

# Monthly Water Situation Report August 2016

# **Natural Resources Wales**

- The monthly rainfall total received for Wales during August was 107% of the Long Term Average (LTA, 1961-90). South East, South West and North Wales received 117%, 99% and 106% of the LTA, respectively.
- At the end of August, soil moisture deficit (SMD) values across Wales were between 1.9 and 115mm for all MORECS squares. The difference when compared to the long term average August (1961-90), ranged from -28.1mm (wetter) to 39.0mm (drier).
- For river flows in Wales, 19 out of 30 indicator sites which had flow data were classed as *Normal* for August. 10 sites were classed as *Above normal* and the remaining 1 site was classed as *Below normal*.
- The overall reservoir storage across all indicator sites was greater than 85% full at the end of August and all reservoirs were within normal operating ranges.

### Rainfall\*

The monthly rainfall total received for Wales was 107% of the LTA for August. The percentage of rainfall recorded in catchments compared with the long term average (1961-90) across Wales was between 75% (Dee) and 128% (Dysynni). The rainfall total for Wales was 7mm more than the August LTA. For South East, South West and North Wales the rainfall totals were 117%, 99% and 106% of the LTA, respectively.

 Rainfall Map
 National

 Rainfall Charts
 National & Areas
 South East Wales
 North Wales
 South West Wales

\* using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright)

### Soil Moisture Deficit/Recharge

The 23 MORECS squares had SMD values between 1.9 and 115mm. 16 out of 23 squares had SMD values which were less than the long-term average (wetter) and only 7 squares had SMD values which were greater than the long-term average (drier)

 SMD Map
 National

 SMD Charts
 Compare to LTA

All data are provisional and may be subject to revision.

### **River Flows**

River flows at 19 sites (out of 30 sites which had flow data ) were classed as *Normal*. 10 sites were classed as *Above normal* and the remaining 1 site was classed as *Below normal*.

*North*: Flows in the area ranged from 61% (River Ceiriog at Brynkinalt Weir) to 127% (River Conwy at Cwmlanerch) of the August LTA Values.

*South East:* Flows in the area ranged from 53% (River Lugg at Butts Bridge) to 150% (River Ely at St Fagans) of the August LTA values.

*South West:* The river flows within this area ranged from 63% (River Teifi at Glanteifi) to 167% (River Ewenny at Keepers Lodge) of the August LTA values.

River Flow Map	<u>National</u>		
River Flow Table	% of LTA and comp	pare to previou	<u>s year</u>
<b>River Flow Charts</b>	South East Wales	North Wales	South West Wales

### **Groundwater Levels**

Groundwater levels for August at all indicator sites (10 sites) were classed between *Below normal* (Eastwick and Greenfield Garage) and *Exceptionally high* (Hollybush). 5 sites were classed as *Normal* (Pant-y-Lladron, Fernbank, Pont y Cambwll, Handley and Broxton Obs) and the two remaining sites were classed as *Above normal* (Llanfair DC Obs and Dodleston Obs).

Groundwater MapNationalGroundwater ChartsSouth East WalesNorth WalesSouth West Wales

### **Reservoir Storage**

At the end of August most of the indicator reservoirs (14 out of 18) were greater than 85% full.

Reservoir Charts South East Wales North Wales South West Wales

All data on Water Situation Reports are provisional, based on spot readings, and are subject to revision.

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### **Natural Resources Wales**

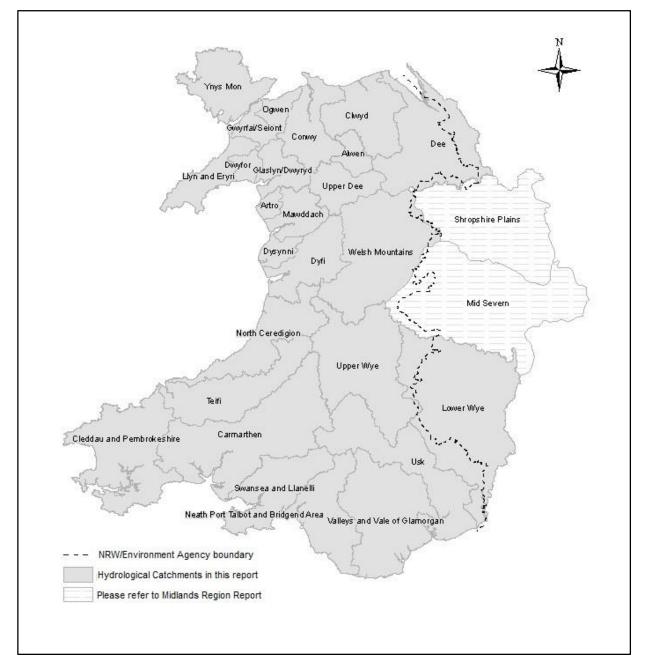


Figure 1: The Natural Resources Wales Water Situation Report features sites in the catchments shown. Parts of the Shropshire Plains and Mid Severn catchments are within Wales. For full information on these catchments, please see the Environment Agency Midlands Water Situation Report.

For areas adjoining Natural Resources Wales, please see the reports for Environment Agency Midlands and North West England:

Environment Agency - Midlands, England Water Situation Report Environment Agency - North West, England Water Situation Report

All data are provisional and may be subject to revision.

### Rainfall

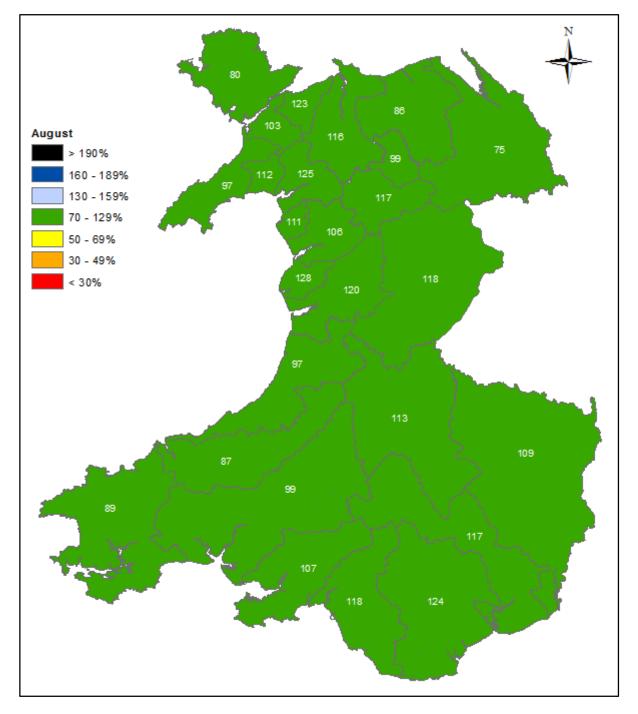
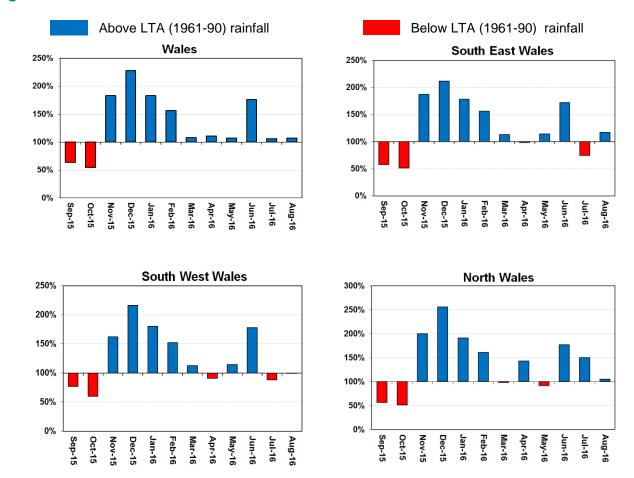


Figure 2: Calculated catchment average August rainfall totals as a percentage of the 1961-90 August long term average for Natural Resources Wales catchments, using NCIC (National Climate Information Centre) data (*Source: Met Office* © *Crown Copyright*).

All data are provisional and may be subject to revision.

