

# Upper Murrumbidgee



## Talking fish

Making connections with the  
rivers of the Murray-Darling Basin

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**Aboriginal readers are warned that this publication may contain the names and images of Aboriginal people who have since passed away.**

# The rivers of the Murray-Darling Basin

The rivers and creeks of the Murray-Darling Basin flow through Queensland, New South Wales, the Australian Capital Territory, Victoria and South Australia. The 77 000km of waterways that make up the Basin link 23 catchments over an area of 1 million km<sup>2</sup>.

Each river has its own character yet these waters, the fish, the plants, and the people that rely on them are all different.

The booklets in this series are about how the rivers, fish and fishing have changed. The main stories are written from oral history interviews conducted with local fishers in 2010-11, and relate individuals' memories of how their local places have changed. They showcase three ways of knowing the Upper Murrumbidgee River: personal experience, scientific research and historical research. Just as individual fishers do not always agree with one another, so their understanding might not necessarily agree with current scientific information or historical records. Similarly, specific items and events might be remembered differently by different people. These varied perspectives show the range in views about fishing and the rivers, each important in its own way. There are many other great stories out there about fishing in the Murray-Darling Basin. These booklets are just the beginning.

## Acknowledgements – Upper Murrumbidgee

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### Front photographs (L-R)

Source: Luke Johnston.

Source: Charlie Carruthers.

Source: National Library of Australia (nla.pic-vn4649970-v).

Source: Scott Nichols.

### Back page images

2 spined blackfish image courtesy DPI Victoria.

All other fish images: NSW DPI.

*Everybody who can hurl a line into a river has caught trout, cod, bream, perch, and gadopsis [blackfish] in the Murrumbidgee, but most do it with a hook baited with white grub, worm, shrimp, frog, and other foods. ....*

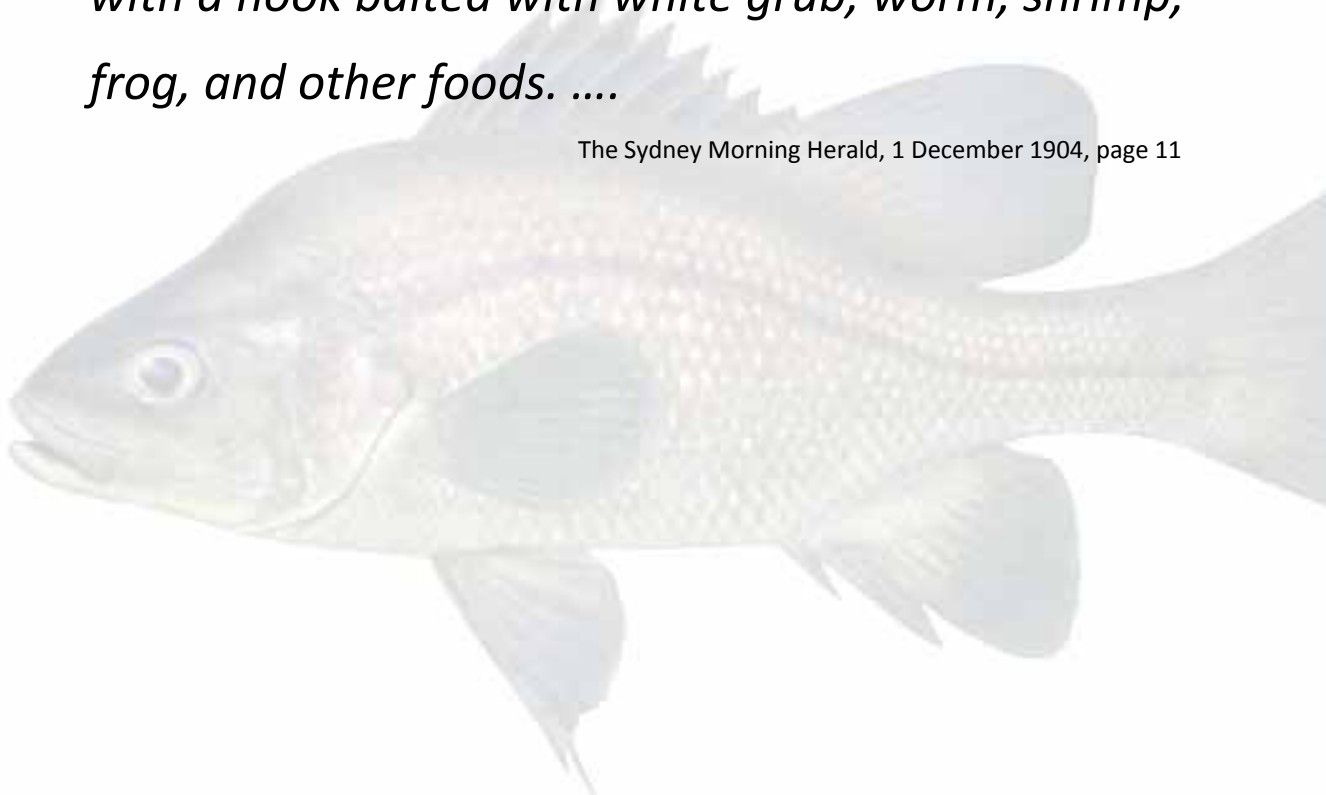
The Sydney Morning Herald, 1 December 1904, page 11

The Upper Murrumbidgee cuts its way through the Snowy Mountains in south-eastern New South Wales, snaking its way south, then turning north before dropping into the lowland and heading west to join the Murray downstream of Swan Hill. The Upper 'Bidgee floodplain is only a couple of hundred metres wide, a stark contrast to the kilometres-wide floodplains in other parts of the Murray-Darling Basin. When the floods come, they come up quickly and roar through the narrow valleys. These are the traditional lands of the Ngunnawal and Ngarigo peoples. They fished the river and surrounding waterways and hunted the wetlands. The seasonal rise and fall of the water guided their travels and featured in their stories. The Ngunnawal and Ngarigo people have seen their land and the river change.

Since Europeans arrived the health of the river and its fish has been shaped by the people who came to live there and the industries that developed. Mining and grazing, and the development of Canberra needed different types of workers, bringing new people with new needs to the river and new ways to catch fish. Once, river levels would rise with the spring snow melt before falling slowly over the summer. Today the snow melt is collected in Tantangara Dam before being returned to the 'Bidgee below Burrinjuck Dam. The river between these dams is a shadow of its former self.

These changes mean there are a lot less fish than there were. Before the turn of the twentieth century, there are stories of catching Macquarie perch, Murray cod, blackfish and yellowbelly. There were no carp, no redfin and no trout.

There are still those who love the river and who love to fish the river. Their stories are part of the bigger story of changes to the 'Bidgee and its fish. They help us remember that the river we see now is not what the river was and can be again. People want to talk about a future for the 'Bidgee and their visions for a healthy river that is, once again, full of fish.



