Hughes Creek
Fish survey results 2018

GOULBURN BROKEN CATCHMENT MANAGEMENT AUTHORITY

Survey sites

Surveys have been undertaken at 19 sites between Avenel and Tarcombe during March 2018, including nine long-term monitoring sites, three current and four future habitat restoration sites, and three control sites. Survey methods included single-pass backpack electrofishing and fyke netting.

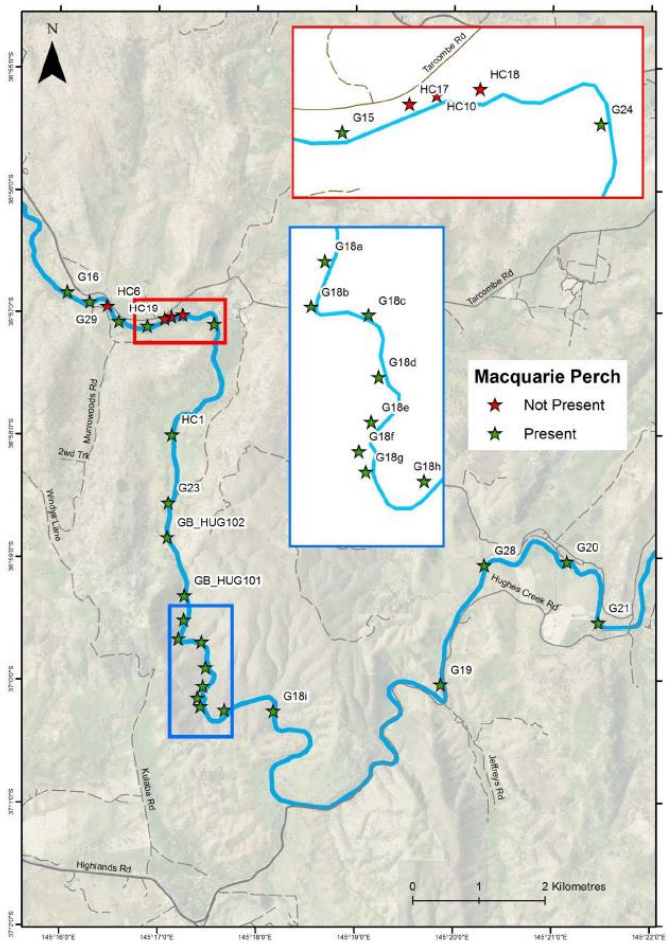

Figure 1. Map of survey sites in Hughes Creek during March 2018. Note: Site G18 is shown here as a series of nine sub-sites (G18a-G18i).

Highlights

- A total of 1,141 fish were collected from Hughes Creek, which included seven native (54% of total catch) and five introduced fish species (46% of total catch). Common Long-neck Turtle and Common Yabby were also recorded.
- The most abundant native species caught was River Blackfish (*Gadopsis marmoratus*, n = 423), while the most abundant introduced species was Redfin Perch (*Perca fluvialtilis* n = 366).
- 106 Macquarie Perch (*Macquaria australasica*) individuals were collected from 15 out of 19 sites surveyed, including being captured from G16 (Scout Hut) for the first time since 2007. The highest abundance of Macquarie perch was recorded at site G18 (the Gorge n = 31).
- Only 8% of Macquarie Perch were found to be infected with the Lernaea parasite.
- Length frequency data indicates multiple age classes were present, with age 1 year old being the most dominant size class, representing approximately 45% of the Macquarie perch total catch. Cohorts from the previous breeding seasons were also well represented, indicating ongoing successful recruitment and survival during and prior to 2015.
- Exotic species removal was undertaken during our surveys, which targeted the removal of 366 Redfin (*Perca fluviatilis*) and 93 Carp (*Cyprinus carpio*) across the 7.3km reach of Hughes Creek.

2018 results

Young of Year (YOY) accounted for only 3% of total Macquarie Perch catch, however it is the first time since surveys commenced in 2006 that YOY have been captured above the Gorge. Flash flooding in December 2017 may be the reason for low recruitment as high flows impact key spawning periods for Macquarie Perch (November – December). High flows also reduced habitat availably by smothering refuge pools with sand deposits (Figure 2).