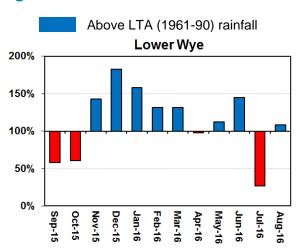
# **Rainfall Charts**



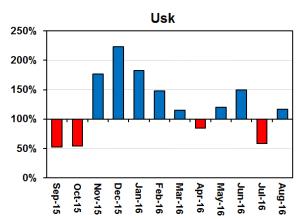
### Figure 3: Rainfall Charts: National and Areas

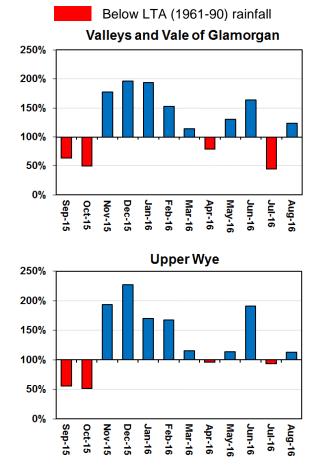
Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for Natural Resources Wales and Areas, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

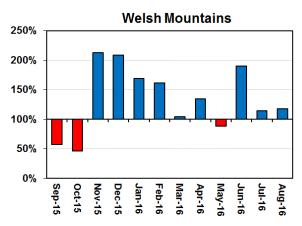
All data are provisional and Jul be subject to revision.



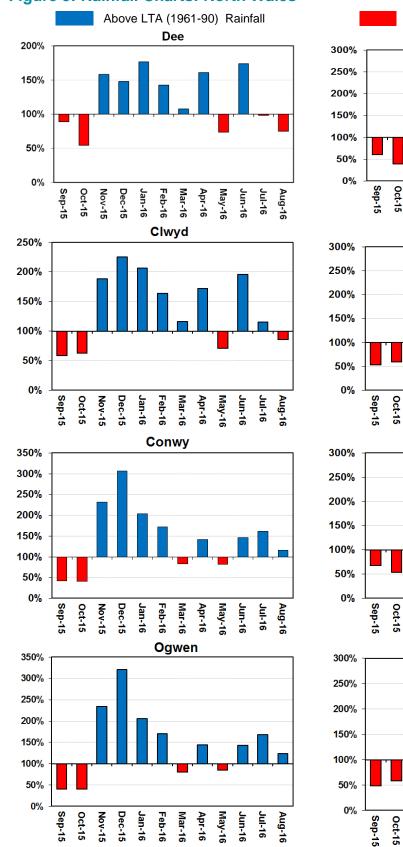
### Figure 4: Rainfall Charts: South East Wales







Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for South East Wales, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).



### Figure 5: Rainfall Charts: North Wales



Below LTA (1961-90) Rainfall

Dec-15 Nov-15

Dec-15 Nov-15

Nov-15

Jan-16

<sup>=</sup>eb-16

Feb-16

Mar-16

Jan-16 Dec-15

Nov-15

Jul-16 Jun-16 May-16 Apr-16

Dec-15

Jan-16

Mar-16 Feb-16

Ynys Mon

Apr-16 Mar-16

Lleyn & Eryri

Apr-16

Mar-16

Dwyfor

May-16

Jun-16

Jul-16 Jun-16 May-16

Feb-16 Jan-16

Upper Dee

Apr-16

May-16

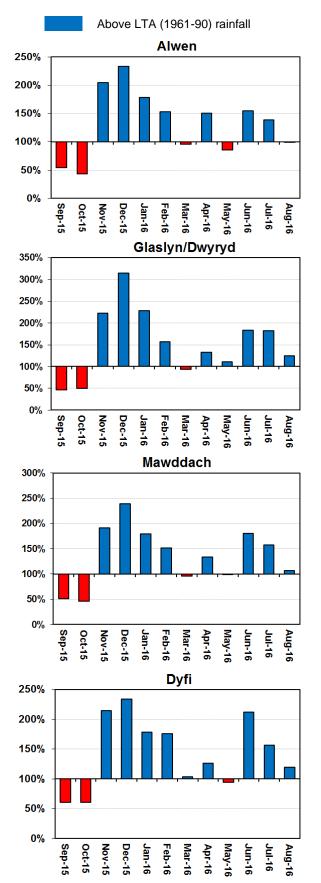
Jul-16 Jun-16 Aug-16

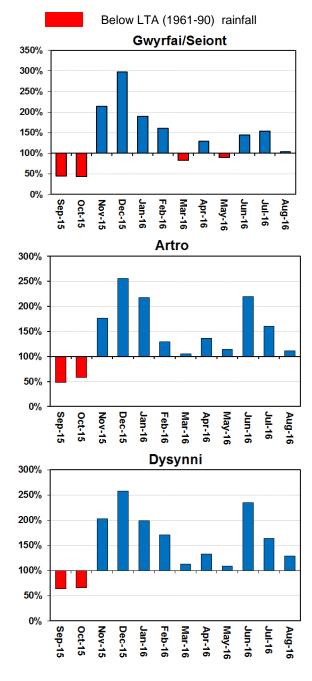
Aug-16

Aug-16

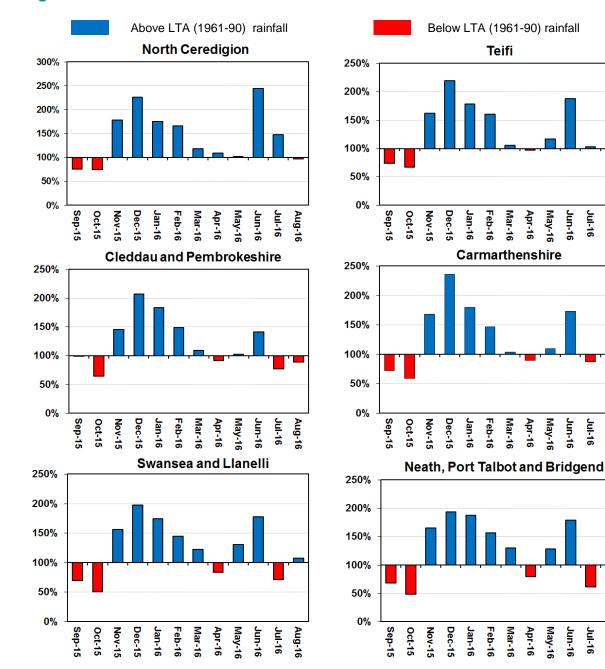
Aug-16

Jul-16





Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for North Wales, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).



### Figure 6: Rainfall Charts: South West Wales

Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for South West Wales, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

Teifi

Feb-16

Feb-16

Feb-16 Mar-16

Mar-16

Aug-16

Aug-16

Aug-16

Jul-16

May-16

May-16

May-16 Jun-16 Jul-16

Apr-16

Jun-16 Jul-16

Apr-16

Mar-16

Apr-16

Jun-16

# Soil Moisture Deficit (SMD)

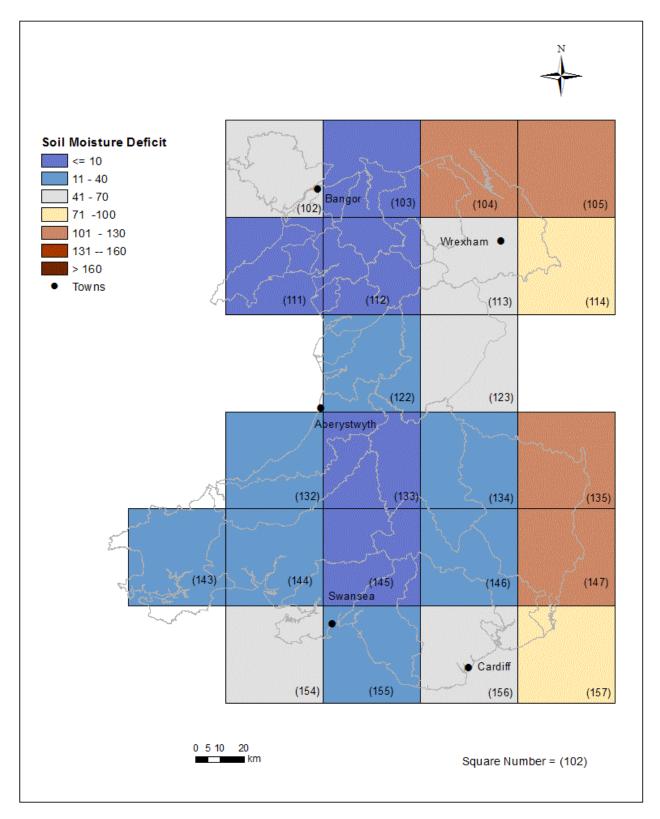


Figure 7: MORECS soil moisture deficits (mm) for August for real land use for Natural Resources Wales (Source: Met Office © Crown Copyright).

