

Hydrology Summary Bulletin - June 2020

Overview

The majority of rainfall stations recorded monthly rainfall totals above their long-term average for June. The highest daily rainfall total was 53.6 mm at Newport, Co Mayo on the 28th (its wettest June day on record (length 60 years)). During June, most rivers fell below their long-term monthly average flow, with over 59% recording flows below normal for this time of year, mainly in the east, southeast and Shannon regions. Higher rainfall across the west and northwest towards the end of the month allowed most rivers in these regions to recover to normal or above normal flows for June. Lake and groundwater levels also fell across the country, both to record low levels in some cases, with 80% of the assessed lakes and 73% of groundwater monitoring wells showing below normal levels for June. Declining groundwater levels observed in some monitored wells across the country indicates a slower response time to the heavy rainfall events experienced towards the end of the month compared to the more rapid response observed in rivers.

Rainfall

The majority of monthly rainfall totals were above their [long-term average](#) (LTA). Seven stations had [dry spells](#) between the 23rd May and the 13th June, including Mace Head, Co Galway, Moore Park, Co Cork, Sherkin Island, Co Cork, Roches Point, Co Cork, Cork Airport, Co Cork, Shannon Airport, Co Clare and Athenry, Co Galway. Percentage of monthly rainfall values ranged from 62% (monthly rainfall total of 51.2 mm) at Mace Head, Co Galway to 236% (the month's highest monthly rainfall total of 170.3 mm) at Finner, Co Donegal. Monthly rainfall totals for the month were lowest at Oak Park, Co Carlow with 40.5 mm (67% of its LTA). The highest daily rainfall total was 53.6 mm at Newport, Co Mayo on the 28th (its wettest June day on record (length 60 years)). The number of rain days ranged from 14 days at both Mace Head, Co Galway and Cork Airport to 25 days at Casement Aerodrome, Co Dublin. The number of [wet days](#) ranged from 7 days at Mace Head, Co Galway to 17 days at three stations in Counties Sligo and Donegal. The number of [very wet days](#) ranged from 1 day at Phoenix Park, Co Dublin to 5 days at a few stations.

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

River Flows

June monthly mean river flows were lower in the east, southeast and Shannon regions compared to May but increased in the west and northwest. River flows were below the [long-term monthly average](#) (LTMA) flow for June at 80% of monitoring sites analysed.

Flows at 158 river sites were compared to an analysis of historic June monthly average flows; 13 were classed as [particularly high](#), 12 as [above normal](#), 39 were classed as [normal](#), 51 [below normal](#) and 43 sites [particularly low](#) (less than the 95th percentile flow for June).

Increased rainfall, especially in the west and northwest, towards the end of the month allowed most rivers in these regions to recover and 53% of sites analysed in these regions were classed as above normal for June. Most notably the Deele and Finn in Donegal were 81% and 40% respectively above the long-term monthly average for June. However, 66% of sites in the east, 84% of sites in the southeast and 63% of sites in the Shannon region were below normal for this time of year.

Lake Levels

Lake levels continue to fall, and 29 of the 40 lakes monitored were lower compared to May levels, and below the long-term monthly average for June. Lake levels were compared to historic June monthly average levels; one was particularly high (White Lough in Meath), however the majority, 32, were either below normal (23) or particularly low (9) for June.

Accormore Lough, the source of the Achill regional water supply, reached its lowest ever recorded levels since records began in 1984. Lough Bawn in Monaghan recorded the lowest average monthly level for June since the start of records in 1977.

Groundwater Levels

During June, groundwater levels fell at 42 (93%) of monitoring wells analysed, and 87% of sites were lower than the long-term monthly average for June. Levels were classified at below normal (less than 70th percentile) and particularly low (less than 95th percentile) at 33 monitoring wells compared to 29 wells in May. The lowest average monthly levels for June were recorded at 11 of the wells analysed. However, it is important to note that except for Oldtown in County Kilkenny (records began in 1980), the analysed wells have a relatively short period of record, with monitoring beginning in 2008. Despite widespread rain across the country towards the end of the month levels recorded at several groundwater wells continued to fall indicating a slower response time in some aquifers compared to a more rapid response observed in rivers.

Hydrology Summary Bulletin - June 2020

Rainfall

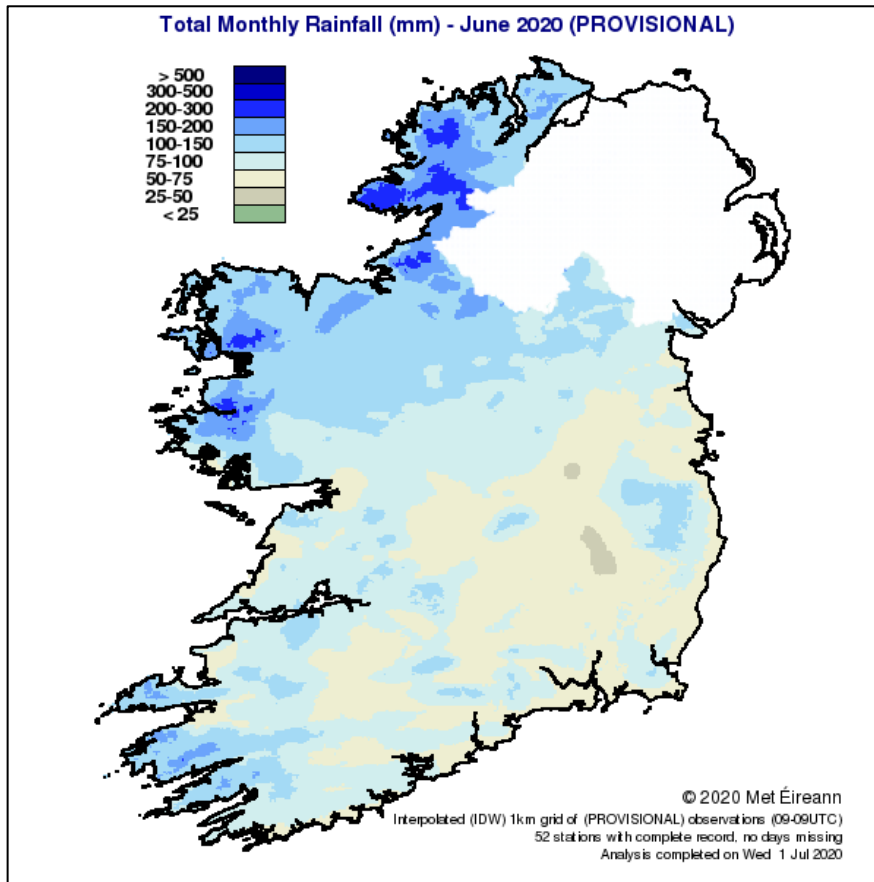


Figure 1: Rainfall map for Ireland June 2020 (Source: Met Eireann.ie)

