



# King Parrot Creek Fish survey results 2018

## Survey methods and sites

Surveys were undertaken during March and April this year at five long-term monitoring sites between Flowerdale and Kerrisdale (Figure 1). This year represents the 13th consecutive year that fish surveys have been undertaken to monitor Macquarie perch (*Macquaria australasica*) in the King Parrot Creek, which is the longest continual dataset for Macquarie perch in the Goulburn Broken catchment. Fish were collected at each site using backpack electrofishing and single wing fyke netting techniques.

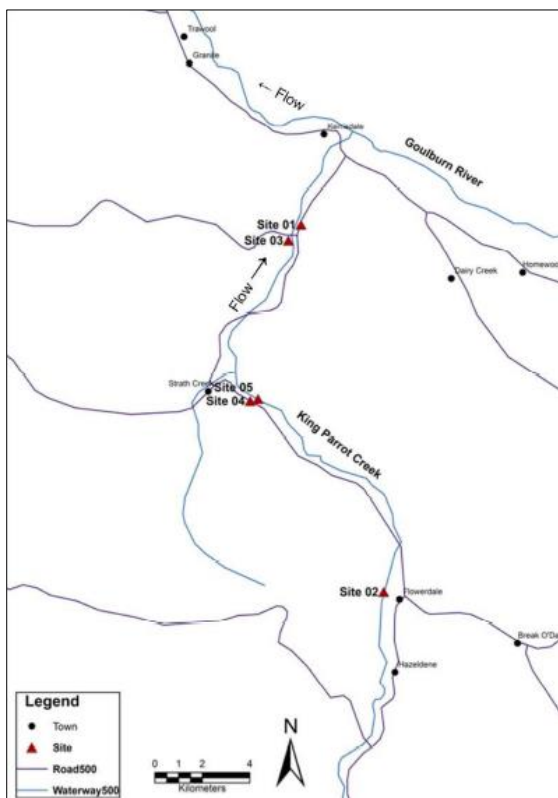


Figure 1. Map of survey sites in King Parrot Creek

## Highlights

- The most abundant native species captured was Macquarie perch, followed by river blackfish.
- Macquarie perch were recorded at all five survey sites, with over 50% of individuals recorded from sites 04 and 05 combined, which are considered to be important spawning/nursery areas. Seventy percent of the total Young of Year (YOY) collected were from these two sites.
- Multiple age cohorts were present in the system with fish 100-170mm long and estimated as one year old dominating the catch (Figure 3), which is consistent with successful recruitment of YOY fish during the 2016 spawning period.
- All fish captured during the surveys were in excellent condition, which is indicative of a healthy and productive ecosystem.



Figure 2. Captured Macquarie perch YOY

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

2018 results

A total of 396 fish were collected with seven native and four introduced species represented. Native fish accounted for 52% of the total catch. The most abundant species captured was Macquarie perch (*Macquaria australasica* n = 96) followed by river blackfish (*Gadopsis marmoratus* n = 39). As per previous surveys, two-spined blackfish (n = 18) were only captured at site 02.

Two Macquarie perch, collected from site 01 and site 03, were recaptured fish that were both initially tagged in 2015 (total lengths of 235mm and 230mm) and had grown 80mm and 124mm respectively during this period. While both fish were first captured from site 01, one individual had migrated more than 7km upstream to site 03. This is the first record of a tagged Macquarie perch being recaptured at a different location to the initial site since tagging fish commenced in 2010.

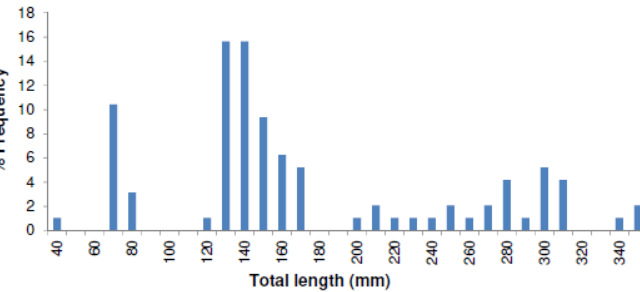


Figure 3. Size frequency histogram (% of occurrence) of Macquarie perch captured in King Parrot Creek 2018

The abundance of river blackfish (Figure 4) has significantly increased since 2012 and has remained relatively stable over the past six years. This species distribution appears to be restricted between site 04 and site 02, with no individuals detected at the two most downstream sites (01 and 03) since 2015 and 2010 respectively.



Figure 4. Large river blackfish captured during surveys

Southern pygmy perch (*Nannoperca australis*) abundance increased from 2017 (n = 7) to 2018 (n = 16). However, this species distribution appears restricted to the most upstream site (site 02). Flathead gudgeon (*Philypnodon grandiceps*) decreased from 2017 (n = 46) across four sites, but are now present in all sites in 2018 (n = 20).

Redfin perch abundance has significantly increased over the past year from five individuals in 2017 to 52 individuals in 2018. Over 94% of redfin perch collected were 1+ year old fish, which suggests that environmental conditions have been favourable for this species over the past 1-2 years. Redfin perch remain a key threat to Macquarie perch (and other small bodied fish species) either by direct predation on early life stage fish or competing for resources. Ongoing management of redfin perch (removal/reduction) in the King Parrot Creek may become an important intervention for the longevity of Macquarie perch in this system, should they continue to flourish, similar to efforts undertaken on Seven and Hughes creeks this year where Macquarie perch numbers have been significantly higher.

Long-term data analysis

The general trend in Macquarie perch abundance since surveys commenced in 2006 has been low-stable between 2006 and 2011 (drought, bushfire and floods), followed by several years of favourable environmental conditions with the abundance peaking in 2015 (Figure 5). The declining trend since 2015 appears to be driven by recruitment strength where the population appears to be returning to equilibrium.

It should be noted that Macquarie perch have successfully recruited over the past six years with their abundance in 2018 remaining significantly higher than the eight years preceding 2014. A detailed assessment of key drivers of Macquarie perch population dynamics for this population (and others), is currently underway as part of a DELWP funded project.

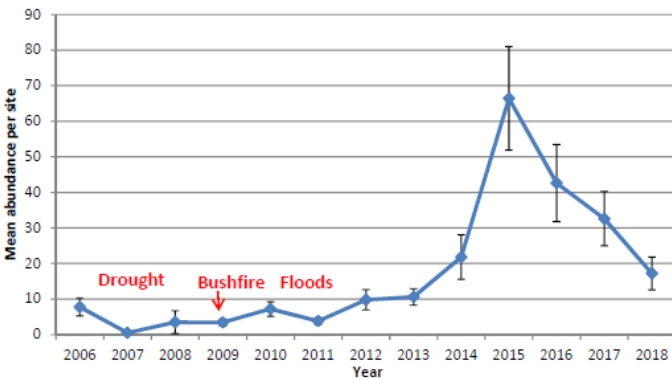


Figure 5. Mean (± SE) abundance of Macquarie perch per site during surveys 2006-17 (fyke netting data only)