Candidate 5 evidence

Research topic/issue:

How a burn changes from source to mouth

Research methods: **6 marks**

Describe two research methods you used to collect information about your topic or issue.

One method we used to gather data was by measuring speed. Firstly, we used a measuring tape to measure out 10m of our chosen area. One person stood at the start and dropped a float (dog biscuit) mid stream. They signalled to the person at the end with a stopwatch when they did so. The timer at the end started the stopwatch when they recieved the signal, and stopped it when it crossed the 10m mark. One problem we faced when trying to gather data was that the dog biscuit got stuck under the enbankment and behind rocks and vegetation. This meant that we would have to nudge it out, but if it got stuck for too long, we would just have to restart. Another problem we faced was that we were only measuring the surface speed, which factors like wind could have an effect on. We did 5 runs at each site to allow us to see how it changed from source to mouth, and also allowed us to work out averages. Another method we used to gather data was by measuring the depth. At each site, we used a measuring tape to measure the entire width of the stream. We used a meter stick to measure the depth from bed to surface at 25cm incriments the entire width of the stream. A problem we faced whilst trying to gather data was when the stream became too deep to measure.

*compare to Bradshaw's model

Research Findings and Conclusions: **14 marks**

For this section you must
(i) Describe and explain, in detail, the main findings of your research. You must include reference to the Processed Information you have brought into the assessment.
(ii) State what conclusions you have reached about your topic or issue.

The Aim of our fieldwork was to investigate how the stream changes throughout it's course, from source downstream to mouth, using Bradshaw's model as a guide. Bradshaw's model soggests that the width, depth, wetted perimiter, discharge and speed all increase as you move downstream.

The width almost correlated with Bradshaw's model, except for points 2 and 6. (see photos 2 and 6). Site 2 didn't correlate, as point 1 was wider, at 94 cm and so too was point 3, at 122 cm when site 2 was only 55 cm. Bradshaw's model would suggest that it would have been between 94 and 122 cm. I think that this site didn't correlate because it had clearly been dug out by the farmer This was most likely to cut away over-hanging embankment to allow for better drainage, and to allow the stream to flow

Site 6 also didn't correlate, only being 163 cm wide, where points 5 and 7 were both higher, at 237 and 276 cm respectively. Bradshaw's model would suggest that it would have been between 237 and 276 cm, but I suspect it wasn't because of the overhanging bank, which prevented us from measuring the true width of the stream at this site ~~we couldn't measure the wetted perimiter at sites 6 and 7 however, as it was too deep~~.

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The same goes for wetted perimiter. It is in exactly the same order as the width. - (see graphs) this is because of the same reasons. We couldn't measure the wetted perimiter at sites 6 and 7 because it was too deep.

The depth did correlate with Bradshaw's model, which suggests that the depth increases as you go downstream. E.g. at point 1, the depth was 3cm. at point 4 it was 16cm, and at point 7 it was 22cm There were a few irregularities, mainly because of rocks, overhanging vegetation and debris making it harder to measure the bottom.

The speed did not correlate with Bradshaw's model, which suggests that the speed increases as you go downstream. This was because the dog biscuit would frequently get stuck under embankements or behind rocks and vegetation (see photos), and we would have to nudge it out. We would often take a while to find it under the bank, e.g. at site 1, where run 1 was 83 seconds, run 2 was 85 seconds, run 3 was 83 seconds but run 4 was 102 seconds this was again because of it getting stuck. Another reason that the sites were different was that some areas were flatter than others, and therefore slower. E.g. site 7 was flatter (see photos), which meant that it was considerably slower than the rest.

Research Findings and Conclusions: **14 marks**

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In general, our findings correlated well with Bradshaw's model, with only a few minor exceptions, e.g. site 1 for speed or sites 2 and 6 for width.

Bradshaw's model is the 'ideal stream' however, and it would be almost impossible to find a stream which matched exactly, so I think we were very close to accurate, seeing that certainly width, depth and wetted perimiter all increased as you went downstream from source towards mouth