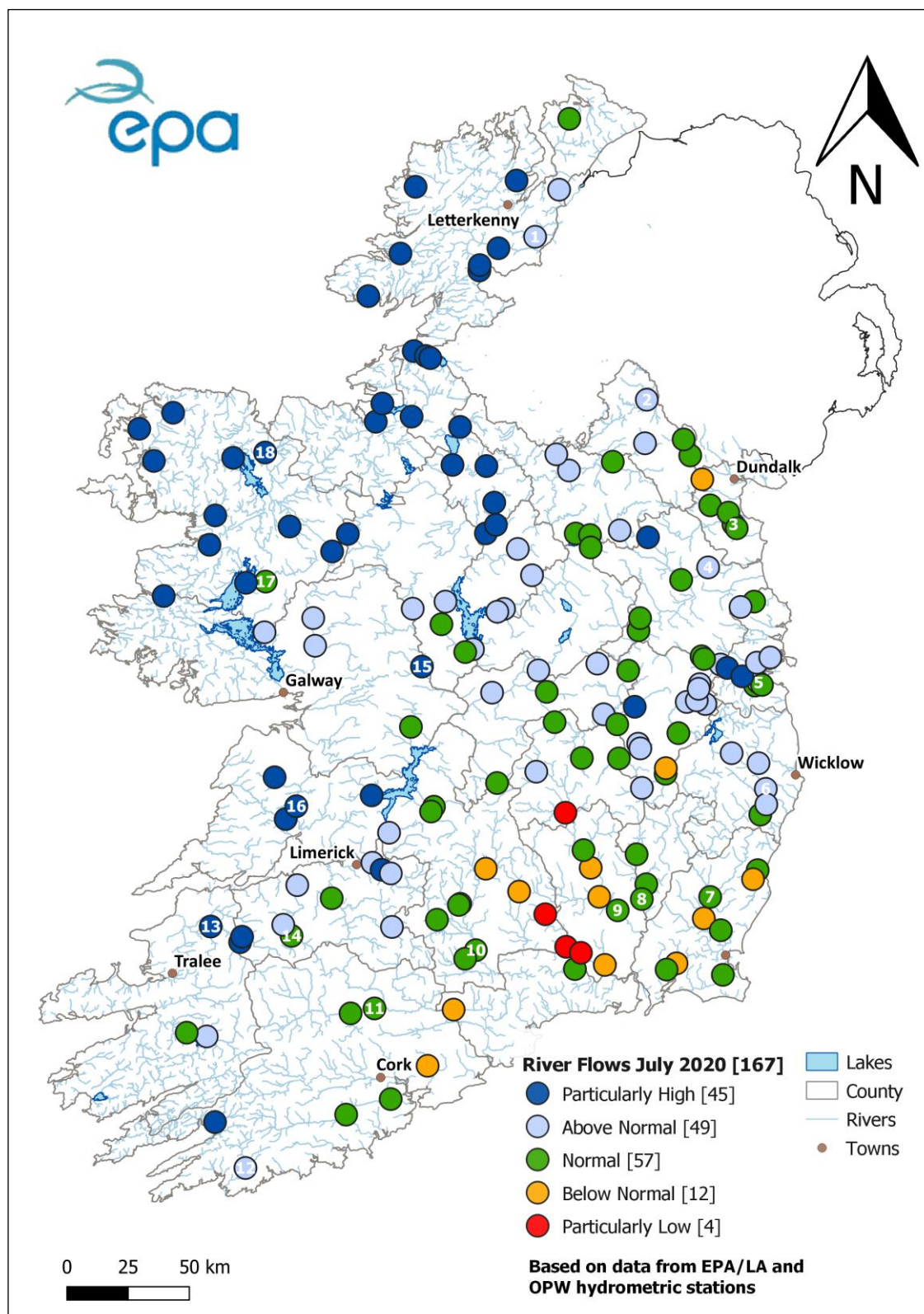


Figure 3: Monthly average river flows for July 2020 relative to historic monthly average flows expressed as percentile of the long-term values of monthly flow. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision. (Source: EPA, OPW).

## Monthly Hydrology Bulletin: Edition 003: July 2020

### Monthly average flow as a percentage of the long-term monthly average flow

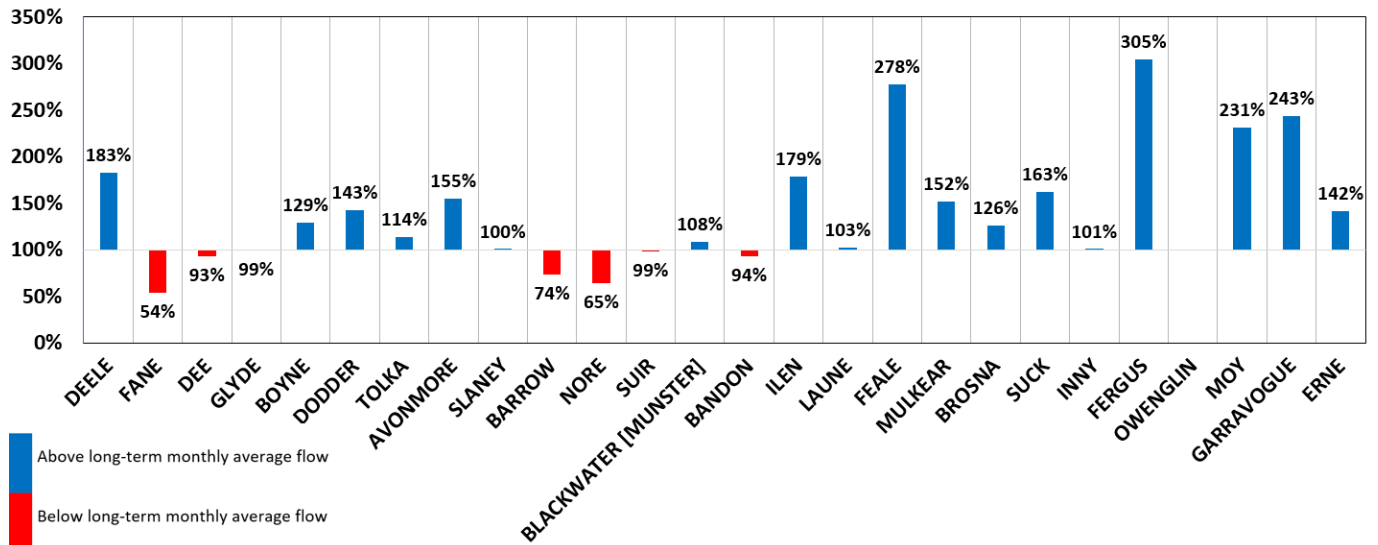
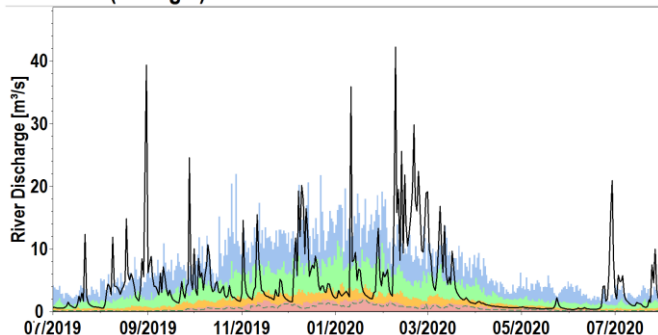