June 2020

Based on Data from 1-30 June 2020 on whole month basis

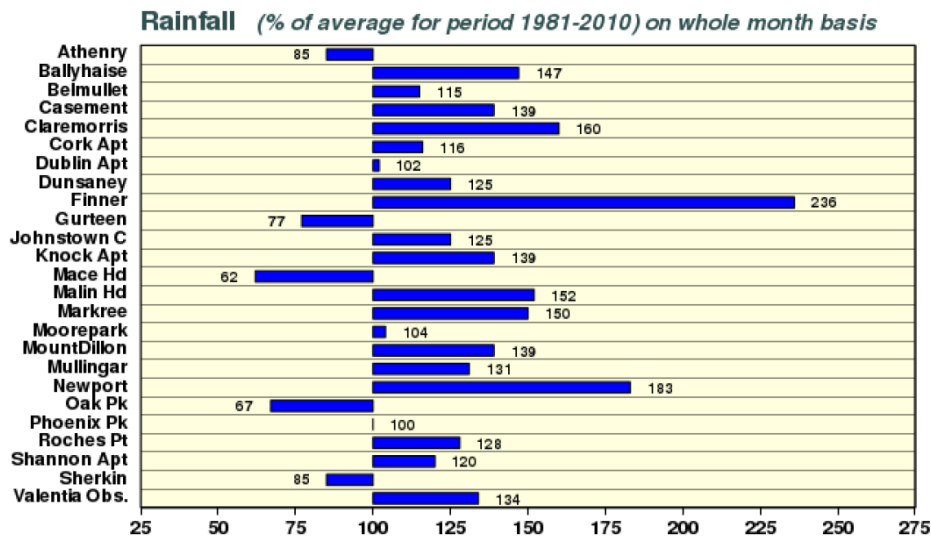


Figure 2: Summary of rainfall at synoptic stations June 2020, figures indicate the percentage difference from the Long-Term Average rainfall for June (Source: Met Eireann.ie)

River Flows

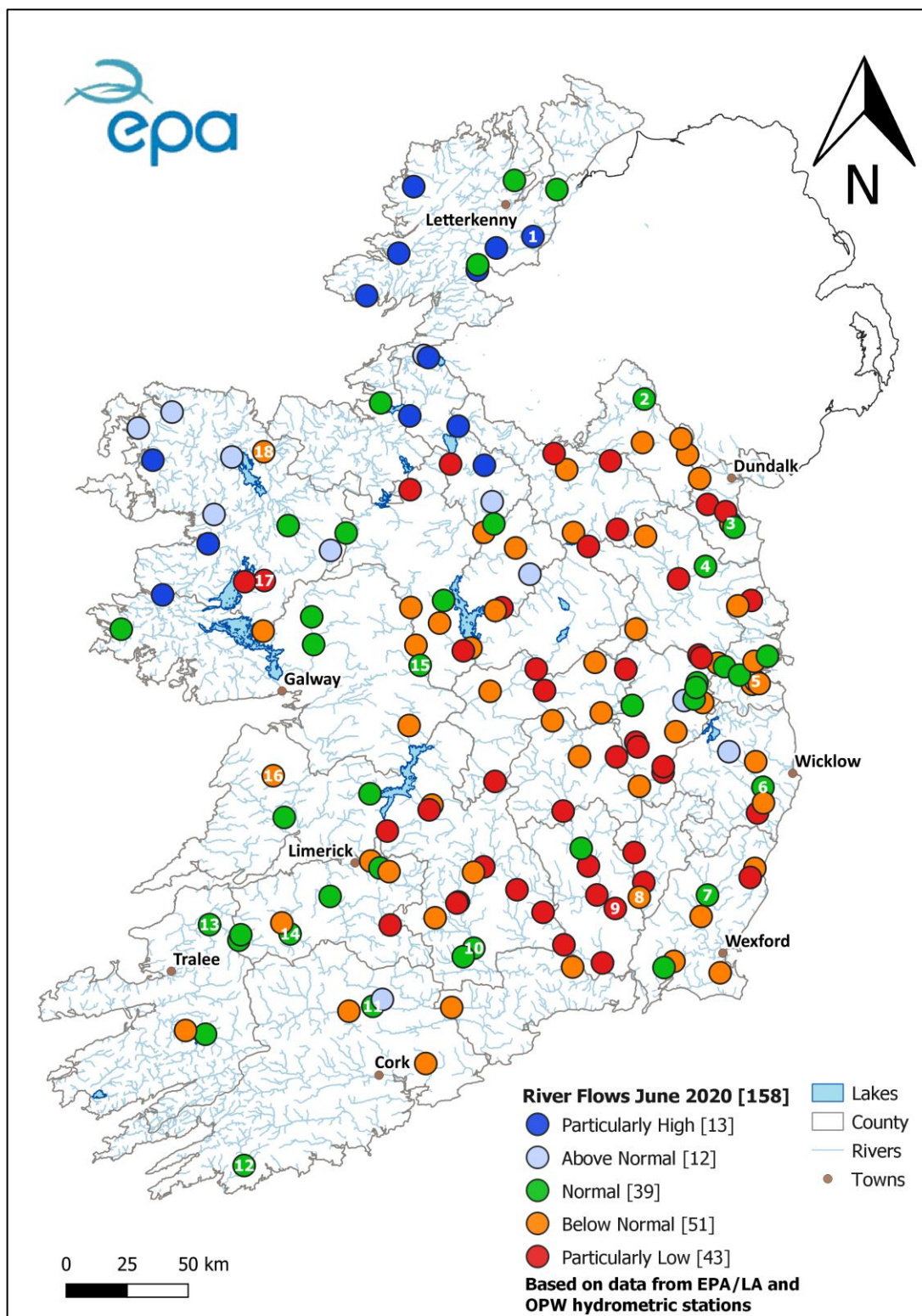


Figure 3: Monthly average river flows for June 2020 relative to historic monthly average flows expressed as percentile of the long-term values of monthly flow. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision. (Source: EPA, OPW).

Hydrology Summary Bulletin - June 2020

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

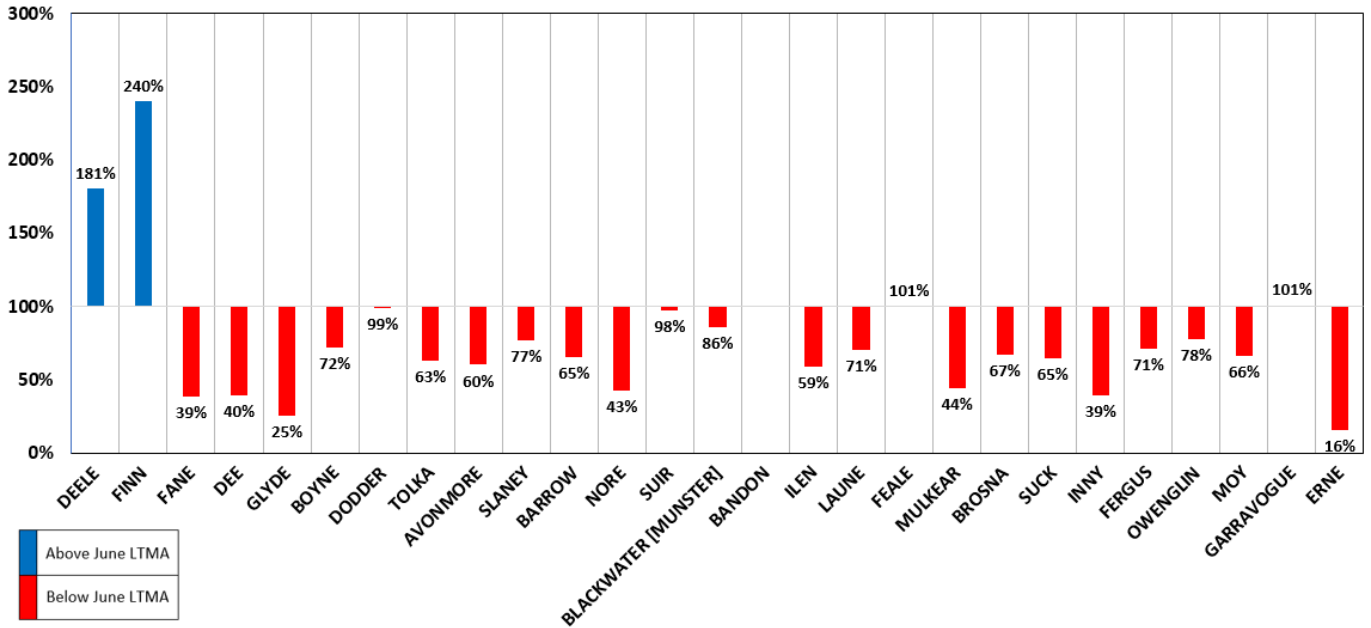
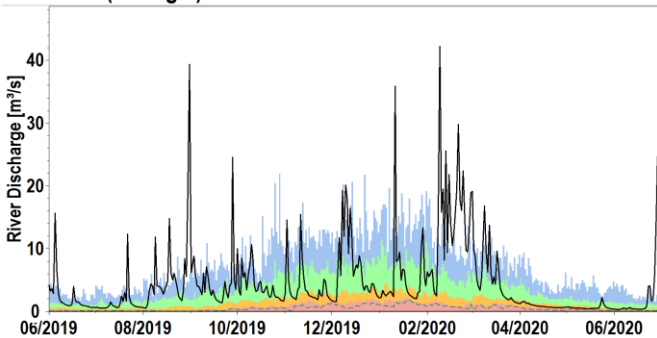


