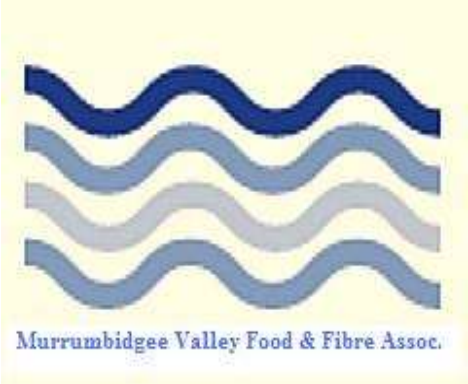
Submission No 52

INQUIRY INTO FLOODPLAIN HARVESTING

Organisation: Murrumbidgee Valley Food and Fibre Association (MVFFA)

Date Received: 13 August 2021



Murrumbidgee Valley Food and Fibre Association

MVFFA represents business owners in the Murrumbidgee Valley. Many of our members are directly engaged in irrigated agriculture, producing a wide range of agricultural commodities. Our membership also includes those engaged in related businesses including processing, marketing and provision of professional services, from towns and cities within the Murrumbidgee Valley. Our focus is on water policy at all levels of government because the ecological, economic and social sustainability of communities like ours is dependent on how water is managed.

MVFFA welcomes the opportunity to make a submission to this NSW Flood Plain Harvesting inquiry.

In the national context, MVFFA acknowledges that the NSW Government has the very difficult task of securing a fair share of water resources for the State of NSW. We recognise the Government's recent efforts to review and secure a fair share of water for NSW within the context of very complicated sharing arrangements with other States.

Of equal importance is water sharing within the state of NSW. The NSW Government has the responsibility of maintaining the integrity of NSW waterways and sharing available water resources fairly with all NSW stakeholders. The health and prosperity of NSW now and in the future rests on the proper implementation of this legislation given the high importance of water to every facet of life.

Water management is a practical discipline and subject to a wide range of climactic variables. It is essential for it to be flexible and adaptable with fast feedback loops in order to meet management goals.

The NSW Water Management Act 2000 (NSW WMA 200) sets out the basis for water management reform and water management in NSW.

A 2020 ICAC report found systemic non-compliance with the NSW WMA 2000 and a recently released MDBA report found similar non-compliance issues, most particularly but not only, in the Barwon Darling Water Sharing Plan.

Against this background, a review by MVFFA members of water legislation and regulation since the 1990s including the NSW Water Management Act 2000 and NSW Water Sharing Plans (WSPs) has highlighted that there are gaps surrounding the legality and regulation of Flood Plain Harvesting (FPH) dating back to the introduction of the 1994 caps.

The pathway to legalise and regulate FPH was detailed by the NSW Government in 2001 and the NSW Government was supposed to have fully implemented FPH licencing according to six well defined principles in the Northern and Southern Basin approximately 15 years ago.

The administration, regulation and licencing of Flood Plain Harvesting (FPH) is one aspect of water management that has consistently failed to comply with regulations in current water policy and is negatively impacting other stakeholders, licence holders, industries and local environments across the NSW MDB.

The legislation specifies that the base number for NSW is the 1994 caps and any new FPH works post 1994 that directly impinges on inflows into the major rivers must be licenced, regulated, metered and monitored.

The NSW Southern Basin has been stringently regulated to comply with the 1994 Caps and our State's commitments to supply SA's requirements, to the point where there is documented underuse occurring in the NSW Southern Basin. However the 1994 cap figure for FPH in the Northern Basin has not been adequately regulated and has not been licenced and is negatively impacting other licence holders and their support communities in both the Northern and Southern Basin. According to the explicit rules and regulations, there has been systemic non-compliance in the Northern Basin.

World class management of waterways and water is a prerequisite for the health and prosperity of future generations and MVFFA submits this is the common ground for the NSW Government and the vast majority of stakeholders who live and work in the MDB.

The Terms of Reference for this Inquiry are:

a) The legality of floodplain harvesting practices,

b) The water regulations published on 30 April 2021

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,

d) Any other related matter.

