Submission to the Productivity Commission 31.7.2023

There are many unanswered questions around decisions made in the Murray Darling Basin from the creation of the Water Act in 2007 through to the development of the Murray Darling Basin Plan. Followed by the flurry of activity after the ABC Four Corners “Pumped” episode in late 2017 through to the South Australian Royal Commission. The ongoing lack of water coming from the Northern Connected Basin coupled with the unregulated and unsustainable growth of mostly nuts in the Sunraysia Region will present many problems when a climate change-charged millennium drought reminds us that Rivers in the Basin are some of the most ephemeral and variable rivers in the world.

I had hoped through ongoing work of the MDBA, Federal and State Government Departments, Communities, Hydrologists, and other scientists that a broader understanding of the needs of the rivers and floodplains in the Murray Darling Basin would be seen as equally important as commodity growth, product output, profits, and volume of hectares planted.

There is a need for more ecological and environmental action throughout the Basin. The Basin needs an annual presentation on increases in Native Fish, crustation and Fauna numbers and the rehabilitation of native Flora? Reporting on the improvements of policy and legislation showing we are confronting over development and preparing for the variabilities of climate change is essential. The latest State of the environment report clearly explores the dangerous position we are in when the next Mega drought takes hold. The piece below focuses on Permanent plantings in the Murray region, but it is a Basin wide issue.

The State of the Environment Report (SOE) recently released explores the predicament the Murray will be in during the next drought.

The following is taken directly from the SOE Report and is written by Zena Cumpston.

“In 2021, 123,000 tonnes (t) of almonds are projected to be harvested in Australia. Almonds now represent Australia’s most valuable horticultural crop, and Australia is the world’s second largest supplier (ANIC 2019, Granwal 2020, Jeffery et al. 2021). For each tonne of almonds sold in Australia, 2.6 t are exported; in 2019–20, these were sold to more than 50 countries, with the almond industry yielding $772.6 million (Almond Board of Australia 2021).

In 2000, Australia had approximately 3,546 hectares (ha) of almond tree plantations. By 2019, the rapid expansion of this industry had increased almond-growing land to 53,014 ha – a 900% rise in less than 20 years (Schremmer 2020). The fact that much of this expansion has occurred in a short time, particularly within the highly compromised Murray–Darling Basin, invites questions about the water needs of almonds and the role of this crop in the multiple pressures on inland water and the environment in Australia more widely (Bleby 2019).

In Australia, almonds use triple the amount of water required to produce wheat or feed grain; they need at least 8.5–10 megalitres of water per hectare during a growing season that stretches from October to April (Fulton et al. 2019). The underlying need for a reliable supply of water sees almond crops planted along river systems that are facing increasing pressure from prolonged dry periods. Almond crops have grown by 50% in the Murray–Darling Basin since 2016, despite their substantial water requirements in a geographical area with severe and

catastrophic water security issues (Mann 2021). Almonds deplete biodiversity because they are grown as monocultures, with industrial farms stripping the ground around the trees bare to treat for insects and fungi. Also concerning is that the pesticides used to ensure high yields are particularly lethal to bees (McGivney 2020), and almond cultivation requires more hives for pollination than any other crop (Mann 2021)." End quote.

Almonds Australia called for a moratorium on almond plantings in 2019. It is concerning that no Governments within the Basin have not supported this request.

Government funded irrigation development seems archaic in such ephemeral River systems. Diminishing inflows, climate change and the increasing cost of water rights may eventually put ownership of the once state-owned asset in the hands of very few people, investors, corporations, or oligarchs! Once this happens the very nature of unbiased scientific appraisal of hydrology may be ignored. This would be a disaster. There are concerns that the water Market is already difficult to understand and not transparent.

A scientific approach demanding more water in the environment portfolio cannot be quashed by a century old populate or perish mantra or the pure market driven want for a dollar return on every megalitre of water in the system. Or the dominance of small pockets of political influence.