Above LTA (1961-90) SMD (Drier)

Below LTA (1961-90) SMD (Wetter)

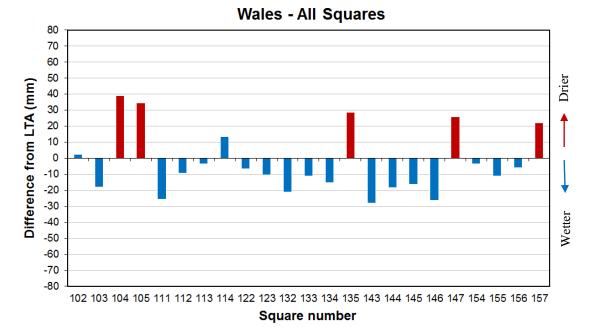


Figure 8: MORECS month end soil moisture deficits difference (mm) from the 1961-90 long term monthly average (LTA) for July for real land use for Natural Resources Wales squares (*Source: Met Office* © *Crown Copyright*).

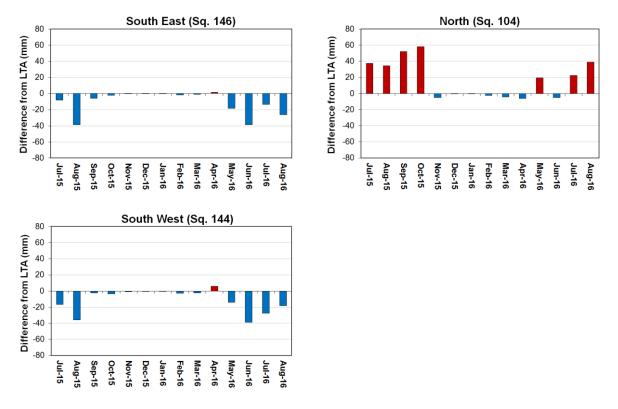


Figure 9: MORECS month end soil moisture deficit difference (mm) from the 1961-90 long term monthly average (LTA) for real land use for South East, North and South West (*Source: Met Office* © *Crown Copyright*). (Note: no LTA available for Natural Resources Wales)

# **River Flow**

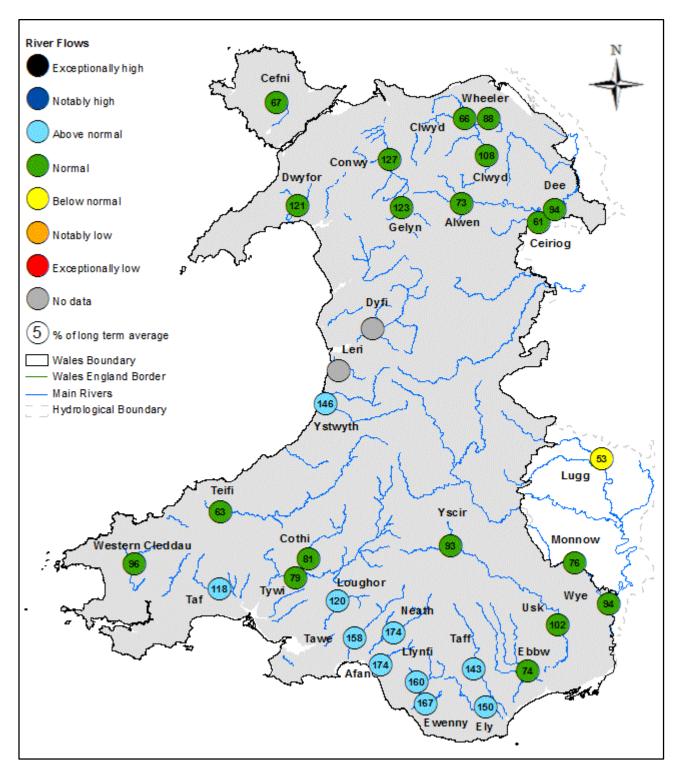


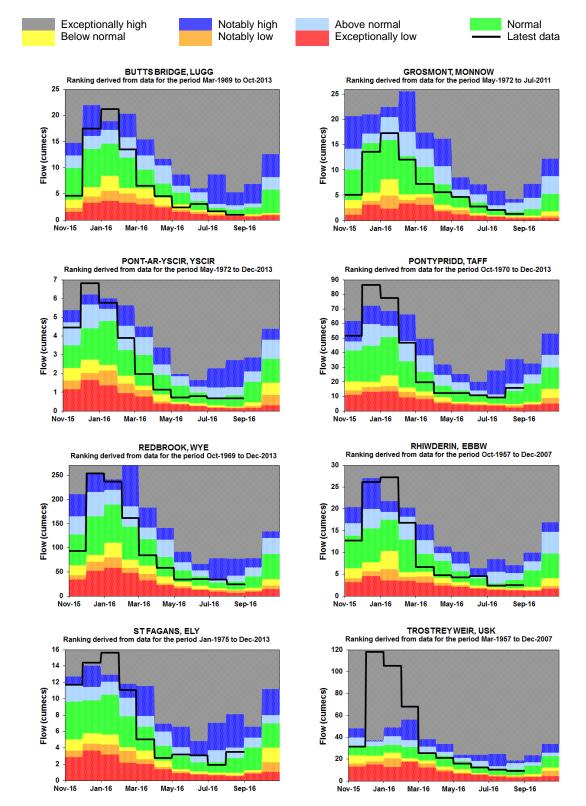
Figure 10: Monthly mean river flow for August, classed relative to analysis of historic August monthly means (*Source: Natural Resources Wales*).

