



Dr Mike Jones BSc, MSc, PhD, CGeol FGS Stream Flow Gauging – Progress Update May 2024

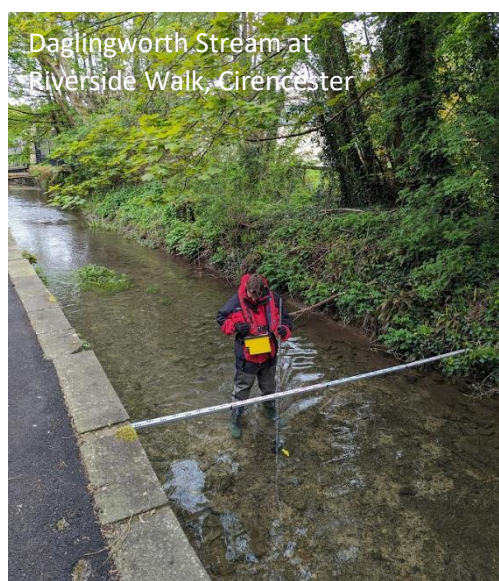
There is an extensive record of observational monitoring of stream flows at a number of locations in the Daglingworth Stream, comprising written and photographic records. This monitoring was started in 2014 by the Environment Agency, continued by Thames Water and then taken over by the Friends of Gumstool Brook (FoGB) in late 2017. There are now 19 locations being monitored monthly by the FoGB, having been increased to include parts of the Daglingworth Stream where cycles of the stream flowing then drying up have been observed. To support the continuing citizen science monitoring by the FoGB volunteers, measurements of flow in the Daglingworth Stream are being carried out. These measurements quantify the flow of water in the stream at multiple locations from its source in

Duntisbourne Abbots to the Gumstool Brook balancing stream in Cirencester, just over 8km downstream. The flow measurements, referred to as spot flow gauging, are being carried out by Hydro International, a specialist company in this type of work. The spot flow gauging has been made possible with funds received from The Kate Winstone Trust, for which the FoGB are immensely grateful, as we are for the administrative support from the Cirencester Community Development Trust and Cirencester Town Council. Although some of the stream locations where spot flow gauging is being undertaken has public access, we also appreciate the support of local residents and landowners, including the Bathurst Estate and Stratton House Hotel, who have allowed access to their land.

The first round of spot flow gauging was carried out on 19th April 2024. Flows were measured at a total of 17 locations: 14 on the Daglingworth Stream, 1 on the Elkstone Brook, another tributary of the River Churn, as well as 2 locations on the River Churn between North Cerney and Perrotts Brook. The left hand photograph shows spot flow gauging being carried out in the Daglingworth Stream at the upstream edge of Daglingworth, where the stream is flowing at a rate of 5 million litres per day (ML/d). The right hand photograph shows spot flow gauging in the Daglingworth Stream further downstream in Cirencester, alongside the Riverside Walk close to the Gumstool Brook offtake, where the stream is flowing at a rate of 28 ML/d



