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Murray Regional Strategy Group



NSW legislative Council Inquiry into Floodplain Harvesting

The Murray Regional Strategy Group (MRSRG) appreciate the opportunity to make this submission to the Select Committee's Inquiry into Flood Plain Harvesting.

Introduction / Background

The Murray Regional Strategy Group (MRSRG) represents water users across the NSW Murray Valley, from Corowa in the east through to Swan Hill in the west. Its representatives come from industry, Indigenous, community and irrigation user groups.

The region includes Murray Irrigation Limited, West Corurgan Private Irrigation District (PID), Moira PID and a number of smaller irrigation trusts, river pumpers and is the cultural home for many First Nation families and am communities. The health of First Nation people is dependent on the health of their Country, their culture and the economy.

We all have a responsibility to ensure that this Region continues to be able to support the communities that depend on a health environment, a vibrant culture and a strong economy.

The NSW Murray Valley was purposely developed for irrigated agriculture in the 1940s–1950s following the completion of the Hume Dam and the end of World War II (**MDBA a**).

Water is shared between New South Wales, Victoria and South Australia according to rules set out in the *Murray-Darling Basin Agreement*. This agreement was made between NSW, Victoria and South Australia in 1914 and is now part of the Commonwealth *Water Act 2007*. In total, South Australia has an annual Entitlement of 1,850 GL under the Murray-Darling Basin Agreement (**Enviro SA**). This volume must be filled before upstream users ie General Security Entitlements (and other water accounts) are allocated water in a given season.

Historically the Darling has contributed to NSW's share of meeting this 1850GL requirement. Research by Thomas et al concluded the Darling contributed 39% of the flows to the SA border. As well as the allocation to South Australia, flows are released into the Lower Darling, to a maximum rate of 9,000 ML/d, to meet monthly target storage levels for Lake Victoria to hold it full over summer to minimise evaporation losses from the

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Menindee Lakes, and to provide water to consumptive users along the Lower Darling (**Thomas et al**).

The management of Menindee Lakes has been outlined by the NSW Government below –

The Menindee Lakes storage is owned and operated by New South Wales with a long-standing arrangement under the Murray Darling Basin Agreement. This Agreement requires the Murray Darling Basin Authority (the MDBA) to include the water held within the lakes as part of the shared resource of the River Murray System, and use the water in the lakes when the volume is above 640 GL until it next falls below 480 GL.

*Once the total volume of the lakes falls below 480GL, the held water is no longer considered a shared resource of the River Murray System and the water is managed by New South Wales to meet local demands. Some of the water within the Menindee Lakes system is considered dead storage and cannot be accessed for release. The dead storage volume within the system is 125 gigalitres (**NSW Gov't a**)*

Currently (Wednesday August 11, 2021) dams which influence allocations in NSW Murray are at the following capacities - Menindee Lakes 69%, Dartmouth Dam is 72% and Hume Dam 89%, yet NSW Murray General Security Entitlement holders have a mere 26% allocation, and 4000 ML/day is been released from Hume Dam.

In 1995, the Murray–Darling Basin Ministerial Council introduced the Murray–Darling Basin Cap on Surface Water Diversions (the Cap) to protect and enhance the riverine environment and protect the rights of water users. The Cap introduced long-term limits on how much water could be taken from rivers in 24 designated river valleys (**MDBA b**).

The CAP for each valley was set using data from 1994 and was used to establish the Sustainable Diversion Limit for each Valley in the Murray Darling Basin Plan. **Appendix B** shows the baseline diversion for each valley, the total diversion from the Northern Basin through FPH was modelled to be 206.6GL / year. NSW portion of this is 46.2 GL / year, as highlighted in **Appendix B** (Murray-Darling Basin Baseline Diversion Limits – estimate made in 2012 by MDBA).

According to the NSW Department of Planning, Industry and Environment floodplain harvesting in Northern NSW has increased to levels above the legal limits set out in water sharing plans and the Basin Plan (**NSW Gov't b**).

The NSW Government issued this advice to Water Management Committees after the 1994 CAP came into play - “The harvesting of water from floodplains reduces the amount of water reaching or returning to rivers. This decreases the amount of water available to meet downstream river health, wetland and floodplain needs and the water supply entitlements of other users. As well, floodplain harvesting can seriously affect the connectivity between the local floodplain, wetlands and the river, through the loss of flow volume and redirection of water flows”.

