INQUIRY INTO FLOODPLAIN HARVESTING

Organisation:

Southern Connected Basin Communities

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SUBMISSION INTO FLOODPLAIN HARVESTING

Southern Connected Basin Communities was formed after a group of concerned community groups and members, shared a common goal to once again see a productive and thriving southern basin.

Representing members from the Darling-Baaka in the north, through the Southern Riverina into Victoria, and across into South Australia, we stand united in our desire to advocate for a future with water security, sustainable business and community and a flourishing environment.

As a tri-state advocacy group representing a footprint of 10,000 irrigators and their disillusioned communities and damaged environments, we acknowledge problems in the basin extend back to the 1990's when over extraction was identified as a key threat to our future.

The 1994 Cap was implemented to protect the basin and as a result all southern basin communities accepted and acknowledged its importance and yet for 27 years, FPH has remained unlicensed and unmetered.

As basin compliant irrigators, producing 40 % of Australian staple food production, we acknowledge the impacts of irrigation overextraction.

We stand united in our desire to see floodplain harvesting brought into a licensing framework under basin law.

OVERVIEW

In February 2021 Southern Connected Basin Communities (SCBC) spent 4 days touring the Lower Darling. What we witnessed was simply devastating; environmental degradation, economic destruction, and communities in despair right along the Darling- Baaka and Murray Rivers.

A key principle of the basin plan is a connected river system and a healthy and sustainable basin, and we stand by our claim the basin plan is not delivering- from where we started at the Barmah Choke and some 600kms later at Wilcania, the story was the same.

Communities along the length and breadth are all suffering from the impacts of an out-of-control system and questionable and corrupt leadership.

Despite rhetoric to the contrary, floodplain harvesting in the north is draining the Murray-Darling system as their greed for water has increased so dramatically, it has stopped the Darling-Baaka from flowing.

This is impacting the southern basin both socially and financially through a reduction in allocation reliability, and environmentally through damage to the Murray River, by forcing delivery of unsustainable and damaging volumes of water downstream to South Australia.

Despite MDBA qualifying the Darling- Baaka had an annual average flow of 3500GL annually, it has been reduced to trickle and is often nothing more than a series of stagnant green ponds, devoid of life.





For the Barkandji, the people of the river this is devastating and nothing short of genocide. Michael Kennedy can't teach the traditional method of fishing to his children and he is heartbroken that in 2021 Wilcania and its people are still living well below the poverty line and have a life expectancy of just 38 for men and 42 for women.

The people of Wilacania cannot even turn on the tap to fill a bottle because the quality of water is so poor, it is a health risk and drinking water must be trucked in. Barkandji woman Muriel Riley, was stolen from her home and the river when she was just five years old and now 60 years later, the river is being taken from her again.

Michael says it is a well-known fact when there is water in the river crime rates are down and the people of Wilcania are better physically, mentally and spiritually.

Just down the road at Menindee we drove past thousands and thousands of dead vines and lost industry on our way to Sunset Strip, a once thriving little community on the banks of Lake Menindee.

Angela Clark has lived there for 50 years and she said gone are the thousands of birds, the yabbies, the fish and the happiness of the community. She said she will forever remember the stench of dying kangaroos as the lake dried up and they dropped dead around her.

We saw the extremes of a river bursting its banks to deliver water to flow out to sea at South Australia to one that has stopped flowing because of greed in the north.

Volunteers spend hours of their time writing submissions, chairing groups and striving for change but sadly in the end it appears to be for nothing – mentally they are cooked and financially not far behind.

Our communities are falling apart, we are losing water, our environment, our industry and our jobs.

So many changes and sacrifices to the southern basin have been made under the basin plan, under the guise of improving the environment, and yet government is preparing to license floodplain harvesting in the north with a licensed volume that has the potential to strip 2,000,000 ML from the system permanently.

This licensing volume does little to address the problem of overextraction identified back in 1994 nor does it support the key principle of river connectivity.

The basin plan hasn't magically created any additional water within the system and certainly doesn't allow for an increase in take unless there is a consequent decrease of the same amount in another form of take.