TOR a) THE LEGALITY OF FLOOD PLAIN HARVESTING

Attached to this submission is advice from the NSW Government about licencing Flood Plain Harvesting (FPH) and why it was necessary (Appendix 1). This same document is attached to every relevant Water Sharing Plan to the present day.

It 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.*

It is worth noting that this advice about runoff from farms was also provided to the Water Management Committees and remains in present day WSPs here:

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

This link below is from the most recent Gwydir Valley WSP

Water Sharing Plan for the Gwydir Regulated River Water Source 2016 (2015 SI 629) - NSW Legislation

MVFFA submits that the definitions and uses of the term Flood Plain Harvesting have become increasingly murky and politicised since the WMA 2000 and we expect that this inquiry will be able to clearly identify and define the specific types of FPH that need to be urgently addressed in order to facilitate river connectivity via volumetric, not formulaic numbers.

We recognise that there are forms of FPH that are necessary and have been appropriately licenced, including flood mitigation works around towns and cities, road and rail infrastructure and the capturing of runoff from towns, cities, industry and farms in order to protect water quality in our rivers, creeks and tributaries

We also recognise that there is a difference between what happens in a major flood or a major drought and the way rules and regulations operate via modelled logarithms and algorithms (formulaic models) when creeks, tributaries and overland flows are heading towards the rivers outside of major flooding events.

MVFFA submits that it is FPH that diverts from creeks, tributaries and overland flows that feed into the rivers outside of exceptional circumstances that urgently requires licencing and compliance with the NSW WMA 2000, the MDBP SDLs and WSP regulation.

Attached to this submission is further legal advice recently provided to DPIE (Appendix 2).

It is evident from this advice that there are serious gaps between the relevant legislation (explicit rules) and what has actually happened (implicit rules) and MVFFA submits this requires correction.

MVFFA submits that it must be made very clear where those gaps are, who has gained and lost, how to compensate those who have suffered damage as a result of non-compliance and how to close those gaps to ensure future compliance, sustainability and river connectivity.

From our research it is evident that the key number for licencing FPH in NSW is the 1994 cap and that any new works post 1994 needed to be licenced and remain within the cap for each WSP.

TOR b) THE WATER REGULATIONS PUBLISHED ON APRIL 30 2021

The water regulations published on April 30 2021 by the current government wanted to allow the licensing of 390GL water through floodplain harvesting.

This number far exceeds all previously referenced FPH volumes by the NSW Government.

In advice to the water management committee and in NSW Legislation, legalising FPH to the 1994 CAP was the explicit intention for NSW. This was set out in the 6 Principles to legalise FPH. Existing FPH and structures in 1994 would be licensed and structures or activities post 1994 would not be authorised and would need to be licenced.

As stated in the Advice to Water Managers Committee:

"Because the 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".

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.

(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.

The CAP for each valley was set in 1994 and was used to establish the Sustainable Diversion Limit for each Valley in the Murray Darling Basin Plan. The total diversion from the Northern Basin through FPH was modelled to be 206.6GL / year. The NSW portion of this was 46.2 GL/year according to the MDB Baseline Diversion Limit estimates published by the MDBA in 2012 (See Appendix 3).

Simple mathematics informs us that there is a numeric 340+ GL gap in the Northern Basin between legislative requirements (explicit rules) and the proposed 30/04/2021 FPH diversions (implicit rules) which is an example of systemic, ongoing non-compliance and which would also negatively impact all other licence holders, including the Held Environmental Water (HEW) in State and Federal Government water accounts.

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

Legalising FPH to 390GL does not appear to meet the objectives of the 2000 Water Management Act or the Murray Darling Basin Plan which prioritise the ecological health of our river systems, and are explicit in the NSW Water Sharing Plans such as in the Gwydir Valley WSP here:

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.

MVFFA submits it is well overdue to recognise that the data collection and decision making systems are flawed and require improvement.

There are clear definitions of FPH in all the WSPs that are a foundation of water management in NSW. These definitions need to be applied by the NSW Government in order to appropriately licence FPH.