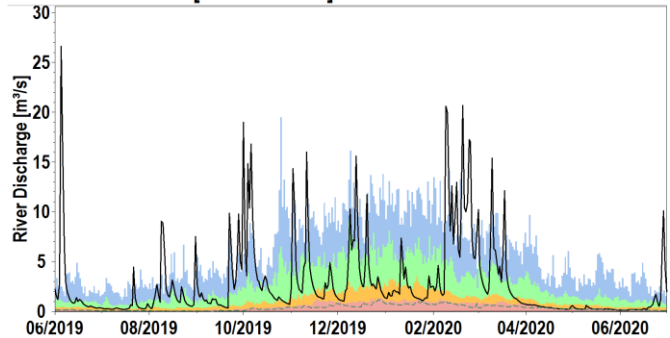
Figure 4: June 2020 average flows as a percentage of the long-term monthly average flow for June at a selected number of stations. All data are provisional and may be subject to revision. (Source: EPA, OPW)

Flow Hydrographs for selected Rivers

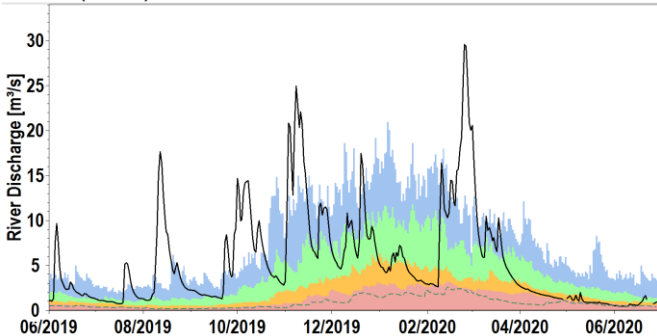
1. DEELE (Donegal)



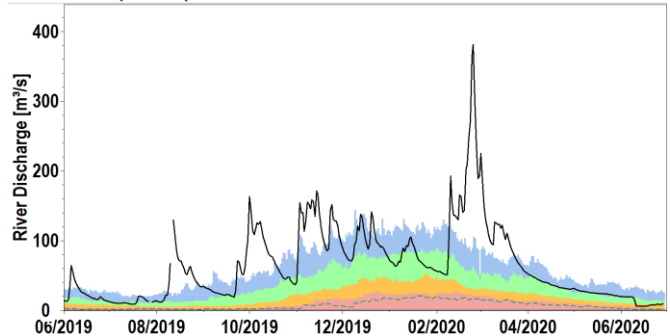
2. BLACKWATER [MONAGHAN]



3. DEE (Louth)

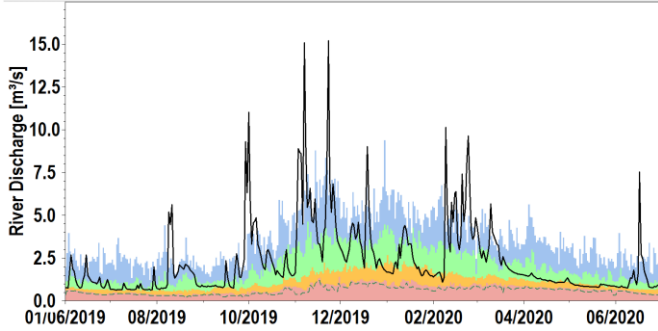


4. BOYNE (Meath)

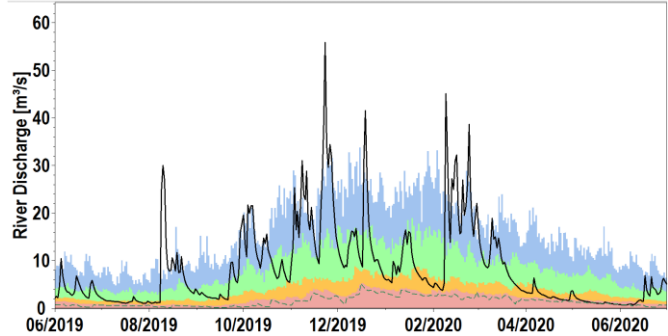


Hydrology Summary Bulletin - June 2020

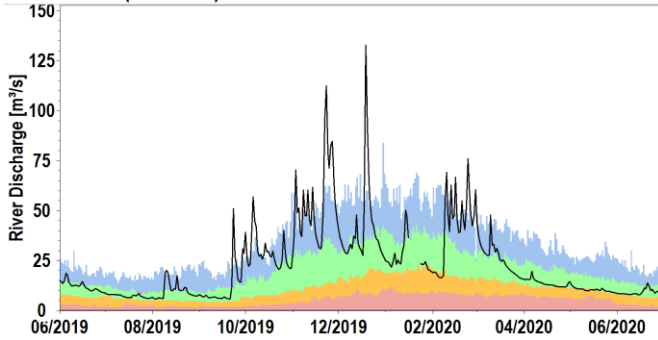
5. DODDER (Dublin)



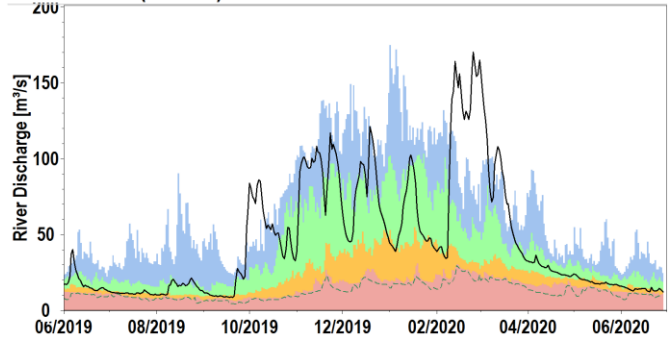
6. AVONMORE (Wicklow)