# Introducing the river and its people

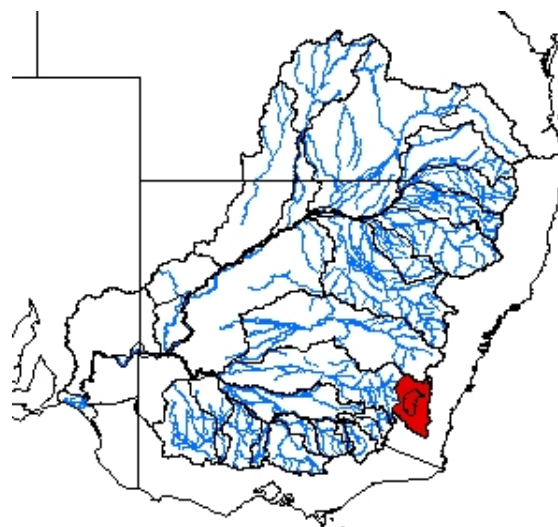
## Aboriginal traditions

For over 20 000 years the Aboriginal people have lived around the Murrumbidgee River. The Ngunnawal people lived mostly in the Canberra area, while the Ngarigo lived further upstream on the lowland plains. The local rivers were used for ceremony and song, hunting and fishing by all Aboriginal people.

The Canberra area was an important meeting place for Aboriginal peoples travelling to the mountains for initiation ceremonies. Neighbouring language groups, Wiradjuri, Walgalu, Ngarigo, Yuin, Jaimatang and Gundungurra, met at Kamberri over the summer season. The Ngunnawal guided male initiates on the journey to ceremony places through Ngarigo country and along a pathway of the Murrumbidgee.<sup>1</sup>

## The arrival of the Europeans

In 1824 the first squatters arrived in the Canberra area, followed by others who favoured land that adjoined the many rivers and streams in the area.<sup>2</sup> Mining for gold and tin brought new people who camped along the river.



As rail arrived, so too did the first naturalists and other early scientific workers.<sup>3</sup>

By the time of Federation, the river and fish habitat had changed. John Gale bemoaned the state of the river in 1903.

*What a contrast fishing in the Murrumbidgee presents to the days of auld lang syne! Some of us old residents can look back to the period when an evening's fishing in the big river was invariably rewarded with a haul of heavy fish, varying in size from 7lb to 20lb or even more, whose aggregate weight was enough for a pack-horse to carry.<sup>2</sup>*

Many more people came as Australia's capital was built between the Queanbeyan and Murrumbidgee Rivers. The development of Canberra changed the area, particularly by demanding far more water than before for new building, domestic and public use. The artificial Lake Burley Griffin was created, changing the look and feel of the area and how people used it.

But Lake Burley Griffin wasn't the only change made to the Murrumbidgee's flow - Tantangara Dam, completed in 1960 as part of the Snowy Mountains Hydro Electric Scheme, now diverts 99.6% of the headwater flows. This has impacted on regular flow, flood levels and flood frequency, changing both the habitat for native fish, and opportunities for them to breed.

In the post war period many southern European migrants arrived to live and work in the area and on the Snowy scheme. Inevitably pressure grew on existing river resources. Fishing for pleasure overtook fishing for food and has become a vital part of recreational activities along the Murrumbidgee corridor.

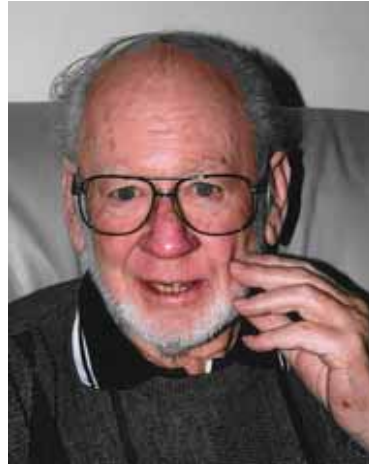




Children playing in the 'Bidgee, Tuggeranong, circa 1910.  
Photo copy of original: National Library of Australia – Mrs W.A.S.  
Dunlop's photograph album PIC\_8441\_46\_LOC\_Album 316A.



Kambah Pool. Photo: Scott Nichols.



**Bryan Pratt** – a scientist and passionate angler who has fished the Murrumbidgee for over 40 years. His two tackle shops in Canberra give him the opportunity to talk with other anglers about the state of the river.  
Photo source: Bryan Pratt.



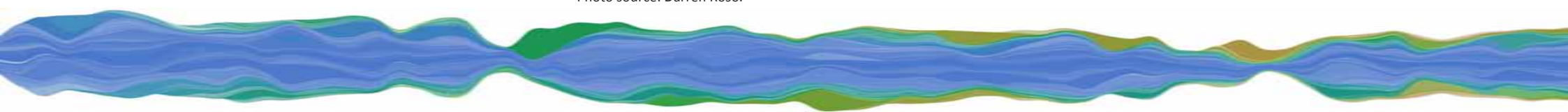
**Darren Roso** has been lucky enough to get his feet wet in the Murrumbidgee with his job. By doing so he has seen many changes – both good and bad.  
Photo source: Darren Roso.



**Dick and Gay Lawler** (and their dog **Kevin**) enjoy 'Glanroe' – the old shepherd's hut they have lovingly restored on the banks of the Murrumbidgee.  
Photo: Luke Johnston.



**Adrian Brown** is a Ngunnawal man and a ranger with ACT Parks and Conservation Service. Adrian wants to honour his ancestors by caring for the river and teaching others to do the same. Photo source: Reconciliation News, Issue 14, April 2009.



## Dick & Gay Lawler - 'Glanroe' on the bend



Dick Lawler's childhood home was 'Hillydyke', a grazing property seven kilometres from Michelago. He was born in Sydney in 1939, but has lived in the Murrumbidgee corridor all his life, as

did his parents and grandparents.

As young boys, Dick and his brothers loved going to the river.

*As a child in the 1940s our only access to the river was on horseback. It took quite a bit of pestering my Dad to get us there. We had to saddle the horses, dig worms, prepare fishing gear and get mum to make the sandwiches. We always fished the same hole, about 30 metres from Shallow crossing.*

The Lawler children would fish all day and only then would they be allowed into the water.

*When we finished fishing the best part of the day began. We would swim the horses and either ride them in the water or hang onto their tails and be pulled along.*

Louis Margules, born a few years earlier in 1931, lived nearby at Cotter and as a child fished with Herb Williamson. Herb was the local bus driver, whose ambition was to catch *more fish than he could give away to eat*. Together they explored the nearby Cotter River.

*You would fish all the parts of the Cotter. We had names: Dead Man's hole, Perch Strait, the Blue Hole, the Toe Wall, the Gauge. They were all places where you would say you were going fishing. If four of you went fishing, it was unheard of to come back with less than twenty trout and five or six very big black perch.<sup>11</sup>*

### Trout but no big fish

The Murrumbidgee River was stocked with trout from the 1880s. By the time that Dick was fishing as a youngster, the native fish were on the wane.

