



Hi All,

Following the high flows in the lower reaches of the Hughes Creek on 4/1, Collin and I reviewed the habitat trial works on the 6th to assess the impact. What we found was many of the large log groynes constructed in channel had moved. Some of the wood had simply shifted out of the designed alignment but remained in situ, while many other logs were moved downstream 20-50m to rest along the bank. Some large pieces were not relocated anywhere in proximity. See attached images.

All the groynes placed on the stream bed and the two constricting log jams have been dismantled, along with a few of the raised downstream angled groynes. We believe the structures that remain, do so as they had more anchoring rock, rather than due to design. The good news is that where the structures are still present, the scour pool has been maintained. The shape of some of the sand bars and island deposits have changed, but for the most part remained where they were. The biggest change in sand deposits has been within site 1 which had a large sand slug along the right bank, with a sand island in the lower third. The sand bar has now joined with the island, infilling a narrow secondary channel.

These observed changes indicate:

1. sufficient anchoring rock is required to keep the wood in place, particularly in a flashy stream like the Hughes Creek where wood will not become water logged
2. the structures will maintain scours in high flow

It should be noted that though this flood event was minor (<1 in 4 year), the forces in channel will not significantly increase with larger floods, as the additional water would disperse over the floodplain. Apart from site 1 where the floodplain is somewhat confined, bigger floods will not

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substantially change the depth of water within the channel and therefore will not significantly increase the forces acting against instream objects.

Though it is quite disappointing to have so many structures fail, it has been a good test from which we can learn. As the depth has been maintained where the structures remain, we can claim some success and so plan to reinstate all the damaged structures for further monitoring and evaluation. The only exception to this will be within the former secondary channel at site 1, where we feel it is best to support the island merger with the sand bar and maintain all low flow along the left bank. Revegetation trials with emergent macrophytes (reeds and rushes) were planned at this site, so we will attempt to further stabilise the sand in its present configuration with these plantings.

Rock is presently being sourced to better secure the wood in the groynes when reconstructed. As experienced when constructing the groynes, scour develops as soon as the obstruction is placed in stream. Therefore we anticipate the scours will be restored at the repaired structures within the coming month to a similar degree as before, prior to planned autumn post work surveys.

Additionally, having completed stream walk reviews of reach 3 (8km downstream of the trial sites), we have identified several good refuge pools which are generally separated by shallow runs and riffles over exposed cobble. While repairing the trial sites, we will also add and secure some complex wood in the next downstream refuge pool to enhance shelter.

We found the riparian vegetation throughout reach 3 to be quite continuous with a reasonable width along both banks, however apart from the vegetation fringing the water's edge, tended to lack diversity, consisting solely of river red gums. Future work priorities for this reach relate to enhancing downstream refuge pools with instream wood and where possible with support of adjoining landholders, improving the quality of vegetation through stock fencing, exotic control and revegetation.

I will keep you posted on how we go.

Regards,

Christine Glassford

River Health Officer