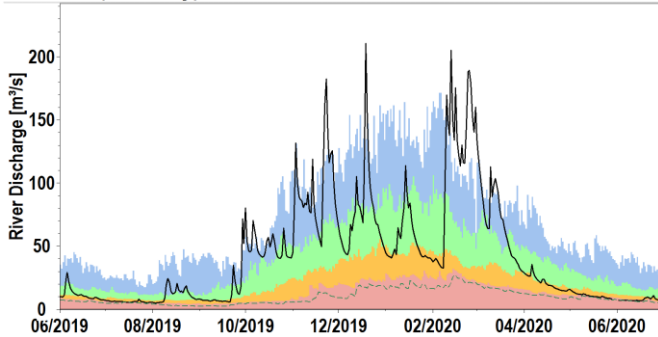
7. SLANEY (Wexford)



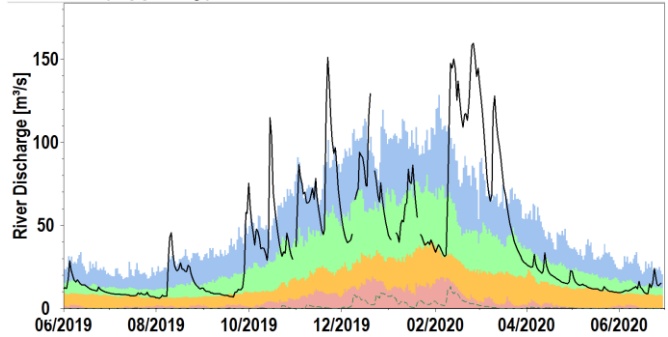
8. BARROW (Carlow)



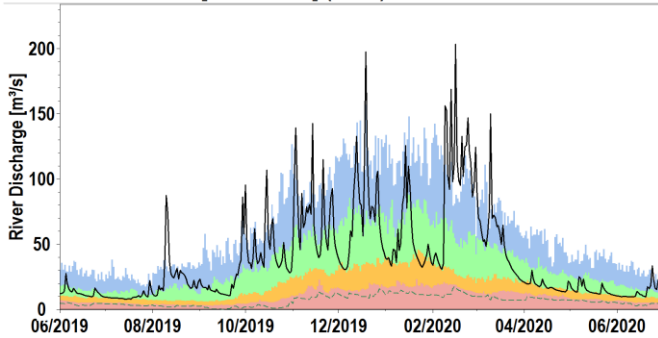
9. NORE (Kilkenny)



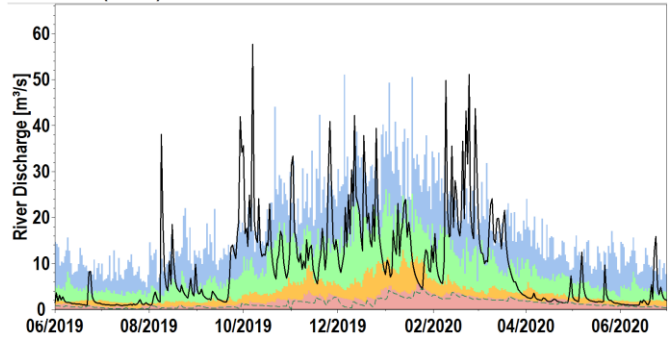
10. SUIR (Tipperary)



11. BLACKWATER [MUNSTER] (Cork)

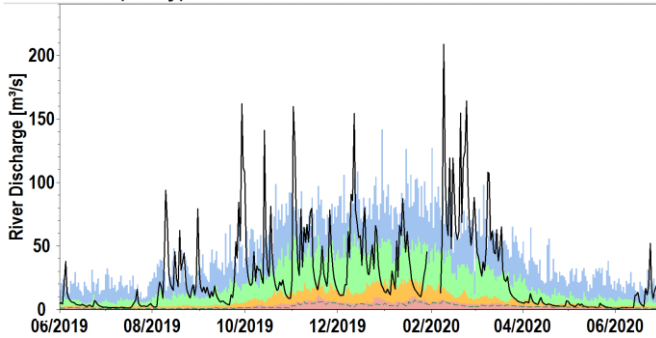


12. ILEN (Cork)

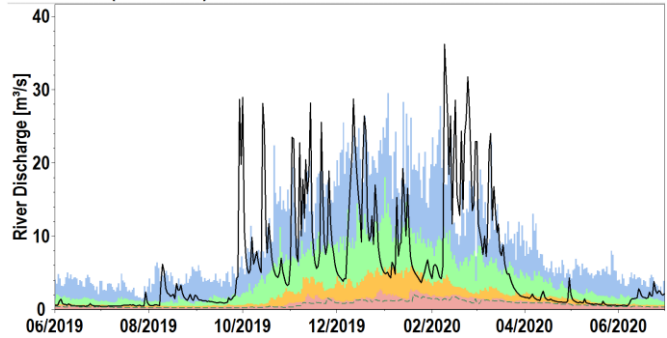


Hydrology Summary Bulletin - June 2020

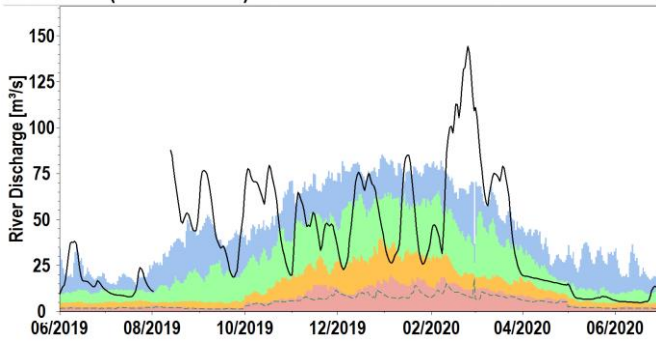
13. FEALE (Kerry)



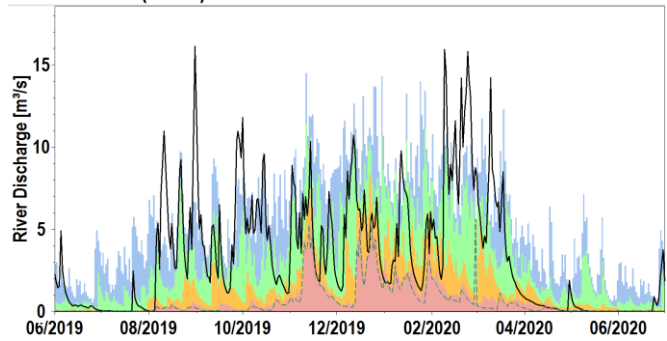
14. DEEL (Limerick)



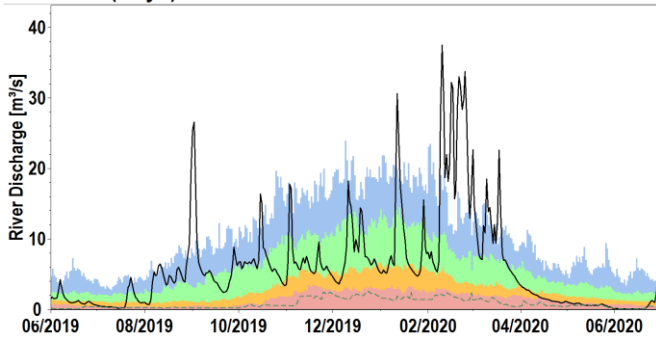
15. SUCK (Roscommon)