My experience in basin politics leans heavily on a predictable boom and bust cycle, the over extraction of water in the Northern connected Basin, expressed through a dry Darling/Barka River between 2000 - 2020. Anecdotally many Station owners, horticulturalists, and agriculturalists on the lower Darling/Bark talk of heading up the Darling/Barka River and into the northern Rivers in the 1980's to challenge development. The politics of water played out and extraction won. How was approval gained for damming the Culgoa and Balonne Rivers? The ease and pace of approval of the Wentworth to Broken Hill Pipeline which gave the ability to send minimal water into the Southern Basin from the North Via the Darling Barka a reality. At a cost of $500 000 000. This amount of money could have been used to secure environmental water or support towns transitioning away from high water crops or support towns battleing the result of commodified water being sold into other valleys.

Similar criticism can be aimed at development in parts of the Murray. We are demanding too much of our natural waterways in the driest part of their ephemeral cycles. The unabated market driven development of almonds in the Sunraysia region will make the next drought a very challenging period. The Water Act 2007 responded to the mess of early over development and over extraction - unbundling unleashed commodification, another version of mismanagement which is yet to play out through a prolonged dry cycle. When the next millennial drought arises it will not be second and third generation farmers or blockies walking off the land with a small grant from Governments. It will be multinationals with lawyers demanding compensation for not being able to pump. We are at a pivotal point in the health of Australian Rivers and reviewing how we arrived at this point in a frank and fearless way is essential.

An annual symposium on the health of the working Rivers. Sustaining complementary horticulture and agriculture while giving life back to rivers, streams, creeks, billabongs, and wetlands is a must. All considered through the deep time connection of indigenous Australians.

Quote from the State of the Environment Report

“These projected climate change impacts will affect Australia’s hydrology. For example, Chiew (2006) estimated that a 1% reduction in rainfall could lead to 2–3.5% reduction in streamflow. This would result in:

lower inflows into dams in southern Australia, with a resulting decrease in water security

greater reliance on climate-resistant water sources such as desalination and recycling

an increased frequency and severity of droughts, which would increase demand for water, and have adverse effects on aquatic ecosystems and the flora and fauna that inhabit them

an increase in the frequency and severity of floods, which, in addition to the impact on lives and livelihoods, may necessitate the upgrading of infrastructure such as dams, treatment plants and flood levees, at considerable cost.” end quote

Books and Reports written about the issues within the Murray Darling Basin since the Water Act of 2007

Dead in the Water by Richard Beasley - 9781760878450 - Dymocks

Item 2 Sold Down the River, How Robber Barons and Wall Street Traders Cornered Australia's Water Market by Scott Hamilton | 9781922458124 | Booktopia - Google Search

Item 3 Wounded Country, The Murray-Darling Basin - a contested history by Quentin Beresford | 9781742236780 | Booktopia - Google Search

Murray-Darling Basin Royal Commission Report (environment.sa.gov.au)

Department for Environment and Water - Murray-Darling Basin Royal…

About the 2019 Citizens' Inquiry - Australian Peoples' Tribunal

NSW Government - allegations concerning management of water in NSW and systemic non-compliance with the Water Management Act 2000 (Operations Avon and Mezzo) - Independent Commission Against Corruption

Final-Report-Independent-Panel-fish-deaths-lower Darling 4.pdf (mdba.gov.au) - Google Search

Use of flow management to mitigate cyanobacterial blooms in the Lower Darling River, Australia | Journal of Plankton Research | Oxford Academic (oup.com) - Google Search

Enacting multiple river realities in the performance of an environmental flow in Australia’s Murray-Darling Basin - Jackson - Geographical Research - Wiley Online Library - Google Search

Open Research: Confronting a 'post-truth water world' in the murray-darling Basin, Australia (anu.edu.au)

Australia's mass fish kills as a crisis of modern water: Understanding hydrosocial change in the Murray-Darling Basin - ScienceDirect - Google Search

Advice on Basin Plan Amendment Instrument 2017 (no 1) (wentworthgroup.org)

P699-Submission-to-review-of-Barwon-Darling-Water-Sharing-Plan-WEB.pdf (australiainstitute.org.au)

The Basin Files (australiainstitute.org.au) - Google Search

That's not how you haggle - The Australia Institute

The Australia Institute Northern Disclosure (australia institute.org.au) - Google Search

Floodplain harvesting (australiainstitute.org.au) - Google Search

These books and reports have been written in response to the negative outcomes of water privatization and the hard politics of water. They tackle some of the myths we tell ourselves about remote rural and regional Riverine Australia, to rural Australia's detriment mostly. The narratives in these books and articles are essential to the broad frank and fearless debate needed to give the Murray Darling Basin a chance of wading through the morass of climate change, political favors and the cyclical nature of big floods and big droughts on Australian Rivers.