Normal         Class         % of LTA         Flow (m3/s)         % of LTA         Flow (m3/s)         LTA         Monthy (m3/s)         Monthy (m3/s)           River Flow Sites : South East Area           Butts Bridge         Lugg         Below normal         53%         1.01         51%         0.96         1.90         0.51         6.9           Grosmont         Monnow         Normal         93%         0.67         156%         1.12         0.72         0.10         3.2           Pont at Ysoir         Ysoir         Normal         93%         0.67         156%         1.12         0.72         0.10         3.2           Pont at Ysoir         Ysoir         Normal         93%         0.67         156%         1.12         0.72         0.10         3.2           Pont at Ysoir         Ysoir         Normal         94%         2.4.30         17%         18.48         25.95         5.18         79.7           Riwderin         Ebbw         Normal         16%         3.50         155%         3.62         2.34         0.46         11.3           Trostrey Weir         Usk         Normal         10%         0.69         100%         2.17         1.13         0.18	SITE NAME RIVER		August 2016			August 2015		August LTA		
Butts Bridge         Lugg         Below normal         53%         1.01         51%         0.96         1.90         0.51         6.97           Grosmont         Monnow         Normal         7%         1.29         7%         1.34         1.69         0.56         8.1           Pont ar Ysair         Ysair         Normal         93%         0.67         156%         1.12         0.72         0.10         3.2           Pontypridd         Taff         Above normal         143%         15.86         158%         17.49         11.10         2.29         49.0           Redbrook         Wye         Normal         94%         24.30         71%         18.48         25.95         5.18         77.7           Rhivderin         Ebbw         Normal         102%         9.13         145%         3.80         3.35         0.93         14.3           St Fagans         Ely         Abore normal         102%         9.13         145%         3.20         8.96         0.35         65%         0.26         0.40         0.19         0.8           Bodfari         Wheeler         Normal         67%         0.66         33%         0.03         0.00         0.3		Class		-		-	LTA	Min	Monthly Max (m3/s)	
Grosmont         Mornal         Normal         76%         1.29         79%         1.34         1.69         0.36         8.1           Pont ar Yscir         Yscir         Normal         93%         0.67         156%         1.12         0.72         0.10         3.2           Pontypridd         Taff         Above normal         143%         15.86         158%         17.49         11.10         2.29         49.0           Redbrook         Wye         Normal         94%         24.30         71%         18.48         25.55         5.18         79.7           Rhiwderin         Ebbw         Normal         16%         3.50         155%         3.62         2.34         0.46         11.3           Trostrey Weir         Usk         Normal         102%         9.13         145%         13.01         8.96         2.70         27.5           River Flow Sites : North Area         Normal         67%         0.06         33%         0.03         0.09         0.00         0.33           Bodfari         Wheeler         Normal         67%         0.06         33%         0.03         0.03         0.03         0.00         0.33         0.03         0.00	River Flow Sites : South East Area									
Pont ar Yscir         Yscir         Normal         93%         0.67         156%         1.12         0.72         0.10         3.2           Pontypridd         Taff         Above normal         143%         15.86         158%         17.49         11.10         2.29         49.0           Redbrook         Wye         Normal         94%         24.30         71%         18.48         25.95         5.18         79.7           Rhiwderin         Ebbw         Normal         74%         2.48         116%         3.88         3.35         0.93         14.3           St Fagans         Ely         Above normal         102%         9.13         145%         13.01         8.96         2.70         27.5           River Flow Sites : North Area         Normal         67%         0.06         33%         0.03         0.09         0.08           Bodfford         Cefrig         Normal         67%         0.06         33%         0.03         0.09         0.33           Cwmlanerch         Conwy         Normal         127%         14.45         98%         11.22         11.41         0.73         3.74           Cynefail         Gelyn         Normal         127%	Butts Bridge	Lugg	Below normal	53%	1.01	51%	0.96	1.90	0.51	6.97
Pontypridd         Taff         Above normal         143%         15.86         15.8%         17.49         11.10         2.29         49.0           Redbrook         Wye         Normal         74%         24.30         71%         18.48         25.95         5.18         79.7           Rhiwderin         Ebbw         Normal         74%         2.48         116%         3.88         3.35         0.93         14.3           St Fagans         Ely         Above normal         150%         3.60         155%         3.62         2.34         0.46         11.3           Trostrey Weir         Usk         Normal         102%         9.13         145%         13.01         8.96         2.70         27.5           River Flow Sites : North Area         Stronth Area         88%         0.35         65%         0.26         0.40         0.19         0.8           Bodfari         Wheeler         Normal         67%         0.06         33%         0.03         0.09         0.00         0.3           Bodfarid         Cefnig         Normal         127%         14.45         98%         11.22         11.41         0.73         37.4           Cynefaii         Gelyn <td>Grosmont</td> <td>Monnow</td> <td>Normal</td> <td>76%</td> <td>1.29</td> <td>79%</td> <td>1.34</td> <td>1.69</td> <td>0.36</td> <td>8.17</td>	Grosmont	Monnow	Normal	76%	1.29	79%	1.34	1.69	0.36	8.17
Redbrook         Wye         Normal         94%         24.30         71%         18.48         25.95         5.18         79.7           Rhiwderin         Ebbw         Normal         74%         2.48         116%         3.88         3.35         0.93         14.3           St Fagans         Ely         Above normal         150%         3.60         155%         3.62         2.34         0.46         11.3           Trostrey Weir         Usk         Normal         102%         9.13         145%         13.01         8.96         2.70         27.5           River Flow Sites : North Area         Normal         67%         0.06         33%         0.03         0.09         0.00         0.33           Bodffordd         Cefni         Normal         67%         0.06         33%         0.03         0.09         0.00         0.33           Bodffordd         Cefniog         Normal         127%         14.45         98%         11.22         11.41         0.73         37.4           Cynefail         Gelyn         Normal         122%         0.48         113%         0.44         0.39         0.03         1.00           Druid         Alwen         No	Pont ar Yscir	Yscir	Normal	93%	0.67	156%	1.12	0.72	0.10	3.23
Rhiwderin         Ebw         Normal         74%         2.48         116%         3.88         3.35         0.93         14.3           St Fagans         Ely         Above normal         150%         3.50         155%         3.62         2.34         0.46         11.3           Trostrey Weir         Usk         Normal         102%         9.13         145%         13.01         8.96         2.70         27.5           River Flow Sites : North Area         Normal         67%         0.06         33%         0.03         0.09         0.00         0.33           Bodfari         Wheeler         Normal         67%         0.06         33%         0.03         0.09         0.00         0.33           Bodffordd         Cefni         Normal         67%         0.06         33%         0.03         0.09         0.00         0.33           Bodfari         Ceiriog         Normal         127%         14.45         98%         11.22         11.41         0.73         37.4           Cynefail         Gelyn         Normal         123%         0.48         113%         0.44         0.39         0.03         1.00           Darid         Alwen         Norma	Pontypridd	Taff	Above normal	143%	15.86	158%	17.49	11.10	2.29	49.00
St Fagans         Ely         Above normal         150%         3.60         155%         3.62         2.34         0.46         11.3           Trostrey Weir         Usk         Normal         102%         9.13         145%         13.01         8.96         2.70         27.5           River Flow Sites : North Area         Normal         67%         0.06         33%         0.03         0.09         0.00         0.33           Bodfford         Cefni         Normal         67%         0.66         33%         0.03         0.09         0.00         0.33           Bodfford         Cefnig         Normal         67%         0.68         33%         0.44         0.99         0.03         1.00           Cwmlanerch         Convy         Normal         127%         14.45         98%         11.22         11.14         0.73         37.4           Cynefail         Gelyn         Normal         127%         14.45         98%         11.22         11.41         0.73         37.4           Dol y Bont         Leri         N/A         N/A         N/A         N/A         N/A         1.03         0.08         3.00           Dyfi bridge         Dyfi         N/	Redbrook	Wye	Normal	94%	24.30	71%	18.48	25.95	5.18	79.70
Trostrey Weir         Usk         Normal         102%         9.13         145%         13.01         8.96         2.70         27.5           River Flow Sites : North Area         Normal         98%         0.35         65%         0.26         0.40         0.19         0.87           Bodfari         Wheeler         Normal         67%         0.06         33%         0.03         0.09         0.00         0.33           Bodffordd         Cefrig         Normal         61%         0.69         105%         2.17         1.13         0.18         5.22           Cwmlanerch         Conwy         Normal         127%         14.45         98%         11.22         11.41         0.73         37.4           Cynefail         Gelyn         Normal         123%         0.48         113%         0.44         0.39         0.03         1.00           Dolly Bont         Leri         N/A         N/A         N/A         N/A         N/A         N/A         1.03         0.08         3.00           Dyli bridge         Dyfi         N/A         N/A         N/A         N/A         N/A         N/A         1.52         0.66         40.4           GarndolbenmaenD	Rhiwderin	Ebbw	Normal	74%	2.48	116%	3.88	3.35	0.93	14.30