16. FERGUS (Clare)



17. ROBE (Mayo)



18. MOY (Mayo)

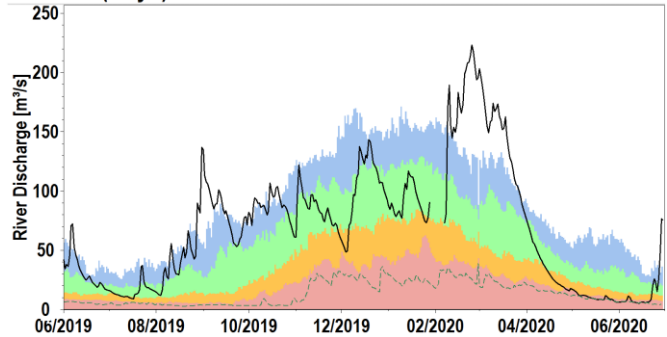




Figure 5: Daily average river flows up to June 2020 relative to historic daily average flows expressed as percentile of the long-term values of each day. All data are provisional and may be subject to revision. (Source: EPA, OPW)

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

Hydrology Summary Bulletin - June 2020

Lake Levels

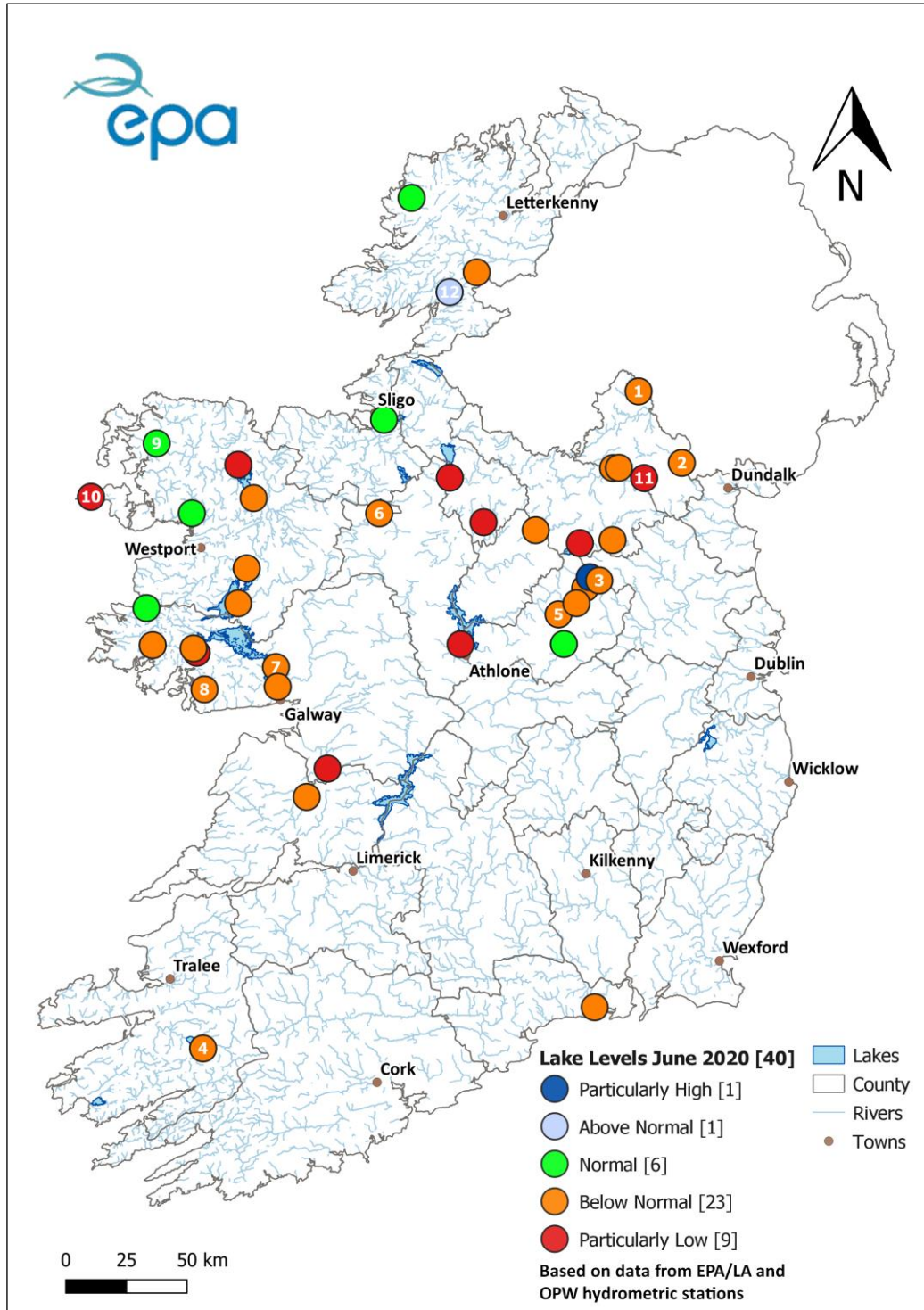
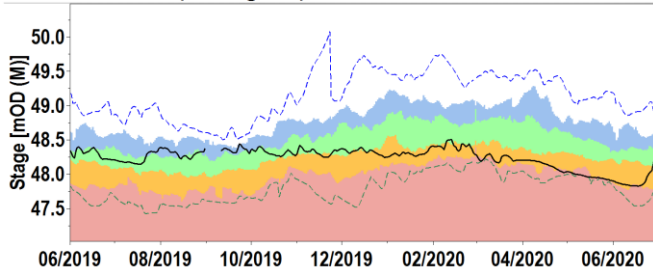


Figure 6: Monthly average lake levels for June 2020 relative to historic monthly average levels expressed as percentile of the long-term values of each month. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision. (Source: EPA, OPW)

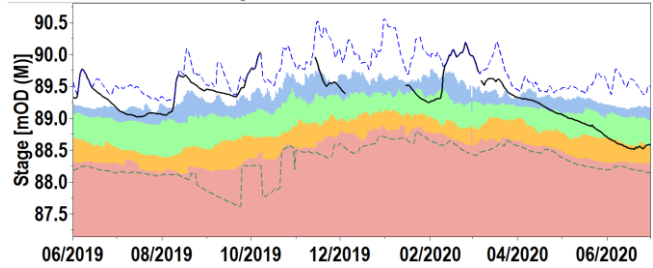
Hydrology Summary Bulletin - June 2020

Water Level Hydrographs for selected Lakes

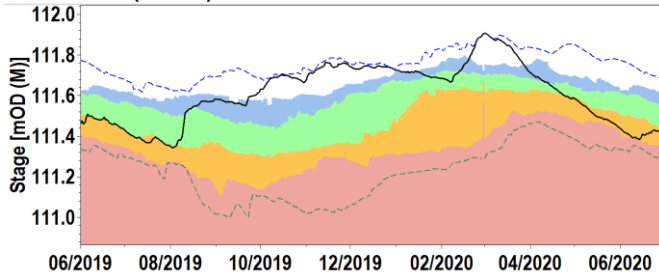
1. EMY LOUGH (Monaghan)