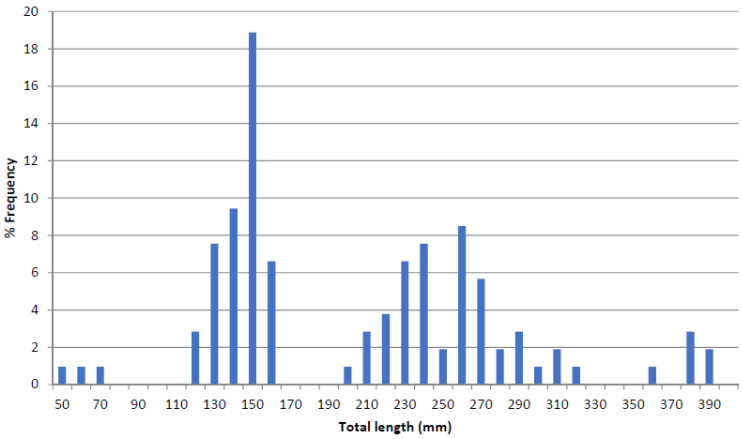

Figure 2. Size frequency histogram (% of occurrence) of Macquarie Perch captured in Hughes Creek During March 2018.

Despite long term data showing that Macquarie Perch abundance in 2018 is slightly lower than surveys undertaken in 2017, the population remains considerably higher than the years of drought and post floods (2006-2013) with increasing upstream range and abundances. Similarly, the abundance of River Blackfish has substantially increased since 2013 which has been bolstered by strong recruitment in recent years (Figure 3).

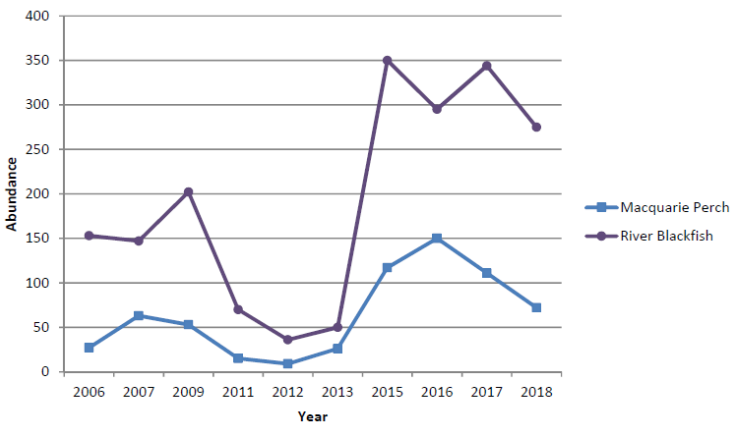

Figure 3. Total abundance of Macquarie Perch and River blackfish in Hughes Creek between 2006 and 2018 (Long-term monitoring sites only).

Likewise, Southern Pygmy Perch (*Nannoperca australis*) had fewer individuals captured during 2018, however the steady increase in abundance from long term data suggests that instream and riparian habitat improvements to this reach have also had direct benefits to Southern Pygmy Perch. Lower numbers in comparison to 2017 may be due to the recent flash floodings in December 2017.

Image 1 (left): Juvenile Macquarie Perch

Image 2 (right): Young of Year (YOY) River Blackfish

The decline in Carp abundance in our long-term monitoring sites between 2017 (n = 458) and 2018 (n = 44) appears to be driven by reduced recruitment success during the later year with only one YOY captured.

The number of Redfin Perch captured was the highest recorded since surveys commenced in 2006. This increase aligns with other surveys across the Goulburn catchment suggesting that environmental conditions are optimal for breeding during spring and summer.

Further habitat works have been undertaken between sites HC18 and G29 including complex woody habitats and boulder seeding to maintain refuge pools and improve fish passage for native fish.

Recommendations

- Continued instream habitat improvements including macrophytes and woody habitats downstream of site G20 to promote downstream dispersal of Southern Pygmy Perch stabilisation of sand deposits within the stream channel.
- Ongoing management (i.e. reduction/removal) of Redfin (also Carp) in Hughes Creek is recommended during late winter/early spring 2018 (prior to Redfin breeding) to reduce their ongoing threat.

Follow this link to the interactive story map of the Hughes Creek to explore fish surveys from 2006.

This project is funded by the Victorian Government. Arthur Rylah Institute (DELWP) is engaged to undertake these surveys on behalf of the Goulburn Broken CMA.