FLOODPLAIN HARVESTING

Left: a 10,000 megalitre dam in the Gwydir Valley in NSW. This photo was taken in March 2020, before heavy rains and when general security allocation were 15.68% The question must be asked where did the water to grow this cotton crop and then fill this dam actually come from?

SCBC have grave concerns over the implementation of floodplain harvesting licenses of 390GL plus 500 per cent carryover. While we welcome licensing after 27 years of free take, we fail to see how licensing well in excess of the legislated 94 cap level is acceptable or even legal.

Despite legislated Cap, BDL and the many laws set up to protect over extraction within the basin under the Basin Plan and Water Management Act, the DPIE continue to push through with \$4billion in compensable licenses. How can a level of this take be endorsed without the establishment of end of system flow target to protect the environmental significance of the Menindee lake system and the Darling River?

Averages will tell you the Darling contributes around 39 percent of the 1850GL required annually to SA as legislated by the Murray-Darling Agreement.

The MDBA recently released a statement saying only 5 per cent of rainfall in the north flows into the river system and yet they have refused to acknowledge FPH storages have increased from 575 gigalitres in 1994 to 1395GL in 2020.

This reduction is far too severe to be claimed as a result of just climate change, we argue it is a direct result of irrigators harvesting so much water from the system, they have stopped Australia's third largest river from flowing.

If floodplain harvesting only occurred during major flood events, its impacts wouldn't be quite as severe but the fact is storages have grown to such an extent and engineering methods have become so complex, the 1721GL of baseline flows into Menindee the basin plan was established under, have simply disappeared impacting community, environment and industry in the south.

HOW IS THE SOUTHERN BASIN IMPACTED BY FLOODPLAIN HARVESTING?

Not only is the southern basin facing reduced allocation reliability through loss of productive water and increasing conveyance, we are also facing an environmental catastrophe within our river systems; one river (Murray) is run so hard it is literally imploding while the other (Darling) is dying because it no water and has lost baseline flows.

No water flowing down the Darling mean the shortfall of 721,000Ml is taken from the productive irrigation pool of both NSW and Vic irrigators – water which would normally be used to grow food.

720,000ML has the ability to produce; 864 thousand tonnes of rice, 1.440 million tonnes of wheat, 1.634 million tonnes of barley, 2.1 billion litres of milk, 23.76 million kilograms of lamb and 4.32 million kilograms of wool combined, 1.442 million kilograms of beef, 10.8 million tonnes of tomatoes or a combination of all these staple food.



This also means the Murray has to make up the delivery shortfall and the large volumes of water forced through the system is causing erosion, loss of habitat for birds species including the Kingfisher, silting and century old red gums are falling into the river.

Other impacts include;

- Increasing conveyance
- the important and significant bird and fish breeding Menindee Lakes have been sacrificed to deliver water to SA.
- a dog will die if it drinks the foul and polluted water from the Darling and drinking water must be trucked in.
- High evaporation rates of the lakes are quoted as a reason to drain the system and yet the same logic is not applied to the 1395Gl of storages spread across 1833 dams in the north!

The southern basin has been licensed, metered and basin compliant since the cap was introduced in 1994 while floodplain harvesting has been allowed to grow without any regulation for 27 years to a level dramatically above the legislated legal level of take of 46GL.

Baseline flows have been decimated as storages in northern NSW have increased from 574Gl in 1994 to 1395GL in 2020 (Slattery and Johnson report)

Lobby groups claim FPH only occurs during large flood events however the simple truth is, this process has grown to such a level it is now only under a severe flood event, water actually finds its way into the Menindee Lake System and down the Darling River.

The natural process has been severely disrupted as evidenced by the table below which shows a historical inflow figure of 1721GL into Menindee Lakes (see table 20 below which was used to form the basis of an MDBA technical for preparation of the basin plan). This flow along with 3500GL of annual flows down the Darling have all but disappeared and while we support climate change, we believe greed and overextraction in the north have played a far bigger role in reducing baseline flows.