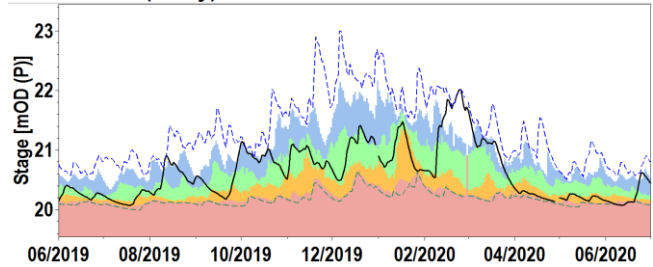
2. L. MUCKNO (Monaghan)



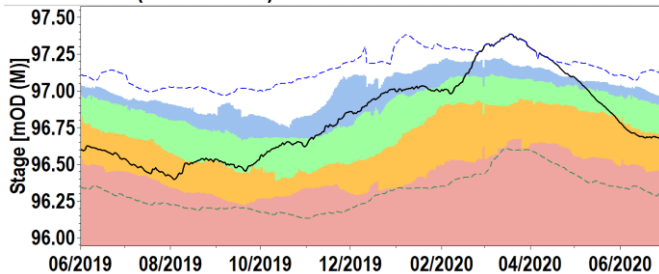
3. L. BANE (Meath)



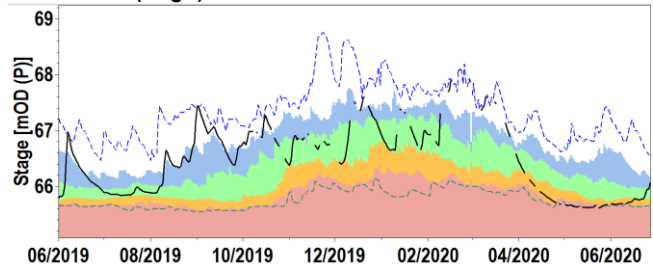
4. L. LEANE (Kerry)



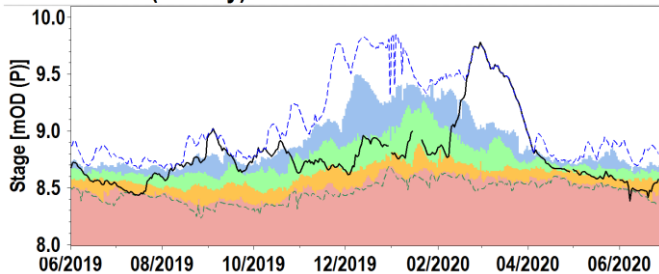
5. L. OWEL (Westmeath)



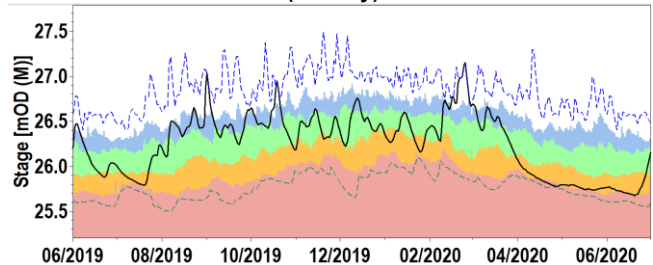
6. L. GARA (Sligo)



7. L. CORRIB (Galway)

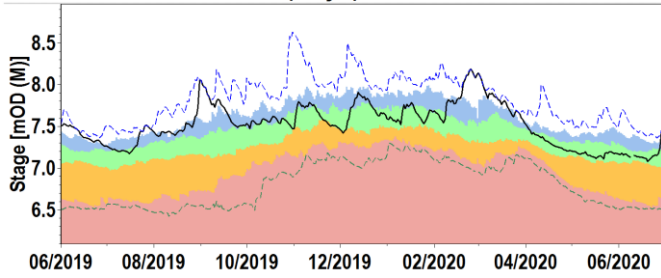


8. GLENICMURRIN LAKE (Galway)

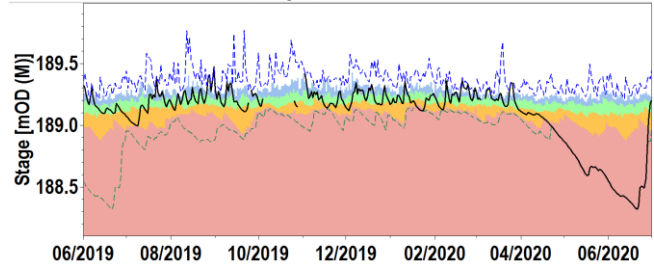


Hydrology Summary Bulletin - June 2020

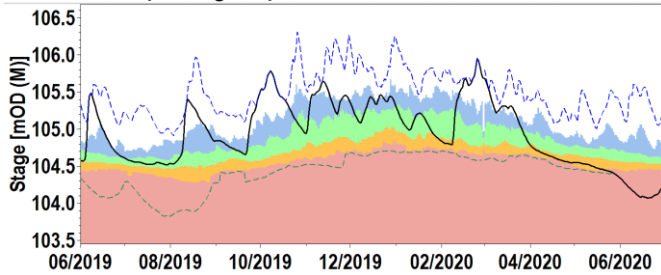
9. CARROWMORE LAKE (Mayo)



10. L. ACCORMORE (Mayo)



11. L.BAWN (Monaghan)



12. L.ESKE (Donegal)

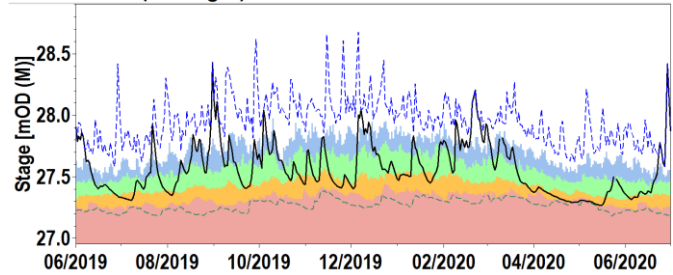





Figure 7: Daily mean lake levels for June 2020 relative to historic daily mean levels expressed as percentile of the long-term values of each day. All data are provisional and may be subject to revision. (Source: EPA, OPW)

Explanation - Classes

Particularly Low	Below Normal	Normal	Above Normal	Particularly High	Daily Mean Level mOD	Highest Daily Mean Level mOD	Lowest Daily 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			