TOR c) HOW FLOODPLAIN HARVESTING CAN BE LICENCED, 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

With regards to the aforementioned shortcomings in data, modelling, formulas and decision making, MVFFA recommends that the NSW Government commissions a clearly outlined and focused case study from the NSW Engineer and Scientist to review how FPH definitions, formulas and modelling are currently applied in the Northern Basin and whether they are sustainable and meeting the objectives of the WMA 2000 and the MDBP. The NSW Chief scientist has actually, already, completed a relevant study with useful data and information here:

Water Data Review | Chief Scientist (nsw.gov.au)

A review needs to include:

- Collection and analysis of available current and historical data.
- An analysis of mechanisms and formulas that are used for decision making
- Analyse what changes are needed to properly implement FPH legislation and licencing as per the NSW WMA 2000
- How new information, new technology and processes can be implemented in a timely way

To ensure the Licensing of floodplain harvesting does not operate outside the CAP and to deliver improved equity across the basin, MVFFA submits the below be incorporated into conditions of licensing and regulation of FPH in WSPs.

- Prioritised, volumetric, end of system flow targets to restore connectivity for industry, cultural and environmental needs
- Full installation of meters and telemetry to standards that will enable metering, measurement and compliance in the NSW Northern Basin to an equal standard as the NSW Southern Basin
- Establish a stakeholder forum with representatives from stakeholder groups in both the Northern and Southern Basin to begin a process to amend policy so it supports all communities in the NSW MDB.
- Implement technology and processes that have fast, adaptive, transparent, accessible feedback loops to quickly Identify and efficiently close any gaps in regulation.

TOR d) Any Other Related Matter

We must be confident that the principle of sustainable water use is being applied consistently across NSW, and we all need equal access to the data that allows us all to ensure that this is the case.

Although not a specific topic in this inquiry it needs to be recognised and understood that management of the basin resources is multi-jurisdictional and multi-layered and thus often clunky, parochial and impractical.

The Murray Darling Basin Plan (MDBP) has not created any additional water in the system and has, very unfortunately, further complicated already complex and opaque, formulaic accounting methods most particularly in the Northern Basin. The MDBP also does not allow for any increase in take unless there is a decrease in other forms of take which is a major reason why FPH must be fairly and sensibly licenced and regulated.

Despite there being progressively less water available for consumptive use, there has been significant new development encouraged by all MDB state governments outside of the original gazetted regions. Nowhere is the fallout more obvious than the Darling River below Bourke. There has been significant new development upstream and downstream of the Menindee Lakes System, some of it via FPH and rule changes in the north and also downstream on the Murray, much of that permanent plantings on sandy soils, thousands of kilometres away from the major storages. The unfolding triple bottom line disaster on the Lower Darling (environmental, social and economic) is well known.

MVFFA submits that it is the responsibility of all basin states, especially NSW, to work together to create a fairer approach based on tried and true “adaptive management” principles to water management across the whole of the MDB. Much is incumbent on the NSW Government as it is responsible for the development and regulation of the largest number of WSPs in the northern and southern basin. The geographical split between the Northern and Southern basin is also in NSW.

Expecting the highly regulated NSW Southern Basin to make up for failures in the regulatory framework in the Northern Basin is not delivering good outcomes. Hard wired, volumetric, end of system flow (EOSF) targets at the SA border is not sensible “adaptive management” and is causing well documented harm to many upstream environments. One river, The Lower Darling, has been basically ‘hung out to dry’ and the other river, the Murray, plus its 2 major tributaries (the Goulburn and the Murrumbidgee) are being pushed far too hard and being damaged.

Via a sensibly resourced stakeholder panel and a focused review as mentioned above, MVFFA submits that access to multi-generational/local community knowledge, the data sets that will demonstrate what has and hasn’t worked and modern technology is the best basis to formulate a workable, practical regulatory system for all forms of water management in NSW and the rest of the MDB not just for FPH.