*We always caught fish: rainbow and brown trout and the occasional Macquarie perch or cod. No big fish.*

### Grazing the river plains

While stockmen thought the high country was perfect for running cattle and horses, squatters in the mid-range plains of the Murrumbidgee preferred sheep.

Early grazing runs were large and sheep moved across the river plains in the care of shepherds. Rudimentary stone huts were built over the 1840s and 1850s to house the shepherds as they moved the sheep around. These huts were built from local stone and rarely had more than two rooms. They included a stone hearth, a place for wood fires that provided warmth and heat for cooking. On the plains, shepherds lived off birds and small mammals but some huts were built along the river, which meant they could feast on fish, mussels and Murray crays.

The sheep meant more nutrients were washed into the mountain streams. The wood fires, so essential for the shepherds, contributed to the deforestation of the sparsely wooded high country. The increasing use of the river, for both livestock and the people who looked after them, meant the Ngunnawal and Ngarigo faced fierce competition for river resources.<sup>3</sup>



By the 1930s, grazing country had been cleared right to the water's edge. Photo source: Helen Shimitras.



After Dick married Gay, they took up 100 acres of 'Hillydye', replete with the ruins of an 1840s shepherds hut. In 1983 they restored the stone building and built a cottage garden to match the building.



'Glanroe' holds many happy memories of fishing in the 'Bidgee for Dick and Gay. Photo: Scott Nichols.

Dick and Gay live in Canberra now, but escape to their weekender, 'Glanroe', to enjoy the peace and quiet of the Murrumbidgee corridor. They both have fond memories of the early days at the hut.

*We used to fish and we used to catch trout. We knew we would have a meal of trout every weekend when we came out, without fail. And we used to catch enough to smoke them and give them away as Christmas presents to friends.*

## Trout FAQs

Brown Trout (*Salmo trutta*), Rainbow Trout (*Oncorhynchus mykiss*)



Rainbow trout. Photo: Charlie Carruthers.

### **Are trout native anywhere in Australia?**

No. Trout were introduced into Australian waters in the late 1800s. Brown trout are native to Europe and western Asia. Rainbow trout are native to North America.

### **Where are trout found now?**

Trout are now widely distributed across cooler upland streams within the Murray-Darling Basin, particularly NSW, ACT and Victoria.

### **Do trout breed or are they all stocked fish?**

Both. Trout breed very successfully in our waterways and have established self-sustaining populations in many rivers. They are also heavily stocked. There is significant level of investment in trout stocking in both NSW and Victoria.

### **Why are trout a problem?**

Predation of native fish by trout has caused significant impacts on some native galaxias and is suspected for other native species.

## Floods and carp

The floods of 1991 brought new pests right to Dick and Gay's front door.

*In 1991, the carp appeared on the lawn after a flood. They migrated by using the shallow water around the edges. They won't go out in the middle if there's an easy way around. We used to catch as many trout as we wanted to up until 1991. But they've dropped off a lot since the carp have come in.*

Darren Roso has watched the changes in the carp population since he arrived in the area in 1988.

*I was here during that unfortunate stage when they invaded. They were up to about Casuarina Sands when I turned up. And in my time they've completed their invasion of all suitable habitat in the ACT, apart from perhaps the lower Cotter. It's been pretty tragic. I've watched silver perch decline, basically because of that. Although Murray cod and trout cod just love carp. Often times you'll catch a cod and as you're removing the lure, you're sort of looking down the throat and there's a carp's tail just beyond the oesophagus.*

## Bryan Pratt – *the best of both worlds*



There were two Bryan Pratts born in 1937. One is an ardent scientist and the other is a passionate angler. The scientist came to Canberra in 1965 to work for the Australian National University; and the angler found the mecca of streams, rivers, lakes and dams for weekend fishing pilgrimages.

### Angler and scientist

Bryan moved from university research into public sector conservation work in the 1970s where he found that the two aspects of his life had important crossovers.

*The basic thrust of all this is if you can find anglers that are good scientists or scientists who are good anglers, or get a population of both and get them together, you can learn an amazing amount of information about the things that are right under our noses. We don't necessarily recognise the importance until someone puts it altogether. Astute, observant, consistent anglers can provide a lot of basic information without realising just how important it is to do that.*

### Round and forked tails

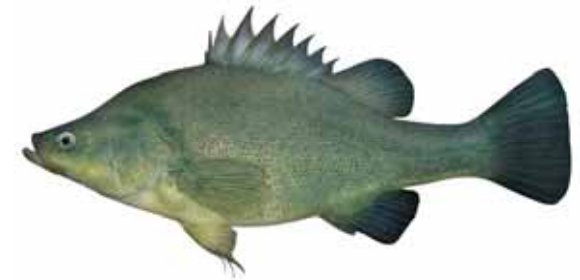
Bringing these two elements together, meant getting out and talking to other fishers in the Murrumbidgee corridor.

*I found enough old cockies and anglers who knew about perch being in the river back in the 1800s and 1900s, and I kept saying what sort of perch? Did they have a forked tail (silver perch) or a round tail (Macquaries or golden)? And enough of them remembered the round tail to make me believe that golden perch used to also occupy this upper section of the Murrumbidgee River. And curiously enough in about the 1910 to 1920 the reports of what looked to be golden perch stopped. I reasoned that what happened in about 1910, the golden perch population and the silver perch population migrated downstream to warmer waters. And when they decided to come back upstream in the Spring of about 1911-12, low and behold, something was in their way, Burrinjuck Dam which was finished in 1911.*

While golden perch and Macquarie perch are still found in the Upper 'Bidgee, silver perch did decline and have died out above Burrinjuck Dam.

### Golden perch

(*Macquaria ambigua* - callop, yellowbelly, Murray perch, white perch)



- Grows to 76cm and 23kg, but is usually less than 40cm
- Likes warmer, slow moving waterways, floodplain lakes
- Found around fallen timber, undercut banks, rocky ledges
- Occupy a territory of about 100m for several months before moving to a new home range
- Known to migrate over 1000km in spring and summer
- Migration cued by warmer water and rising water levels
- Eggs drift downstream on floodwaters
- Eat shrimp, yabbies, small fish and aquatic insect larvae



## Thinking about stocking

One of the major changes Bryan has seen over his lifetime is the shift in importance of introduced and native fish.

*The interesting thing is that for many, many years we gave precedence to the imported species. Trout for example; they were the holy grail. I remember having a conversation with a director of an Australian state fishing authority about Burrinjuck Reservoir. He said, 'Bryan, what's the point. They're only native fish. What are you worried about.'*

Slowly this is changing. Native fish have become popular sporting fish in their own right – and the impacts of introduced fish on the rivers are now part of the agenda of river management.