These scientific papers are just a sample of the over 300 published on the basin since approximately 1990. Yet we are still living with a belief that Agriculture, horticulture, and extraction can be expanded. The volume of evidence existing on what not to do in the basin gets thrashed on the compromises made to get all Basin operatives to agree on something. The knowledge of what not to do gets traded away on political favors and capital to the detriment of River health, knowledge of what Basin Rivers need to be healthy and a truth by repetition mindset driving an anti-scientific lance through any debate on actual water recovery for the longevity of the Murray Darling Basin..

My angst is reserved for politicians and lobbyists who have continually ignored first grade scientific knowledge to pursue profits before pristine and unique Rivers, Creeks, Billabongs, and wetlands whilst playing out a colonial inspired game of one upmanship. These games never end well.

I have huge concerns about the politics behind these decisions.

The Northern Basin Reviews reduction of Environmental water from 390 to 320GL a reduction of 70GL is against the premise of the Water Act. The Disallowance in 2019 saw everyone in politics seduced by the promise of growth as climate change loomed large.

Northern Disclosure (australiainstitute.org.au) - Google Search

The choice of the previous Federal Government to not continue the investigations of the South Australian Royal Commission explores how certain parts of politics turned their back on the environmental realities of healthy flowing connected rivers and the communities along those rivers..

Murray-Darling Basin Royal Commission Report (environment.sa.gov.au)

SA Government to fight Commonwealth Murray-Darling Basin Royal Commission injunction - ABC News

Please consider the combined actions of political power, development based on newly commodified water rights. The millennium drought and an obsession with infinite growth in a finite variable system. Collectively we already have the answers on how not to run the Murray Darling Basin. If the deft hand of lobbyists and politicians with immovable mindsets on climate change and the changing face of horticulture and agriculture are given precedence over science and the hydrology of our precious rivers we are already dead in the water.

A report about conditions in region 4 of the Murray Darling Association.

There are consistent issues from Region 4. There are the ongoing flow targets and lack of end of system flows in the lower Darling/Barka which relates to the multiple fish kills and reflects on extraction rates in the Northern Basin, the continuing influence of climate change and weather variability must be considered. This is not isolated to the Northern Basin. The Southern Basin has its own issues in Region 4. The themes I would like to consider are extraction versus growth of plantings perennial or permanent and access to water through drought.

Our region saw 1300% growth in almonds from 2006 to 2018. Almond plantings increased by 24,660 hectares, from 1,745 hectares in 1997 to 26,405 hectares in 2021. This volume of plantings is unsustainable in a below average intake year, which occurs naturally in the Basins ephemeral system. The real problems begin in the whole Basin when water right holders are unable to extract 100% of their allocation, there does not even need to be a drought to affect delivery. I would like to acknowledge the efficiency in water use by all involved in the industry. We would not be benefitting from unbundling financially if vastly improved water conservation and use did not occur. The other issue is that efficiency in water use will not help the Basin when the next drought or amplified and variable weather conditions kick in. Noting the dramatic increase in sea water temperatures from the latest collected dataset in the North Atlantic and Antarctic and ongoing heat waves in the northern hemisphere.

The point I am making is that governments and industry have been happy to believe water in the Murray Darling Basin System could be stretched in drought years and controlled in a flood, this is impossible. Last year's floods are a prime example of how unmanageable the system can be through a flood and drought. The only tools the water industry and government have are considering the volume of horticulture and agriculture plantings requiring water in the worst possible year throughout the entire basin. This is merely a base and guide to protect industries from the natural ephemerality of the Murray Darling Basin. As an example, on most days in Mildura 8000 megalitres go over the weir, at the height of this year's flood there were over 210 000 megalitres go by where the Mildura weir usually is. The whole annual environmental water

account flowed through Mildura in 10 days. It is also an opportunity to consider capped plantings to protect horticulture and agriculture from over development and commodity price fluctuations (noting Almonds Australia calling for a moratorium on plantings in 2019 No more water licences: Almond Board calls for moratorium (treecrop.com.au)). All stakeholders need to consider a planned approach to the future of horticulture and agriculture rather than the market dictating the direction of development resulting in periodic and devastating droughts and turmoil for all communities in the Basin. Considering the cost of water overlaid on the return price of a commodity could quickly identify value.

