

# WHEN THE MULLOWAY REIGNED SUPREME

**By Graham Keegan  
South Australian Angler**

In the far reaches of our Gulfs and West Coast, mulloway lay quietly in the maze of mangroves and inlets. This was the late winter, spring home for huge schools which lay almost dormant conserving their energy, waiting for the first signs that summer was around the corner.

The late spring, first south-easterly winds, rising temperature and the smell of fresh water woke the schools from their slumber. It was time to make the long return journey back to the mouth of the Coorong and Lower Lakes to spawn. Hundreds of kilometres away in Victoria, other schools also sensed the timing and started their long journey to the mouth.

Arriving throughout November, these huge schools gathered in the surf line adjacent to the mouth. Here they fed on the spoils that the fresh spring flood-waters running out to sea delivered. Patiently they waited for the fresh waters to slow and the tidal pulse of the sea to again take over. It was well into summer when the floods slowed, the lake level dropped and the mulloway charged in with the fresh oxygenated sea water.

The seawater flowed up the channels into the lakes and the Mulloway feasted in the vast open lake waters. Here they replenished their energy stores, readying for the rigours of spawning. On the right moon phase they returned out the mouth to spawn in the surf line, using the tide to carry the eggs deep into the lakes and Coorong, a process they would repeat many times through late summer and autumn. The new season juveniles would stay and grow in the system until they were big enough to join the annual migration. Everything was in balance and a cycle

repeated which had existed for thousands of years.

Then in the summer of 1940, their environment was irrevocably altered. The migrating schools arrived at the mouth and instantly sensed something was wrong as the usually pristine water smelled stale and was devoid of life. Tired and hungry they moved through the mouth and up the channels but they couldn't find a way into the lakes.

Instead, imposing, man-made physical barriers – barrages, confronted them.

The thousands of fish frantically searched for a way through, bashing themselves against this foreign barrier. More large schools arrived and, panicked; they too, thrashed about in the mud, exhausting themselves. Once the tide fell, this huge mass of migratory mulloway died slow deaths from asphyxiation and the sheer weight of their numbers

During that first season in 1940, this scenario was repeated many times and for a number of years afterwards until, eventually, this massive migrating cycle sadly disappeared into the history books.

### # Photo 1 Barrage - showing dead Mulloway



### Early commercial fishing history of the Lower Lakes and Coorong

During the 1920's mulloway were the mainstay of the local fishery in the Lower Lakes and Coorong. Milang, a small port on the shores of Lake Alexandrina, was home to many mulloway fisherman who reliably sent off several hundred tonnes of fish to the Adelaide and Melbourne fish markets. Each year, the fisherman, like the fish, also sensed the onset of spring and the potential bounty the sea delivered.

Along the migratory route to the mouth, other commercial fisherman also relied on this fishery. There are many photos from this period taken at Port Willunga showing catches of big mulloway.

### # Photo 2 91lb mulloway caught at Milang circa 1938.



During this same period the fisherman heard murmurs that irrigators around the Lakes were lobbying the Government to build barrages to separate the Lower Lakes from the Coorong. This would prevent the sea water entering the lakes, creating a massive freshwater dam. Despite petitions and protests, the fishermen's cries fell on deaf ears and, like the mulloway on the walls of the barrages, this industry also died.

### The Estuary

Before European settlers altered this once vibrant, highly productive ecosystem, the central basin of the wave-dominated barrier estuary was sometimes full of freshwater and sometimes full of salty water. The nature of the mix depended on the tides, the winds, flows from the River Murray and the flows into the southern lagoon of the Coorong from the South East of South Australia.

During spring freshwater from the Murray flooded the Lakes, there were also considerable flows from the South East entering the Southern Lagoon of the Coorong, before eventually flowing out to sea. In summer the flows dwindled, the level of the Lakes dropped and the sea once again flowed in through the mouth.

The ebb and flow of the tidal prism - ***the mix of fresh and salt water and the warmth of the shallow waters*** - provided the critical spawning conditions for mulloway and many other fish species, Bream, Flounder, Yellow Eyed Mullet etc.

After traveling thousands of kilometres to feed and breed in this paradise, vast flocks of migratory birds were an essential component in this rich, flourishing ecosystem and food-chain. The system was abundant and healthy and life was in balance.

### The River Murray

The iconic River Murray was ephemeral and, during drought years was often a series of waterholes, or dry. In the early part of the 20<sup>th</sup> century there were reports of dolphins, mulloway and other fish reported as far up the river to Mannum. In very wet years, reports of native river fish in the fresh water were seen being washed out to sea.