River Flow Sites : North Area           Bodfari         Wheeler         Normal         88%         0.35         65%         0.26         0.40         0.19         0.8           Bodffordd         Cefni         Normal         67%         0.06         33%         0.03         0.09         0.00         0.3           Brynkinalt Weir         Ceiriog         Normal         61%         0.69         105%         2.17         1.13         0.18         5.22           Cwmlanerch         Conwy         Normal         127%         14.45         98%         11.22         11.41         0.73         37.4           Cynefail         Gelyn         Normal         123%         0.48         113%         0.44         0.39         0.03         1.00           Dol y Bont         Leri         N/A         N/A         N/A         N/A         N/A         1.03         0.08         3.00           Druid         Alwen         Normal         73%         1.55         79%         167         2.12         0.39         5.9           Dyfi bridge         Dyfi         N/A         N/A         N/A         N/A         N/A         1.65         2.76         0.12         6.22 <td>St Fagans</td> <td>Ely</td> <td>Above normal</td> <td>150%</td> <td>3.50</td> <td>155%</td> <td>3.62</td> <td>2.34</td> <td>0.46</td> <td>11.30</td>	St Fagans	Ely	Above normal	150%	3.50	155%	3.62	2.34	0.46	11.30
Bodflari         Wheeler         Normal         88%         0.35         65%         0.26         0.40         0.19         0.8           Bodffordd         Cefni         Normal         67%         0.06         33%         0.03         0.09         0.00         0.3           Brynkinalt Weir         Ceiriog         Normal         61%         0.69         105%         2.17         1.13         0.18         5.20           Cwmlanerch         Conwy         Normal         127%         14.45         98%         11.22         11.41         0.73         37.4           Cynefail         Gelyn         Normal         123%         0.48         113%         0.44         0.39         0.03         1.00           Dol y Bont         Leri         N/A         N/A         N/A         N/A         N/A         0.48         13%         0.44         0.39         0.03         1.00           Druid         Alwen         Normal         73%         1.55         79%         1.67         2.12         0.39         5.9           Dyfi bridge         Dyfi         N/A         N/A         N/A         N/A         N/A         1.04         0.62         0.62         0.61	Trostrey Weir	Usk	Normal	102%	9.13	145%	13.01	8.96	2.70	27.50
Bodffordd         Cefni         Normal         67%         0.06         33%         0.03         0.09         0.00         0.33           Brynkinalt Weir         Ceiriog         Normal         61%         0.69         105%         2.17         1.13         0.18         5.24           Cwmlanerch         Conwy         Normal         127%         14.45         98%         11.22         11.41         0.73         37.4           Cynefail         Gelyn         Normal         123%         0.48         113%         0.44         0.39         0.03         1.00           Dol y Bont         Leri         N/A         N/A         N/A         N/A         N/A         1.03         0.08         3.00           Druid         Alwen         Normal         73%         1.55         79%         1.67         2.12         0.39         5.99           Dyfi bridge         Dyfi         N/A         N/A         N/A         N/A         N/A         11.22         0.66         40.44           Garndolbenmaen         Dwyfor         Normal         121%         2.49         105%         2.17         2.06         0.12         6.24           Manley Hall         Dee         N	<b>River Flow Site</b>	s : North Are	ea	•						
Brynkinalt Weir         Ceiriog         Normal         61%         0.69         10%         2.17         1.13         0.18         5.28           Cwmlanerch         Conwy         Normal         127%         14.45         98%         11.22         11.41         0.73         37.4           Cynefail         Gelyn         Normal         123%         0.48         113%         0.44         0.39         0.03         1.00           Dol y Bont         Leri         N/A         N/A         N/A         N/A         N/A         N/A         0.48         0.39         0.03         1.00           Dol y Bont         Leri         N/A         N/A         N/A         N/A         N/A         N/A         0.48         0.39         0.03         1.00           Dol y Bont         Leri         N/A         N/A         N/A         N/A         N/A         N/A         N/A         0.48         0.49         0.43         0.00         0.03         0.00         0.04         0.05         0.07         0.62         0.62         0.62         0.62         0.62         0.62         0.65         0.7         0.7         0.26         0.05         0.7         0.7         0.26         0.05	Bodfari	Wheeler	Normal	88%	0.35	65%	0.26	0.40	0.19	0.87
Cwmlanerch         Conwy         Normal         127%         14.45         98%         11.22         11.41         0.73         37.4           Cynefail         Gelyn         Normal         123%         0.48         113%         0.44         0.39         0.03         1.00           Dol y Bont         Leri         N/A         N/A         N/A         N/A         N/A         N/A         1.03         0.08         3.00           Druid         Alwen         Normal         73%         1.55         79%         1.67         2.12         0.39         5.99           Dyfi bridge         Dyfi         N/A         N/A         N/A         N/A         N/A         N/A         12.52         0.66         40.4           Garndolbenmaen         Dwyfor         Normal         121%         2.49         105%         2.17         2.06         0.12         6.22           Manley Hall         Dee         Normal         108%         0.28         27%         0.07         0.26         0.05         0.7           Ruthin Weir         Clwyd         Normal         108%         0.28         27%         0.07         0.26         0.05         0.7           Capel Dewi	Bodffordd	Cefni	Normal	67%	0.06	33%	0.03	0.09	0.00	0.36
Cynefail         Gelyn         Normal         123%         0.48         113%         0.44         0.39         0.03         1.00           Dol y Bont         Leri         N/A         N/A </td <td>Brynkinalt Weir</td> <td>Ceiriog</td> <td>Normal</td> <td>61%</td> <td>0.69</td> <td>105%</td> <td>2.17</td> <td>1.13</td> <td>0.18</td> <td>5.20</td>	Brynkinalt Weir	Ceiriog	Normal	61%	0.69	105%	2.17	1.13	0.18	5.20
Dol y Bont         Leri         N/A         N/A         N/A         N/A         N/A         N/A         1.03         0.08         3.00           Druid         Alwen         Normal         73%         1.55         79%         1.67         2.12         0.39         5.90           Dyfi bridge         Dyfi         N/A         N/A         N/A         N/A         N/A         N/A         N/A         1.25         0.66         40.4           Garndolbenmaen         Dwyfor         Normal         121%         2.49         105%         2.17         2.06         0.12         6.23           Manley Hall         Dee         Normal         94%         14.33         90%         13.79         15.32         7.08         38.6           Pont y Cambwll         Clwyd         Normal         66%         1.31         44%         0.87         1.99         0.51         7.14           Ruthin Weir         Clwyd         Normal         108%         0.28         27%         0.07         0.26         0.05         0.7           River Flow Sites : South West Area         Issi         118%         2.49         158%         5.60         3.54         0.33         18.3	Cwmlanerch	Conwy	Normal	127%	14.45	98%	11.22	11.41	0.73	37.40
Druid         Alwen         Normal         73%         1.55         79%         1.67         2.12         0.39         5.99           Dyfi bridge         Dyfi         N/A         N/A         N/A         N/A         N/A         N/A         1.252         0.66         40.4           Garndolbenmaen         Dwyfor         Normal         121%         2.49         105%         2.17         2.06         0.12         6.22           Manley Hall         Dee         Normal         94%         14.33         90%         13.79         15.32         7.08         38.6           Pont y Cambwll         Clwyd         Normal         66%         1.31         44%         0.87         1.99         0.51         7.11           Ruthin Weir         Clwyd         Normal         108%         0.28         27%         0.07         0.26         0.05         0.7           River Flow Sites : South West Area         South West Area         118%         2.49         158%         5.60         3.54         0.33         18.3           Copy Fran         Taf         Above normal         118%         2.49         158%         5.60         3.54         0.33         18.3           Coytrahen <td>Cynefail</td> <td>Gelyn</td> <td>Normal</td> <td>123%</td> <td>0.48</td> <td>113%</td> <td>0.44</td> <td>0.39</td> <td>0.03</td> <td>1.09</td>	Cynefail	Gelyn	Normal	123%	0.48	113%	0.44	0.39	0.03	1.09
Dyfi bridge         Dyfi         N/A         N/A         N/A         N/A         N/A         N/A         N/A         I2.52         0.66         40.4           Garndolbenmaen         Dwyfor         Normal         121%         2.49         105%         2.17         2.06         0.12         6.22           Manley Hall         Dee         Normal         94%         14.33         90%         13.79         15.32         7.08         38.6           Pont y Cambwll         Clwyd         Normal         66%         1.31         44%         0.87         1.99         0.51         7.14           Ruthin Weir         Clwyd         Normal         108%         0.28         27%         0.07         0.26         0.05         0.7           River Flow Sites : South West Area         108%         0.28         27%         0.07         0.26         0.05         0.7           Capel Dewi         Tywi         Normal         79%         23.20         150%         28.65         19.16         2.70         78.5           Clog y Fran         Taf         Above normal         118%         2.49         158%         5.60         3.54         0.33         18.3           Coytrahen	Dol y Bont	Leri	N/A	N/A	N/A	N/A	N/A	1.03	0.08	3.00
Garndolbenmaen         Dwyfor         Normal         121%         2.49         105%         2.17         2.06         0.12         6.24           Manley Hall         Dee         Normal         94%         14.33         90%         13.79         15.32         7.08         38.6           Pont y Cambwll         Clwyd         Normal         66%         1.31         44%         0.87         1.99         0.51         7.14           Ruthin Weir         Clwyd         Normal         108%         0.28         27%         0.07         0.26         0.05         0.7           River Flow Sites : South West Area         Image: South West Area         118%         2.49         150%         28.65         19.16         2.70         78.5           Clog y Fran         Taf         Above normal         118%         2.49         158%         5.60         3.54         0.33         18.3           Coytrahen         Llynfi         Above normal         160%         2.57         134%         2.15         1.61         0.26         6.00           Felin Mynachdy         Cothi         Normal         81%         5.08         153%         9.59         6.25         0.36         23.4	Druid	Alwen	Normal	73%	1.55	79%	1.67	2.12	0.39	5.90
