

Hello All,

It has been a busy time and I apologise for not keeping you better informed. Since the last update in late February, advising of the completed repairs/reinforcement of the structures in the three habitat trial sites, the fish and macroinvertebrate surveys were undertaken again in March.

While we await the completed species identification of the waterbugs collected, which is quite a large task, we have received the fish survey report that is available to view on our website.

Renae Ayres from ARI (Arthur Rylah Institute) undertook the surveys with a colleague, and provides the following summary on their findings.

Fish were surveyed at the 12 sites monitored in previous years, as well as 14 new sites in the three regions of Hughes Creek that were noted as priority areas (from the December instream habitat review 2015).

Overall, there were good numbers of Macquarie perch again this year (n =164) . The strong hold remains in the gorge, but numbers seem to be building elsewhere. Great news was that we collected a few Maccas at a couple of regular monitoring sites where they haven't been recorded for the past few surveys. Maccas were also collected this year at the most upstream site and at a few of the new downstream sites surveyed.

The size ranges of Macquarie perch recorded indicate good recruitment in 2013 and 2014. We only collected one young of year this year; possibly because the flash flood in January has impacted 2015 recruitment. In other systems reasonable numbers of young of year have been collected.

More good news was that we collected some fish off the new instream structures at all three works sites. At GB_HUG101 (trial site 1), we collected 4 blackfish off the most upstream structure (one structure housing 4 fish!). There were quite a few juvenile carp hanging around in the second works site (GB_HUG102), but we collected a couple of blackfish off the structures as well. The third site (GB_HUG103) we collected more blackfish from the structures. It's good news the blackfish are moving in and using the habitat. Surveys next year will be really interesting to see if the mac perch have moved in.

Of concern was the large numbers of carp (both adults and juveniles). Many more were observed than what were collected. Hundreds of juvenile carp were seen at the Bungle Boori ford.

To end on a good note, a juvenile murray cod and hatchling short necked turtle were collected!

It was also great to see the habitat trials score quite well with the IWH (Instream Woody Habitat) assessments undertaken. This data not only provides a benchmark, but will also assist us with targeted future works to enhance habitat connectivity downstream.

A paper on this project work was submitted and accepted for the 8th Australian Stream Management Conference to be held at the end of this month. I will make the presentation produced available online following, as with the assistance of a map savvy colleague, we have spatially presented the fish surveys and works undertaken to date for an engaging and interactive project summary.

Supplementary to the instream structures, we have also proceeded with revegetation trials to stabilise instream sand deposits with emergent macrophytes (sedges and rushes). Using hessian lined boxes, the plan was to plant blocks of sedges/rushes in a configuration to counter channelisation of rising flows over the sand. The weight of the large soil clod is intended to anchor them in place until the roots have had time extend out. In this first attempt we ended up utilising over 170 hessian bags of eight locally collected species, successfully grown by a local nursery. Around 40 of these were planted in May at trial site 1. Last week a further 50, having required a little more time to develop sufficient root mass, were also planted. Given the rise in stream flow, the later additions were planted into the adjoining higher sand. The good news is the earlier planted sedges, the majority of which are now in water, were all still present and seemingly still healthy. The intended bulk units appear to be sufficiently anchoring the plants in place, despite some scouring of the sand around them. The rise in flow however has not been as fast or high as experienced in the

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minor flood of January, but it remains a good start to the trial to see how they fair inundation. The later challenge will be surviving the dry summer and hopefully spreading in extent.



While present onsite, it was noted that all of the habitat structures are fairing well, stabilising and interacting as intended with the high flows to encourage scour. With the stream height still up above 1m at the stream gauge, we weren't able to effectively access and measure the depth at each structure, but we plan to return and attain comparable measurements to those recorded at the end of March as soon as able.



The remaining 80 or so sedge bags produced were planted with the assistance of Native Fish Australia (NFA) volunteers in late March at a large sand slug off Wicket Hill Road. This large sand store has been a concern in high flows as a sand source for transport downstream and impact on Macquarie perch habitat, in particular within the stronghold of the gorge. To counter the velocity of high flows breaking across the sand, the emergent macrophytes were planted at intervals along the length of this secondary channel. Monitoring the effectiveness of these works will be on going with a photo point established. Our thanks to the NFA guys, Tim, Will, Paul and Murray, for making the time to help with this task and the additional revegetation work completed along the adjoining bank.

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As we come to the close of 1516, I can report the following outputs were achieved along the Hughes Creek and its tributaries.

2.7km of fencing, protecting ~24ha. 7.5ha were addressed for weeds (predominantly willows) and ~12ha were revegetated.

Our thanks to the community for their support with these works and already, some great commitments for similar projects in 1617.

Plans are underway for >16km of fencing, that will protect a fantastic 65ha, with ~27ha expected to be revegetation in autumn 2017. Arrangements are also being made for further willow management and three new sites for instream habitat works to occur this spring.

Lastly, a couple of websites of interest.

1. If you have missed previous presentations on Carp and the Carp Herpes Virus, here is a link to a recent one delivered by Matt Barwick (NSW DPI) at the North East Innovation in Landscape Conservation forum, on 17 May 2016. It is about 16 mins long, with Matt suggesting the earliest release date for the virus could be late 2018.
<https://youtu.be/b4qNo8vOiac>
2. A recent article in *The Conversation* which highlights the risks for our freshwater ecosystems and the importance of farm/land management for waterway health.
<https://theconversation.com/we-all-live-downstream-its-time-to-restore-our-freshwater-ecosystems-58934>

Kind regards,
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