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The advice defined FPH as the following -

1. Diversion or capture of floodplain flows using purpose built structures or extraction works to divert water into storages, supply channels or fields or to retain flows.
2. Capture of floodplain flows originating from outside of irrigated areas using works built for purposes other than floodplain harvesting. Examples are: - levees and supply works such as off river storages constructed in billabongs or depressions that fill from floodplain flows - below ground level water channels from which the water is pumped into on farm storages.
3. Opportunistic diversions from floodplains, depressions or wetlands using temporary pumps or other means. **(NSW Gov't c)**

It is worth noting that this advice was also provided to the Water Management Committees - Capture of rainfall or runoff from farm irrigation fields, via tailwater systems or other means, is not floodplain harvesting. **(NSW Gov't c).**

NSW Murray communities are directly impacted by the activities of floodplain harvesting in the north of the state:

- Reduced flows to Menindee - resulting in less water available to contribute to SA baseline flows
- NSW needs to make a greater contribution to SA baseline entitlement flows from the Murray system
- The conveyance of these additional baseline flows is supplied by the General Security entitlement account
- The Murray is forced to deliver greater volumes of water increasing conveyance losses, reducing reliability of allocation to food producers
- Riparian landholders are subject to greater risk of third party impacts from flooding through running the Murray at high flows
- The Murray has seen a massive increase in erosion since the Darlings contributions have decreased.

(a) the legality of floodplain harvesting practices

Over the last 20 years the NSW Government has failed to license, monitor and regulate floodplain harvesting (FPH). The Water Act 2007 and Murray Darling Basin Plan 2012 in their current forms do not permit take in a water resource plan area (WRP) without a license and a meter that falls within AS4747 standards.

In its initial advice to Water Management Committees the NSW Gov't said "Floodplain harvesting works and water extractions also clearly fall into those activities that the Water Management Act 2000 requires to be

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only undertaken by way of a license. The Act also requires such licensing to consider the ecological functioning of floodplains” **(NSW Gov’t c)**.

Furthermore the advice provided included, “Floodplain harvesting can no longer be left outside of the State's water management and compliance system or as a source of increase in further water diversions. Given this, it is the Government's intention that floodplain harvesting works and taking of water from floodplains be licensed and managed. It will take a number of years to complete the process. However, the water sharing plans must signal the basic principles that will govern the process” **(NSW Gov’t c)**.

The purpose of the current NSW FPH Policy is to bring floodplain harvesting into a legal framework, including work approvals, licenses, rules and metering/measurement so that FPH can be managed within legal limits, this is clearly set out in their policy document **(NSW Gov’t b)**.

Section 4 of the NSW Legislation (as way of example) the Water Sharing Plan for the Gwydir Regulated River Water Source 2016 (2015 SI 629) **(NSW Gov’t d)** clearly outlines the 6 principles to managing FPH in the state and bringing the activity into legal limits, which the state has still not achieved.

By their own account the NSW Gov’t has clearly demonstrated that FPH in the state’s north has not been legalised.

(b) the water regulations published on 30 April 2021

The water regulations published on April 30 2021 by the current government sought to allow the licensing of 390GL water through floodplain harvesting. This volume far exceeds all previously referenced volumes by the NSW Government, documents and legislation prior to the recently proposed regulation amendments.

In advice to the water management committee and in NSW Legislation legalising FPH to the 1994 CAP was clearly the intention for NSW. This was set out in the 6 Principals to legalising FPH, existing FPH and structures would be licensed, however no structures or activities post 1994 would not be authorised.

As stated in the Advice to Water Managers Committee - “Because cap is based on the use of water with development as it was in 1994, NSW considers that the water use that would result from use of the floodplain infrastructure in place in 1994, is part of the cap in each system. It is likely that there has been some growth in floodplain harvesting works and extractions since then” **(NSW Gov’t c)**.

This is further supported in 2016 NSW Legislation which references the 1994 CAP on a number of occasions, including -

(4) Principle 4 is that floodplain diversions associated with works in place in the Murray-Darling Basin prior to the end of the 1994 irrigation season will be considered as within the NSW cap.

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(5) Principle 5 is that once licensing is completed, an assessment of long-term use resulting from authorised structures against that from structures which existed in 1994 will be carried out and appropriate steps taken to keep harvesting to cap levels.

