MYTH and the MURRAY

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July 24, 2011

The Hon. Adrian Pederick MP
20 Mannum Rd, Murray Bridge SA 5253

The Hon. Mitch Williams MP
30 Ormerod Street, Naracoorte SA 5271

The Hon. Jamie Briggs MP
Shop 1, 72 Gawler Street, Mount Barker SA 5251

The Hon. Patrick Secker MP
37 Adelaide Road
Murray Bridge, SA 5253

Dear Sirs

Re: The Lower Lakes and Restoring the Murray River's Estuary

I am writing to correct some of the misinformation in your article 'Myths disturb Murray Waters' published in The Land newspaper on July 21. I would also like to suggest a way forward, a solution for the Lower Lakes that will restore the Murray River's Estuary.

You are mistaken on the following three key issues.

1. "The barrages were constructed to maintain the lakes' fresh water status in the face of ballooning extractions for irrigation."

Wrong.

The first report proposing locks near the Murray Mouth was tabled in 1890 by the South Australian Engineer in Chief, Alex. B. Moncrieff. It was proposed that the infrastructure be built to "give free vent to the flood waters without encroaching on useful land, but at the same time to prevent the seawaters from entering the lake."

This report predates the development of irrigation within the Murray Darling Basin.

The first proposed irrigation scheme in the Basin, on the Goulburn River, was abandoned 1891. The Chaffey brothers' scheme at Renmark collapsed in 1894. There was no significant impact from upstream diversions on the Murray River until about 1925.

2. "Saltwater Intrusions were rare."

Wrong.

On this issue of saltwater intrusions, Myth and the Murray is again in general agreement with the majority of scientists. To summarize the science: studies of the natural history of the Lower Lakes indicate a marine origin, that during long periods the waters of the lakes were salty, and that during other periods they were fresh. It is unclear how salty or fresh and for how long. The area is characterised by environmental variability.

You refer to the equivocal findings of work on Diatoms – unicellular algae common in rivers, lakes and the ocean with particular species unique to freshwater and others to saltwater.

We appreciate that Jennie Fluin from the University of Adelaide, and co-workers from that University, and also CSIRO, studied the diatoms in a sediment core from the southern section of Lake Alexandrina. They found that between 7,000 years and 2,300 years ago there was a strong marine influence. They conclude that the change in the species abundance over the last 2,000 years shows a general decline in relative abundance of marine species. However, only in the very top section of the core in a distinctive light grey mud, perhaps deposited after the construction of the barrages, is a species with a low salt tolerance common.

John Cann and co-workers from the Universities of South Australia and Adelaide have studied fossil foraminifera – tiny protozoa with shells of calcium carbonate – preserved in the sediments of the Lower Lakes to discriminate episodes of seawater incursion from periods of high river flow.

Comparing the occurrence of species typical of freshwater with species typically found in the sea, they concluded that the Lower Lakes had a maximum marine influence 5,255 years ago and a maximum freshwater influence 3,605 years ago. The period of maximum freshwater influence is thought to coincide with the period when the Murray Mouth was greatly restricted or closed because climatic conditions in the catchment were much drier.

Dr Cann and co-workers conclude that the change in the foraminifera complex over the most recent 2,000 years indicate a general trend of increasing marine influence, up until the construction of the five large steel and concrete barrages that now block the natural ebb and flow between the Lower Lakes and Southern Ocean.

3. “No science is needed to know that without a reasonable outflow the mouth will silt up completely.”

Wrong.

Once upon a time each autumn whether or not there was a significant outflow, but as soon as the south westerly winds picked up, the Southern Ocean would push into the lakes. With the sea water came Mulloway fish. Myth and the Murray Group’s logo is the Mulloway. In 1939, millions of mulloway were trapped against the new barrage structure as they tried to make their way into the lakes to spawn. More than 595 tonnes of mulloway were caught that year. Fast forward to 2008-09 and the annual catch of mulloway was only 39 tonnes. The barrages devastated the mulloway fishery and crippled the Murray River’s estuary.

As Robert Bourman explains in the attached scientific paper,

“The development and functioning of the [Murray River’s] estuary have been affected by variations in relative sea-level throughout the Quaternary, climatically controlled fluctuations in river flows, oceanic tidal, swell and storm processes, and the role of aeolian processes.

“Most recently, the impacts of humans have been added to these variables. Originally a vibrant, highly productive estuarine ecosystem of 75,000 ha, characterised by mixing of brackish and fresh water with highly variable flows, barrage construction has transformed the lakes into freshwater bodies with permanently raised water levels; freshwater discharge has been reduced by 75 per cent and the tidal prism by 90 per cent.”

The issue of the Murray Mouth silting up has everything to do with construction of the barrages and arguably very little to do with upstream diversions.

Furthermore, between 1856 and 1876, the South Australian government commissioned numerous surveys of the Murray Mouth resulting in proposals for schemes to dredging sandbars, blast through channels, change

the flow of water and setup new outports all in an attempt to keep the Mouth open. All of this, of course predates the development of upstream irrigation.

We can continue to argue about history, and of course history is important, but I suggest we also look forward.

The bottom line is that in an attempt to maintain the Lakes at a constant height and as a freshwater only system, 7.6 kilometres of barrage were built in the 1930s. This vision and infrastructure reflected the aspirations of many South Australians at that time. But the freshwater only regime has proven unsustainable, especially during drought.

Myth and the Murray Group has written to the South Australian Government asking that the government consider letting the Southern Ocean enter the terminal coastal lakes as once happened naturally in autumn and during protracted drought. This would restore the River Murray's estuary and also make more fresh water available for upstream environments, communities and industries, including the horticultural industries of South Australia's Riverland.

There is a growing recognition in South Australia, and throughout the basin, that upstream storages are simply not large enough to supply the Lakes during drought with adequate freshwater. This would be the situation even if there were no diversions whatsoever for cities or industries in the Basin. This is simply because of the sheer size of the Lakes and their evaporative losses relative to the upstream storages.

Myth and the Murray Group's spokesperson, Jennifer Marohasy, will be visiting Adelaide early August and I hope you can find time to meet with her to discuss these important issues and our proposed solutions.

Yours sincerely

Johnny Kahlbetzer
Member and supporter
Myth and the Murray Group

Enclosed:

A peer-reviewed scientific paper by: Bourman RP, Murray-Wallace CV, Belperio AP, Harvey N. 2000. Rapid coastal geomorphic change in the River Murray Estuary of Australia. Marine Geology, 170, 141-168

Copied to:

The Hon. Tony Burke MP
Minister for Water

Senator Sarah Hanson-Young
Australian Greens

The Hon. Mike Rann MP
Premier of South Australia

Sally White
Editor, The Land