*My point is that trout are a superb sporting fish in their place. In other places they represent a danger to other species and we should have a harder think about whether we stock them in those areas. It's heresy to fishers when you say 'you shouldn't be stocking trout', but we should think about endangered frog and fish species and other things too. It's important that before we go ahead and stock we need to think more deeply about what we would have done in the past. We now know more about the implications.*



Trout have long been a feature of fishing in the 'Bidgee. This group and their catch were photographed in 1935. Photo source: National Library of Australia (nla.pic-vn4649970-v).



Now more fishers recognise the thrill offered by our native fish. Recent surveys found Murray cod greater than 100cm in the ACT part of the UMDR. Photo source: Kevin Clark.

## Trout

Trout fishing for sport has a long European heritage, especially in Scotland, a place where many Australians claim heritage. The Campbell and MacQuaide families were amongst the first settlers in the Canberra area. Acclimatisation societies bought many different animals – including fish – to Australia over the 19<sup>th</sup> Century. Immigrants also bought technical knowledge about keeping brood stock, breeding up fingerlings and release methods. Alpine rivers, such as the Upper 'Bidgee, were thought to be comparable to upland streams in Europe.<sup>4</sup>

John Gale's and J F Campbell's trout releases in 1888 eventually became a government enterprise. Acclimatisation societies sold trout licenses from 1936 to 1957 to fund their own hatcheries.<sup>5</sup>

But not everyone was keen on trout as this newspaper article from 1907 shows:

*In some parts of Monaro local people regard the trout with anything but favour. They know that the introduced fish have driven the indigenous edible fish away, and they regret the circumstance, especially as regards the capital edible perch.*

(The Sydney Morning Herald, 21 December 1907, page 16)



A rainbow trout. Photo: NSW DPI.

## Desnagging - losing fish habitat

In the twentieth century throughout the Murrumbidgee desnagging works were undertaken to create clean, clear channels. As both a scientist and an angler, Bryan remembers how he advocated for a reverse of this policy.

*I kept protesting to the people involved that the channelization of Australian rivers, making them as straight as possible, transferring water from the upper reaches of Point A to Point B at the downstream end, was the quickest way to get rid of the water. They did that by removing obstacles, removing the snags. And removed significant habitat for the very sorts of fish we thought we might be protecting. In those days the community didn't assign value to particular fish species.*

## Homing in on the snags

Changing the mindset of policy makers meant showing the importance of the ways fishers read the river and understand the habitat of native fish.

*Simple things like resnagging a river which was absolute heresy years ago. We knew that snags were important because when you go fishing for Murray cod, you ignore significant sections of the river and home in on the snags. That's where the fish are.*

*Common sense now says in retrospect we should be putting more snags in the river. If you've got something that can be bred or maintained in the wild naturally or restocked, they do form an interesting and valuable social resource. And also they might have all sorts of other follow on effects that we don't know about yet.*

Unlike many parts of the Basin, the river runs fast in the Upper 'Bidgee. Darren Roso explains a different approach used here.

*We put in two rock groynes in the river close to Tharwa in about '99. There was about four or five kilometres there where the river was very broad and sandy with no habitat to speak of. Prior to the rock groynes going in, we caught nothing but European carp and gold fish and galaxids. But then two weeks after we did another electro fishing run, and we caught trout cod, Murray cray, plenty of shrimps and a couple of yabbies.*

## The best of both Bryans

Bryan now owns two tackle shops in Canberra where he continues to talk about the value of scientific and local angler knowledge to everyone. He says:

*That's why there were two Bryan Pratts. One was a scientist, one was a fisherman. Put the two together - you get the best of both worlds.*

## Snag FAQs



The beginnings of a natural snag. Photo: Jodi Frawley.

### **Why were snags removed?**

In the Upper Murrumbidgee snags were removed to improve water flow and because it was thought they increased erosion and flooding.

### **Why are snags important?**

Snags provide habitat for native fish like Murray cod and trout cod that use them for shelter and ambush sites. To them a snag is home – Murray cod have been recorded migrating 240km upstream and returning to the same snag<sup>13</sup>, and we know that 80% of Murray cod are found within 1m of a snag!<sup>14</sup>

### **Do snags cause erosion?**

In certain instances small-scale and short-term erosion may occur, but in many cases snags may reduce erosion by protecting the river banks.

### **Are snags just thrown in?**

No. A great deal of scientific and engineering analysis goes into determining the right position, size and type of snag put back into the river. Permission to introduce snags is needed from NSW DPI and other agencies.



## Adrian Brown – Ngunnawal responsibilities



Adrian Brown was born in 1975 and grew up fishing the Queanbeyan River with his father and his brothers. As a Ngunnawal man, his responsibility for

country was learnt on days out on the river.

*A lot of my time as a young fella was spent on the Queanbeyan River. Dad was real passionate about the water and always took us up there. We'd walk up and down the river and do lots of fishing. Dad was mad on trout fishing. So it was good fun. Sometimes we would be sitting around or moving from spot to spot. We'd look at things. It wasn't just looking at the water and fishing. We'd go with Dad and he would show you some place and sort of talk about it. It was really good. Yeah, so we learnt country.*

### Silver perch roaring up the river

Adrian's father remembers a time when silver perch were plentiful around Wee Jasper.

*Dad told me a story there when he was working and went out to Wee Jasper. We used to go out there fishing a lot too. All the Yass mob. Back in the old days when they*

### Silver perch

(*Bidyanus bidyanus* - grunter, black bream, silver bream, bidyan)



Photo: Barry Porter.

- Medium to large fish growing to 50cm and 8kg, but usually 35cm and 2kg
- Found in similar habits to Murray cod and golden perch (lowland turbid, slow flowing rivers)
- Spawning can occur without a flood, but these fish seem to benefit from a rise in water level
- Will move through fishways
- Eat aquatic plants, snails, shrimp, and aquatic insect larvae
- Potential threats include river regulation, barriers to migration, altered flow regimes, cold water pollution and interactions with carp and redfin
- Listed as 'Vulnerable' in NSW and the ACT

*were all still living on the missions. Dad and Uncle Alec used to go out there fishing, and at the right time the silver perch would be just roaring up the river. He said all you had to do was throw the hook in the water and bang they'd just hit the hook. They'd end up with piles and piles of silver perch on the side of the banks. Now you go there you won't get one.*

### Ngunnawal fishers

Ngunnawal fishers have always lived along the Murrumbidgee, chasing fish that sustained their people. Fishing trips were combined with other ways to honour the knowledge and traditions of Adrian's Ngunnawal Ancestors and elders.