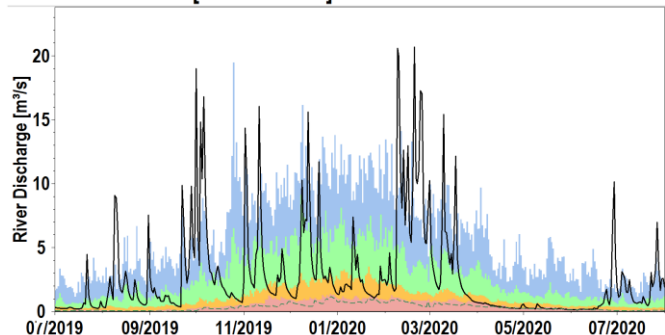
Figure 4: July 2020 average flows as a percentage of the long-term monthly average flow for July at a selected number of stations. All data are provisional and may be subject to revision. (Source: EPA, OPW)

### Flow Hydrographs for selected Rivers

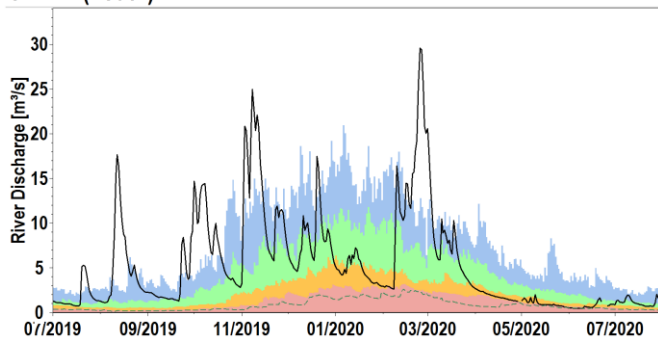
#### 1. DEELE (Donegal)



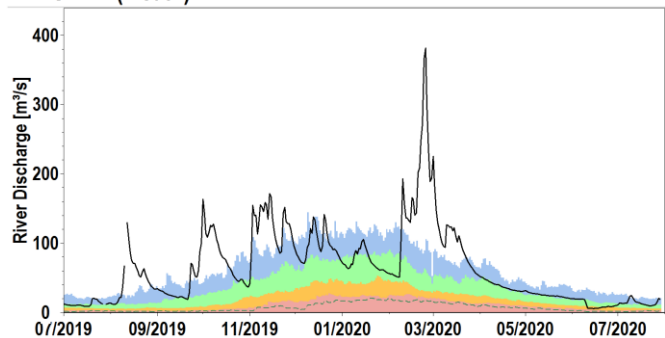
#### 2. BLACKWATER [MONAGHAN]



#### 3. DEE (Louth)



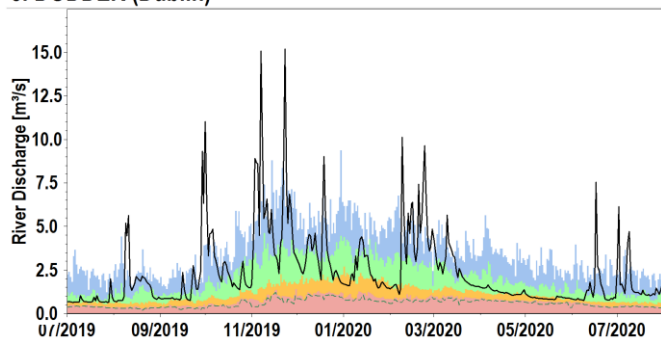
#### 4. BOYNE (Meath)



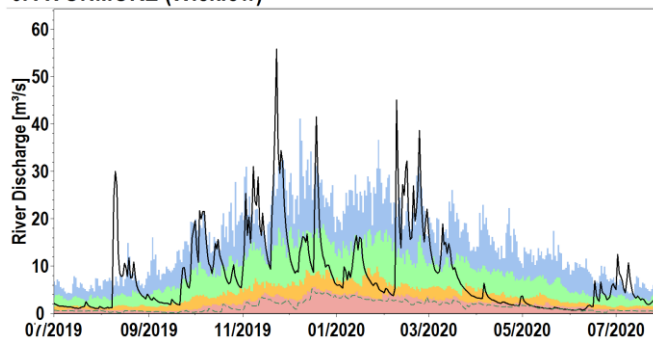


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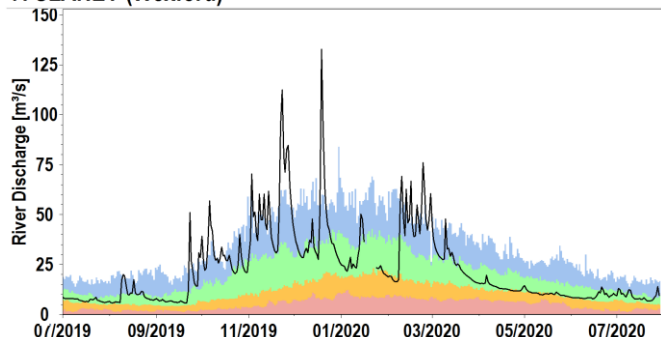
**5. DODDER (Dublin)**