*“There was all salt-water in Goolwa in those days. We used to go down with a little net, down opposite the Goolwa railway station, then we’d walk around and get a feed of mullet. You could fish off the wharf...there was a lot of garfish around. Mr. Lush, he used to be a champion on garfish. He was getting a lot more than we were. “The secret”, he said, “Is using a stud blow-fly!” They were just joking. Across from the ferry, there were dolphins there. Big old fisherman used to put nets out there and catch mulloway. A lot of the tidal waters, a lot of these places are now dry, especially down on South Lakes, and out there”. # Interview with Bert Lundstrom*

Originally 145,500 hectares (more than one third the size of Port Phillip Bay) the estuary has been substantially reduced. The Lakes have been transformed into freshwater bodies with permanently raised water levels (approximately 0.75M). Freshwater discharge has been reduced by 75% and the vital tidal prism reduced by 90%.

*“Yes, just ask the locals. Ecological considerations weren’t taken into account. If they wanted to do this now, there is no way they would get it up, it would not be approved because of the impact it had on the ecology. They reduced the size of the estuary by nearly ninety per cent, (87%, actually), and that reduction of the estuary was the start or the cause of a lot of the problems they are having now. Since they built the barrages we’ve had a series of fairly wet years with good flows*

*out through the Mouth. In the last twenty years we’ve had enough dry years and a very, very significant increase in the rate of diversion upstream, which has had quite considerable effect on the amount of water that we’ve got to pass out through the Mouth, and when you get back to the size of the estuary reducing by eighty-seven per cent, they reduce what we call the tidal prism. This is the force, the column of water that surges in and out of the Mouth daily by just the effect of the tide. That was enough to keep the Mouth clear. When they reduce the size of the estuary, they reduce the size of the tidal prism and greatly reduce the velocity and volume of that water that was passing in and out”. # Interview with Jim Marsh*

### **So What Happened?**

Prior to the 1860s, the South East swamps dominated the land area from Salt Creek to Beachport, inland to Millicent and most of the area in between. So vast was this swamp area, one bloke boasted he could have sailed from Goolwa to Millicent. These swamps were fed from the high rainfall in the area. On conjunction with the rainfall, the Unconfined Aquifer also was fed from Western Victoria seepage.

This massive water-course entered the sea near Kingston and also ran into the southern end of the Coorong. Even during drought years, the southern end of the Coorong received water from this flow and Aquifer.

***The reality is, this fresh water supply was far bigger, and more influential on the Coorong than the River Murray.***

In 1864 some enterprising men in south-east South Australia decided to cut a channel to the sea, draining swamplands, to create new land for agriculture. So successful was this, the Government supported this initiative, and now, 150 years later, there are 1,500km's of manmade water courses, vast areas of farmland and a massive reduction of fresh water in the swamps. The majority of this water is diverted to the sea, including the flows which once drained naturally into the Coorong.

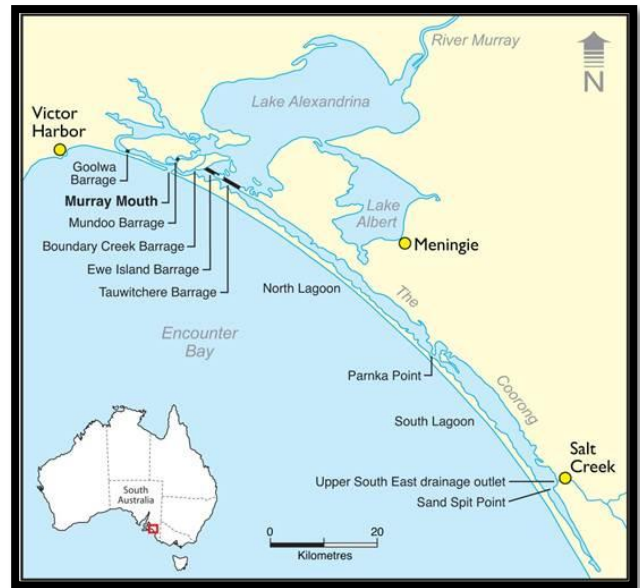
By the time of the Federation drought from 1895 until 1903, the flows from the South East had already been severely affected. The cries from the Lower Lake irrigators at that time that the lack of water and subsequent rise in salinity was due to the irrigators in the Murray Darling Basin, is frankly suspect, considering that the drought had slowed flows from the Murray considerably, combined with the South East diversion.