Manley Hall         Dee         Normal         94%         14.33         90%         13.79         15.32         7.08         38.6           Pont y Cambwll         Clwyd         Normal         66%         1.31         44%         0.87         1.99         0.51         7.14           Ruthin Weir         Clwyd         Normal         108%         0.28         27%         0.07         0.26         0.05         0.74           Ruthin Weir         Clwyd         Normal         79%         23.20         150%         28.65         19.16         2.70         78.5           Capel Dewi         Tywi         Normal         79%         23.20         150%         28.65         19.16         2.70         78.5           Clog y Fran         Taf         Above normal         118%         2.49         158%         5.60         3.54         0.33         18.3           Coytrahen         Llynfi         Above normal         160%         2.57         134%         2.15         1.61         0.26         6.00           Felin Mynachdy         Cothi         Normal         81%         5.08         153%         9.59         6.25         0.36         23.4           Glanteifi	Dyfi bridge	Dyfi	N/A	N/A	N/A	N/A	N/A	12.52	0.66	40.40
Pont y Cambwll         Clwyd         Normal         66%         1.31         44%         0.87         1.99         0.51         7.14           Ruthin Weir         Clwyd         Normal         108%         0.28         27%         0.07         0.26         0.05         0.74           Ruthin Weir         Clwyd         Normal         108%         0.28         27%         0.07         0.26         0.05         0.74           River Flow Sites : South West Area         Tywi         Normal         79%         23.20         150%         28.65         19.16         2.70         78.5           Clog y Fran         Taf         Above normal         118%         2.49         158%         5.60         3.54         0.33         18.3           Coytrahen         Llynfi         Above normal         160%         2.57         134%         2.15         1.61         0.26         6.00           Felin Mynachdy         Cothi         Normal         81%         5.08         153%         9.59         6.25         0.36         23.4           Glanteifi         Teifi         Normal         63%         8.52         101%         13.69         13.56         1.13         77.3 <t< td=""><td>Garndolbenmaen</td><td>Dwyfor</td><td>Normal</td><td>121%</td><td>2.49</td><td>105%</td><td>2.17</td><td>2.06</td><td>0.12</td><td>6.25</td></t<>	Garndolbenmaen	Dwyfor	Normal	121%	2.49	105%	2.17	2.06	0.12	6.25
Ruthin Weir         Clwyd         Normal         108%         0.28         27%         0.07         0.26         0.05         0.74           River Flow Sites : South West Area         Tywi         Normal         79%         23.20         150%         28.65         19.16         2.70         78.5           Clog y Fran         Taf         Above normal         118%         2.49         158%         5.60         3.54         0.33         18.3           Coytrahen         Llynfi         Above normal         160%         2.57         134%         2.15         1.61         0.26         6.00           Felin Mynachdy         Cothi         Normal         81%         5.08         153%         9.59         6.25         0.36         23.4           Glanteifi         Teifi         Normal         63%         8.52         101%         13.69         13.56         1.13         77.3           Keepers Lodge         Ewenny         Above normal         167%         1.74         153%         1.59         1.04         0.22         4.22           Marcroft         Afan         Above normal         174%         6.52         190%         6.14         3.75         0.55         13.3	Manley Hall	Dee	Normal	94%	14.33	90%	13.79	15.32	7.08	38.60
River Flow Sites : South West Area           Capel Dewi         Tywi         Normal         79%         23.20         150%         28.65         19.16         2.70         78.5           Clog y Fran         Taf         Above normal         118%         2.49         158%         5.60         3.54         0.33         18.3           Coytrahen         Llynfi         Above normal         160%         2.57         134%         2.15         1.61         0.26         6.00           Felin Mynachdy         Cothi         Normal         81%         5.08         153%         9.59         6.25         0.36         23.4           Glanteifi         Teifi         Normal         63%         8.52         101%         13.69         13.56         1.13         77.3           Keepers Lodge         Ewenny         Above normal         167%         1.74         153%         1.59         1.04         0.22         4.24           Marcroft         Afan         Above normal         174%         6.52         190%         6.14         3.75         0.55         13.3           Pont Llolwyn         Ystwyth         Above normal         146%         4.55         87%         2.69         3.11	Pont y Cambwll	Clwyd	Normal	66%	1.31	44%	0.87	1.99	0.51	7.18
Capel Dewi         Tywi         Normal         79%         23.20         150%         28.65         19.16         2.70         78.5           Clog y Fran         Taf         Above normal         118%         2.49         158%         5.60         3.54         0.33         18.3           Coytrahen         Llynfi         Above normal         160%         2.57         134%         2.15         1.61         0.26         6.00           Felin Mynachdy         Cothi         Normal         81%         5.08         153%         9.59         6.25         0.36         23.4           Glanteifi         Teifi         Normal         63%         8.52         101%         13.69         13.56         1.13         77.3           Keepers Lodge         Ewenny         Above normal         167%         1.74         153%         1.59         1.04         0.22         4.24           Marcroft         Afan         Above normal         174%         6.52         190%         6.14         3.75         0.55         13.3           Pont Llolwyn         Ystwyth         Above normal         146%         4.55         87%         2.69         3.11         0.18         8.57	Ruthin Weir	Clwyd	Normal	108%	0.28	27%	0.07	0.26	0.05	0.74
Clog y Fran         Taf         Above normal         118%         2.49         158%         5.60         3.54         0.33         18.33           Coytrahen         Llynfi         Above normal         160%         2.57         134%         2.15         1.61         0.26         6.00           Felin Mynachdy         Cothi         Normal         81%         5.08         153%         9.59         6.25         0.36         23.4           Glanteifi         Teifi         Normal         63%         8.52         101%         13.69         13.56         1.13         77.3           Keepers Lodge         Ewenny         Above normal         167%         1.74         153%         1.59         1.04         0.22         4.24           Marcroft         Afan         Above normal         174%         6.52         190%         6.14         3.75         0.55         13.3           Pont Llolwyn         Ystwyth         Above normal         146%         4.55         87%         2.69         3.11         0.18         8.57	River Flow Sites : South West Area									
Coytrahen         Llynfi         Above normal         160%         2.57         134%         2.15         1.61         0.26         6.00           Felin Mynachdy         Cothi         Normal         81%         5.08         153%         9.59         6.25         0.36         23.4           Glanteifi         Teifi         Normal         63%         8.52         101%         13.69         13.56         1.13         77.3           Keepers Lodge         Ewenny         Above normal         167%         1.74         153%         1.59         1.04         0.22         4.24           Marcroft         Afan         Above normal         174%         6.52         190%         6.14         3.75         0.55         13.3           Pont Llolwyn         Ystwyth         Above normal         146%         4.55         87%         2.69         3.11         0.18         8.55	Capel Dewi	Tywi	Normal	79%	23.20	150%	28.65	19.16	2.70	78.50
Felin Mynachdy         Cothi         Normal         81%         5.08         153%         9.59         6.25         0.36         23.4           Glanteifi         Teifi         Normal         63%         8.52         101%         13.69         13.56         1.13         77.3           Keepers Lodge         Ewenny         Above normal         167%         1.74         153%         1.59         1.04         0.22         4.24           Marcroft         Afan         Above normal         174%         6.52         190%         6.14         3.75         0.55         13.3           Pont Llolwyn         Ystwyth         Above normal         146%         4.55         87%         2.69         3.11         0.18         8.57	Clog y Fran	Taf	Above normal	118%	2.49	158%	5.60	3.54	0.33	18.30
Glanteifi         Teifi         Normal         63%         8.52         101%         13.69         13.56         1.13         77.3           Keepers Lodge         Ewenny         Above normal         167%         1.74         153%         1.59         1.04         0.22         4.24           Marcroft         Afan         Above normal         174%         6.52         190%         6.14         3.75         0.55         13.3           Pont Llolwyn         Ystwyth         Above normal         146%         4.55         87%         2.69         3.11         0.18         8.55	Coytrahen	Llynfi	Above normal	160%	2.57	134%	2.15	1.61	0.26	6.06
Keepers Lodge         Ewenny         Above normal         167%         1.74         153%         1.59         1.04         0.22         4.24           Marcroft         Afan         Above normal         174%         6.52         190%         6.14         3.75         0.55         13.3           Pont Llolwyn         Ystwyth         Above normal         146%         4.55         87%         2.69         3.11         0.18         8.57           Treffgame *         Western         Normal         96%         1.28         125%         1.67         1.34         0.24         5.57	Felin Mynachdy	Cothi	Normal	81%	5.08	153%	9.59	6.25	0.36	23.40
Marcroft         Afan         Above normal         174%         6.52         190%         6.14         3.75         0.55         13.3           Pont Llolwyn         Ystwyth         Above normal         146%         4.55         87%         2.69         3.11         0.18         8.55           Treffgame *         Western         Normal         96%         1.28         125%         1.67         1.34         0.24         5.55	Glanteifi	Teifi	Normal	63%	8.52	101%	13.69	13.56	1.13	77.30
Pont Llolwyn         Ystwyth         Above normal         146%         4.55         87%         2.69         3.11         0.18         8.57           Treffgame *         Western         Normal         96%         1.28         125%         1.67         1.34         0.24         5.57	Keepers Lodge	Ewenny	Above normal	167%	1.74	153%	1.59	1.04	0.22	4.24
Treffgarpe * Western Normal 96% 1.28 125% 1.67 1.34 0.24 5.5	Marcroft	Afan	Above normal	174%	6.52	190%	6.14	3.75	0.55	13.30
	Pont Llolwyn	Ystwyth	Above normal	146%	4.55	87%	2.69	3.11	0.18	8.57
	Treffgarne *		Normal	96%	1.28	125%	1.67	1.34	0.24	5.54
Resolven         Neath         Above normal         174%         10.04         172%         9.90         5.76         0.40         22.5	Resolven		Above normal	174%	10.04	172%	9.90	5.76	0.40	22.50
Tir-y-Dail         Loughor         Above normal         120%         1.46         175%         2.13         1.22         0.18         4.40	Tir-y-Dail	Loughor	Above normal	120%	1.46	175%	2.13	1.22	0.18	4.40
Ynystanglws         Tawe         Above normal         158%         12.32         197%         15.37         7.80         1.07         28.6	Ynystanglws	Tawe	Above normal	158%	12.32	197%	15.37	7.80	1.07	28.60

