



King Parrot Creek Fish survey results 2020



Survey methods and sites

Annual fish surveys have been undertaken in the King Parrot Creek since 2006 to monitor what is regarded as one of the healthiest remaining populations of threatened species, Macquarie Perch (*Macquaria australasica*), in the Goulburn Broken catchment. Fyke netting and backpack electrofishing survey techniques were undertaken at five regular sites between Flowerdale and Kerrisdale (Figure 1) in mid March 2020.

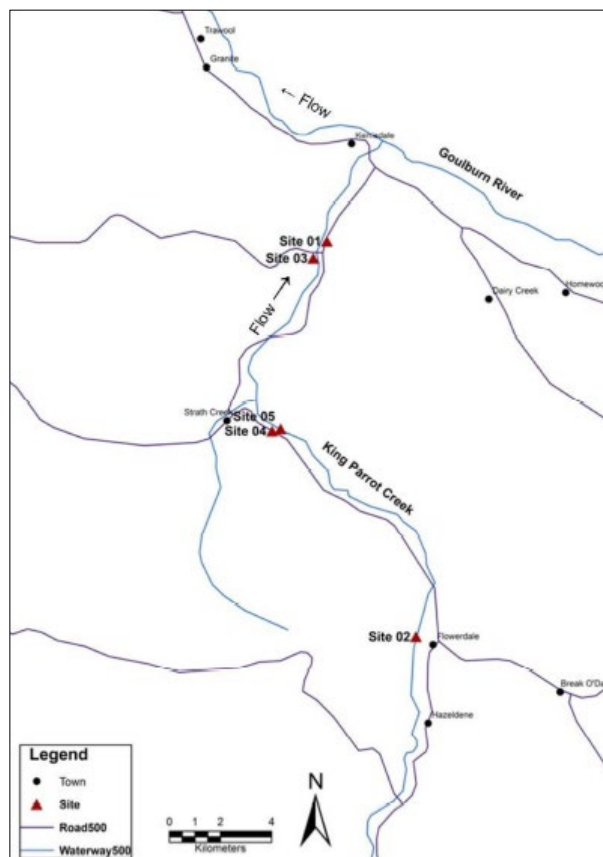


Figure 1. Map of survey sites in King Parrot Creek

Highlights

- A total of 206 fish were captured, representing seven native (71% of total catch) and five introduced species.
- Macquarie Perch was the most abundant species captured (n=61), recorded at all five survey sites.
- Multiple age classes of Macquarie Perch were recorded in the survey, with individuals ranging from 110-170mm (estimated to be 1 + year old), being most abundant.

Figure 2. One year old Macquarie Perch were the predominant cohort collected



- This is a positive indicator of recruitment success for young-of-year (YOY) Macquarie Perch of the 2018 spawning period, which occurred prior to the cease of flow noted from March 2019.
- In 2020, YOY were recorded at three of the survey sites, two of which are known to be important spawning and nursery areas.

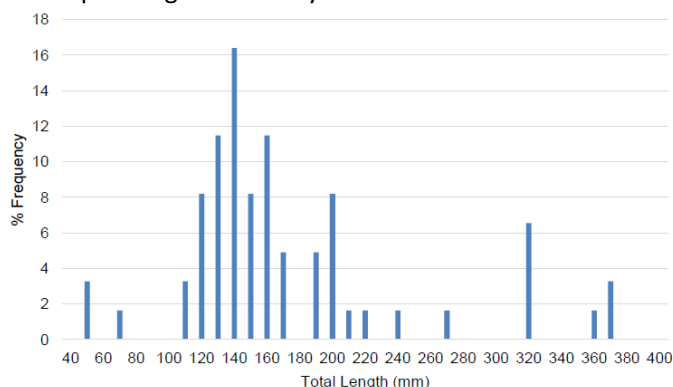


Figure 3. Size frequency histogram (% of occurrence) of Macquarie Perch in King Parrot Creek March 2020

Trends

In 2019 the King Parrot Creek had ceased to flow below Strath Creek and 4 of the 5 survey sites were reduced to isolated pools. Though conditions early this summer were looking bleak, thanks to topping up rainfall events in Jan-Feb, the flow conditions at time of survey were similar to most years.

Trends in mean abundance of Macquarie Perch in the Creek show a low stable period between 2006 and 2011 (drought, bushfire and floods), followed by several years of higher abundance due to enhanced conditions for recruitment and survival (peaking in 2015). Then in more recent years, a gradual decline, most likely to the low flows in the system once again.