Daglingworth Stream at
Daglingworth



Daglingworth Stream at
Riverside Walk, Cirencester

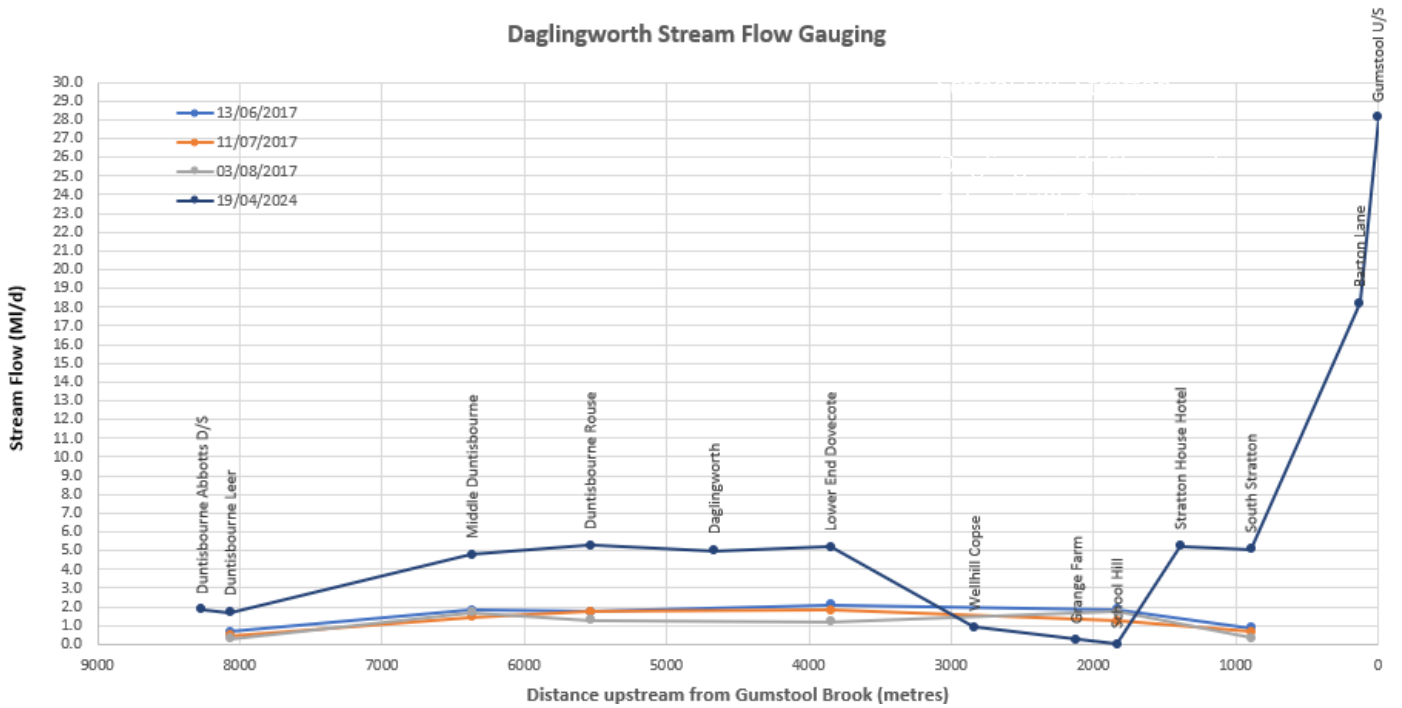
The results of the April 2024 round of spot flow gauging on the Daglingworth Stream are presented on the graph below. This shows the stream flow increasing downstream from Duntisbourne Abbots to Daglingworth and Lower End, then decreasing markedly until, as shown in the photograph, the stream dries up at School Hill in Stratton. Further downstream, however, flow then increases and decreases slightly again in Stratton, with flow rates similar to those measured upstream in Daglingworth. As the Daglingworth Stream reaches the northern outskirts of Cirencester, its flow increases significantly. Flow at Barton Lane is three times higher and flow at the Gumstool Brook offtake is over five times higher than flows measured in Stratton. These increases are the least partly as a result of flow from the River Churn augmenting flow in the Daglingworth Stream via the Barton Mill Pound.

The graph below also shows spot flow gauging results from the Daglingworth Stream from the summer of 2017. The flows measured were lower than those measured in April 2024, which is not surprising. The broad pattern of increasing flows downstream from Duntisbourne Abbots and a subsequent decrease in Stratton is also similar to the April 2024 pattern. What is distinctly different however, is the Daglingworth Stream completely drying out in April this year while continuing to flow in the summer of 2017.



Daglingworth Stream at
School Hill, Stratton

Daglingworth Stream Flow Gauging



The reason for the differences in the flow of the Daglingworth Stream in the Stratton area between 2024 and 2017 is, as yet, uncertain and requires further investigation. A further round of spot flow gauging of the Daglingworth Stream is scheduled for 31st May 2024. Based on citizen science monitoring in previous years it is likely that flows in the Daglingworth Stream will be lower in the May round of gauging and longer stretches of the stream may well be dry. However, it is expected that the results of the May 2024 round of spot flow gauging will enable further insight into the behaviour of the Daglingworth Stream.