Figure 11: Monthly mean river flow for August with comparison against previous year expressed as a percentage of the August long term average and classed relative to analysis of historic August monthly means. (Source: Natural Resources Wales). (\* For Treffgarne station the LTAs were derived using scaled historical flows (1965-2003) from the downstream station at Prendergast Mill.)

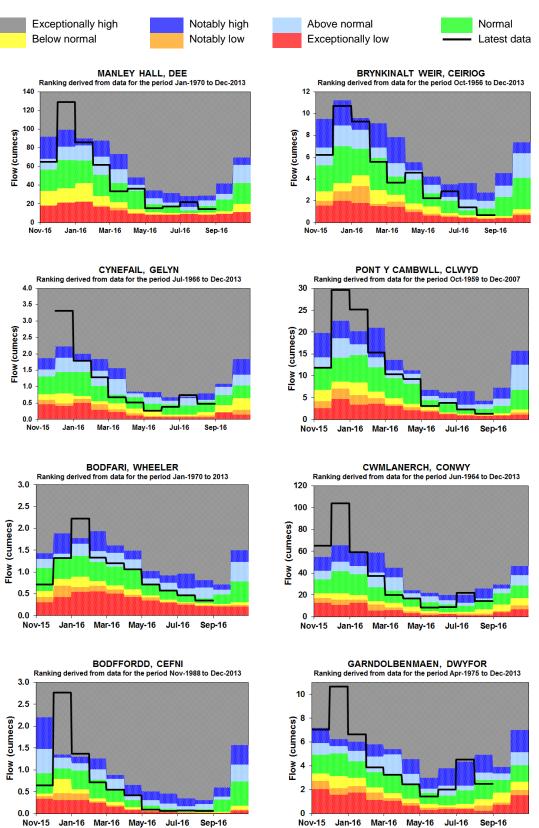
# **River Flow Charts**

### Figure 12: River Flow Charts: South East Wales

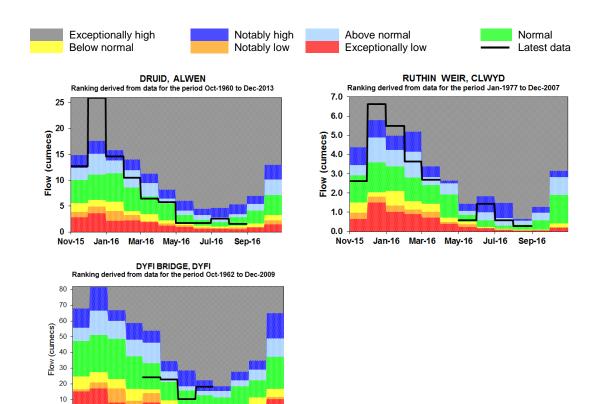


Monthly mean river flows for the last 10 months classed relative to the analysis of historic river levels (*Source: Natural Resources Wales*).

#### Figure 13: River Flow Charts: North Wales



Monthly mean river flows for the last 10 months classed relative to the analysis of historic river levels (Source: Natural Resources Wales). (Please note that there was no data available for River Gelyn at Cynefail in November 2015)



(Please note that there were no data available for River Dyfi at Dyfi Bridge before March 2016 and July and August 2016. For River Clwyd at Ruthin Weir there was no data available for April 2016)

### Figure 14: River Flow Charts: South West Wales

May-16

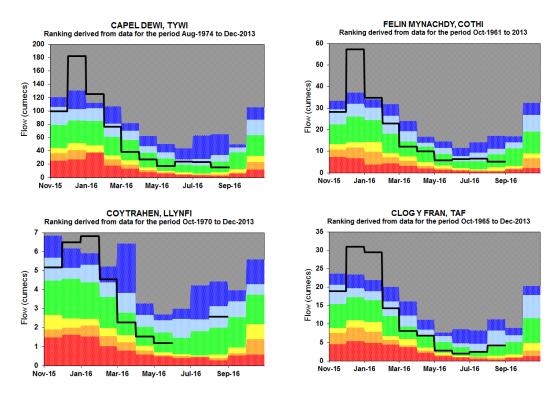
Jul-16

Sep-16

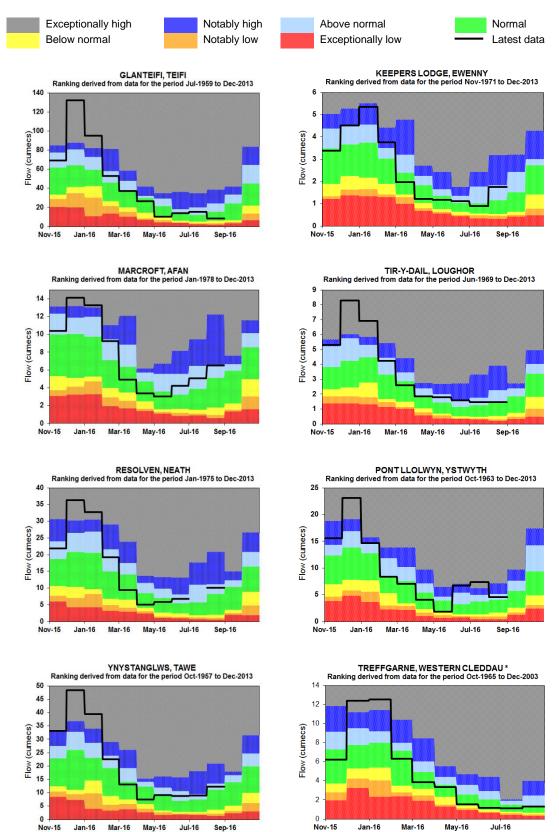
Jan-16

Nov-15

Mar-16



(Please note that there was no data for Coytrahen for June and July 2016 due to the river works)



# Monthly mean river flows for the last 10 months classed relative to the analysis of historic river levels. (Source: Natural Resources Wales).

(\* Please note that for Treffgarne station the ranking bands were derived using scaled historical flows (1965-2003) from the downstream station at Prendergast Mill. There were no data for Resolven for July 2016 due to river works )

# **Groundwater Levels**

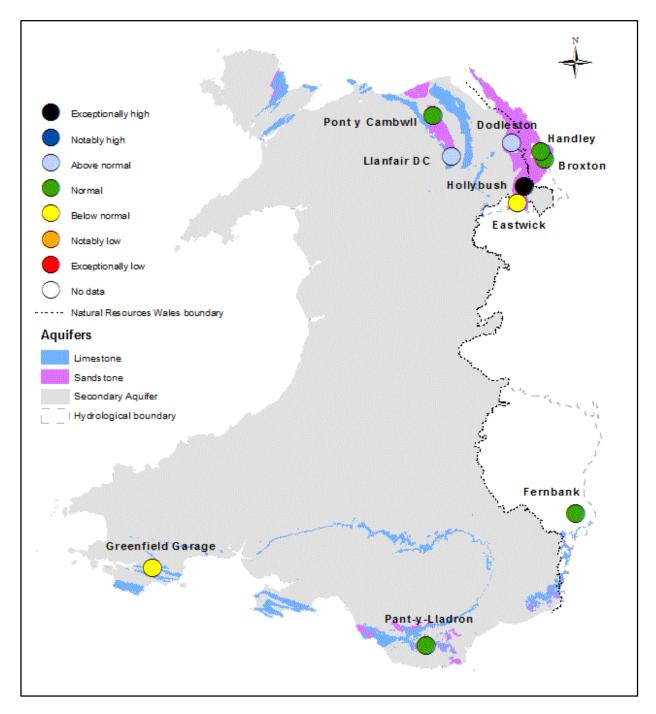


Figure 15: Groundwater levels at the end of month classed relative to an analysis of historic August groundwater levels (*Source: Natural Resources Wales and Environment Agency*).