Licensing NSW FPH to a volume of 390GL is nearly double the total BDL for the entire Nth Basin and eight times greater than the Northern NSW BDL.

Legalising this volume of FPH will not meet the objectives of the 2000 Water Management Act or the Murray Darling Basin Plan which prioritise ecological health of our river systems, and are exemplified in Water Sharing Plans for the Gwydir Valley amongst others –

Harvesting of water from floodplains reduces the amount of water reaching or returning to rivers. This decreases the amount of water available to meet downstream river health, wetland and floodplain needs and the water supply entitlements of other users.

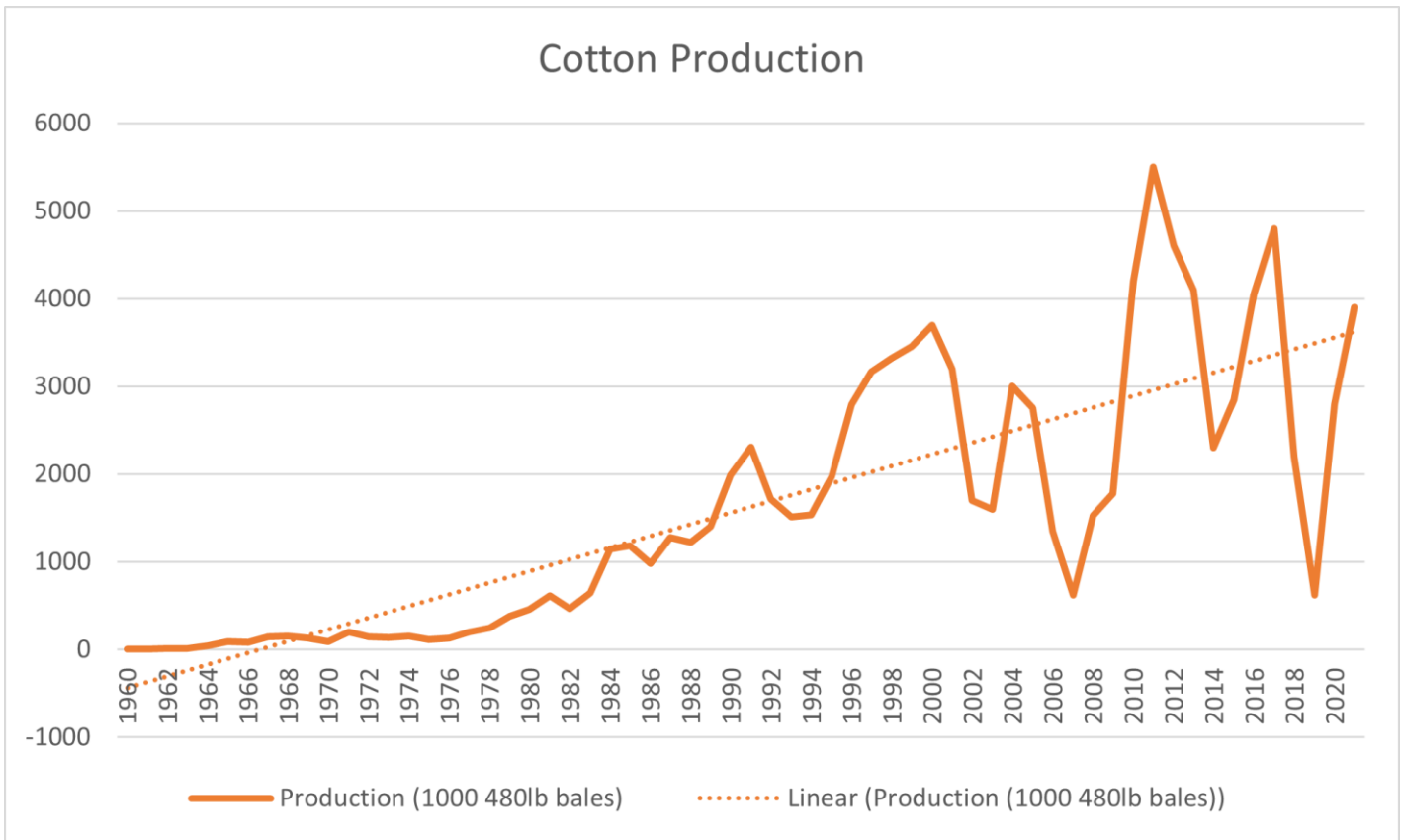
Floodplain harvesting can seriously affect the connectivity between the local floodplain, wetlands and the river, through the loss of flow volume and redirection of water flows.