Model Run Nos	566	6 705 706		707	580	708	709	710
Scenario		Development		Baseline				
Water Balance	Historical	2030 Dry	2030 Median	2030 Wet	Historical	2030 Dry	2030 Median	2030 Wet
	(GL/y)	(%)	(%)	(%)	(GL/y)	(%)	(%)	(%)
Storage								
Total change in storage	-13.0	9.5	3.0	-8.7	-73.6	9.2	2.8	0.0
Inflows								
Darling (inflow to Menindee Lakes)	3272.5	-21.2	-8.0	21.7	1721.2	-31.0	-10.3	32.5
Murrumbidgee (Balranald)	2724.2	-23.6	-8.2	8.9	1271.4	-42.0	-15.8	16.6
Murrumbidgee (Darlot)	123.5	-44.1	-19.3	17.3	321.7	-30.3	-11.3	10.4
SMHS releases	616.9	-19.3	-5.4	5.8	1143.9	-15.9	-4.5	3.8
Ovens at Peechelba	1728.2	-31.9	-12.7	0.9	1708.0	-32.9	-12.9	1.1
Goulburn at McCoy's Bridge	3368.0	-31.7	-12.7	-2.5	1660.0	-46.1	-19.8	-4.8
Campaspe at Rochester	280.8	-38.6	-16.1	-3.5	150.6	-63.8	-24.6	-9.6
Loddon at Appin South	144.7	-39.1	-13.7	-8.9	60.9	-50.3	-15.1	-4.6
Directly gauged Murray subcatchments	4047.1	-30.3	-10.2	2.8	4035.9	-30.4	-10.2	2.8
Indirectly gauged Murray subcatchments	260.2	-32.2	-14.5	6.6	327.6	-26.3	-11.7	5.2
Total inflows	16566.0	-27.8	-10.3	6.3	12401.1	-33.2	-12.2	7.3
Diversions								
NSW Murray diversions		-	1		1693.7	-29.2	-5.9	2.0
NSW Lower Darling diversions	-	-	14	-	54.7	-13.8	-5.6	3.7
VIC Murray diversions	÷		14 (in 16	-	1655.8	-4.9	0.9	1.9
SA Murray diversions	(2	((-		665.0	-13.6	0.0	2.3
Total Diversions	-	(-)	14 A	12	4069.1	-16.4	-2.1	2.0
Losses								5071564D
Total net evaporation	442.4	-8.7	-1.6	10.6	599.5	-9.8	-2.0	10.8
Net groundwater loss	-	-	-	-	47.0	0.0	0.0	0.0
Environmental loss	<u>-</u>	-	<u></u>		57.6	-41.5	0.8	4.4
Total loss including SA	3633.3	-15.8	-4.7	5.6	2595.9	-16.1	-5.4	5.6
Total Losses	4075.7	-15.0	-4.4	6.1	3300.1	-15.2	-4.6	6.4
Outflows								
Barrage outflow	12503.4	-31.9	-12.2	6.4	5105.4	-57.5	-24.9	11.9
Unattributed Flux (GL)								
Total Unattributed Flux (GL)	0.00		-		0.11	575	-	1.5

TABLE 20 WATER BALANCES FOR THE MURRAY SYSTEM FOR PREDEVELOPMENT AND BASELINE SCENARIOS

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CONVEYANCE LOSSES

Geographically the distance to deliver water to South Australia is shorter via the Darling than the Murray River. Not taking into the account the twists and turns of the river systems, as the crow flies it is 220km from Menindee to Wentworth while from Hume Dam to Wentworth the distance is more than double at 600kms. – you don't have to be Einstein to work out conveyance losses are much higher when water is delivered to SA via the Murray. If you applied the conveyance logic to petrol in car, it is obvious the car driven from Menindee to Wentworth will have more petrol on arrival than the car from Hume Dam, the same goes for water.

Conveyance losses to run the system are increasing as more and more water is delivered to SA via the Murray and not shared with the Darling.

The NSW Government water allocation statement issued August 2 2021 states 2670GL is needed to run the river (including SA operational entitlement) whereas a decade ago this figure was most likely around 800GL.

Historically less water was required to be held in upper storages to run the system because of higher inflows from the Darling River and lower conveyance losses to deliver to South Australia. Following the exponential growth in FPH and reduction of Darling inflows, more water is put aside in Upper Murray storages to meet system demands. In summary, the windfall for FPH is paid for by losses of water allocated to existing licence holders in the southern basin and in particular NSW Murray general security.