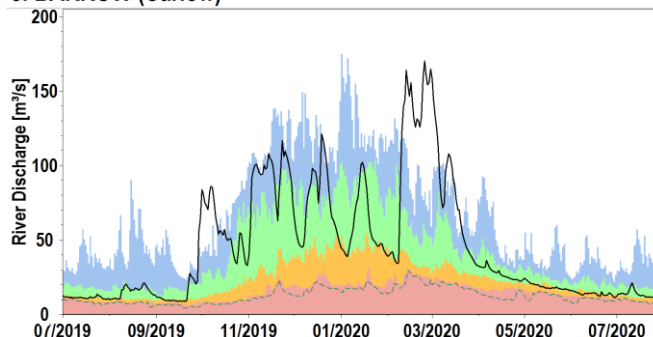
**6. AVONMORE (Wicklow)**



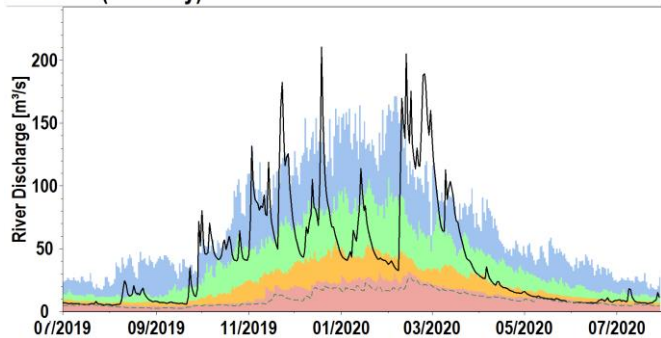
**7. SLANEY (Wexford)**



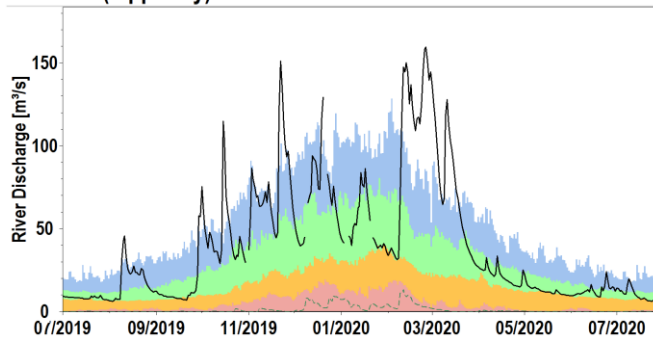
**8. BARROW (Carlow)**



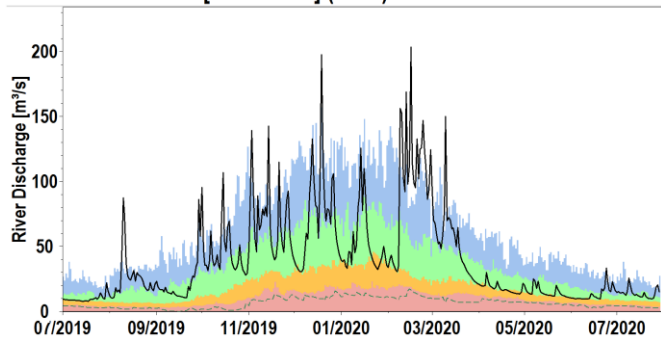
**9. NORE (Kilkenny)**



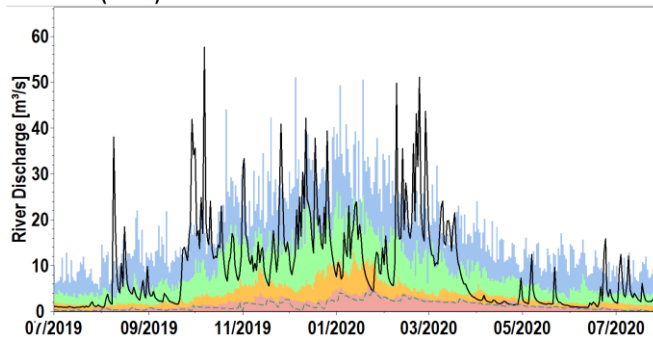
**10. SUIR (Tipperary)**



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

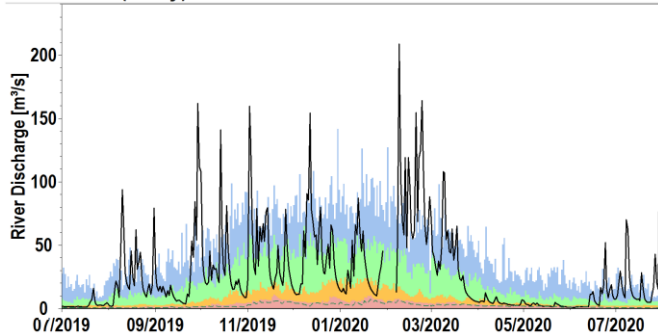


**12. ILEN (Cork)**

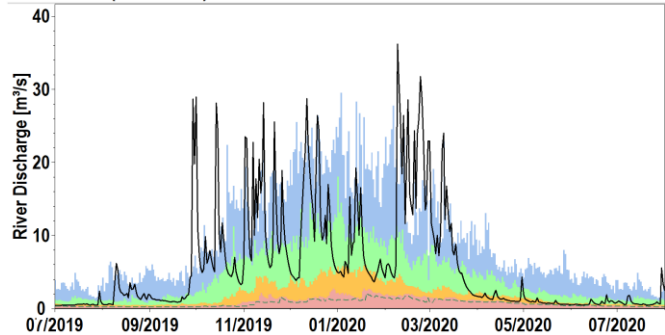


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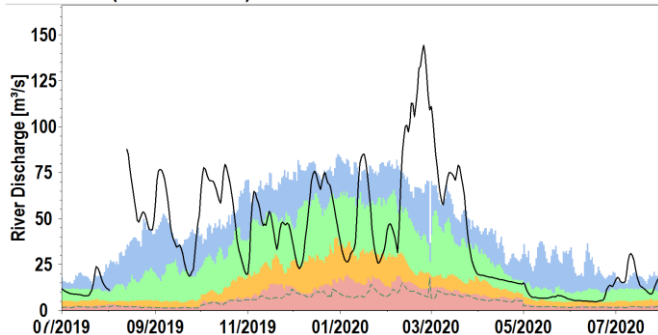
13. FEALE (Kerry)