*Even trying to get back into practicing our culture. Like that was really important to us too. I remember getting yellow box and making coolamons. So if you walk along that river now, you'll see the scarred trees where we've been. And we used to laugh at that. Archaeologists will come along there one day and say, 'what's going on here?'. We want to throw out that perspective of Aboriginal people having lost contact with country. It shows our continuation. We believed in our country and our country looked after us all that time.*



## A pathway for bosses

The Upper Murrumbidgee also has special significance for the Wiradjuri, Yuin, Ngarigo and Walgalu people. It is a ceremony place. And the Ngunnawal have responsibility for caring for the sacred sites for all these different groups. Adrian explains the meaning of Murrumbidgee:

*'Murrum' means pathway and it's a men's pathway. And 'bidgee' means boss. So it's pathway for bosses. And it starts up in the mountains and ends all the way out, going down into the Murray. All Aboriginal people, all moving up through that river to do their law. That's how it used to be.*

When coastal peoples travelled from the Shoalhaven they would bring gifts for the Ngunnawal and the river became a place to trade.

*We know they were bringing a lot of mussels up because of the surveys that we've done along the river. We've got fresh water mussels and you can see the salt water mussels are different. They stand out. They might have been making hooks out of them. They had their dilly bags with them and they were dipping that in the water as they travelled. Not collecting, but bringing that with them. They were keeping the food fresh in the water.*

## Ngunnawal

The area around the city of Canberra is Ngunnawal Country. This was a staging place for neighbouring communities who travelled from Canberra through Ngarigo land in the highland regions for ceremony.

Adrian Brown's ancestor Murren-gen-illy was a powerful man who could speak many languages. He played an important master-of-ceremony role in facilitating initiation of young men from his own and other nations. The river-camps were part of journeys from the coast and the plains. Men travelled to the high country for ceremony, while women waited together at camps in the lower reaches.<sup>6,12</sup>

The Ngunnawal nurtured plentiful stocks of fish by monitoring feed and limiting harvest. This helped provide for these seasonal influxes of people into the river corridor. Different groups within the community were responsible for caring for the cod, yellowbelly and perch throughout the year. This bounty could then be shared amongst the locals and visitors.

## Blackberries, carp and silt

Adrian has seen many different changes on the river in his lifetime: the impact of exotic fish species, sand quarrying upstream, weeds and encroaching suburban development.

Each of these changes brings challenges for the fish and their habitat in the Upper 'Bidgee.

*The biggest thing is housing development. A big thing too is weeds, like the blackberry. The Murrumbidgee is getting full of weeds and you can't even get down and enjoy yourself. You can't sit down at a place because you'll be sitting on a weed that's poking in your back. You can't even get to the water because it's all covered with blackberries. Carp are a big thing too in the Murrumbidgee. You've only got to go up around Kambah Pool in the morning and you'll see hundreds of them just jumping up and down the river.*



Kambah Pool has the highest diversity and number of native fish species detected in all monitoring in the Upper Murrumbidgee. Photo: Scott Nichols.

Adrian's colleague in the ACT Parks and Conservation Service, Darren Roso, also worries about the movement of silt and its effect on the fish.

*We've got some very sodic soils in our catchment here and so the fine clays remain suspended for weeks, months. And that has a really bad affect on fish larvae in particular. It just coats eggs and they die, be it fish, insects, frogs or other animals.*

Dick and Gay Lawler have also seen changes to the water quality in recent years.

*I don't swim in the river much anymore, it's been so dirty compared to what it used to be. It used to be crystal clear. I think it's something to do with sand dredging up around Numeralla, because it's crystal clear, just north of Cooma I believe.*

### *1909 - a call to stop ringbarking trees*

Dr. A. J. Brady, president of the Rod Fishers Society, reported to the Fisheries Board ... [that] The upper river was clear, but about Cooma the river was somewhat discoloured with earth washed in from the banks. He suggested that in order to keep the upper river clear, ringbarking should be prohibited along the river banks. There was too much cleared land about Cooma. The matter was referred to the Lands Department.

(The Sydney Morning Herald, 13 February 1909, page 14)



Urban expansion and development have led to a greater requirement for water – one of the things that impacts fish habitat in the 'Bidgee. Photo: Charlie Carruthers.



The 'Bidgee at Bumbalong. Photo source: Luke Johnston.

## *Macquarie perch*

*Macquaria australasica*  
(macca, mountain perch, black bream, Murray bream, white eye, blackfish)



Photo: Luke Pearce.

- Medium sized fish: can reach 46cm, but usually less than 35cm and 1kg
- Found in the cool water in the upper reaches of the Murray-Darling in Victoria, NSW and the ACT
- Spawn in October-December when adults move into tributaries and spawn at the foot of pools
- Eat shrimp and small, bottom dwelling aquatic insects
- Potential threats include interactions with trout and redfin, sedimentation, removal of riparian vegetation, barriers to migration and cold water pollution
- Listed as 'Endangered' in NSW, ACT, Victoria and by the Commonwealth.

## Darren Roso – Canberra man vs Murrumbidgee wild



Darren was born in 1965 and moved to Canberra in 1988 to start a job with the ACT Parks and Conservation Service.

He is now a Senior Ranger and has spent

23 years looking after an 80 kilometre section of the Murrumbidgee corridor.

*Right from the very beginning I got put into an area we call the Murrumbidgee Corridor. Although its primary function is conservation, its primary use is recreation. I have a few degrees, but find the practical experience and knowledge equally useful.*

### Aren't your feet wet?

When Darren started in the service, Louis Margules took him under his wing and showed him the ropes, taught him about being a ranger and shared local lore from a lifetime on the river.

*There was this marvellous bloke called Louis Margules. And he lived along the river all his life. And as soon as I started he was at me a bit and was saying, 'how can you be a ranger along the river and your feet aren't bloody well wet?' You can't argue with that kind of logic. From then on I almost never wore long trousers and I had a couple of spare pairs of shoes, and I would be in the river all the time. I pretty much took on the role of the river ranger. I'll walk along the river and kill willows and swim the river and walk the river and lilo and kayak and canoe and raft and ride. I take the children down there to fish and hunt and canoe and swim.*

Louis had also worked as a ranger for the service. One of the perks of the job was camping out overnight - and fishing after knock off. Job perks that Louis passed on to Darren. Louis remembers:

*If you were going to stay the night on the river because you wanted to get a job finished first thing in the morning, you'd take a couple of lines.<sup>10</sup>*

Darren has followed Louis' lead with gusto. He is renowned amongst his colleagues for taking off into the Murrumbidgee wild with just a kayak, a swag and a fishing rod, living off the river for days at a time.

### *Garden suburbs and fish habitat*

Canberra is famous as a city planned for spacious homes and motor transport. It was developed from 1913, in a decade when garden suburbs were fashionable, under the supervision of Marion Mahoney and Walter Burley Griffin.

As the city grew these garden suburbs crept closer to the river until the satellite community of Tuggeranong was designed in 1969. Roads with channel and curbing changed the way water flowed. The loss of native vegetation intensified to make way for housing blocks with lawns.

Since the first suburbanites moved into Kambah in 1973, the population of Tuggeranong has grown to over 87 000.

