



A GPO Box 4509
Melbourne Victoria 3001
E victorianfisheries@vfa.vic.gov.au
T 136 186

Department of Environment, Land, Water and Planning
PO Box 500
East Melbourne Vic 8002

Via email: water.markets@delwp.vic.gov.au

Dear [REDACTED],

Re: Submission to the Goulburn Murray Trade Rule Review

On behalf of the Victorian Fisheries Authority (VFA) please consider this feedback as a submission to the above review.

The VFA has built long-term and productive partnerships with DELWP, CMAs and recreational fishers to recover and rebuild native fish populations in public waters throughout Victoria. In the last decade, this has included the stocking of over 30 million threatened native fish in more than 100 waterways, extensive fish population monitoring, tightening of fishing regulations, river health restoration works and applied research and development. We have done this work alongside recreational fishers and built a strong and informed recreational fisher advocacy group. Recreational fishers are now investing unprecedented resources and their own time and volunteer effort to repair and restore fish habitat.

Recreational fishers are the largest recreational waterway users and recreational fishing makes an extraordinary contribution to Victoria's regional economy. Around one million Victorians (1 in 5 people) identify themselves as recreational fishers. An Ernst and Young Study in 2014 estimated recreational fishing generated around \$7.1 billion annually as recreational fishers buy tackle, bait, fuel, and stay overnight or camp in pursuit of a positive fishing experience. The study estimated Victorian recreational fishers go fishing more than 6 million times every year and the sector employed more than 33,967 people.

The reach of recreational fishing extends far beyond regional economic benefits. Most recreational fishers are driven by their connection to nature and the social experiences of fishing through engagement with their families and friends. There is growing evidence that recreational fishing and its connectivity to the outdoors is good for mental health, and that it provides a welcome relief from the pressures of life.

Since 2014 the State Government has made an unprecedented investment of over \$80 million to support recreational fishing through a range of programs and projects under its *Target One Million* plan to get more people fishing, more often.

High summer flow impacts on the native fisheries of the lower Goulburn River.

Ten years ago, base summer flows in the lower Goulburn River ranged from 250 to 350 megalitres / day. Since then, environmental flows have been added to this flow and its delivery has been designed to emulate natural flows at or less than 1000 megalitres / day over this period (around 30 gicalitres / month).

Over the last few years, primarily as a result of inter-valley transfers, Goulburn River summer flows have increased from peak flows of up to 1000 megalitres / day, up to 3000 megalitres / day.

We are concerned that high flows in late spring and through summer is reducing the survival, growth and recruitment of both wild and stocked juvenile Murray cod (*Maccullochella peelii*) and other native threatened fish species.

Recent unpublished modelling by the Arthur Rylah Institute suggest a doubling of summer flows (above a baseline of 1000 megs / day) down the lower Goulburn river is likely to decrease Murray cod recruitment by up to 30% per annum. The exact causes of this decline are not clear, but are likely to involve physical and ecosystem related changes including;

- High flows will remove critical instream nursery and riparian fish habitat,
- The abundance of critical macro-invertebrates—a critical nursery food supply—will be reduced,
- Important 'slack water habitat' providing will be drowned out during high flows,
- Lower bankside vegetation is being destroyed,
- Expected reduction in water temperature patterns at local levels,
- The benefits from environmental watering (bankside seed dispersal) will be undone, and
- Riverbanks will be eroded, undermining bank stability, causing erosion and siltation.

This impact on juvenile Murray cod is likely to also extend to stocked fish which are 40 mm or 1 gram when released. As a result, the effectiveness on both natural and stocked fish recruitment will be severely compromised over time. Without effective recruitment the Murray cod population and highly valued Murray cod fishery will eventually collapse.

The lower Goulburn river is only one of two rivers in Victoria where the endangered trout cod, (*Maccullochella macquariensis*) is making a population recovery. Trout cod are endangered under the *Environment Protection and Biodiversity Conservation Act 1999* and the International Union for Conservation of Nature Red List and threatened under the *Flora and Fauna Guarantee Act 1988*. These fish were once widespread, but are now only found in a handful of locations throughout north east Victoria.

The importance of the lower Goulburn River fish communities

The Goulburn catchment is Victoria's largest river basin, covering over 1.6 million ha or 7.1 percent of the state. The Goulburn River flows for 570 km from the Great Dividing Range upstream of Woods Point to the River Murray east of Echuca. It is an iconic heritage river because of its environmental, Aboriginal cultural heritage and recreational values (from VEWH website).

The Goulburn river is one of ten fish reference rivers throughout Victoria where native populations are monitored annually by researchers at the Arthur Rylah Institute under a joint VFA and recreational fisher partnership program (see link).

<https://www.nativefishreportcard.org.au/>. Under this program the species monitored in this river include: Murray cod, trout cod, golden perch, and silver perch.

Murray cod are Australia's largest freshwater fish and are considered an iconic target species by recreational fishers. This waterway holds the second-largest river population of Murray cod in Victoria. These Murray cod are derived from natural breeding and are augmented by VFAs Murray cod stocking program. The population abundance and catch rates of Murray cod in this water are high and comparable with any other river across the Murray Darling Basin.

Golden perch populations in the Goulburn River have improved over recent years and research by ARI shows that stocking makes a strong contribution to golden perch populations in this waterway. Golden perch (*Macquaria ambigua*) are highly valued by recreational fishers.

The Goulburn River supports a population of silver perch (*Bidyanus bidyanus*) which is critically endangered under the FFG Act. The range and abundance of silver perch in Victoria has contracted to only a handful of self-sustaining populations in Victoria; and this species has been found in reasonable numbers in the Goulburn River.

