Hughes Creek Project Update

Hello everyone,

I have good news to share.

Firstly, the resnagging work undertaken with volunteer labour at Echo Cliff in January appears to be functioning well. Will Trueman has been back to review changes following a recent small flow event and reported seeing two Macquarie perch residing in the snags. As captured in the following photos provided by Will, some effective scouring around the wood is enhancing depth, and the flow is becoming more sinuous as it meanders around the snags and sand deposits.

Thanks again to all those that helped on the day to achieve this.

Secondly, the repairs have been completed at the downstream trial sites. As you may recall, some of the wood shifted out of the structures with the flood event in January. Total fire bans and bouts of localised rain postponed these works until last week.

We found that every long length of wood used that was keyed into the bank (pushed or dug in) remained as positioned. It was the large wood not secured in this fashion that either shifted out of alignment or was entirely relocated. Though some of these pieces of wood were very large, they were often short straight lengths, which the anchoring rock failed to hold down.

Two primary things were learnt from this flood event:

1. Long, complex lengths of wood are more successfully secured in place, particularly when keyed (part buried) into the bank. Not unsurprisingly, longer, branching lengths also appear to provide more niche habitat opportunities.
   At this stage we cannot evaluate how the different designs may also have influenced the structures integrity in high flows.

2. Where the structure remained in place, so did the scour pool it was intended to encourage. This was true of the six raised structures that were originally keyed into the bank and stayed in place.

Of the structures designed to create scour, nine required repair. Seven were raised downstream angled groynes and two were upstream angled groynes placed on the bed. Several of these still retained the keyed in wood, however the other incorporated logs either shifted out of alignment or were entirely relocated. Longer lengths of wood were added and keyed in with these repairs, along with a great deal more rock.

Similar repairs were undertaken on five of the downstream angled groynes placed on the bed to deflect flows and encourage deposition along the bank. Due to channel changes and difficulty securing the wood, the same structures at the top of the three sand islands were not re-established.

Only one of the log jam constrictions was recreated, incorporating a greater proportion of rock to wood.

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All in all, 15 structures were repaired to varying degrees and four additional structures created. A further seven structures were reinforced with more rock, while five were not reinstated (though some component, mostly rock, remains).

The immediately developing scours appear to be equal and in some cases better, than the results first achieved. I intend to return in a couple of weeks when the sites have settled to measure the scour holes at each structure and see if there is a consistency or design correlation.

Next month, staff from Arthur Rylah Institute will be mapping the instream woody habitat and undertaking fish surveys within defined sections of stream. It will be very interesting to see what habitat condition score the works areas attain, particularly in the gorge where a pre work assessment exists for comparison. The repairs will only have had a month or so to settle and hopefully become utilised by fish and macro invertebrates before the autumn surveys, so we will have to take this into consideration when comparing pre works and post works survey results. Further monitoring over time at the trials sites may be warranted, particularly if we want to evaluate the longevity of the various structure designs.

I look to sharing our findings with you in the coming months.

Kind regards,
Christine Glassford
River Health Officer