Introduced deciduous trees, including willows, contributed to the vivid and decorative floral cityscape. But the chemicals and fertilisers used to keep these gardens leafy and flourishing added new chemicals and nutrients to the runoff that ended up the river.

The development of Canberra and its gardens changed the conditions in the river for fish. There were also more and more people using local Murrumbidgee reaches for fishing and other forms of recreation.



## The trouble with sheep

The area around the Murrumbidgee is sheep country. Grazing has been a part of the region since the 1850s. When the river floods, as it did in the early 1990s, Darren has seen the damage caused by the sheep.

*There's not very many backwaters in these mountain stream systems. So you don't catch certain species. Billabongs are inhabited by slightly different critters to the main stream. There aren't as many of them here, so we need to look after them so much more. And unfortunately they have taken the brunt of all the overland flow, all the soil that's come off all our sheep country. So for example, after a big storm you'll see these rafts of sheep manure on top of these little backwaters. And so even if a cod was able to get up in there and spawn, those fingerlings would be doomed. There's just too many nutrients there.*

## Fish and fires

On January 8, 2003 lightning from an electrical storm lit 160 small fires in the Brindbella and Namadgi Ranges. Over the following week, the fires moved through the dry tinder in the mountain forests all around the Murrumbidgee. When extreme winds whipped up and temperatures soared, the

bushfire reached epic proportions, moving down the valleys and into suburban Canberra.

Darren remembers the devastating impact of the bushfires on the fish and fishing.

*It did burn out a lot of the country along the Murrumbidgee and it killed a lot of fish and wildlife. It was very emotional for me because we saw it coming.*

## Willows

- Native fish are used to the continuous leaf fall provided by native plants. Willows drop all of their leaves in autumn. This changes the timing and quality of organic matter entering the waterway
- Willows tend to grow into a waterway. They extract a lot of water and change the structure of the riverbed. Their tight root systems form obstructions and can cause water to be diverted around them into banks, causing erosion
- If willows are being removed, it is important to ensure they are replaced progressively with native trees. The complete removal of all trees on the water's edge which overhang the river will result in water temperatures that are higher in summer and lower in winter, and also increase native fish exposure to predators

## Fish and fires

The ACT bushfires in 2003 and 2009 and Victorian fires in 2003, 2006-7 and 2009 affected the catchments of the Upper Murrumbidgee, Murray, Goulburn and Ovens Rivers.

Extreme fire events rapidly remove most or all trees, shrubs and grasses from a catchment, immediately heating shallow water and adding large amounts of ash. Once a fire has passed, the lack of shady trees allows the sun to heat the water more quickly and means that ash, soil and debris are washed into the waterway whenever it rains.

Increased sediment and ash loads negatively affect fish by clogging their gills, smothering eggs and water plants and filling in deep refuge holes. Water quality also suffers because the water becomes deoxygenated as organic material decomposes.

These impacts can cause massive fish kills, such as in 2003 from Dingo Creek to Myrtleford on the Ovens River when fish were effectively wiped out for a distance of 150km.



A fire damaged waterway. Reference and image source: [www2.mdbc.gov.au/subs/annual\\_reports/NFS\\_Annual\\_implementation\\_report2004-05/annexes/vic/vic5.htm](http://www2.mdbc.gov.au/subs/annual_reports/NFS_Annual_implementation_report2004-05/annexes/vic/vic5.htm).

# Making Connections

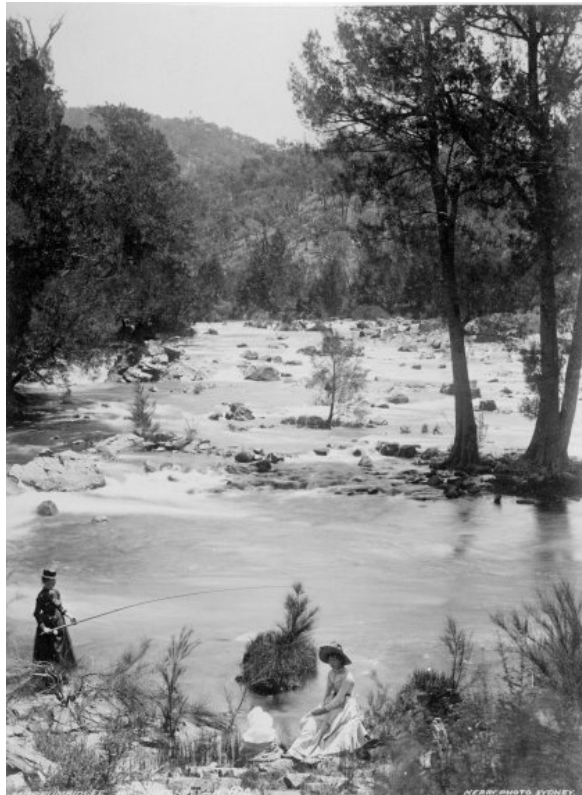
## Murray cod and wild duck

In 1925 the romantic novelist Miss Louise Mack struck out of from the city in her motor-car to see the outback. She joined a list of other notable Australian women, Marion Bell, Gladys Stanford and Jean Robertson, in becoming an 'urban automobile adventurer.'<sup>7</sup>

Fish and fishing contribute to the sense of Australian-ness of Miss Mack's journey.

*Australia has a quality all her own, and the funny thing (or is it pitiful?) is that you don't know it till you go away from Australia and see the world. Coming back, you realise that the word magnificent describes our country. England is like a pocket handkerchief in comparison. Oh, the great plains I have motored over these last 10 days – the great rivers, the Murray, the Murrumbidgee, and the Darling. Oh, the wonderful fish in these rivers-the cod, catfish, perch, lobsters – and the wonderful game that rushes past you everywhere – duck, pigeon, quail, plover, hares, rabbits, to say nothing of millions of parrots of every sort and kind, and all edible to hungry people. How glad one feels that we are not a hungry people, but how proud one feels to know that we could feed vast multitudes if necessary.*

*I never had better fare anywhere in Europe than at some of the little way- back pubs out on the great plains of the Murray - Murray cod and wild duck. What could one ask more?<sup>8</sup>*



Ladies fishing in the Murrumbidgee. Photo source: National Library of Australia nla.pic-vn3995704-v.

## Getting wet feet

In the heat of the summer, Gay Lawler would take to the river to cool down.

*I used to float around on the river on a lilo. But, gee, you'd come face to face with snakes and goodness knows what. The black snakes used to lurk around in the water, in the reeds. The snakes and other water creatures don't seem to take any notice of you when you're in the water. But I've done some back paddling in my time.*

Darren Roso likes to get his feet wet and during the floods and freshes that flow down the 'Bidgee he can feel the changes as they are approaching.