In this stretch of the Goulburn River you can find one of Victoria's strongest population of Murray spiny crayfish (*Euastacus armatus*). Murray spiny crayfish are the second largest freshwater crayfish in the world, are threatened under the FFG Act, and their harvest is strictly controlled under fisheries regulations. These species are particularly vulnerable to the effects of blackwater events which has recently impacted populations along the Murray and in the Goulburn Rivers. Unseasonal flow regimes are likely to negatively impact the population abundance of Murray spiny crayfish in the lower Goulburn River.

Indigenous heritage and community values

The lower Goulburn River remains critically important to the history, culture and values of indigenous communities that have lived near it, and depended on it, for 40,000 years or more. Scarred trees, mounds, stone artefacts and middens can still be observed along the lower Goulburn River. The rivers unique features and values resulted in it being declared a heritage river in 1992.

The VFA's Victorian Aboriginal Fishing Strategy identifies the need to undertake sustainable fisheries management in collaboration with Traditional Owner Groups. For the lower Goulburn, the VFA works closely with Yorta Yorta and Taungurong indigenous communities to achieve this.

The VFA is concerned that high summer flows will continue to erode the lower banks of the Goulburn River and potentially expose sights of cultural significance and impact cultural fishing practices at this time of the year.

Social impacts

The lower Goulburn River is among the most popular inland recreational fisheries in Victoria. Anglers are attracted to this water to fish for Murray cod and golden perch. The river is also highly valued as a camping location with a peak of fishing and camping activity when the Murray cod season re-opens after spawning, i.e. on the first weekend of December. At this time of the year, recreational fishers value being able to camp on sand banks when low water levels are low. Low and slow summer flows provide safer conditions for families to enjoy dispersed camping. High summer flows are dangerous for young families.

Murray cod feeding activity is heavily influenced by river flows and fishing is more difficult and less productive when the river is running high flows. When high flows coincide with the start of the Murray cod fishing season (first weekend in December), it significantly detracts from the fishing and camping experience.

Economic contribution from Murray cod fishing

Murray cod are the most popular freshwater angling species in Victoria.

In 2010 an Ernst and Young survey estimate Murray cod:

- Are targeted by 44% of recreational fishers,
- Account for \$166 million in annual direct fishing expenditure, and
- Account for 374 jobs.

Anglers fishing for Murray cod spend on average \$250 for each trip.

Tackleworld Shepparton (re: Steve Trelly) estimates 50% of their total annual fishing tackle sales are directly attributed to tackle sales to those targeting Murray cod, much of which takes place in the lower Goulburn River. The peak times for this fishing expenditure include: Murray cod opening, Easter, and during the Christmas holiday period.

Response to proposed IVT trading rules options

The options presented in the background / consultation papers are complex, confusing and lack relevant detail. It is unclear for example how daily water flows may vary under these options and over what period. Rather than respond to these options, the VFA proposes peak flows be capped to protect threatened native fish (Murray cod, trout cod and other native species).

The VFA recommends, wherever possible, river flows be designed to emulate nature flow conditions (before river regulation), particularly during periods when native fish (and their young) are most vulnerable to changed flow conditions. Critical periods to avoid high flows for Murray cod and trout cod in the lower Goulburn River are:

Critical periods	Flow rates to be kept under 1,000 megalitres / day
*Murray cod spawning (18 to 20 degrees)	Mid October to 1 December
Murray cod larval and juvenile fish development	Dec 1 to end February

*Trout cod have similar breeding requirements to Murray cod although can breed up to a month earlier

Legal framework

The VFA has a legislated responsibility (Fisheries Act 1995) to manage, protect and conserve fisheries resources, including threatened native fisheries of the lower Goulburn River.

The FFG Act sets out flora and fauna conservation management objectives which include: guaranteeing all taxa of flora and fauna can survive, flourish and retain their potential for evolutionary development; to conserve communities of flora and fauna; and to manage potentially threatening processes. As high summer flows directly threaten the survival and breeding of threatened native fish (Murray cod, trout cod, silver perch and Murray spiny crayfish) in the lower Goulburn River, the VFA expects DELWP to take action. DELWP is legally required under its Act to prevent the destruction of the remnant native species in the lower Goulburn.

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Lessons from the past

The condition of Victorian freshwater fish populations has been profoundly influenced by the water and land management practices over the last 200 years. As a result, our waterways have been highly modified and now look and perform differently to how they did before. Many of our rivers have been de-snagged, straightened, diverted, drained, or dammed. Based on recent assessment only 23% of Victoria's rivers are either in good or excellent condition.

Our unique native fish populations have suffered a catastrophic decline in abundance and range; and now 56 native fish are listed as threatened, including 6 out of 7 large-bodied angling species. Some of the most significant impacts on native fish have been changes to natural flow regimes that result in thermal pollution, reduced wetland connectivity, and reduced frequency and magnitude of natural flood events. Demand for irrigated water in summer has driven seasonal reversal of northern river flows that has changed the natural productivity and reproductive cycles of native fish. We have

learned these lessons across a hundred rivers; and river by river seen productive and diverse native fisheries become less resilient and decline year by year.

The VFA believes allowing IVT summer flows down the Goulburn River will be repeating the mistakes of the past and over time will invidiously wreck an important recovering native fishery.

Should you require further information in relation to the above, please feel free to contact myself on [REDACTED] or [REDACTED], Manager, Inland Fisheries on [REDACTED].

Yours sincerely,

Travis Dowling
Chief Executive Officer
Victorian Fisheries Authority
13 / 05 / 2020