There has been no consideration given to the natural constraints of the Murray River (those areas where the river narrows). High flows are continually pushed down the system and iconic areas like the Barmah Forest, an internationally recognised wetland listed under the Ramsar Convention, is flooded five time in three years.



Erosion damage to the banks of the Murray River near Cobram.

AGRICULTURE

A \$24 billion agricultural industry producing staple food products like dairy, wheat, horticulture and livestock, supporting tens of thousands has essentially been placed under threat to support a \$1.2billion cotton industry and 4900 jobs (see cotton pg 10).

While we are not advocating for one particular agricultural industry specifically over another, it just doesn't make sense to prioritise delivery of water to a cotton industry generating \$1.2billion and supporting 4900 jobs, especially when the affects of that particular water delivery are so damaging to existing metered and licensed irrigators.

Southern Riverina Irrigators (SRI) produce dairy, wheat, rice, livestock and horticulture across 724,000 hectares stretching from Berrigan to Moulamein. An Australia Institute study found the SRI region generates \$7billion in agricultural product across 2200 landholdings, however success is heavily reliant on access to NSW Murray general security allocation which is directly impacted by FPH in the north and increasing conveyance.



IMPACT ON IRRIGATION RELIABILITY

Figure 3 Water allocation scenarios for 2021-22 (closing - 30 June 2022)

Source: NVRM, NSW DPIE, SA DEW, ABARES

Note: Historical average calculated from 2000-01 to 2019-20. HS refers to High security entitlements. GS refers to



		Registered	Water Availability								
		Entitlements	October Allocation (96)			April Allocation (%):					
River System	Security	(ML) (Oct 2010)	Very Dry	Day	Mediam	Wet	Weny Dry	Dry	Mediam	Wet	
NSW Murray above											
Barmah Choke	General Security	155,752.0	1	62	96	100	12	100	100	100	
Victorian Murray	High reliability water share	32,351.3	9	100	100	100	29	100	100	100	
above Barmah Choke	Low reliability water share	5,674.1	۵	99	100	100	٥	100	100	100	
Ovens	High reliability water share	70.0	100	100	100	100	100	100	100	100	
NSW Murray below	High security	385.0	97	97	97	100	97	100	100	100	
Barmah Choke	General Security	32,558.0	1	62	96	100	12	100	100	100	
Victorian Murray	High reliability water share	78,721.9	9	100	100	100	29	100	100	100	
below Barmah Choke	Low reliability water share	5,451.3	۵	99	100	100	۵	100	100	100	
Murrumbidgee	General Security	64,959.Q	10	42	55	54	10	68	100	100	
	Supplementary	20,820.0	۵	۵	۵	100	٥	Ð		100	
Goulburn	High reliability water share	54,919.6	20	100	100	100	26	100	100	100	
	Low reliability water share	10,480.0	۵	4	54	96	٥	17	78	100	
Broken	High reliability water share	20.0	1	96	97	98	1	100	100	100	
	Low reliability water share	4.Z	۵	۵	۵	۵	٩	100	100	100	
Campaspe	High reliability water share	5,124.1	33	100	100	100	43	100	100	100	
L	Low reliability water share	395.4	۵	100	100	100	٥	100	100	100	
Loddon	High reliability water share	1,179.0	۵	100	100	100	٥	100	100	100	
	Low reliability water share	527.3	۵	2	54	95	٥	16	78	100	
South Australia	High reliability	43,297.4	44	100	100	155	52	100	100	102	

In 2010, according to historical data and under a wet scenario we would have received a 100% allocation, now the best we can hope for is 63% according to ABARES data.

COTTON



66% of Australia's cotton is grown in NSW.

According to the Cotton Australia website states the Australian cotton industry is;

- a \$2 billion industry, spread across 1500 farms supporting 12,000 jobs.
- water usage is around 7 megalitres per hectare and water use productivity in Australia has improved by 48%.

According to IBISWorld Cotton Growing in Australia Report A0152, the industry generates \$1.2 billion, across 576 businesses supporting 4904 jobs (employment over the last five years has fallen due to automation).

