

Draft

Drought Plan 2020:

Annex 1f – Blaenau

Ffestiniog WRZ

March 2019



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1. Blaenau Ffestiniog – WRZ Reference no. 8026

1.1. Blaenau Ffestiniog Water Resources Overview

The Blaenau Ffestiniog WRZ covers the town and surrounding area of Blaenau Ffestiniog, see Figure 1.

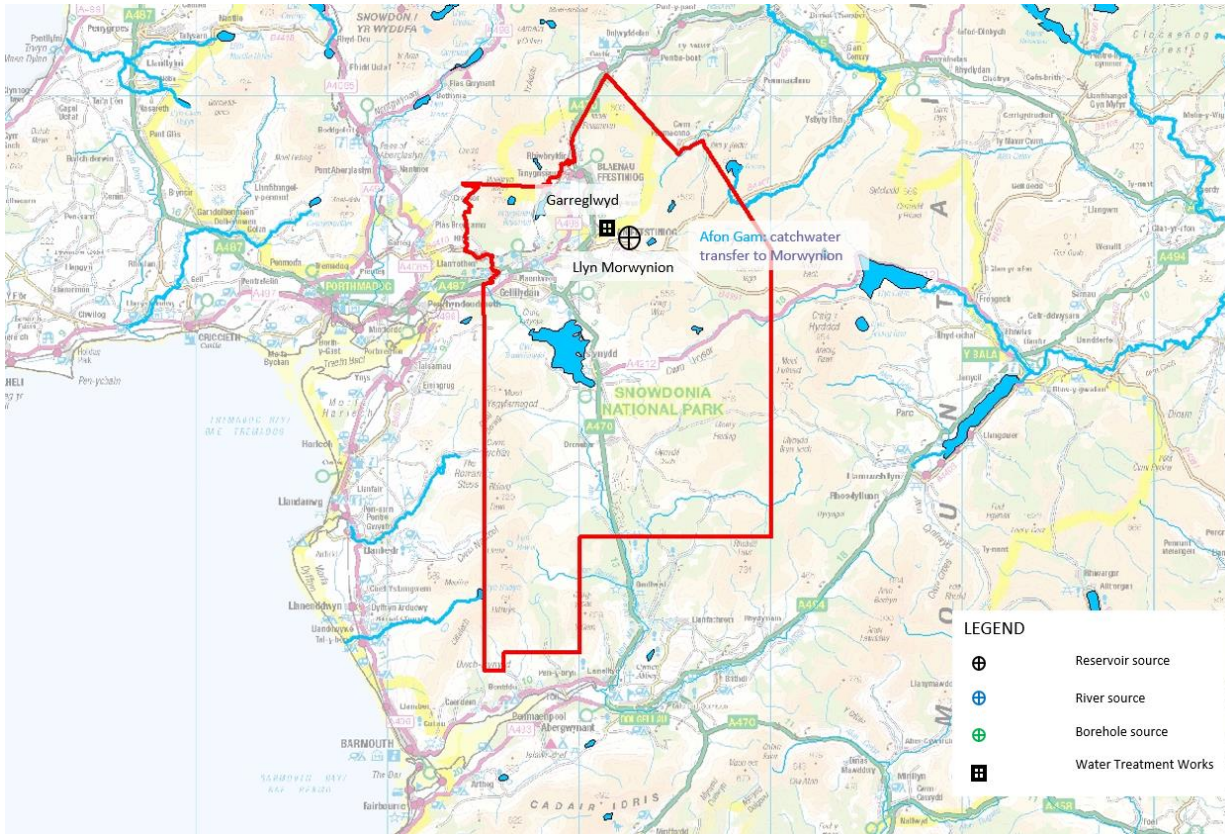


Figure 1 – Map of the Blaenau Ffestiniog WRZ

The water resources within the zone consist of one impounding reservoir (Llyn Morwynion) and one river abstraction (Afon Gam). A list of our raw water sources for the zone is presented in Table 1.

Site Name	Licence No.	Source Type	Status
Llyn Morwynion	23/65/1/0002v2	Impounding Reservoir	Operational
Afon Gam	23/65/1/0034v3	River Intake	Operational

Table 1 – Licensed sources in the Blaenau Ffestiniog WRZ

Water is abstracted from Llyn Morwynion and treated at Garreglwyd water treatment works. When the storage in Llyn Morwynion is low, water is transferred into the reservoir from the nearby Afon Gam.

Since publication of our Drought Plan in 2015 we have had to modify the abstraction licence for Llyn Morwynion and Afon Gam due to the outcomes of Natural resources Wales (NRW) Habitats Directive Review of Consents. Previously the use of the Afon Gam transfer was optional and an operational decision to use it was made by ourselves, but now the Morwynion abstraction licence states that we must transfer water from the Afon Gam if the lake level drops below certain thresholds. This is to

prevent deterioration of the designated features in the SAC (*Littorelletea uniflorae* and *Isoëto-Nanojuncetea*). There is concern that if the flora is exposed for prolonged periods during a drought it may not recover.

There are no exports or imports of water in the Blaenau Ffestiniog zone.

1.2. Drought Triggers

The drought status of the zone is assessed by the reservoir storage position at any time in relation to the Drought Action Zones (DAZs), defined for Llyn Morwynion, see Figure 2. The DAZs have been modified since Drought Plan 2015 to reflect the new HD licence, we are now no longer allowed to abstract from Llyn Morwynion when the lake level is below 31%.