Floodplain harvesting works and water extractions also clearly fall into those activities that the [Water Management Act 2000](#) requires to be only undertaken by way of a licence. The Act also requires such licensing to consider the ecological functioning of floodplains. (NSW Govt' d)

According to Cotton Australia “There are up to 1,500 cotton farms in Australia, with the main production areas being central and southern Queensland, northern, central and southern NSW, northern Victoria and small areas of northern Queensland, northern Western Australia and the Northern Territory. Approximately 66% of Australia’s cotton is grown in NSW and 33% in Queensland.” **(Cotton Aus)**.

The Federal Department of Agriculture states that “the major production area in NSW stretches south from the Macintyre River on the Queensland border and covers the Gwydir, Namoi and Macquarie valleys. It is also grown along the Barwon and Darling rivers in the west and the Lachlan and Murrumbidgee rivers in the south. In Queensland, cotton is grown mostly in the south in the Darling Downs, St George, Dirranbandi and Macintyre Valley regions. The remainder is grown near Emerald, Theodore and Biloela in Central Queensland.” **(DAWE)**

The graph below represents data extracted from Index Mundi **(Index A)** it shows the steady increase in cotton production since the first crop was grown in 1960. Prior to the 1994 CAP the largest crop 2306 thousand bales weighing 480lb each. Even after the introduction of the CAP cotton production increased to nearly double pre-CAP levels. Increases in production are expected over these timeframes across agricultural commodities with technology advancements, increased scale and improvements to varieties, despite these advancements to keep this level of growth increased amounts of water would be required.



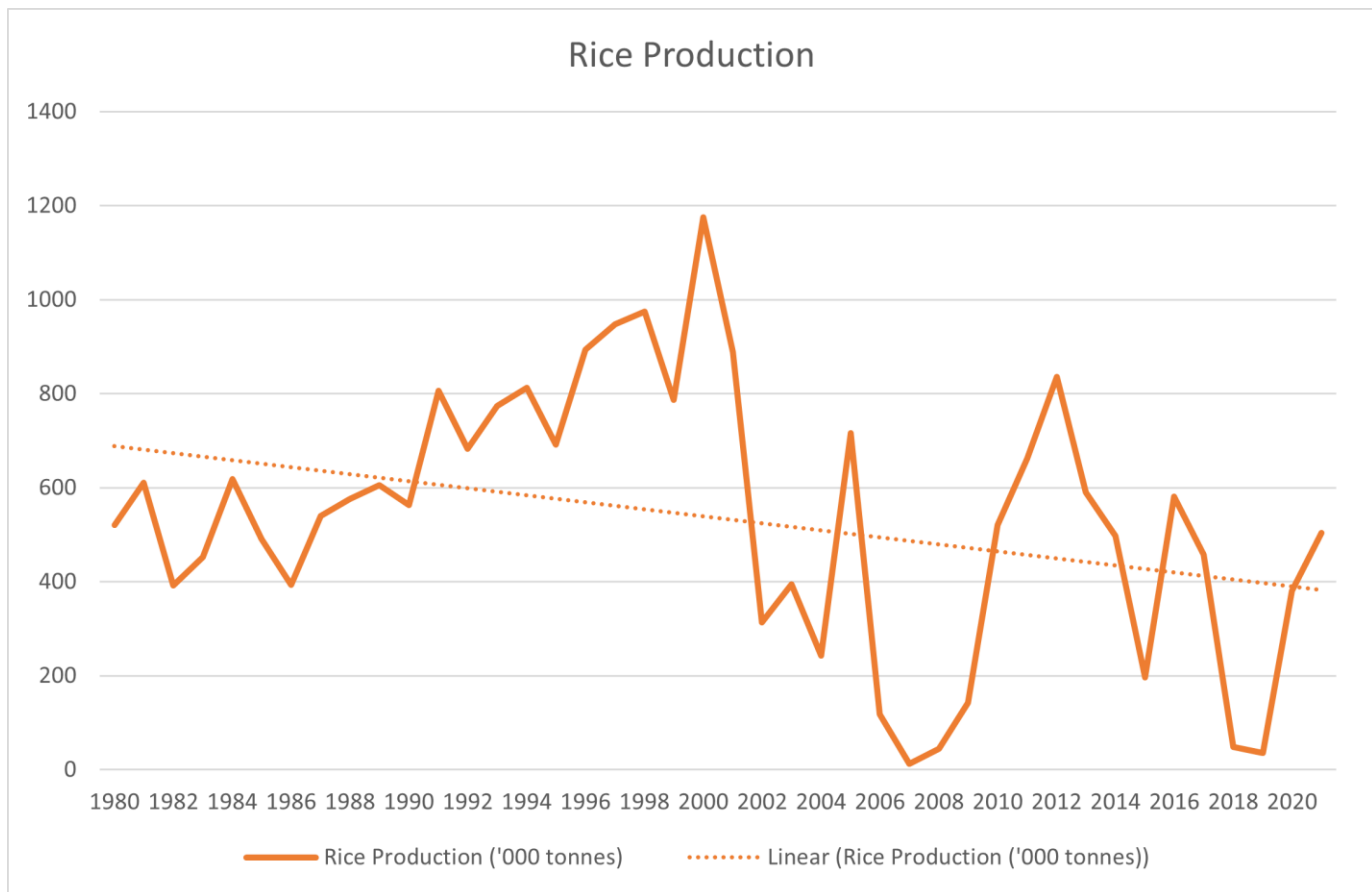
Graph 1 – Growth in Cotton Production in Australia (Index A)