Groundwater Levels

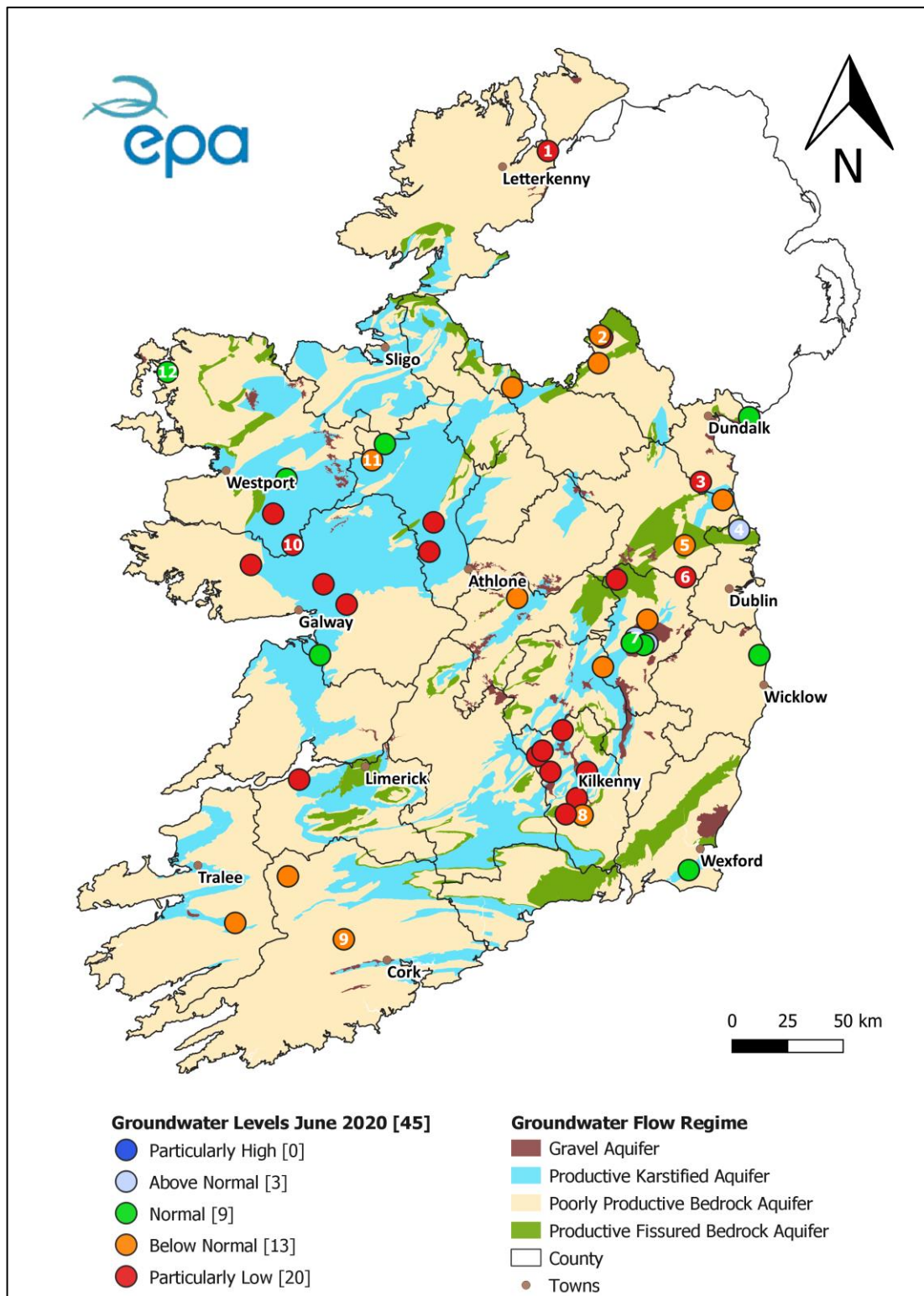
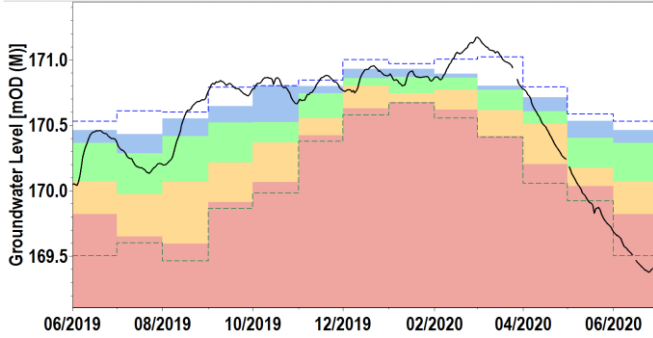


Figure 8: Groundwater level status June 2020, relative to historic June groundwater levels. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision. (Source: EPA)

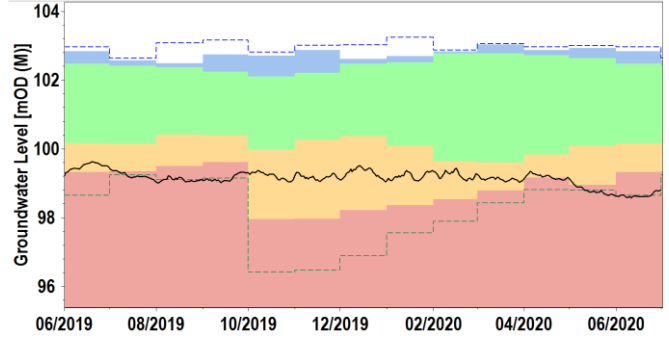
Hydrology Summary Bulletin - June 2020

Groundwater Hydrographs for selected Monitoring Wells

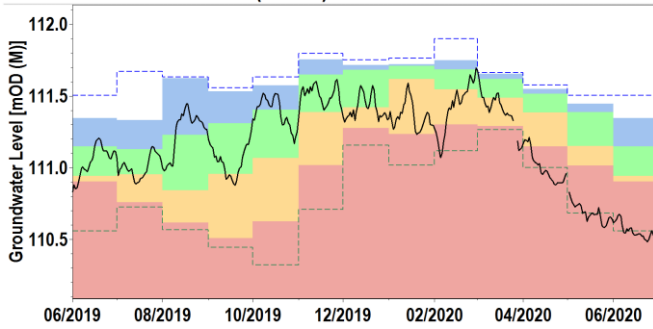
1. GORTINLIEVE GO1 Deep (Donegal)



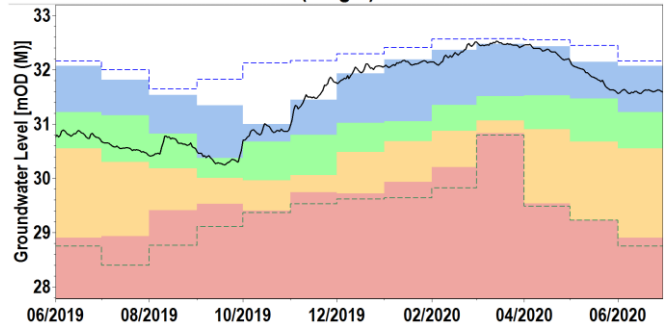
2. KNOCKLAUN (Monaghan)



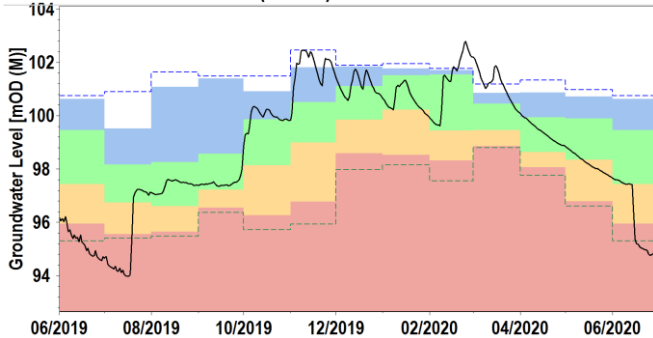
3. MATTOCK MK1 DEEP (Meath)