*The water flow's extremely fast. When you stand on the bank and you plant your feet quite firmly, you feel this ultra low vibration coming up through your feet. And yeah, it's really beautiful actually. And powerful. It just lifts everything. And logs just become chips in no time at all. It's very rocky here. And so logs just get ground up in no time at all.*

## A river community

Gay and Dick Lawler appreciate that the long-term health of fish depends upon the care and responsibility for the river and the land around it and they are involved in activities that allow them to contribute to these changes.

They have found that this is a great way to be part of the river community. Some of their best friends and neighbours work alongside them to bring back the fish.

*We're involved in the Upper Murrumbidgee Demonstration Reach. We also work with Landcare. The landcare groups are going to replace willows with eucalypts. Manna gums. And anything else that's native to the riverbank. So that will be a big job. But we all get together for barbeque at lunchtime. It's a very social occasion.*

Adrian Brown was recently appointed as the Aboriginal Liaison Officer for the rangers of the ACT Conservation and Parks Service. He sees an opportunity in the employment of Aboriginal rangers as a way to reinvigorate the Ngunnawal tradition of welcoming people of other nations to build new relationships with the river and fishing.

*One of my challenges was to get them to change their opinion on the way I felt about country. It took a long time. So I guess my work now is to try and get all our rangers employed over the next few years and forever on, to make sure that they look after country the way I feel for country. They're all going to come from different places. We're not always going to get Ngunnawal fellas. A lot of Ngunnawal fellas, they might want to go and pursue something else. The thing is now, just trying to get people to respect that you're on somebody else's country. Like that's the big thing now. Protocol will be another part of what I need to do. We need to have it set out and teach people.*



Tree planting activities on the banks of the 'Bidgee as part of the Native Fish Awareness Week 2010.  
Photo: Charlie Carruthers.

## Managing stock

Stock with unmanaged access to waterways can do a lot of damage to fish habitat. Increasingly, graziers recognise that managing access benefits both their stock and the river. Some of the recommendations for being more fish-friendly in the grazing areas around the 'Bidgee include:<sup>9</sup>

- Maintain groundcover: this layer of grasses, other plants and plant litter slows rainfall run-off, helps retain soil moisture, protects the soil from the impacts of rain and captures nutrients before they can reach waterways
- Feed the pasture, not the creek: by managing soil fertility and only applying the nutrients that are needed in appropriate amounts, nutrients are not applied excessively – saving money and minimising damage to waterways
- Protect the riparian zone: fencing off the waterway and establishing native tree, shrubs and grasses slows run-off, protects riverbanks, minimises erosion and captures nutrients
- Establish off-stream water points: cleaner water for stock and reduced access to the water's edge, greatly reducing damage to riverbanks, pugging and the addition of nutrients to the water



# Visions for the Upper Murrumbidgee

The fishing people who contributed to this project have all talked about their hopes for the future of the river. Many felt they had seen some improvements but most don't feel the river is as healthy yet as they would like to see it. Each of these fishers suggested ways to help the river and in turn help provide healthy habitats for fish.

## It'll take time

Understanding the longer term cycles in the river environment has been an important way for Darren Roso to see what the fish need. The ACT Parks and Conservation Service are part of a program that will introduce one million trees into the Murrumbidgee Corridor.

Rebuilding fish habitat does not happen overnight and Darren appreciates that it will take time to change the vegetation on the banks that will eventually become home for the fish.

*And you begin to be able to predict stuff too. So that for example in this million trees program now it's still not cemented in policy or anything, but we are doing it. The willow logs and all the older logs and things, that woody debris is not going to last forever.*

*And so as we speak we're planting a lot of trees down in the flood zone where we fully expect them to collapse into the river eventually.*

Over Bryan's lifetime he has never seen catfish thrive in this part of the world. In the past he was instrumental in translocating catfish in an attempt to re-establish populations. Most of these ventures failed. He looks to research and science to contribute to the re-building of catfish numbers so that they can once again become a favoured fish for anglers.

*A lot of fish are hard to translocate because they're so fragile and they die. Catfish you can wrap up in a wet newspaper and you can go several hundred kilometres with them and release them and they swim away quite happily. I suspect they can breathe through mucus membranes in the mouth. I suspect the EHN\* may be involved in their population control here. But having said that there's no specific evidence of that yet. And I'm fascinated by the fact that they won't survive in some of these places that would seem to be amendable locations. Somebody needs to sit down and take a long hard look at catfish.*

(\*EHN refers to Epizootic Haematopoietic Necrosis virus, a serious and notifiable fish disease.)

## Queanbeyan cod

Early settlers also participated in the translocation of native species.

*'...nearly twenty years ago, conveyed in ordinary water-casks, on horse-draws, a few dozens of cod and perch from the Queanbeyan at Yarralumla to the waters of Winderradeen, a distance of nearly forty miles. The perch were never seen after being deposited in their new home. But the cod thrived and multiplied, and by means of subsequent floods were carried in to Lake George, where they have thriven and increased to an innumerable extent.'*

(Braidwood Independent, 14 September 1867, page 4)



Part of the Upper Murrumbidgee at Tharwa.

Photo: Charlie Carruthers.

Education is also something that Adrian Brown sees as paramount for the future – for both Aboriginal and non-Aboriginal communities. The challenges are different, but teaching and learning are key to Adrian’s vision.

*Educating the white fellas is the big thing, because of their ignorance. I don't want to sound bad about them but they've got a way in them where they just don't understand. .... But we've got to educate our own mob too. I guess that knowledge of country gives a sense of pride too. You can put your chest out and say I don't care what you say, because I have responsibility for this here. And I know that this is mine. My father taught me about this and his father and his father.*



Community-based monitoring of native fish populations is just one of the activities undertaken in the Upper Murrumbidgee Demonstration Reach.  
Photo: Charlie Carruthers.



School children getting to know the basics.  
Photo: Charlie Carruthers.



Understanding alien fish distribution and abundance, such as these mosquito fish (*Gambusia holbrooki*-circled) is critical to their management.  
Photo: Charlie Carruthers.

## State of the river 'Very poor'

The Sustainable Rivers Audit (SRA) is an ongoing systematic assessment of river health of 23 major river valleys in the MDB. Environmental indicators (themes) include hydrology, fish and macroinvertebrates, which are monitored and will highlight trends over time.<sup>11</sup>

The Murrumbidgee Valley was surveyed in 2007. The Murrumbidgee Valley fish community as a whole was considered in 'Extremely Poor' Condition. In the 'Upland Zone' the fish community was considered to be in 'Extremely Poor' Condition and 'Poor' in the 'Montane Zone'. Ecosystem Health was considered in 'Very Poor' Condition for both zones.

A total of 9 species were caught from the 'Upland Zone'; and 8 species from the 'Montane Zone'. The fish community in these regions comprised 17% and 60% native species respectively and alien fish biomass comprised 90% and 76% respectively.

Native fish catch in the 'Upland Zone' was dominated by mountain galaxias, with carp gudgeons the only other natives sampled. In the 'Montane Zone' mountain galaxias again dominated, with two-spined blackfish and Macquarie perch also captured.