For further information or clarification about this submission please feel free to contact us:

Debbie Buller President

MVFFA

APENDIX 1: Advice from The NSW Government about Licencing Flood Plain Harvesting (FPH)

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).*

Legal advice

Prepared for Department of Planning, Industry and Environment – Water

Planning, Industry & Environment

9 October 2020

Legality of floodplain harvesting

Context

On 22 September 2000, the Legislative Council disallowed the *Water Management (General) Amendment (Exemptions for Floodplain Harvesting) Regulation 2020* (the **Exemptions Regulation**). The Exemptions Regulation had provided exemptions from the requirement to hold an access licence or water supply work approval in relation to floodplain harvesting.

On 2 October 2020, we provided advice to you on this matter. Following that advice, we have considered this matter further. In particular, we have considered the difficulties that may arise in establishing that an offence has been committed, including in relation to a 'passive take' of water that occurs in the course of floodplain harvesting. We have revised parts of our prior advice in light of this issue.

Our advice is summarised below and set out in more detail on the following pages.

Please ensure this legal advice is kept confidential to maintain the Department's legal professional privilege. Contact us if you need more information about what this means.

Summary

On balance, and while not without doubt, we think the better view is that generally, the taking of water in the course of floodplain harvesting, without an access licence, from an unregulated river water source that is covered by a water sharing plan would constitute an offence under s 60A of the *Water Management Act 2000* (**WM Act**). However, this is less clear in circumstances of "passive take", where there are arguments either way.

A number of defences are available to a s 60A offence. In some limited circumstances, some of those defences may apply but it appears unlikely in practice.

Similarly, while not free from doubt, we think the better view is that the use of a water supply work without a water supply work approval for the purpose of floodplain harvesting in an unregulated river water source that is covered by a water sharing plan would constitute an offence under s 91B of the WM Act. Again, there is some uncertainty about whether passive take would be unlawful, although we think the better view is that it would be.

Again, there are a number of defences available, but it appears unlikely that any of those defences would apply in the case of floodplain harvesting.

This advice is of a general nature and it will be necessary to consider the particular facts of each case in order to determine whether a contravention of the WM Act has occurred, and whether such a contravention could be proved.

There are no circumstances where floodplain harvesting would be permitted under the *Water Act 1912* (the **1912 Act**).

Legal advice

Prepared for Department of Planning, Industry and Environment – Water

NSW GOVERNMENT | Planning, Industry & Environment

1. Request for advice

1.1. In light of the disallowance of the Exemptions Regulation, you have asked –

(a) In the absence of the exemption, and as there are no water supply works approvals and no specific access licences that cover this activity, would floodplain harvesting be in breach of the WM Act?

(b) Are there any circumstances this activity would be allowed under the 1912 Act?

2. Advice: potential offences under the WM Act

Floodplain harvesting

2.1. The term 'floodplain harvesting' is not defined in the WM Act.

2.2. However, the NSW Floodplain Harvesting Policy (May 2013) defines it as (as far as relevant) "the collection, extraction or impoundment of water flowing across floodplains" and we will adopt this definition for the purposes of this advice.

2.3. There are two ways in which floodplain harvesting could breach the WM Act –

(a) the taking of water without an access licence, in breach of s 60A of that Act, and

(b) the use of a water supply work without a water supply work approval to capture and store water, in breach of s 91B of that Act.

Take of water without an access licence

2.4. Section 90A(2) creates an offence relating to taking water without an access licence, as follows –

> *A person—*
>
> *(a) who takes water from a water source to which this Part [Part 2 of Chapter 3] applies, and*
>
> *(b) who does not hold an access licence for that water source,*
>
> *is guilty of an offence.*

Contact

Prepared for Kaia Hodge
Executive Director, Regional Water Strategies

Written by [redacted] [redacted]
Principal Legal Officer, Water Law

2.5. The elements of the offence are –

(a) the person takes water,

(b) the water is taken from a water source to which Part 2 of Chapter 3 of the WM Act applies, and

(c) the person does not hold an access licence for that water source.