-almost all cotton is sold abroad due to the absence of domestic processing

-cotton crops are the largest user of water for irrigation accounting for a significant proportion of total irrigation water usage.

-increasing media coverage over water shortages and environmental catastrophes attributed to industry operators has damaged Australian sentiment to cotton. If further investigations find legal and or moral breeches, public support for tighter regulation will grow and looms as a future threat to the industry.

-the main barrier to growing cotton is access to water, restrictions, permits and licensing.

-global demand for cotton is forecast to increase over the next five years which has the potential to take even more water from the system.

CASE STUDY THE ARAL SEA

The shrinking of the Aral Sea is noted as one of the world's worst environmental disasters and UNESCO has added historical documents concerning the Aral Sea to its Memory of the World Register as a future resource to study the environmental tragedy.

The Aral Sea was once the fourth largest lake in the world covering an area of 68,000 square kms, it began shrinking in the 1960s after the rivers that fed it were diverted for Soviet irrigation projects (cotton being one of the most significant water users).

Less than half a century later the sea had largely disappeared and satellite images taken by NASA in 2014 revealed the eastern basin had dried up for the first time in modern history; the eastern basin is now called the Aralkum Desert.

While we don't wish to be alarmists there are remarkable similarities between the Aral Sea and the Darling River which has certainly been impacted by overextraction.

It is also interesting to note the World Wide Fund for Nature (WWF) have flagged current practices as a global issue.





Menindee Lakes 2017

DAIRY

The Australian dairy industry contributes around \$4.3billion to the Australian economy annually with a large percentage generated with the Murray Dairy region stretching from Swan Hill in Victoria through to Corryong and including both sides of the Murray.

Murray Dairy production has decreased from a high of 3.3 billion litres in the early 2000s to 1.8 billion litres in 2020 – a significant proportion of this decrease can be attributed to availability and high cost of water, in particular over the last decade.

- the Murray region produces around 80% of total dairy production in the Murray Darling Basin.

- over the last decade dairy farm numbers have contracted by 35%, corresponding with 30% drop in milk production (10% higher in the Murray region).

- the amount of water available to irrigated dairy has halved since 2000 whilst water costs have increased significantly. Irrigation dependent dairy farmers on average use 60% more water than they own in irrigation licenses.

- dairy generates close to double the gross value of production in comparison to horticulture in the GMID.

- during FY2019-20 of the \$700million produced at the farm gate, 80% returned to the regional economy, total dairy production had a farm gate value of \$906million resulting in \$2.3billion value to the local community.

- dairy in the Murray region directly supports 8000 permanent jobs.

- over the last 8 years \$650million has been invested in state of the art processing facilities.

- around 42,000 jobs can be attributed to the Australian dairy industry across the basin. (Source Murray Dairy)



RICE

Australian rice growers have the capacity to produce between 600,000 -700,000 tonnes of rice; enough rice to feed 20 million people, 365 days a year, around 50% of total rice production is grown in the Riverina using NSWMGS allocation.

The Sunrice Mill in Deniliquin is the biggest rice mill in the southern hemisphere employing 600 people and generating \$400million in direct economic activity;

-\$256 million via paddy payments

-funding of regional sponsorship /training/development programs \$700,000

-\$60 million in Sunrice expenditure across 416 Riverina companies including transport/logistics/accommodation/catering.

While reputed to be a high water use crop, a rice paddy supports extensive bird and insect populations and leaves enough residual moisture in the soil to sow a consequent cereal crop



Rice farmer Deniliquin March 2021.

FOOD SECURITY

During a global pandemic Australia came dangerously close to running out of staple food products.

Australian harvested rice was gone by November after the industry produced their smallest rice harvest in history, as a consequence of little or no allocations.

Australia imported 4 million tonnes of grain to the east coast from 2018-20 (as per Department of Ag import stats).

The true figure of dairy imports is clouded because NZ owned company Fonterra operates in Australia and their product is not included in import data, however Murray dairy milk production has only recovered marginally from an industry low of 1.6 billion litres, to 1.8 billion litres in 2020, down from an all time production high of 3.1 billion.