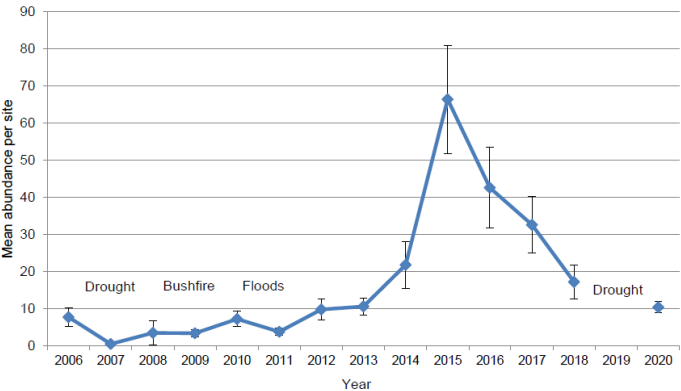


Figure 4. Mean abundance of Macquarie Perch per site during surveys of the King Parrot Creek 2006-2020 (fyke netting data only)

One Macquarie Perch captured at site 4 was a recapture from 2015 when tagged at the same location. The fish had grown 30mm and gained 227g in five years.

The mean abundance of River Blackfish (*Gadopsis marmoratus*) per site has slightly reduced, however remains on average more than double that of records prior to 2013. River Blackfish favoured the upstream sites with 80% of the total recorded in 2020 from sites 02 and 05.

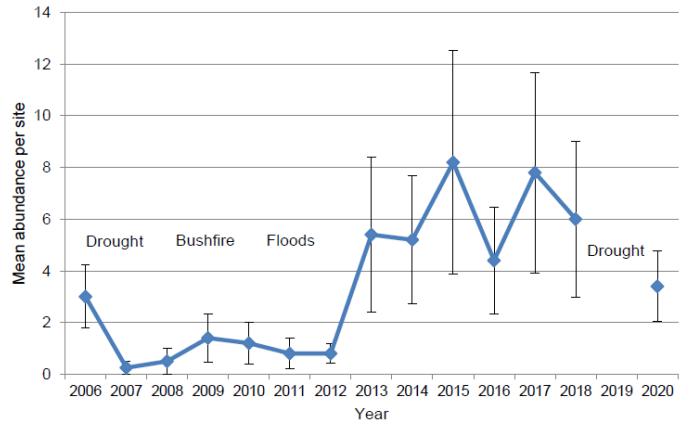


Figure 5. Mean abundance of River Blackfish per site during surveys of the King Parrot Creek 2006-2020 (fyke netting data only)

Two-spined Blackfish (*Gadopsis bispinosus*) and Southern Pygmy Perch (*Nannoperca australis*) were recorded at site 02.

Flathead Gudgeon (*Philypnodon grandiceps*) abundance in the 2020 electrofishing surveys (n=43) has increased considerably from both 2018 and 2019 (n=20 and n=22 respectively). The catch for 2020 is a return to numbers recorded in 2017 (n=46) with more than half of the individuals captured from site 5 on both occasions.

Other fauna also collected during the survey included Spiny Freshwater Crayfish (n=4), Common Yabby (n=45), Eastern Long-neck Turtle (n=5) and Platypus (n=6).

The abundance of Redfin Perch (*Perca fluviatilis*) has continued to remain low (2019 n=9 and 2020 n=8), a considerable decrease from 52 individuals recorded in 2018. This supports the value of targeted reduction of exotic species in small streams, as was conducted in 2018.

Brown Trout (*Salmo trutta*) and Rainbow Trout (*Oncorhynchus mykiss*) also remained low in numbers, with the unfavourable warm and low flow summer conditions of the past two years considerably impacting both species. As seen in 2019, trout distribution in 2020 was mostly restricted to sites either downstream towards the Goulburn River or further upstream where flows are more consistent.

Summary and recommendations

The King Parrot Creek population of Macquarie Perch is considered one of the healthiest within the Goulburn Broken catchment and is often regarded as a reference for other populations across the species range. This resilience may in part be due to the connection to the Goulburn River in moderate flows, that affords the fish opportunity to move into regulated flows before being potentially trapped in deteriorating habitat pools. Even so, the past two summers have been tough for Macquarie Perch, which has been reflected in a decline in abundance, though not as significantly as other monitored populations.

Identifying refuge areas for Macquarie Perch during the summer periods, outside the current survey sites on the King Parrot Creek, is highly recommended. This knowledge can better inform future translocation actions or potential areas for works (i.e. ensure deeper refuge pools provide good habitat for fish to help them sustain summer cease flows).

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.