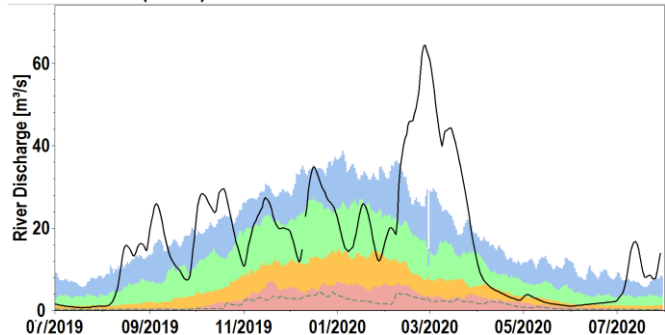
14. DEEL (Limerick)



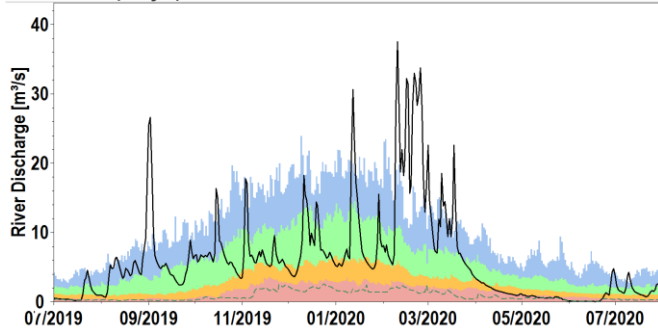
15. SUCK (Roscommon)



16. FERGUS (Clare)



17. ROBE (Mayo)



18. MOY (Mayo)

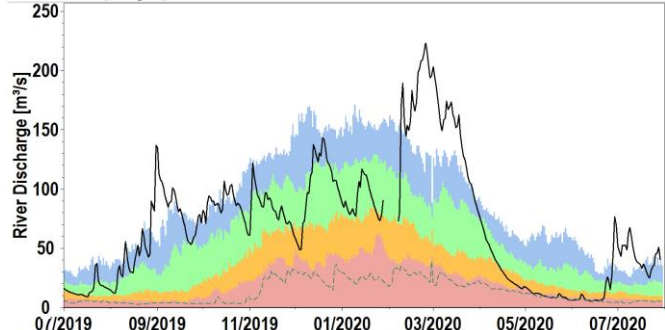
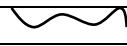



Figure 5: Daily average river flows up to July 2020 relative to historic daily average flows expressed as percentile of the long-term values of each day. All data are provisional and may be subject to revision. (Source: EPA, OPW)

Explanation - Classes						
Particularly Low	Below Normal	Normal	Above Normal	Particularly High		
<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