It is predicted Australian food spend will make up 23% of household budgets in the future as our reliance on imported products increase as we lose family farms and consequent food production and the wealth it generates for regional communities. Irrigation also delivers benefits to the environment through habitat support, tree belts, wetlands and waterways.

It is also worth mentioning the increase in shipping costs per container from \$600 pre-covid to up to \$4000, post COVID which will only inflate import prices further.

Do we really want to place our reliance on feeding our nation into the hands of other countries when we can simply do that with access to irrigation right here in in the southern basin?

ENVIRONMENT

It is with great concern we hear about the degradation of our rivers and yet the basin plan is meant to be supporting a connected river system. The third largest river in the country, the Darling has ceased to flow because of over extraction in the north, how does licensing at a volume of 390GL and a 500% carryover support a connected river system?

It is unsustainable and far to damaging to continue to expect the Murray River to deliver SAs water requirements alone, the Darling River must be bought back on line and this can only happen with FPH licensing at the Cap level of 46GL and not 2,000,000ML.

Water must be retained in the Menindee lakes so the waterbirds and fish dependent on this ecological source can breed and survive for future generations while supporting a connected river system and this can only happen with FPH licensing at the Cap level of 46GL and not 2,000,000ML.

Pressure must be taken off the Murray by reducing unseasonable and high volume flows which are decimating the banks of the river and undermining riverside infrastructure. Flooding areas like the Ramsar listed Barmah Forest twice a year to deliver downstream flows must stop and this can only happen with FPH licensing at the Cap level of 46GL and not 2,000,000ML.

PERMANENT PLANTINGS

Despite there being no new water created under the basin plan, development of permanent plantings has been allowed to grow exponentially in the driest country on earth, thousands of kilometres away from water storage as. In the old days of farming in NSW, if someone wanted to grow rice their soil was tested and had to be deemed appropriate before they were granted a maximum sustainable volume they could grow. Today you can whack an almond plantation in the ground anywhere you want without the thought of the perils of water delivery.

• Entitlements have been allowed in arid, sandy soil regions, further and further away from the main upstream storages- for example from Eildon Weir to Mildura-in excess of 1,000km river miles, where it takes 3ML released at Eildon to deliver 1ML to Mildura, thus increasing conveyance and evaporation losses in an era of higher temperatures and greatly reduced basin inflows due to climate change.

In fact plantings are so high, the almond industry has itself been calling for a moratorium on plantings that has been ignored by NSW and SA. Shire have no control over plantings either – it is a disastrous free for all.

Citrus industry plantings have also increased by 20 per cent and that industry is also starting to question where is that water going to come from to water these trees in the future, what a mess.



Salinity at Pauls Lane Boundary Bend. Almonds in the background, five years ago you could drive down through here.

SUMMARY

Irrigation has bought reliability and security to the southern basin.

Over generations it has underpinned billions of dollars of economic investment which in turn has supported thriving community and environment.

It was with grit, determination and an amazing feat of civil engineering unrivalled for its time, our ancestors built the Hume Dam to store and control water within the Murray River.

Australia is the driest inhabited continent on earth and their foresight brought wealth and productivity to our country for generations to come, through access to a reliable and predictable water source, in an unpredictable climate and land of flooding rains and scorching droughts

And yet here about to face what can only be described as one of the greatest crimes against humanity and the environment; licensing of a volume of water so great it has stopped one river from flowing and decimated another.

A volume unrecognised in the 1912 Water Act, the Water Management Act 2000 and Water Share Plans.

Licensing of 390GL plus a 500% percent carryover puts at risk the future of the foodbowl of Australia, our communities and our environment while threatening the very health of the river that underpins us all, the mighty Murray.

Future generation will look on this pivotal point in time with either joy this potential environmental catastrophe was avoided or with anger it was not.

Irrigation extraction can only go so far before it destroys the very country we are trying to feed and the environment we are trying to protect.

Australia needs to wake up, get serious and think about a sustainable future. We cannot afford to see 2,000,000ML of water taken from an already stressed system, under a drying climatic scenario.

I will leave you with the words of Barkandji man Michael Kennedy from February 2021;

<u>it makes me sick to my stomach my people are living below the poverty line because of greed for</u> water in the north - my beloved river is dying; my people are dying and this is simply nothing short of genocide.