The River Murray was ephemeral as, during periods of low rainfall, its natural state was to run dry. Not having the vital flows of freshwater from the south-east at full capacity during this drought was certainly a huge influence on the state of the Coorong and lower lakes. In spite of this, cries for the barrages started then.

By the time the construction of the barrages was commenced, the natural system was already in a downwards spiral. During the 1930's five barrages were built separating the Coorong from the Lower Lakes with the last finished in 1940.

*The effects of 7.6km of barrages removing 20km of interaction between the Coorong and the mouth has destroyed the estuary, the mouth's location was altered, the Coorong's ecosystem collapsed and the levels of Lake Alexandrina and Albert artificially raised to become freshwater dams.*

# Photo 3 map



During this same era it also was hoped that a shipping channel could be established from South Australia through the mouth and up the River Murray along the Darling into NSW. Vested interests also were lobbying for barrages and raised water levels however, this initiative ultimately failed.

Today, the system is a manmade environmental disaster on a worldwide scale. The Lakes damned, holding enough water to fill Sydney harbour four times, evaporating a third of its volume annually. Think about that, evaporating this precious water annually at a rate that would nearly fill Sydney Harbor twice! The Lakes have become the spawning mecca for European Carp. The Coorong is dying a slow death and the environmental flows from the River Murray to the mouth wasted, in a vain attempt to replace the once tidal driven opening. The need to continuously dredge the mouth demonstrates the fallacious beliefs which underpin the entire Murray-Darling Basin plan.

*"The reduction in the size of the estuary has reduced the size of the tidal prism by around 90% of its original pre-barrage size. In 1914 the lake area affected by tides was 97.3 km<sup>2</sup> (75 000 hectares), with a spring*



Without the tidal flows influencing the state of the mouth, relying on freshwater from the River Murray and an ever-present dredge, the quest to keep it open is fruitless, incredibly expensive and a waste of precious fresh water.

Last year's 2016 extreme spring weather events provide an example; the mouth of the Onkaparinga River and sand bar were radically altered by huge volumes of fresh flood water. Only four months later it had been reshaped back to normal by the tides.

### Where to from here?

The solution is complex but not complicated. The following offers a start to a working solution.

The flows of fresh water from the south east to the Coorong which then flowed into Lake Alexandrina must be re-established as a priority.

Thankfully, there is some light here as the 'South East Flows Restoration Project' will be completed by March 2018.

*"The SEFRP proposes a new channel connecting existing elements of the South East Drainage Network providing capacity to deliver a median volume of up to 26.5 gigalitres (GL) per year directly into the Coorong South Lagoon, with annual volumes between 5 - 45.3GL per year. The project will have capacity to deliver water to local wetlands en route of the flow path, where landholder approval is granted.*

*The project area extends 93.4 kilometres from the existing Blackford Drain to the Salt Creek outlet into the Coorong South Lagoon".*

This is but a small percentage of what used to flow from this area but, recognition that these freshwater flows were an integral component of the original system. Not enough, but a step in the right

direction and a recognition that they got things wrong, and that the flows originally came from the south, but now forced into the Coorong from the north because of the artificially elevated (by 0.75 metres) unnatural fresh water Lakes.

Once these freshwater flows are restored to the Coorong, this area can be returned to a functioning estuarine ecosystem by removing the barrages and enabling the tidal prism to again influence the system.

*However, there will be opposition to this as one of the major stumbling blocks to remove the barrages is to artificially maintain the Lakes full of fresh water for irrigation.*

That is where building Lock Zero at Wellington comes into play. By holding the Murray level at optimum height at Wellington, the original Murrumbidgee Mouth, it secures Adelaide's water and the needs of upstream irrigators.

This also ends the need for continual environmental flow which ends up evaporating out of the Lakes and unnaturally running out to sea, year round. Remember the spring flows from the Murray will still pass this through lock into the estuary.

By running an irrigation channel from Lock zero to Lake Albert, the irrigators along its length have their water secured far more sustainably and it stops Lake Albert from becoming hyper saline.

The potential for water conservation for South Australia and the entire Murray-Darling Basin is enormous. The environmental, social and economic outcomes are profound. It takes vision and the desire to work together for the optimum solution. Current management of the Lower Lakes is not sustainable; the clock is ticking and the time is now.

Mulloway belong in the Lakes - not carp – and revival of this once rich system is possible, and necessary.

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