In comparison rice production in Australia is in decline. According to the Ricegrowers Association most of the rice grown in Australia is concentrated in the Murrumbidgee and Murray valleys of southern New South Wales. Small areas of rice are also grown in North Victoria and Northern Queensland, as shown in the map below. According to the RGA “ Rice was one of the founding industries for many irrigation towns in southern New South Wales and Northern Victoria” (RGA).

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Map 1 – Rice growing regions in Australia (RGA)



Graph 2 – Decline in Rice Production in Australia (Index B)

Murray Regional Strategy Group - West Corugan Private Irrigation, Murray Irrigation Limited, Southern Riverina Irrigators, Rice Growers Association, Yarkuwa, Murray Valley Private Diverters, Speak Up Campaign

(c) how floodplain harvesting can be licensed, regulated, metered and monitored so that it is sustainable and meets the objectives of the Water Management Act 2000 and the Murray Darling Basin Plan and,

To ensure Licensing of floodplain harvest does not operate outside the CAP and to deliver improved equity across the basin, MRGS believes the below should be incorporated into conditions of licensing and regulation of FPH

- Prioritise end of system flow targets to restore connectivity for industry/ cultural / environmental needs, along with providing greater equity to downstream communities, as identified by the Murray Darling Basin Authority (**MDBA c**).
- The Menindee Lakes scheme delivers water to South Australia to meet part of its annual entitlement.
- Licensing must be highly transparent and information publicly available on an accessible Water Register.
- Full installation of meters to AS4747 standards, bringing metering, measurement, telemetry and compliance in the Northern Basin to an equal standard as the NSW Murray Valley.
- establish a stakeholder forum with representatives from stakeholder groups in both the Northern and Southern Basin to begin a process to developing and amending policy to support all communities in the NSW.

(d) other

Recommendation – NSW Government fund a truly independent (appointment agreed on by all community representatives in both Northern and Southern Basin) assessment of rainfall versus climate change in the Northern Basin.

This would include the collation of data to produce correlation between rainfall, run-off and river flows in the Northern Basin and how this has changed from 1960 – 2020. It should take into account rainfall timing, frequency and magnitude, along with antecedent influences such as soil moisture.

It should also take into account run-off rates and river flows at various metered points and assess whether allocations reflect the diverted / capture volumes which have been modelled for licensing.

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References

MDBA a - Guide to the proposed Basin Plan Technical background Part III, page 966 ([Link to document](#))

MDBA b - [Link to website](#)

Enviro SA - [Link to website](#)

Cotton Aus - [Link to website here](#)

DAWE - [Link to website here](#)

Index A - [Link to website here](#)

Index B - [Link to website here](#)

NSW Gov't a - [Link to Industry NSW fact sheet](#)

Thomas et al - page 8 [Assessment of environmental water requirements for the proposed Basin Plan: Lower Darling River System](#)

NSW Gov't b - [Water NSW Floodplain Water Harvesting Policy](#)

NSW Gov't c - see appendix A (Advice to Water Management Committees No. 3 Floodplain Harvesting)