## Monthly Hydrology Bulletin: Edition 003: July 2020

### Lake Levels

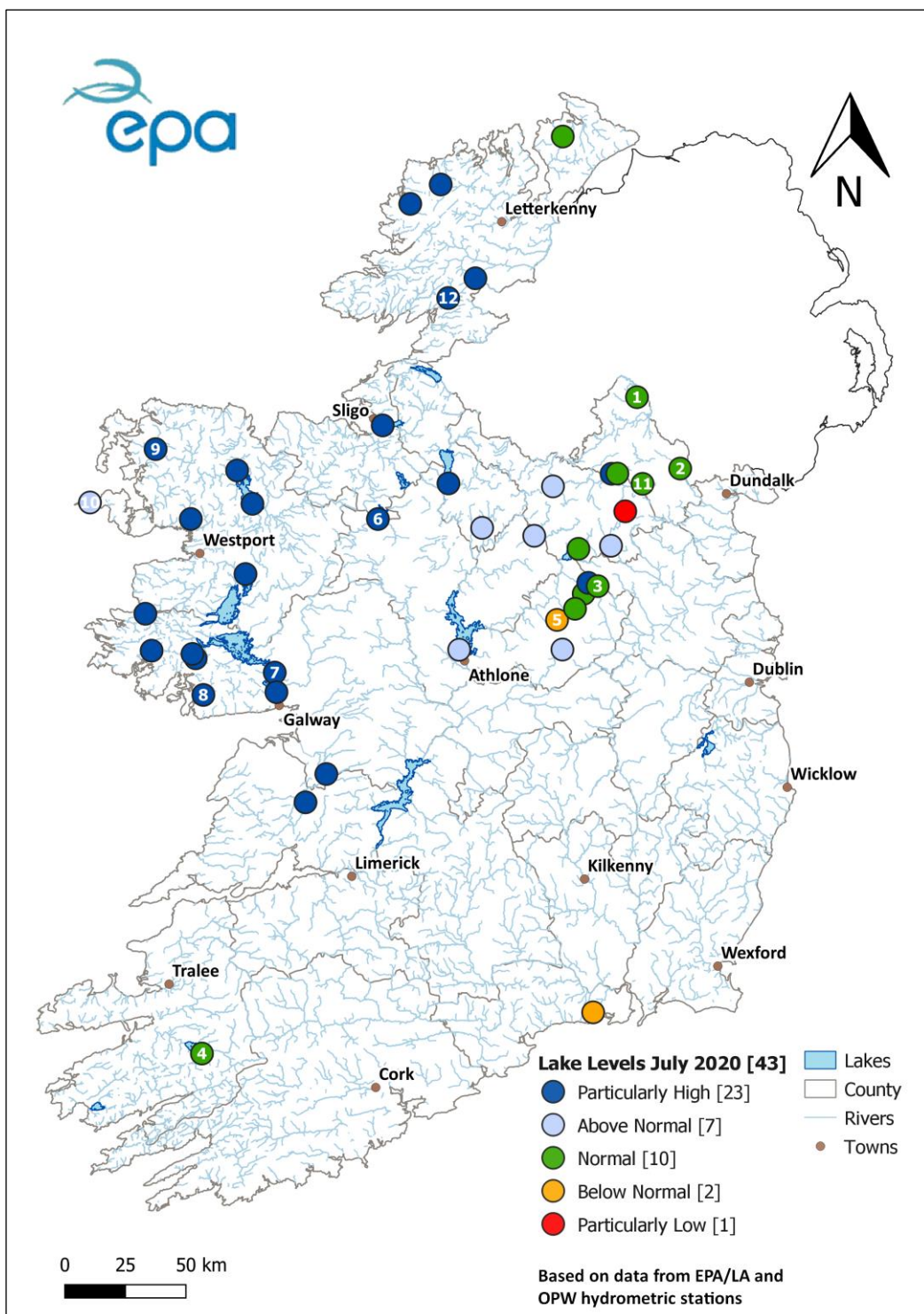


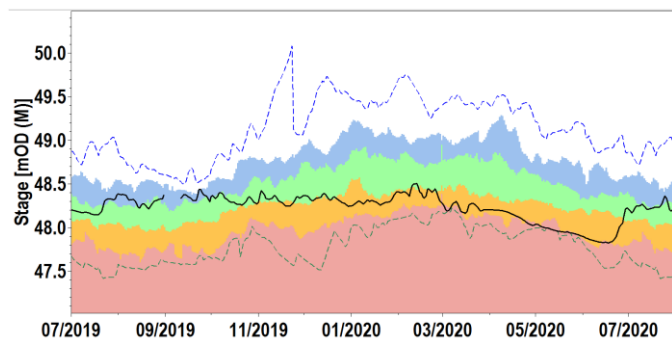
Figure 6: Monthly average lake levels for July 2020 relative to historic monthly average levels expressed as percentile of the long-term values of each month. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision. (Source: EPA, OPW)



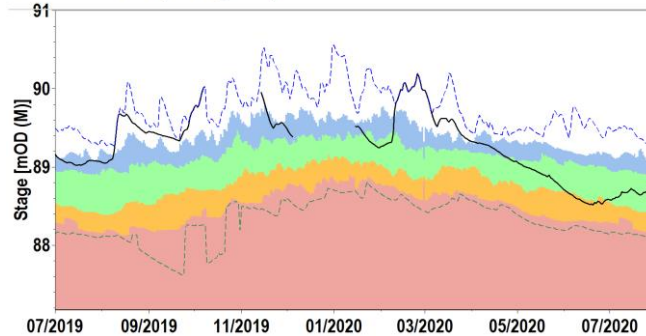
## Monthly Hydrology Bulletin: Edition 003: July 2020

### Water Level Hydrographs for selected Lakes

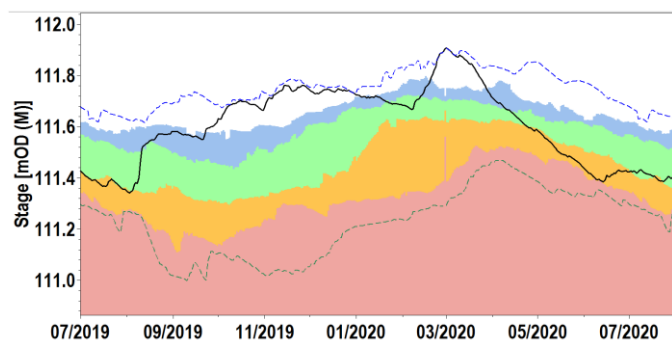
1. EMY LOUGH (Monaghan)



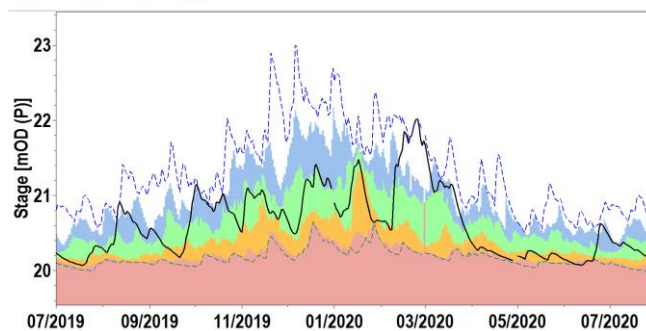
2. L. MUCKNO (Monaghan)



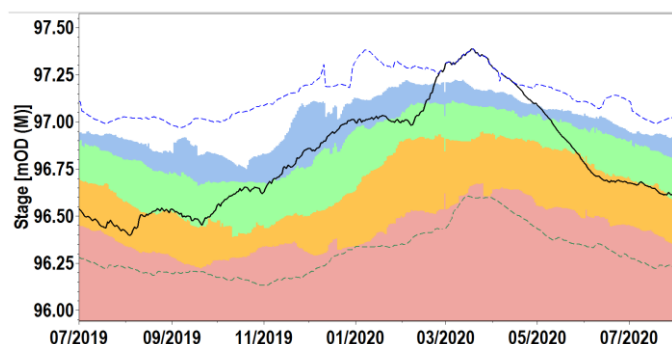
3. L. BANE (Meath)



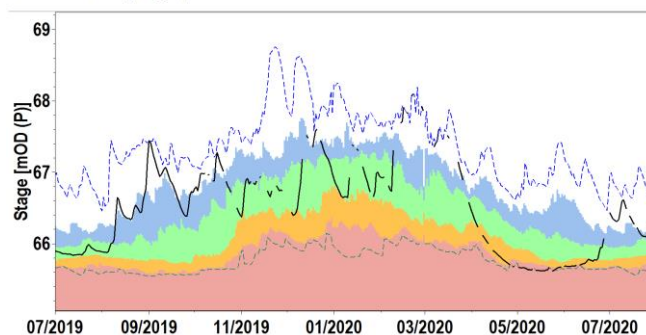
4. L. LEANE (Kerry)