2.6. We will assume that the first element is made out since floodplain harvesting, of its nature, involves the taking of water (aside from the issue of passive take, which is discussed below).

2.7. It is then necessary to determine whether the relevant water source is a water source to which Part 2 of Chapter 3 applies.

2.8. Section 55A states that Part 2 of Chapter 3 applies to each water source that is declared by proclamation to be a water source to which that Part applies. A number of such proclamations have been made. Those proclamations define water sources according to their definition in various water sharing plans.

2.9. Water sources are generally defined in a similar way across water sharing plans relating to regulated river water sources and in plans relating to unregulated river water sources.

Regulated river water sources

2.10. As an example of a regulated river water source, we will consider the *Water Sharing Plan for the Gwydir Regulated River Water Source 2002* (the **Gwydir Reg Plan**). A s 55A proclamation published in Government Gazette No. 110 of 1 July 2004 (p 5004) states that Part 2 of Chapter 3 applies to each water source to which any water sharing plan in Schedule 1 of that Proclamation applies. Schedule 1 includes the Gwydir Reg Plan.

2.11. Although the Gwydir Reg Plan has expired and been replaced, this does not affect the proclamation – s 55A(3).

2.12. Clause 4 of the Gwydir Reg Plan stated (emphasis added) –

(1) The water source in respect of which this Plan is made is that between the banks of all rivers, from Copeton Dam downstream to the junction of the Gwydir River and its effluent rivers with the Barwon River, which, at the date of commencement of the Plan, have been declared by the Minister to be regulated rivers.

...

(5) This Plan applies to all waters contained within this water source but does not apply to waters contained within aquifer water sources underlying these water sources or to water on land adjacent to this water source.

> ***Note.*** *Management of floodplain harvesting is not a component of this water sharing plan. Management of floodplain harvesting will occur according to a number of state-wide management principles, attached in Appendix 3.*

2.13. Appendix 3 to the 2002 Gwydir Reg Plan stated, among other things (emphasis added) –

> ***Section 2 Floodplain harvesting management issues***
>
> ...
>
> *(3) 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.*
>
> ...
>
> *(5) 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. ...*
>
> *(6) 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 extractions. 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. ....*
>
> ***Section 3 Management of floodplain harvesting***
>
> *(1) Floodplain harvesting will not be a component of individual water sharing plans being produced for the regulated and unregulated rivers. ...*

2.14. The Appendices do not form part of the Plan (cl 5(6)), but Appendix 3 seems a clear statement of the policy intention with respect to floodplain harvesting.

2.15. The 2002 Gwydir Reg Plan was replaced by the *Water Sharing Plan for the Gwydir* Regulated *River Water Source 2016*, which reproduces the provisions above.

2.16. The outcome is that the 2004 proclamation does not designate water on land adjacent to the Gwydir Regulated River water source as a water source to which Part 2 of Chapter 3 applies.

2.17. On the basis that other water sharing plans define regulated river water sources in a similar way, floodplain harvesting does not constitute taking of water from a regulated river water source.

Legal advice

Prepared for Department of Planning, Industry and Environment – Water

NSW GOVERNMENT | Planning, Industry & Environment

Unregulated river water sources

2.18. Again, taking Gwydir as an example, the *Water Management (Application of Act to Gwydir Unregulated and Alluvial Water Sources) Proclamation 2012*, made under s 55A, was published on the NSW Legislation website on 3 August 2012 and commenced on that date.

2.19. That proclamation declared that Part 2 of Chapter 3 of the WM Act applies to each water source to which the *Water Sharing Plan for the Gwydir Unregulated and Alluvial Water Sources 2012* (the **Gwydir Unreg Plan**) applies. Part 2 of Chapter 3 also applies to all categories and subcategories of access licence in those water sources other than floodplain harvesting access licences.

2.20. The Gwydir Unreg Plan does not specifically deal with the authorisation of floodplain harvesting.

2.21. The Gwydir Unreg plan is expressed to apply to a number of water sources, which are listed in clause 4 and also shown on the Plan Map (link here). The Plan Map shows those water sources as areas of land, rather than watercourses.