NSW Gov't d - [Link to NSW Legislation](#)

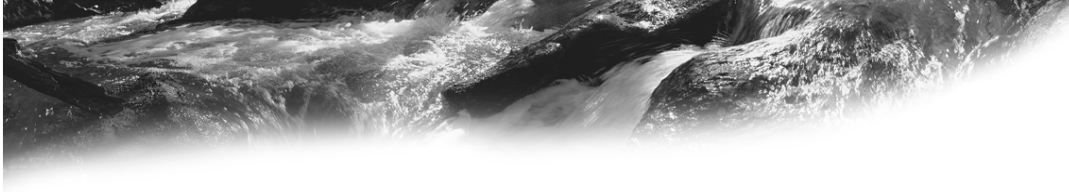
RGA - [Link to RGA](#)

MDBA c – [Link to document](#)

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Appendix A

Advice to Water Managers Committee



No. 3 Floodplain Harvesting

What is floodplain harvesting?

Floodplain harvesting is the collection, extraction or impoundment of water flowing across floodplains. The floodplain flows can originate from local runoff that has not yet entered the main channel of a river, or from water that has overflowed from the main channel of a stream during a flood. For the purposes of this policy the floodplain is defined as extending to the 1 in 100 year flood line.

Harvesting can generally be put into one of three categories:

1. Diversion or capture of floodplain flows using purpose built structures or extraction works to divert water into storages, supply channels or fields or to retain flows.
2. Capture of floodplain flows originating from outside of irrigated areas using works built for purposes other than floodplain harvesting. Examples are:
 - levees and supply works such as off river storages constructed in billabongs or depressions that fill from floodplain flows
 - below ground level water channels from which the water is pumped into on farm storages.
3. Opportunistic diversions from floodplains, depressions or wetlands using temporary pumps or other means.

Capture of rainfall or runoff from farm irrigation fields, via tailwater systems or other means, is not floodplain harvesting.

What are the issues?

The harvesting of water from floodplains reduces the amount of water reaching or returning to rivers. This decreases the amount of water available to meet downstream river health, wetland

and floodplain needs and the water supply entitlements of other users.

As well, floodplain harvesting can seriously affect the connectivity between the local floodplain, wetlands and the river, through the loss of flow volume and redirection of water flows.

The *Water Act 1912* provided powers to license floodplain harvesting. However this was never applied as there was generally no requirement to restrict total overall water extractions or off-allocation diversions. Harvested floodplain water has been treated as a freely available bonus to a farmer's licensed entitlement.

This situation has now changed. The Murray-Darling Basin cap applies to all water diverted from inland NSW catchments and rivers. Licensed and off-allocation access has been subject to increasing restrictions. Embargoes on water licences are also in place on many areas on the coast.

Floodplain harvesting works and water extractions also clearly fall into those activities that the *Water Management Act 2000* requires to be only undertaken by way of a licence. The Act also requires such licensing to consider the ecological functioning of floodplains.

Floodplain harvesting can no longer be left outside of the State's water management and compliance system or as a source of increase in further water diversions. Given this, it is the Government's intention that floodplain harvesting works and taking of water from floodplains be licensed and managed. It will take a number of years to complete the process. However, the water sharing plans must signal the basic principles that will govern the process.

Approach to floodplain harvesting

Floodplain harvesting will not be a component of individual water sharing plans being produced for the regulated and unregulated rivers. During flood times water originating in one river system may flow across floodplains and along “flood runners” into adjacent river systems. It is therefore often not possible to assign an area of floodplain to a particular river.

Instead, management of floodplain harvesting will occur on a state-wide basis, according to the six principles set out below.

There are many thousands of existing floodplain works which will require licensing and this will be done over the next couple of years. The licensing process will include proper environmental impact assessments.

A separate category of licence will be established.

Principle 1

All existing floodplain harvesting works and floodplain harvesting extractions will be licensed.

While all surface and groundwater licences now (or will shortly) specify volume entitlements or annual limits to water, it is not possible to do this for floodplain harvesting licences at this stage. This is because the pattern of use is highly episodic and site and infrastructure specific, and current data on structures and use is minimal.

The Department of Land and Water Conservation will licence existing structures and specify monitoring of use – including metering of pumps – as a licence condition where possible. This may not be possible initially in cases where a tailwater system is also picking up floodplain water as they are difficult to separate, or where overland flow is being captured by a billabong for which we do not have any information on its capacity. Options for application of volumetric conditions will be developed and implemented where appropriate within the first five years of the initial water sharing plans.