# **Groundwater charts**

Jan-16

Mar-16

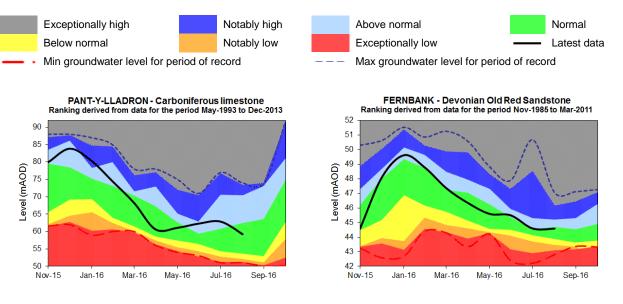
May-16

Jul-16

Sep-16

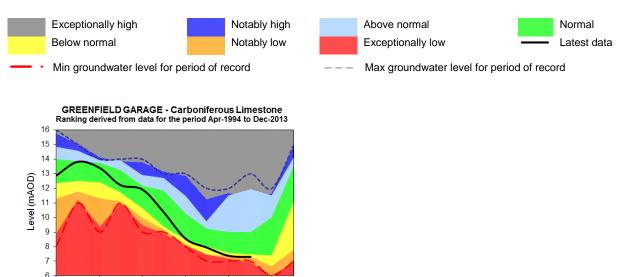
Nov-15

### Figure 16: Groundwater level charts: South East Wales



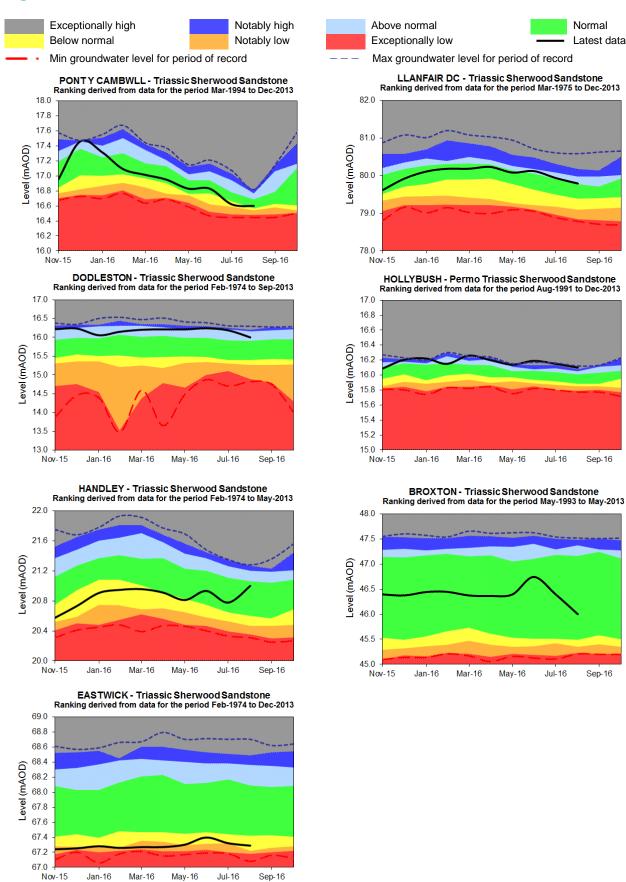
End of month groundwater levels for the past 10 months for index sites (Source: Natural Resources Wales).

# Figure 17: Groundwater level charts: South West Wales



End of month groundwater levels for the past 10 months for index sites (Source: Natural Resources Wales).

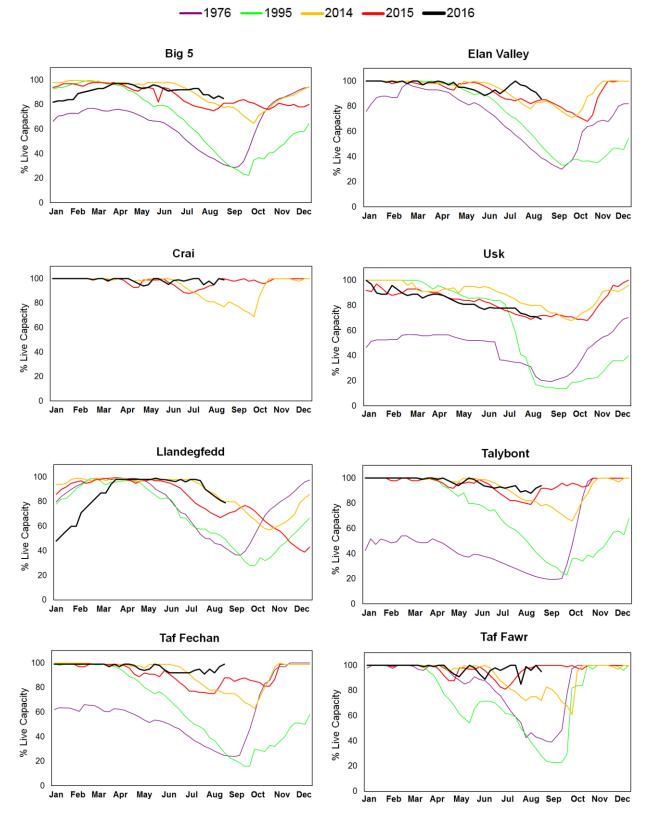
#### Figure 18: Groundwater level charts: North Wales



End of month groundwater levels for the past 10 months for index sites (Source: Natural Resources Wales and Environment Agency).

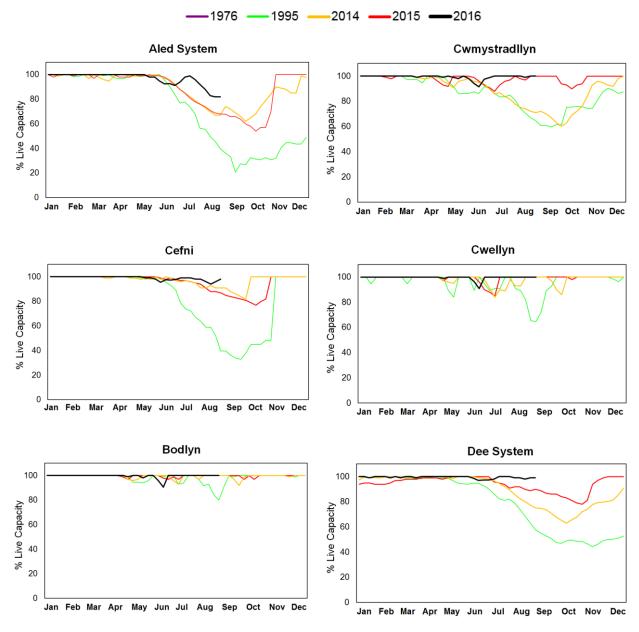
# **Reservoir Storage**

### Figure 19: Reservoir charts: South East Wales

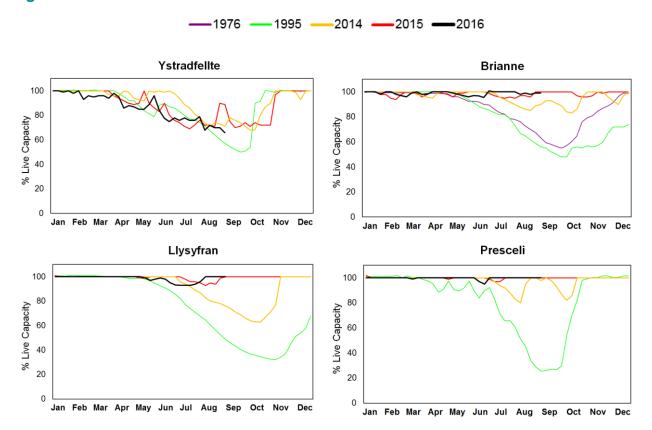


Weekly reservoir stocks for Natural Resources Wales index sites (Source: Welsh Water)

### Figure 20: Reservoirs charts: North Wales



Weekly reservoir stocks for Natural Resources Wales index sites (Source: Welsh Water).



### Figure 21: Reservoirs charts: South West Wales

Weekly reservoir stocks for Natural Resources Wales index sites (Source: Welsh Water).

# Glossary

Term	Definition				
Aquifer Areal average rainfall	A geological formation able to store and transmit water. The estimated average depth of rainfall over a defined area Expressed in depth of water (mm).				
Effective rainfall	The rainfall available to percolate into the soil or produce river flow. Expressed in depth of water (mm). The water found in an aquifer The Met Office provides climate data for grid squares measuring 40km by 40km across the UK using MORECS				
Groundwater Meteorological Office Rainfall and Evaporation Calculating System (MORECS)					
Recharge	The process of increasing the water stored in the saturated zone of an aquifer. Expressed in depth of water (mm).				
Reservoir live capacity	The reservoir capacity normally usable for storage to mee established reservoir operating requirements. It is the tota capacity less that not available because of operating agreements or physical restrictions. Only under abnormal conditions, such as a severe water shortage might this additional water be extracted.				
Soil moisture deficit (SMD)	The difference between the amount of water actually in the soil and the amount of water that the soil can hold. Expressed in depth of water (mm).				
Categories Exceptionally high Notably high Above normal Normal Below normal Notably low Exceptionally low	Value likely to fall within this band 5% of the time Value likely to fall within this band 8% of the time Value likely to fall within this band 15% of the time Value likely to fall within this band 44% of the time Value likely to fall within this band 15% of the time Value likely to fall within this band 8% of the time Value likely to fall within this band 5% of the time				
Units cumecs mAOD	Cubic metres per second (m <sup>3</sup> s <sup>-1</sup> ) Metres Above Ordnance Datum (mean sea level at Newlyn Cornwall).				