2.22. Clause 4(3) of the Plan states that (emphasis added) –

> *the Gwydir Unregulated River Water Sources include all water—*
>
> *(a) occurring naturally on the surface of the ground within the boundaries of the Gwydir Unregulated River Water Sources shown on the Plan Map, and*
>
> *(b) in rivers, lakes and wetlands within the boundaries of the Gwydir Unregulated River Water Sources shown on the Plan Map.*

2.23. In our view clause 4(3)(a) includes water flowing across a floodplain. Such water would be water "occurring naturally on the surface of the ground". Arguably, the water referred to in (a) could also constitute a lake, but since "lakes" are listed separately, in our view, (a) is meant to capture a broader category of water than the water in lake.

2.24. Having said that:

(a) the 2012 proclamation excludes floodplain harvesting access licences, which seems to indicate that there is an intention that floodplain harvesting will not fall within the scope of the Gwydir Unreg Plan, and

(b) the text in Appendix 3 of the Gwydir Reg Plan, states that "Floodplain harvesting will not be a component of individual water sharing plans being produced for the regulated and unregulated rivers."

2.25. These matters could be relied upon to argue that floodplain harvesting is not an activity regulated by the plan, and by association, is not regulated by the WM Act (noting that however, Appendix 3 does not legally form part of the Plan).

2.26. However, based on the ordinary meaning of the words in clause 4(3)(a), water taken in the course of floodplain harvesting would constitute taking water from the Gwydir Unregulated River water source. There is no defence to the offence in s 60A of the WM Act on the basis that it is not possible to obtain a floodplain harvesting access licence.

2.27. Therefore, in the case of the Gwydir Unregulated River water source, subject to the issue of 'passive take' (see below), we think that the take of water in the form of floodplain harvesting would be take from a water source to which Part 2 of Chapter 3 applies and, therefore, s 60A applies.

2.28. Given the terms of the 2012 proclamation, a floodplain harvesting access licence could not be issued to authorise such take. However, it appears from the Floodplain Harvesting Policy that at least some unregulated river access licences authorise the take of water in the form of floodplain harvesting.

2.29. The Policy states (p 10) –

> *In unregulated river water sources (excluding the Barwon-Darling), the total volume of water available for floodplain harvesting is in most cases already accounted for within the existing access licence share components and the LTAAELs. The reason for this is that when the* Water Act 1912 *licences were volumetrically converted, the process was based on area planted and water needed to meet associated crop water requirements to work out a water demand. In order to validate associated crop water requirements, water users were also requested to provide information, if available, on how much water was extracted. This means that in most cases the issued access licence share components and unregulated river LTAAELs effectively include floodplain harvesting extractions.*
>
> *However, there may be instances in unregulated river water sources where existing floodplain harvesting works meet the eligibility criteria for assessment under this policy, but the floodplain harvesting extractions associated with the works are not included within issued share components and unregulated river LTAAELs.*

2.30. Based on that text, it appears that some holders of unregulated river access licences are taking water in the form of floodplain harvesting, but the licence doesn't have a share component that reflects that. It's not clear whether in those cases the licence authorises take in the form of floodplain harvesting. If the licence simply authorises take from a particular water source and is otherwise silent on the form of that take, then it may authorise floodplain harvesting but this is something that would have to be assessed on a case by case basis.

2.31. If a landholder is taking water in the form of floodplain harvesting from an unregulated river water source (assuming the water source is defined similarly to the Gwydir Unregulated River water source) and doesn't hold an access licence that permits that take, then we think the better view is that the landholder is committing an offence under s 60A (subject to the passive take issue set out below, and any of the defences that may be available).

2.26. However, based on the ordinary meaning of the words in clause 4(3)(a), water taken in the course of floodplain harvesting would constitute taking water from the Gwydir Unregulated River water source. There is no defence to the offence in s 60A of the WM Act on the basis that it is not possible to obtain a floodplain harvesting access licence.