Rainbow trout dominated the alien species in both zones.

In the 'Upland Zone' Eastern gambusia, carp and redfin perch also dominated, with oriental weatherloach, goldfish and brown trout also captured. In the 'Montane Zone' goldfish, Eastern gambusia, carp and brown trout were also caught.

## Bringing back the fish

A number of local projects aim to bring the fish back to the rivers of the Murray-Darling. These compliment large scale programs such as the MDBA's *Native Fish Strategy* and *The Basin Plan* that continue to work with a wide range of stakeholders to ensure positive outcomes for the environment and fish of the Murray-Darling Basin.

### **(a) Upper Murrumbidgee Demonstration Reach (UMDR)**

The UMDR was established in 2009 in a 70km reach of the Murrumbidgee River stretching from Bredbo in south-east NSW downstream to Casuarina Sands in the southern suburbs of the ACT.

In this reach a number of threatened native species are present including trout cod, Murray cod, Macquarie perch, silver perch, two spined blackfish, and Murray crayfish.

Landholders and agencies are improving conditions for these species and aquatic habitat generally by removing barriers to fish migration, controlling introduced carp and willows, reducing pollution inputs and monitoring the 'Bidgee and the organisms that rely on it.

To get involved or get more information contact Luke Johnson on (02) 6205 3168 or Lisa Evans on (02) 6207 2117.

**(b) ParkCare** is a partnership between the ACT Government and community volunteer groups who have an interest in the natural environment. Volunteers can contribute to the protection of local parks, nature reserves and National Parks in the ACT, including the Murrumbidgee River Corridor.

Volunteers can get involved in seed collection, plant propagation, tree planting, weed removal, erosion control, vegetation mapping, water quality monitoring and maintenance of heritage sites.

To get involved, phone the ParkCare Coordinator on (02) 6205 7384 or 13 22 81, or for more information and registration forms go to:  
[www.tams.act.gov.au/play/pcl/get\\_out\\_there/volunteering/parkcare](http://www.tams.act.gov.au/play/pcl/get_out_there/volunteering/parkcare).

### **(c) Southern ACT Catchment Group / Molonglo Catchment Group**

Both these groups act as umbrella organisations for other environmental groups in ACT including LandCare, and

WaterWatch and provide input into catchment management activities and plans.

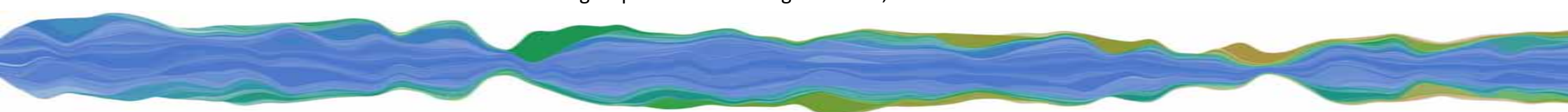
The Southern ACT Catchment Group (SACTCG) represent all active environmental groups in the southern areas of the ACT. Contact Steve Welch from Tuesday to Friday on (02) 6296 6400.

The Molonglo Catchment Group is largely in NSW and extends from the Murrumbidgee to the headwaters of the Molonglo and Queanbeyan Rivers. Contact Andy Westcott on (02) 6299 2119

### **(d) Upper Murrumbidgee Waterwatch**

Waterwatch volunteers can be anyone who cares about their local waterway. Waterwatchers volunteer in their local region to collect and analyse water samples, undertake assessments of their local water bugs and riparian vegetation and help with an annual frog census. Volunteers can spend a few hours every month or a couple hours a year.

In the ACT, contact Tanya Noakes on (02) 6207 2246. In the upper Murrumbidgee (Cooma region) contact Antia Brademann on (02) 6452 4611.





## River resources

- Native Fish Strategy Coordinator (Southern NSW)  
Charlie Carruthers: (02) 6298 0802
- Upper Murrumbidgee Demonstration Reach  
Luke Johnston: (02) 6205 3168 or  
Lisa Evans: (02) 6207 2117
- Murrumbidgee Catchment Management Authority:  
(02) 6229 7711 or matt.dejongh@cma.nsw.gov.au
- Kosciuszko to Coast (K2C):  
(02) 6299 2119 or  
projects@molonglocatchment.com.au
- Capital Region Fishing Alliance (CRFA): contact:  
info@crfa.org.au
- Billabong Aboriginal Development Corporation:  
(02) 6278 4799.
- Ngunnawal Land Council: (02) 6297 4152
- Murray Lower Darling Rivers Indigenous Nations:  
02 6051 9948
- ACT Government:  
www.tams.act.gov.au/live/environment
- Australian National Library: www.nla.gov.au
- Queanbeyan Historical Society: 02 6299 7449

### Abbreviations

DPI	Department of Primary Industries (NSW)
DSE	Department of Sustainability and Environment (Vic)
MDBA	Murray-Darling Basin Authority

## About the Talking Fish project

The *Talking Fish* project arose from an increasing realisation that many different groups of people, including fishers, Indigenous communities, tourists and landholders have developed unique relationships with the rivers of the Murray-Darling Basin. There is also the growing recognition that the health of the Murray-Darling Basin is at risk. Accessing and recording different people's stories about their experiences of a river, its fish and how both have changed will contribute to our collective knowledge and help shape future management decisions. These stories also have the potential to give people a sense of just what these magnificent rivers and their fish were once like - and could be again with ongoing rehabilitation efforts.

The *Talking Fish* project focussed on 12 reaches within the Basin: Namoi River (NSW), Upper Condamine River (Qld), Katarapko Creek (SA), Upper Murrumbidgee River (NSW / ACT), Culgoa - Balonne Rivers (Qld / NSW), Paroo River (Qld), Goulburn River (Vic), Darling and the Great Anabranche (NSW), Ovens River (Vic), Mainstem Murray River (NSW / Victoria), Darling River (NSW) and The Coorong and Lower Lakes (SA).

The *Talking Fish* project is a starting point to share local knowledge and learned experience with others to improve the health of the Murray – Darling Basin. Project information is available at: [www.mdba.gov.au](http://www.mdba.gov.au).

Note: The term *Talking Fish* is also being used by the Australian River Restoration Centre as a way of sharing knowledge about people's connection to fish and waterways.

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# Some fish of the Upper Murrumbidgee River

Native  
(Not to scale)

Murray cod / Cod



Trout cod / Bluenose cod



Blackfish / Slippery / Muddy



Golden perch / Yellowbelly / Callop



Catfish / Eeltail catfish / Jewie



Yabby / Craybob



Silver perch / Murray bream / Grunter



Macquarie perch / Black bream / White eye



Murray cray / Spiny cray



Introduced  
(Not to scale)

Rainbow trout / Brown trout



European carp / Common carp



Redfin / English perch