5. L. OWEL (Westmeath)

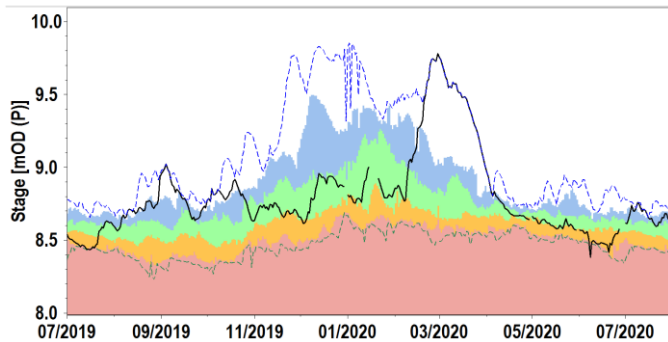


6. L. GARA (Sligo)

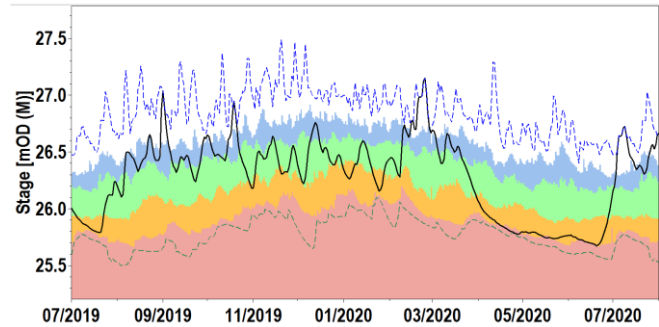


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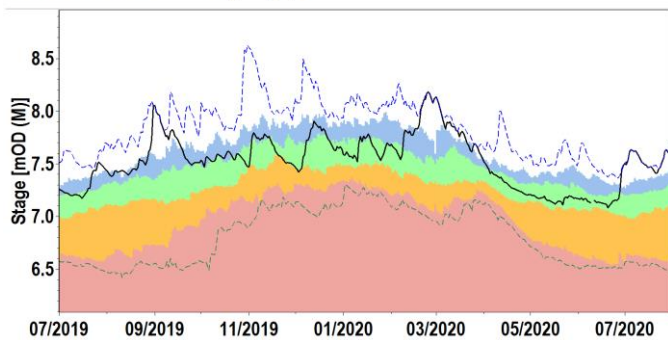
### 7. L.CORRIB (Galway)



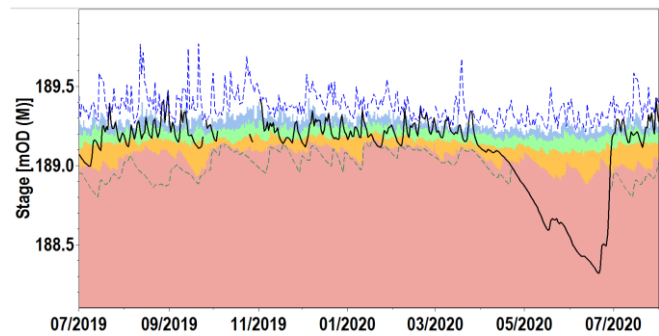
### 8. GLENICMURRIN LAKE (Galway)



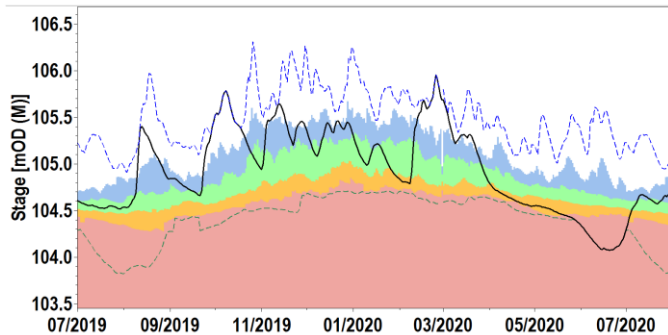
### 9. CARROWMORE L. (Mayo)



### 10. L. ACCORMORE (Mayo)



### 11. L.BAWN (Monaghan)



### 12. L.ESKE (Donegal)

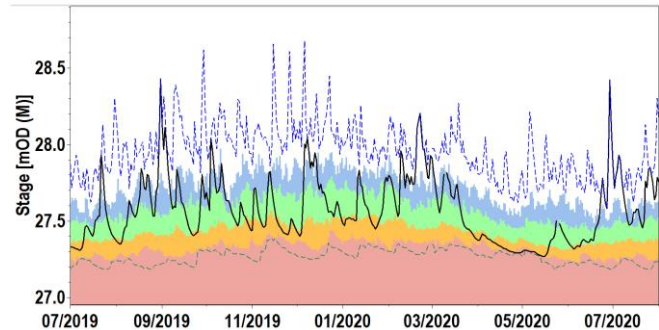





Figure 7: Daily mean lake levels classed relative to historic daily mean levels expressed as percentile of the values of each day with long-term maximum and minimum daily levels. All data are provisional and may be subject to revision. (Source: EPA, OPW)

#### Explanation - Classes

Particularly Low	Below Normal	Normal	Above Normal	Particularly High	Daily Mean 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