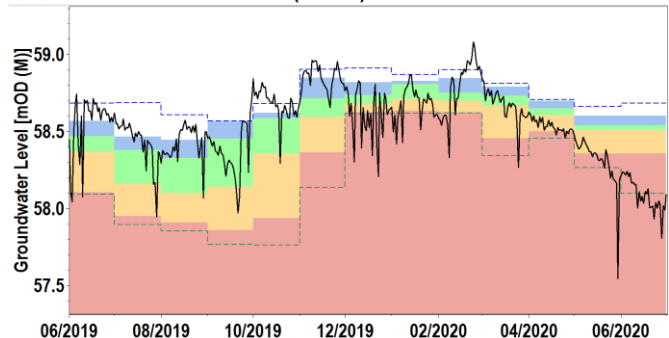
4. BOG OF THE RING OW3D (Fingal)



5. DUNSHAUGHLIN PW6 (Meath)

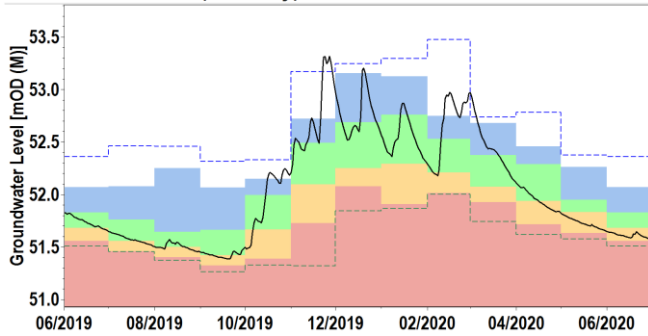


6. RYEWATER RW1 - DEEP (Meath)

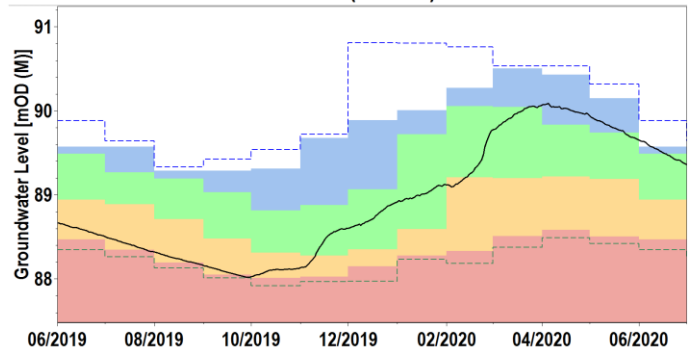


Hydrology Summary Bulletin - June 2020

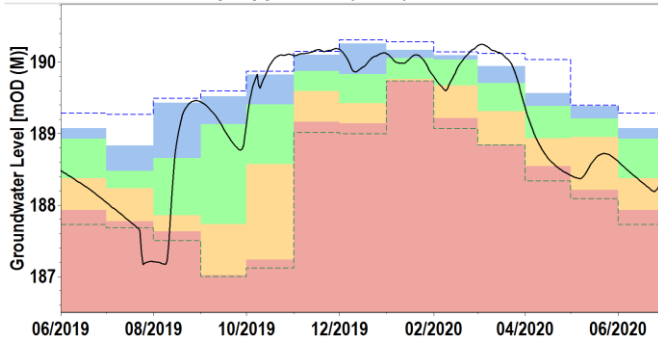
8. KNOCKTOPHER (Kilkenny)



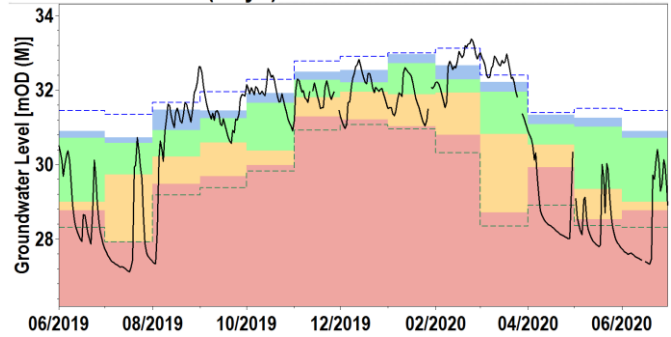
7. POLLARDSTOWN FEN MB 30 (Kildare)



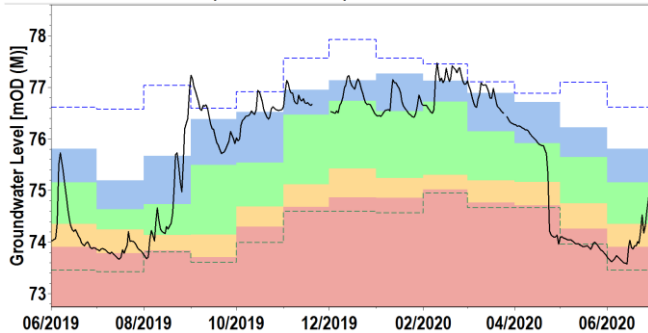
9. DRIPSEY DR1 Deep Upper Site (Cork)



10. SHRULE GWL (Mayo)



11. AGHADRESTAN (Roscommon)



12. GLENCASTLE GC1 Deep (Mayo)

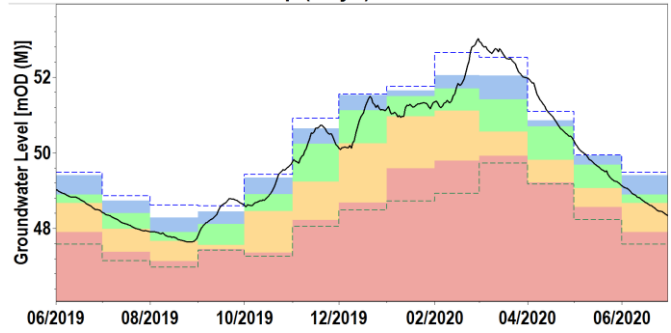





Figure 9: Daily mean groundwater levels (black trace) measured in meters above ordnance datum compared to the 10%tile, 30%tile, 70%tile and 95%tile for each month for the period of record and long-term maximum and minimum levels. All data are provisional and may be subject to revision. (Source: EPA)

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

Glossary of Terms

Aquifer Type	An aquifer is an underground body of water bearing rock or unconsolidated materials (gravel or sand) from which groundwater can be extracted in useful amounts. For the purposes of this report they have been grouped into four aquifer categories as follows: <ul style="list-style-type: none"> ➤ Karstic (Rk and Lk) aquifers; ➤ Gravel (Rg and Lg) aquifers; ➤ Productive fractured bedrock (Rf and Lm) aquifers; ➤ Poorly productive bedrock (LI, PI and Pu) aquifers.
Dry spell	A dry spell is a period of 15 or more consecutive days to none of which is credited 1.0 mm or more of precipitation (i.e. daily tot < 1.0 mm).
Long term average (LTA)	The arithmetic mean calculated from historic record. For rainfall, the period 1981 to 2010 is used. For other parameters, such as groundwater levels, lake levels and river flow the period may vary according to data availability.
mOD	Groundwater levels or lake levels above ordnance datum. In most cases this is relative to mean sea level at Malin but in some cases is relative to Poolbeg.
Long-term monthly average	The arithmetic mean calculated from historic record of all monthly averages.
Percentile Level/Flow	Level or flow that is equalled or exceeded the stated percent of the time, e.g. 30%tile is the level or flow that is equalled or exceeded 30 percent of the time.
Very Wet Days	A very wet day is a day with 10.0 mm or more of rainfall.
Wet Days	A wet day is a day with 1.0 mm or more of rainfall.

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](#).