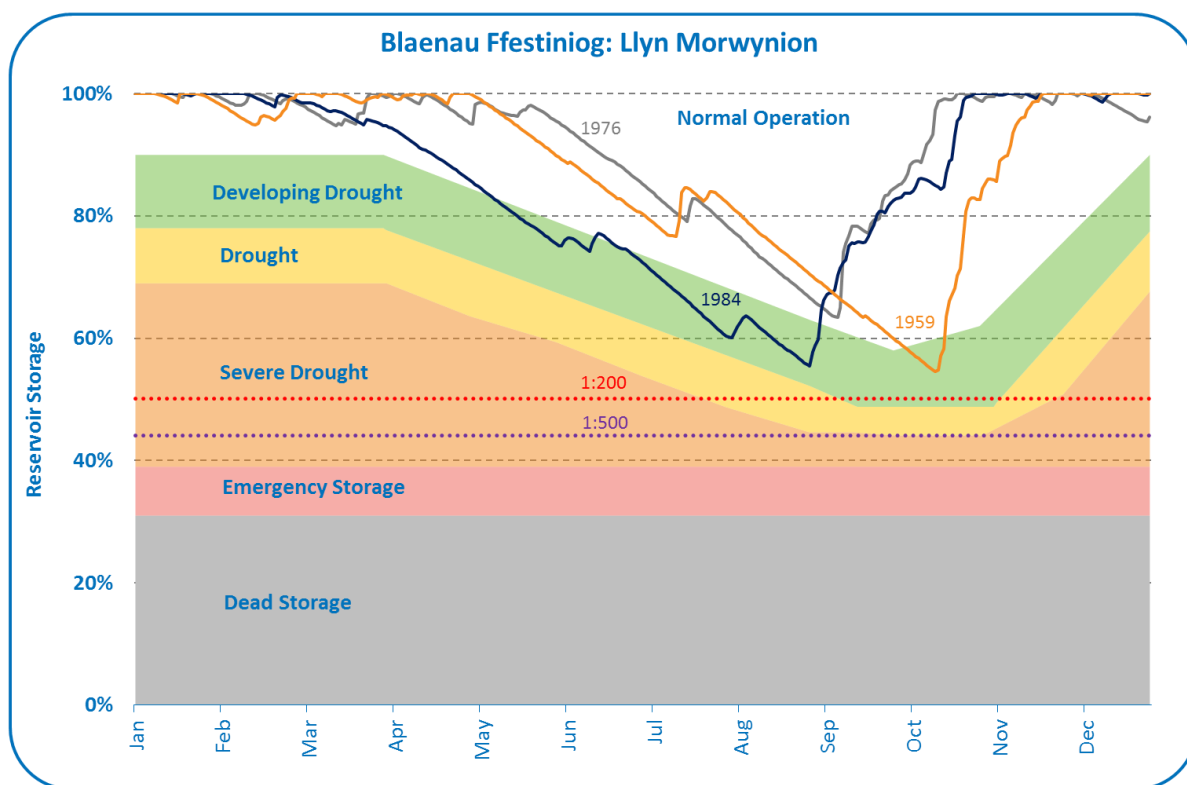


Figure 2 – Llyn Morwynion Reservoir Drought Action Zones showing the results of scenario testing

1.3. Assessment of Drought Risk

For our 2019 Water Resource Management Plan we tested our ability to maintain supplies of water to our customers in the Blaenau Ffestiniog zone using the period 1958 – 2015, which encompasses the known drought events of 1959, 1976, 1984, 1989 and 1995. The reported supply demand balance at WRMP19 shows the zone to be in a healthy position with a forecast 0.26 Ml/d surplus at 2024/25, increasing to 0.61 Ml/d by 2049/50. The WRZ was therefore classified as being at low of significant drought impact.

Figure 2 shows the results of our scenario testing. The worst historic droughts when simulated in our water resources model, do not cause reservoir storage to fall lower than our Developing Drought action zone. However, as the historic drought events were less severe than those of a return period of 1:200, for WRMP19 we used Extreme Value Analysis to provide an estimation of the level of drawdown we

could see at Llyn Morwynion under a 1:200 and 1:500 year drought return period scenario, as represented on the chart by the red and purple lines respectively.

Our analysis indicates that even under these more extreme drought events, Llyn Morwynion reservoir would only cross into our Severe Drought action zone (depending on the timing of the drought). We can therefore conclude that the Blaenau Ffestiniog zone is at low risk of us having to implement extreme supply side measures e.g. widespread pressure management or water rationing.

Overall the identified drought risk in the zone is low, although it's worth noting that without the abstraction licence change being made, the risk would have been lower still. It is therefore important we operate in line with our control curves and take all necessary actions in good time e.g. making use of the Afon Gam catchwater.

1.4. Drought Management of the WRZ

As the identified drought risk in the zone is low then our management philosophy is to ensure we operate our water resources in line with our control curves and take all necessary actions in good time, in order to maintain this high level of drought resilience.

The following sections describe the operation of the zone as we move into a drought period and the actions that we will take to ensure that we minimise the impact on our customers.

1.4.1. Normal Operation

During normal weather conditions we abstract from Llyn Morwynion and treat the water at Garreglwyd water treatment works. The Afon Gam abstraction is used as prescribed in the abstraction licences.

1.4.2. Developing Drought/ Drought/ Severe Drought Action Zone

As reservoir storages move into the developing drought action zone, we are more likely to have to carry out operations which are not routinely undertaken and as a result will increase the risk of impacting our customers. To authorise these activities, the 'Gold' command centre may convene.

We will continue to abstract from the Afon Gam and transfer the water into Llyn Morwynion in line with the control rules in both abstraction licences. We will also increase our leakage efforts to minimise losses in the network.

1.5. Supply-side drought management action

Given the high drought resilience of the zone, it is not considered necessary to develop further supply-side options. Therefore for the Blaenau Ffestiniog zone we have not produced any Environmental Assessment Reports (EARs) nor populated Appendix G of NRW's Water Company Drought Plan Technical Guideline (Dec 2017).