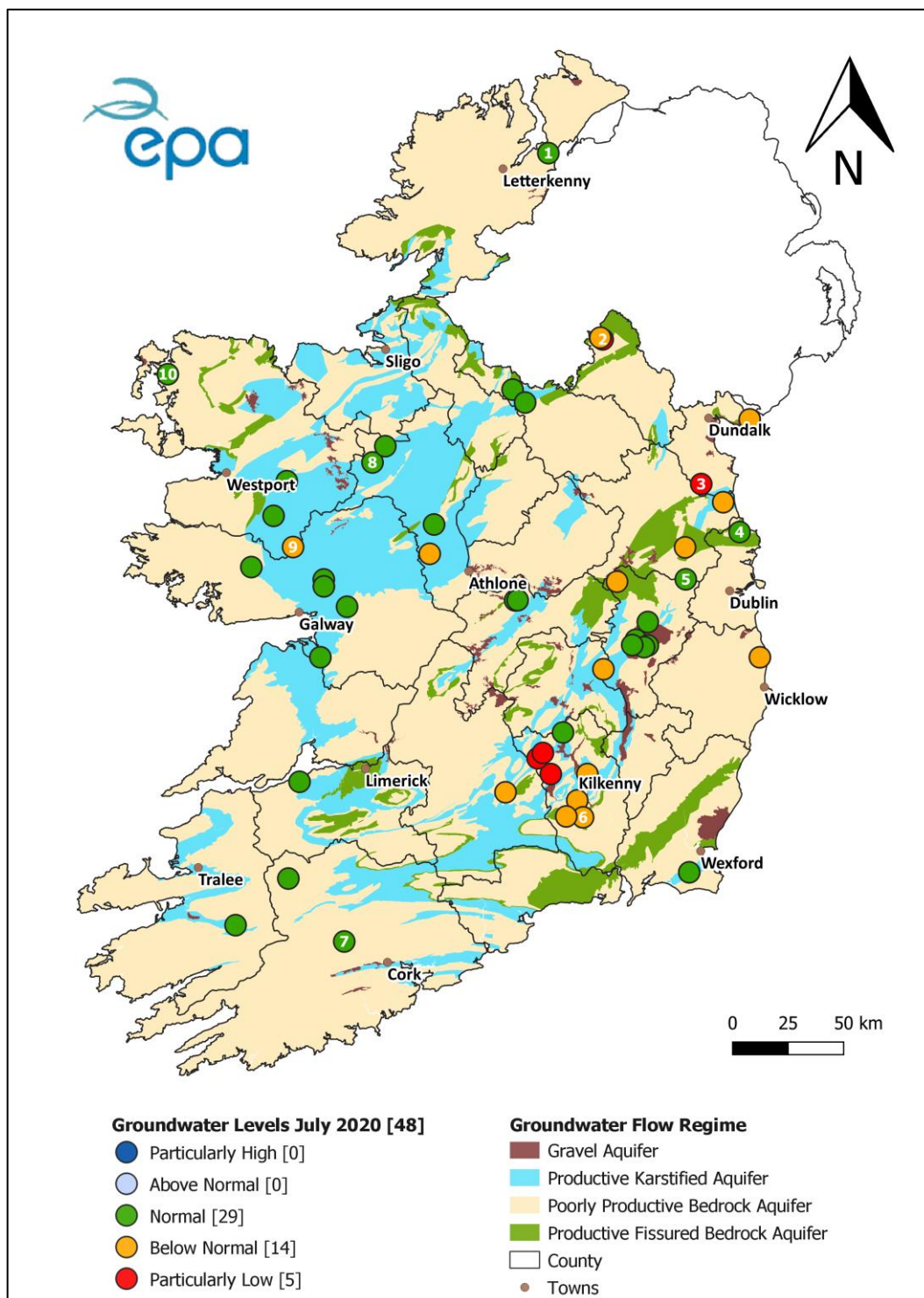
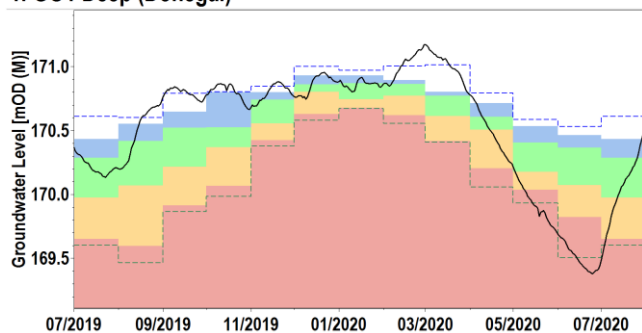


Figure 8: Groundwater level status July 2020, relative to historic July groundwater levels. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision. (Source: EPA)

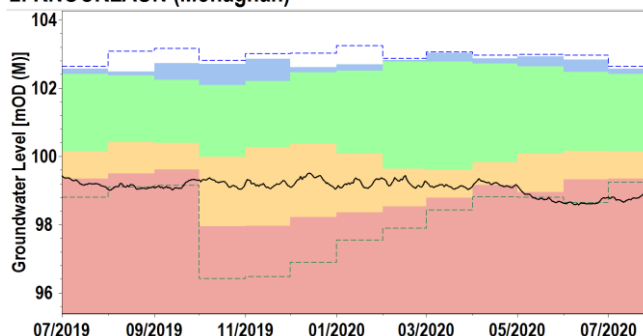
## Monthly Hydrology Bulletin: Edition 003: July 2020

### Groundwater Hydrographs for selected Monitoring Wells

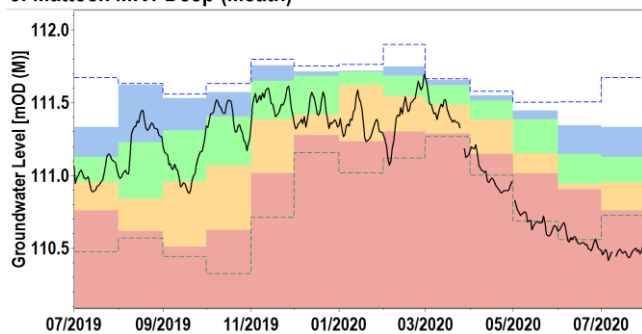
1. GO1 Deep (Donegal)



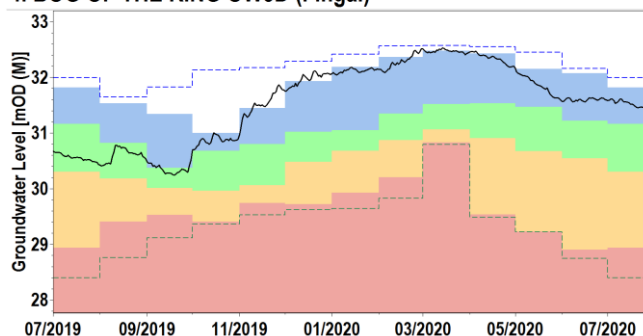
2. KNOCKLAUN (Monaghan)



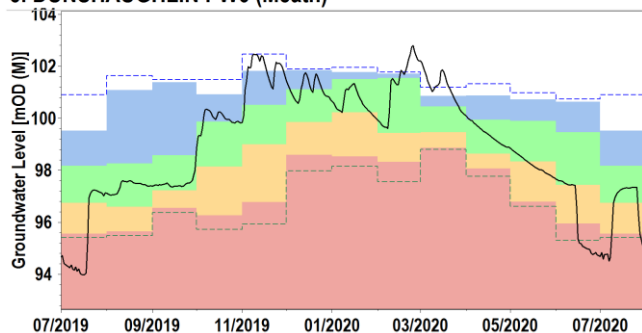
3. Mattock MK1 Deep (Meath)



