King Parrot Creek
Fish survey results 2019

GOULBURN BROKEN CATCHMENT MANAGEMENT AUTHORITY

Survey methods and sites

Similar to last year, surveys were undertaken during March 2019 at five long-term monitoring sites between Flowerdale and Kerrisdale (Figure 1). However, due to the low/no flow conditions at the time of sampling, fyke netting was not conducted. Fish were collected at each site using only backpack electrofishing techniques.

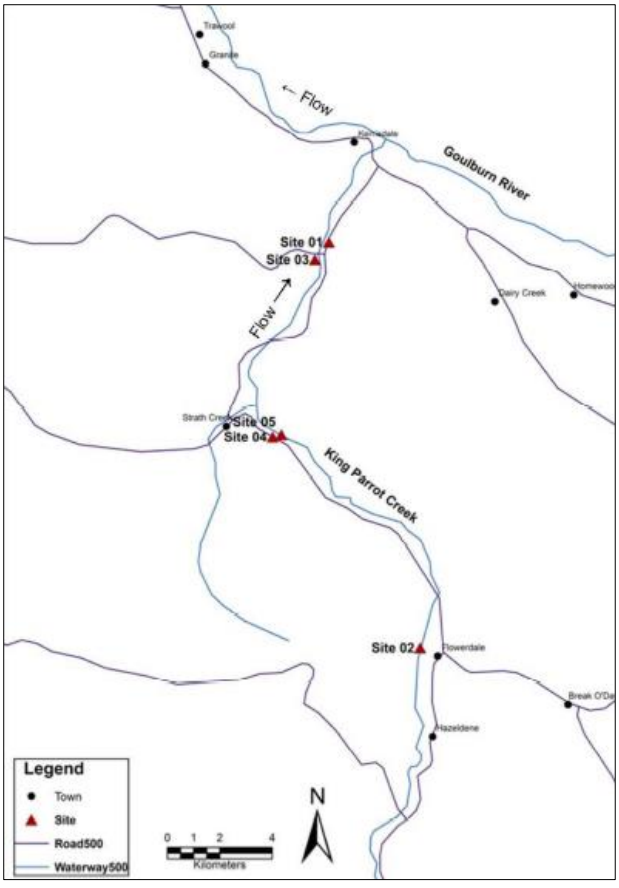

Figure 1. Map of survey sites in King Parrot Creek

Highlights

- The King Parrot Creek had ceased to flow below the township of Strath Creek, reducing four of the five survey sites to isolated refuge pools. Anecdotally, this is only the second time in 50 years the creek has ceased to flow, as it surprisingly didn't throughout the Millennium Drought (1997-2010).
- A total of 99 fish were collected, representing six native (72% of total catch) and four introduced species.
- A total of 16 Macquarie perch were captured from three of the survey sites, which is comparable to 2018 survey results where 14 individuals were captured via backpack electrofishing. Importantly, all fish were found to be in good condition.
- At least four cohorts of Macquarie perch were captured, including young of year (yoy) fish which accounted for 31% of the total catch for this species. One-year-old fish were also well represented with 38% of total catch.

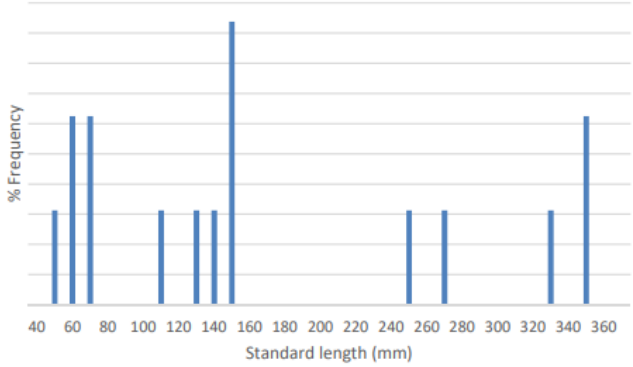

Figure 2. Size frequency histogram (% of occurrence) of Macquarie perch in King Parrot Creek March 2019

2019 results

Refuge pools within all sites except site 01, Draytons Bridge, sustained adequate habitats with reasonable water quality. Green algae was present in most remaining pools at Draytons Bridge where water quality, particularly dissolved oxygen concentrations, were poor (<4mg/L). As such, the three Macquarie perch collected from this site were translocated to site 02 (Moores Road) where flows were sustaining.

Figure 3. Refuge pools at Draytons Bridge

The abundance of river blackfish (*Gadopsis marmoratus* n=7) was similar to 2018 survey results (backpack electrofishing only), however, two-spined blackfish (*Gadopsis bispinosus*) were not detected. It must be noted that both species are predominately captured in fyke nets which was not able to be undertaken. Encouragingly, yoy river blackfish were also present despite adverse conditions in the creek.

Similar to previous surveys, the distribution of threatened species southern pygmy perch (*Nannoperca australis*) (n=8) appears restricted to the most upstream site (site 02- Moores Rd). Flat-headed gudgeon (*Philypnodon grandiceps),* another small native fish with declining populations, was captured at three sites (n=22).

Figure 4. Adult southern pygmy perch (left) and flat-headed gudgeon (right)

The abundance of redfin perch (*Nannoperca australisis*) (n=9), brown trout (*Salmo trutta*) (n=17) and rainbow trout (*Oncorhynchus mykiss*) (n=1) has significantly decreased since 2018, which is not unexpected given the environmental conditions in the creek at the time of surveys. These species require cool and well-oxygenated waters and thus it is likely many fish had migrated downstream to the Goulburn River or further upstream, where flows were maintained, prior to conditions deteriorating in the lower reaches of the creek.

Targeted reduction of exotic species in small systems continues to be an important management action for Macquarie Perch and other native species in King Parrot Creek.

Post survey recommendations

- Undertake surveys in autumn 2020 to assess recovery of the population following the cease-to-flow event in autumn 2019.
- Review current water extraction policies.
- Closely monitor water quality throughout dry summer periods to ensure timely action can be taken to translocate fish from poor and/or declining habitat conditions to stable refuge pools.
- Illegal weir constructions (particularly at Moores Rd Flowerdale) remain an ongoing concern given that they can pose a significant barrier to fish passage. This is particularly evident during the current environmental conditions where weirs prevent fish accessing refuge habitats during periods of low flows and potentially impede upstream migration to spawning habitats.

Figure 5. Unauthorised rock weir construction

- Removal of any obstruction to fish passage, such as illegal weirs, is strongly recommended. Continued community engagement on the importance of fish passageways for connectivity is critical to addressing this issue over time. Your assistance conveying this message to others will be much appreciated.

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.