

The velocity at each site was measured using an orange floating down the river and timed over a set distance. A section of river 5m long was measured and marked out with ranging poles. The orange was timed by a stopwatch 3 times over the distance and an average taken. This was then used to calculate velocity in metres per second. The orange was placed in the stream before the first mark to allow it to get up to speed and the time taken as it passed the second mark. Because the floating orange travels at the surface speed of the river which is faster than the average velocity it was adjusted by a factor of 0.8. Timing 3 runs of the orange give a decent average which allows for differences in the speed of flow in different parts of the river, any temporary stoppage by weed and any friction with the bed in very shallow sections.

An accurate velocity is important in calculating the discharge at each site which is the cross section area in square metres times the velocity in metres per second. The discharge or volume of water passing a particular point is measured in cubic metres per second (cumecs)

3 timed runs is insufficient to get a truly accurate average due to chance irregularities due to weed and friction in shallow areas of the river. More runs, possibly 10 would give a more accurate average velocity.

A stratified sample across the river would also be more accurate, as speed of flow will vary across the river, being greatest in the centre and lowest near the banks where friction slows the velocity. It would have been more accurate to measure velocities in three zones; the nearside, the centre and the far side of the river.

A flow meter would also have been more accurate especially if set at 0.6 of the depth from the surface where average flow is usually found.