Flood volumes in Mildura. Easily seen is the decline in large floodplain inundating floods events as development and extraction increases.

YEAR	WATER LEVEL	Flow
1870	39.35	330,000
1917	38.54	213,000
1931	38.48	208,000
1939	37.42	135,000
1952	37.33	130,000
1955	37.75	155,000
1956	39.17	300,000
1958	36.40	95,000
1960	37.01	117,000
1962	36.85	112,000
1971	35.76	108,000
1973	37.48	138,000
1974	38.15	180,000
1975	38.21	185,000
1981	37.28	128,000
1990	36.40	95,000
1992	36.60	102,000
1993	37.47	138,000
2011	35.14	72,000
2016	36.44	

Another peculiarity of how water is managed exists around the market and buy backs. Governments and Industry are happy to continue the mantra of chasing the best dollar return on every liter of water while partially ignoring the basic hydrological requirements of healthy connected river systems. The illogical premise of more growth more profit while maintaining ecological and hydrological sustainability is challenging, overlaying that with the political hostility to buy backs, which excludes the primary beneficiary of the water buybacks, the Murray Darling

River systems from accessing more water is philosophically broken and was always political. To avert the worst of the next drought the growth mantra needs exploring and reviewing. There was an understanding from the Water Act that overdevelopment and over extraction prolonged/worsened the Millennial drought. This was known in 2007. This begs the question; “what have we learnt from the dramatic change in water management, water use and unsustainable developmnt since the 2007 Water Act?”

On reflection there was a missed opportunity to buy back water before the single minded growth mantra, supported politically exploded expansion. This was a compromise pushed hard by many in the water industry with political connections. The compromise for actual water were savings and efficiency programs. These created the circumstances to accelerate the development of the struggling Basin even further. This compromise must be identified, acknowledged and accepted before we move forward using the best hydrological science available to bring health to the Murray Darling Basin and sustainability to regions which gain their wealth from its waters. It's time to look at the positives and act on the knowledge generated from these reckless decisions and bring the required real water back to the center of decision making for the Murray Darling Basin.

The historic plantings in the pumped districts around Mildura, vines, are in a difficult situation. Fresh fruit and dried fruit are doing ok but wine, particularly grapes grown for cheaper table wine markets are struggling. Lindemans Winery, one of the largest in the region, has announced it will close in 18 months Treasury Wine Estates to close Karadoc winery amid rising costs and falling global demand - ABC News. The dollar return for farmers has decreased consistently over 20 years. This is contrary to the water unbundling mantra of the best dollar return for every liter of water. Our region has an annual combined permanent entitlement of 328 GL but we need nearly 600GL to water all plantings. The shortfall is covered by the temporary water market. This is where the damage will be done when a drought comes. I fear for conditions more devastating than the millennium drought in a world quickly changing through the advancing forces of climate change.

If we are unable to critique the difficult periods in the ongoing evolution of a Modern working Murray Darling Basin System, while working to maintain the environmental integrity of its remaining natural wonders we will repeat the worst decisions of our predecessors.

I believe the Water Act and Murray Darling Basin Plan have given structure where once it did not exist. Legislation around water was created with the requirement of periodic assessment. This assessment must come from the facts about water volume, water variability, how hectares of commodities are planted and where, the ability to deliver through the system. Finally, is the Murray Darling Basin tracking towards improved environmental outcomes. Many have already done very hard work in all these areas. My belief is that water management will only become more difficult

through drought or the 30% decrease in intake through climate change and variable weather patterns. There is much work to do on multiple levels.

Quote from Melinda Hinkson's Murray Talk at Mildura Writers Festival 2023

“Somewhere along the line, human scale invention and cooperative endeavour has been overtaken by government supported, technology-enabled, asset stripping.”

Regards Jason