The Status of Macquarie Perch *Macquaria australasica* in the Mongarlowe River in 2007 and 2008.

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A Report to the Friends of the Mongarlowe River Inc.

Executive summary only supplied here.
Full report available on-line at www.wild-river.com.au/fmr/macca1

FRIENDS OF THE MONGARLOWE RIVER INC

preserving the integrity of our river and its catchment

1 Executive summary

Macquarie perch *Macquaria australasica* is a nationally threatened fish species. It is listed or recommended to be listed as endangered nationally, and in all the States and Territories in which it occurs (ACT, NSW, Vic and SA (Lintermans 2007).

It has long been known that there is a population of Macquarie perch in the Mongarlowe River. Bishop and Tilzey (1978) reported on aspects of the ecology of Mongarlowe Macquarie perch in a baseline study for the proposed Welcome Reef Dam and Bishop (1979) conducted several years of research into the distribution and ecology of the species in this river. As Macquarie perch continue to decline in distribution and abundance, and in the face of increasing development pressure on Macquarie perch habitats, an investigation of the current status of the species in the Mongarlowe was initiated.

As sampling of adult Macquarie perch can be difficult without causing detrimental impacts to the captured individuals, the sampling program was structured to capture juvenile fish from the previous spawning season. A sampling technique that provides robust information on the breeding status of the population was considered suitable to provide information on whether the Macquarie perch population was 'healthy' (i.e. breeding at sustainable levels).

The aims of the current program were to:

- Investigate levels of recruitment in the Mongarlowe Macquarie perch population
- Investigate geographical and inter-annual variation in recruitment success

Six sites were sampled in 2007, with one of these sites re-sampled (Junction Pool) and an additional site (Bourkes Crossing) sampled in 2008. The sites were sampled with ten single-winged fyke nets and five small collapsible bait traps set at each site.

A total of 158 fish from six species (five native and one alien) were captured and another species (alien) was observed (Table A). The species captured were:

Native:

Macquarie perch	*Macquaria australasica*
Longfinned eel	*Anguilla reinhardtii*
Mountain galaxias	*Galaxias olidus*
Firetailed gudgeon	*Hypseleotris galii*
Carp gudgeon	*Hypseleotris spp*

Alien

Eastern Gambusia	*Gambusia holbrooki*
Carp	*Cyprinus carpio*

Non-target species captured were Platypus and Eastern snake-necked tortoise with Platypus captured at 6 sites and tortoises at 3 sites (Table B).

Table A. Number and species of fish recorded in the Mongarlowe River.

Species	Junction Pool		Riverside	Bentleys Point	Shepherds Farm	Chinamans Hole	Mongarlowe Bridge	Bourkes Crossing
	2007	*2008*	*2007*	*2007*	*2007*	*2007*	*2007*	*2008*
Macquarie perch	1	1	-	-	-	-	-	1
Longfinned eel	1		3	1	1	-	1	
Mountain galaxias	-		9	1	7	9	1	16
Firetailed gudgeon	5	5	19	4	1	-	-	
Carp gudgeon	9	4	18	27	-	-	-	
Carp	Obs	Obs	-	-	-	-	-	
Eastern gambusia	Obs	3	Obs	10	-	-	-	
Total	**16**	**13**	**49**	**43**	**9**	**9**	**2**	**17**

Table B. Number and species of non-target species captured in the Mongarlowe River.

Site	Platypus	Eastern snake-necked tortoise
Junction Pool	1	1
Riverside	1*	
Bentleys Point	1	4
Shepherds Farm		2
Chinamans Hole	1	
Mongarlowe Bridge	2	
Bourkes Crossing	1	

*plus 2 observed

The abundance of fish recorded was surprisingly low, with an average of only 19.75 fish captured per sampling night. The majority of fish sampled (148 of 158 fish) were from small-bodied species, with an extremely low number of large-bodied or angling species recorded.

Only three Macquarie Perch were captured during the sampling program with all fish being young of the year. The geographical spread of young-of-year fish detected in the current survey encompasses the full range o sites from Bourkes Crossing to Junction Pool, indicating that recruitment occurs over the full range of the species in the Mongarlowe River.

That adult Macquarie perch are still present in the Mongarlowe River is beyond question. If young-of-year fish are present, there must be adults present to produce them. There are also a number of recent records of adult Macquarie perch from the Mongarlowe River (Table 7).

The total number of Macquarie perch captured was extremely low, indicating poor recruitment by this species on both years of the survey. This lack of recruitment detected during the current project raises some concerns about the future of the population in the Mongarlowe River, with prolonged failure to recruit or prolonged low levels of recruitment a cause for concern. It is unknown whether the low recruitment detected in the current study represents the normal recruitment level for this population (i.e. a small population just ticking over). It may be that recruitment levels have been suppressed by the extended drought, which has affected Macquarie perch populations in some rivers in the Murray-Darling Basin. Whilst the abundance of adult Macquarie perch cannot be assessed by the current survey, (because of the sampling techniques used) it seems likely that the population has declined further since the study of Bishop (1979) and Bishop and Tilzey (1978), and unless recruitment levels improve in the near future, its future looks grim.

The current survey indicates that two alien fish species (Carp and Eastern gambusia) are not distributed throughout the entire length of the Mongarlowe River, and further investigation of the distribution of these two species would be beneficial.

2 Recommendations

Macquarie perch

1. The genetic identity of the Mongarlowe River Macquarie perch population needs to be confirmed. It is considered likely that the Mongarlowe River population is the result of a translocation from the Murray-Darling Basin, but this needs confirmation. The genetic identity (source) of the population will influence how the population is managed.

2. Monitoring of recruitment levels should be conducted annually to determine the long-term recruitment patterns in the population. Monitoring should be conducted across the full known range of the species in the Mongarlowe. The relationship between rainfall and flow patterns should also be investigated to determine if they are correlated with recruitment success.

3. The upstream limit of the Macquarie perch population in the Mongarlowe River needs to be determined. Does the species extend into the headwaters of the Monga National Park?

4. Barriers to Macquarie perch movement in the Mongarlowe (e.g. Bourkes Crossing ford) need to be identified and remediated so that fish movement is not impeded.

5. Monitoring techniques for Macquarie perch that are able to be utilised by the general community need to be investigated and developed. The interest and involvement of the local community has a much higher chance of being maintained if they can be actively involved in the data collection process.

6. There is increasing pressure from rural subdivision in the Mongarlowe valley, and the issue of allocation of water resources between consumptive and environmental uses and how these might impact on the Macquarie perch population needs to be considered by local and state authorities.

Alien fish

7. The upstream distributional limit in the river of the alien species Carp and Eastern Gambusia should be determined and any barriers or impediments to upstream expansion of these species should be identified and where possible maintained or augmented.

8. The presence of Carp and Eastern Gambusia in farm dams in the middle and upper catchment (above Bentleys Point) should be investigated, and control measures considered for any populations located