Principle 2

Licensing will focus initially on controlling the structures, but with movement towards specifying volume limits and flow related access conditions, including metering of pumps.

All new floodplain harvesting works are required by law to be licensed. However, as any new works

would result in a growth in diversion, which would threaten river health and/or the water entitlements of others, such works would have to be offset by a reduction in other forms of water diversion.

Principle 3

No new works or expanded floodplain harvesting activities in the Murray-Darling Basin that will result in the diversion of additional water will be authorised.

Because cap is based on the use of water with development as it was in 1994, NSW considers that the water use that would result from use of the floodplain infrastructure in place in 1994, is part of the cap in each system. It is likely that there has been some growth in floodplain harvesting works and extractions since then.

However, it is expected that the licensing process will result in some modification of existing works. This may be adequate to offset any post 1994 development. If not, restrictions on the use of the licensed works will have to be applied to return diversions to cap levels. Such restrictions could include restrictions on pumping times or a requirement to modify the work to allow a proportion of flows to be bypassed.

By preventing the construction or enlargement of new works, the opportunity for any further growth in floodplain harvesting diversions will be minimised.

Principle 4

Floodplain diversions associated with works in place in the Murray-Darling Basin prior to the end of the 1994 irrigation season will be considered as within the NSW cap.

Principle 5

Once licensing is completed, an assessment of long-term use resulting from authorised structures against that from structures which existed in 1994 will be carried out and appropriate steps taken to keep harvesting to cap levels.

Trading of floodplain harvesting rights will not be permitted because the frequency and volume of use is site and infrastructure specific, and volume management will take some time to implement.

Principle 6

Floodplain harvesting rights will not be tradeable.

Plan Requirements

To provide a link between the water sharing plans and the floodplain harvesting policy, the following model provisions should be incorporated into regulated and unregulated river system water sharing plans.

- 1. Harvesting of water from the floodplains of rivers which are included in this Plan's water sources is not subject to the provisions of this plan and has not been included in the diversion limit that applies to this plan.*
- 2. This plan has, however, been developed on the understanding that the harvesting of water throughout the state will be managed on the basis of the principles set out in the policy advice. (The 6 principles should be listed).*

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Appendix B

Advice to Water Managers Committee

Murray-Darling Basin Baseline Diversion Limits - estimate made in 2012 by MDBA

Surface water estimates of the BDL appear in Schedule 3 of the Basin Plan 2012 [F2012L02240] as a note to the description.

The limits are specified in the law as a description of a level of take. It was anticipated that the amounts may be refined over time based upon improved information. This feature of the Basin Plan was first included in the Proposed Basin Plan released in November 2011. The Plain English Summary provides more information about the uncertainty of the estimates in Schedule 3 and is available here: https://www.mdba.gov.au/sites/default/files/archived/proposed/plain_english_summary.pdf.

Further information about changing limits is available at: <https://www.mdba.gov.au/basin-plan-roll-out/sustainable-diversion-limits/changing>.