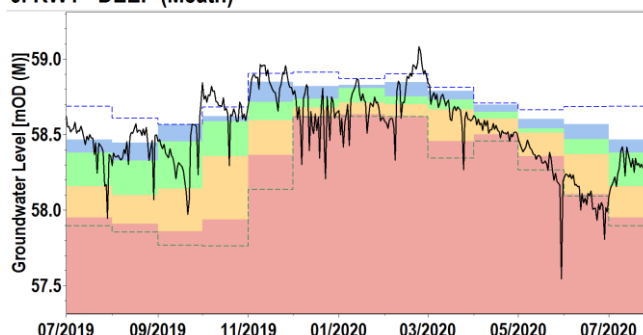
4. BOG OF THE RING OW3D (Fingal)



5. DUNSHAUGHLIN PW6 (Meath)



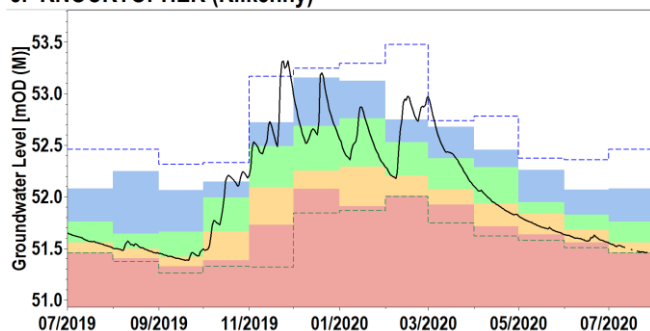
6. RW1 - DEEP (Meath)



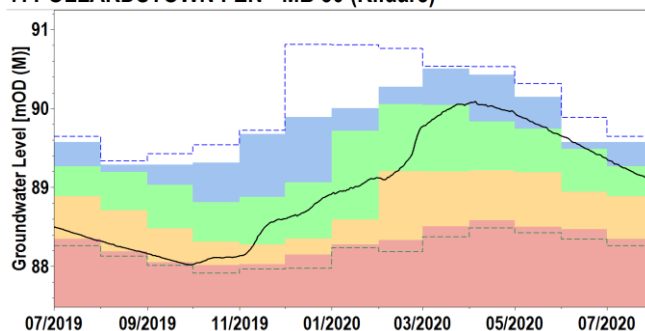


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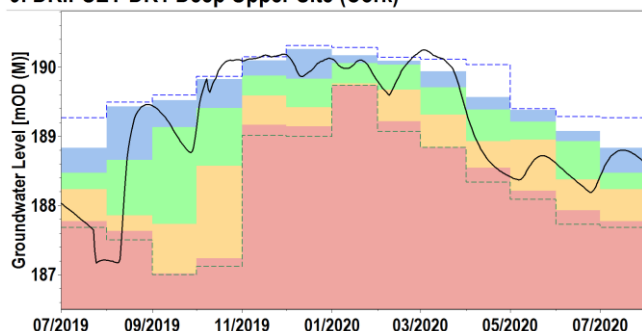
### 8. KNOCKTOPHER (Kilkenny)



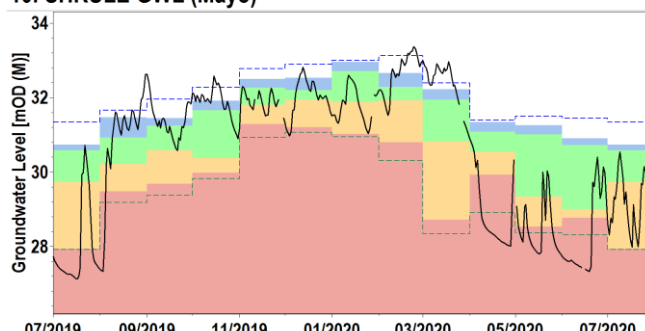
### 7. POLLARDSTOWN FEN - MB 30 (Kildare)



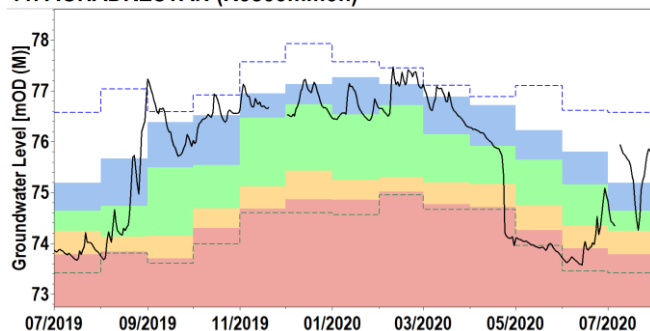
### 9. DRIPSEY DR1 Deep Upper Site (Cork)



### 10. SHRULE GWL (Mayo)



### 11. AGHADRESTAN (Roscommon)



### 12. Glencastle - (GC1 Deep) (Mayo)

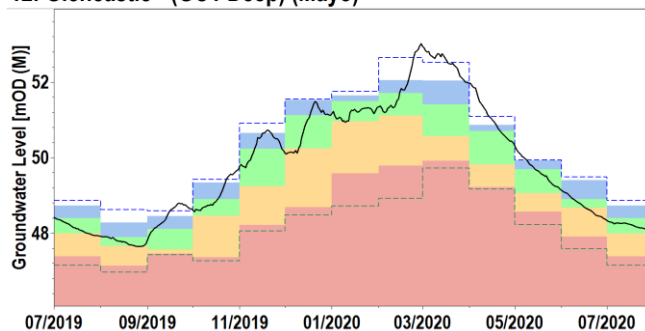
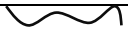




Figure 9: Daily mean groundwater levels (black trace) measured in meters above ordnance datum compared to the 10%tile, 30%tile, 70%tile and 95%tile for each month for the period of record and long-term maximum and minimum levels. All data are provisional and may be subject to revision. (Source: EPA)

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.

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