Zones	SDL Resource Unit (within zones)	take from a regulated river ⁽¹⁾ (GL/y)	take from a watercourse ⁽¹⁾ (GL/y)	take by floodplain harvesting ⁽¹⁾ (GL/y)	take from a watercourse under basic rights (GL/y)	take by runoff dams (excluding basic rights) ⁽²⁾ (GL/y)	take by runoff dams under basic rights ⁽²⁾ (GL/y)	net take by commercial plantations (GL/y)	total BDL estimate made by Authority in 2012 (GL/y)
NORTHERN BASIN									
Queensland									
	Condamine-Balonne	NA	570.3	143.0	NA	203.0	61.0	1.0	978.3
	Moonie	NA	28.8	4.4	NA	40.0	11.0	-	84.2
	Nebine	NA	3.5	2.7	NA	0.3	24.7	-	31.2
	Paroo	NA	0.2	-	NA	-	9.7	-	9.9
	Queensland Border Rivers	NA	232.2	9.9	NA	61.0	16.0	1.0	320.1
	Warrego	NA	44.3	0.4	NA	50.0	33.0	-	127.7
	total northern Basin Queensland zone	-	879.3	160.4	-	354.3	155.4	2.0	1,551.4
Northern New South Wales									
	Barwon-Darling Watercourse	NA	186.5	11.5	NA	NA	NA	NA	198.0
	Gwydir	296.2	11.2	17.8	NA	104.0	20.0	1.0	450.2
	NSW Border Rivers	188.4	16.3	3.0	NA	79.0	16.0	-	302.6
	Intersecting Streams	NA	3.0	NA	NA	105.0	6.0	-	114.0
	Namoi	251.2	78.1	14.0	NA	139.0	21.0	5.0	508.3
	Macquarie-Castlereagh	380.3	44.0	NA	NA	156.0	110.0	44.0	734.3
	total northern Basin New South Wales zone	1,116.1	339.1	46.2	-	583.0	173.0	50.0	2,307.4
	total northern Basin	1,116.1	1,218.5	206.6	-	937.3	328.4	52.0	3,858.8
SOUTHERN BASIN									
Southern New South Wales									
	Lower Darling	55.0	NA	NA	NA	-	5.5	-	60.5
	Murrumbidgee - NSW	1,957.7	42.4	NA	NA	344.0	41.0	116.0	2,501.1
	NSW Murray	1,680.0	27.7	NA	NA	70.0	10.0	24.0	1,811.7
	total southern Basin New South Wales zone	3,692.7	70.1	-	-	414.0	56.5	140.0	4,373.3
ACT									
	ACT (surface water)	NA	40.5	NA	NA	0.7	0.3	11.0	52.5
	total southern Basin ACT zone	-	40.5	-	-	0.7	0.3	11.0	52.5
Victoria									
	Broken	13.2	-	NA	NA	19.0	11.0	13.0	56.2
	Campaspe	110.9	1.7	NA	NA	23.0	16.0	1.0	152.6
	Goulburn	1,551.6	28.8	NA	NA	47.0	39.0	23.0	1,689.4
	Kiewa	-	11.0	NA	NA	2.1	4.5	7.0	24.6
	Loddon	88.6	-	NA	NA	59.0	26.0	5.0	178.6
	Ovens	NA	25.4	NA	NA	9.0	17.0	32.0	83.4
	Victorian Murray	NA	1,662.1	NA	NA	13.0	10.0	22.0	1,707.1
	total southern Basin Victoria zone	1,764.3	1,729.0	-	-	172.1	123.5	103.0	3,891.9
South Australia									
	Eastern Mount Lofty Ranges	NA	15.3	NA	NA	9.8	NA	3.2	28.3
	South Australian Murray	NA	665.0	NA	NA	NA	NA	NA	665.0
	Marne Saunders	NA	NA	NA	NA	2.9	NA	NA	2.9
	SA Non-Prescribed Areas	NA	NA	NA	NA	NA	3.5	NA	3.5
	total southern Basin South Australia zone	-	680.3	-	-	12.7	3.5	3.2	699.7
	total southern Basin (ex disconnected)	5,457.0	2,519.9	-	-	599.5	183.8	257.2	9,017.4
DISCONNECTED TRIBUTARIES									
	Lachlan	286.7	15.7	-	NA	230.0	57.0	29.0	618.4
	Wimmera-Mallee (surface water)	65.7	0.8	NA	NA	39.0	22.0	1.0	128.5
TOTAL		6,925.5	3,754.9	206.6	-	1,805.8	591.2	339.2	13,623.1
BDL:									
	Interceptions					1,805.8	591.2	339.2	2,736.2
	Watercourse diversions	6,925.5	3,754.9	206.6	-				10,886.9
									13,623.1

(1) Schedule 3 notes provide an estimate for floodplain harvesting combined with the major form of take in the SDL resource unit - either take from the watercourse or take from the regulated river. The values shown here are provided for improved transparency of the estimates separately for each form of take made in 2012.

(2) Schedule 3 notes provide a combined estimate for take by runoff dams excluding basic rights and take by runoff dams under basic rights. The values shown here are provide for improved transparency of the estimates separately for each form of take made in 2012.

(3) NA = The Authority did not make an estimate for this form of take in 2012 or in the SDL resource unit this form of take is not described.

(4) All values are presented here to 1 decimal place. Schedule 3 estimates are shown with a one decimal place where the value is less than 10 GL/y and no decimal places where greater than 10 GL/y. For consistency all values are shown to 1 decimal place here. This may result in a minor rounding difference when compared with the Basin Plan notes.