2.27. Therefore, in the case of the Gwydir Unregulated River water source, subject to the issue of 'passive take' (see below), we think that the take of water in the form of floodplain harvesting would be take from a water source to which Part 2 of Chapter 3 applies and, therefore, s 60A applies.

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> *However, there may be instances in unregulated river water sources where existing floodplain harvesting works meet the eligibility criteria for assessment under this policy, but the floodplain harvesting extractions associated with the works are not included within issued share components and unregulated river LTAAELs.*

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2.31. If a landholder is taking water in the form of floodplain harvesting from an unregulated river water source (assuming the water source is defined similarly to the Gwydir Unregulated River water source) and doesn't hold an access licence that permits that take, then we think the better view is that the landholder is committing an offence under s 60A (subject to the passive take issue set out below, and any of the defences that may be available).

Legal advice

Prepared for Department of Planning, Industry and Environment – Water

Planning, Industry & Environment

Is it arguable that 'passive take' in floodplain harvesting does not constitute a s 60A offence?

2.32. There is however some uncertainty about whether one type of floodplain harvesting, described as "passive take", could constitute an offence under s 60A.

2.33. The term "passive take" is not defined by the WM Act or in any other legislation. For the purpose of this advice, we will use the meaning set out in DPIE's document titled "Assessment of take and protection during first flush flows in the Northern Basin". In that document, "passive floodplain take" was defined as "water entering gravity fed storages that cannot be restricted by a pump, pipe or regulator and rainfall run-off collected in tailwater drains".

2.34. The issue that arises is whether the passive take of water constitutes an offence under the WM Act, given that the landholder is not taking any positive action, like switching on a pump, to transfer the water from the water source into the water storage and in fact may not even have the capability to stop the water entering the storage, without extensive modification of that storage.

2.35. The term "take" is not defined in the WM Act, except in the specific context of mining, which is not relevant in the context of floodplain harvesting.

2.36. The Crown Solicitor's Office (**CSO**) has considered the meaning of "take" in the WM Act (advice dated 24 August 2009).

2.37. In that advice, the CSO noted that as the term "take" was not defined in the WM Act, it has its ordinary meaning. The CSO also noted that the various definitions of "take" in the Macquarie Dictionary "mostly require some action on the part of the recipient" and that the most applicable definition is "to get into one's hold, possession, control etc., by one's own action" (para 4.8).

2.38. The CSO concluded that "[o]n balance, I consider the better view to be that "take" in the relevant provisions of the WM Act requires some action on the part of the recipient of the water which causes the water to move from the water source" (para 4.13). Having said that, the CSO did acknowledge that other interpretations were available (although they were less preferable in the CSO's view), including an interpretation that take occurs when a landholder deliberately captures water in a storage from water flowing onto the land as a result of a natural event (paragraph 4.9).

2.39. In a subsequent advice (advice dated 2 August 2011), the CSO specifically considered the issue of "take" in the context of floodplain harvesting, in particular, where "structures on a floodplain unintentionally capture or impound floodwaters which are then used by the owner of the structures" (para 3.2).

2.40. The CSO concluded that "there is a strong argument that a recipient does not "take" water in circumstances where the recipient has performed no act which has caused the water to move into his or her possession or control", although it acknowledged there were arguments to the contrary (para 4.91).

2.41. While we acknowledge the CSO's position and reasoning, in our view there is a strong argument that in those circumstances, a landholder is in fact taking water for the purposes of s 60A. In those circumstances, water has been removed from a water source and has been impounded in a storage under the control of the landholder. The water will not be returned to the water source, but rather, will be used by the landholder.

2.42. The works on the land have been constructed in such a way as to enable this to occur and the landholder would (presumably) have been aware that this would occur at the time the works were constructed (or when the landholder otherwise came into possession of the land). It would be open to a landholder to take steps to modify the works to prevent passive take occurring, although we acknowledge that in some cases this may not be practical due to the expense.

2.43. It would seem an inconsistent outcome if one landholder constructed a storage which was to be filled by pumping water from a river, while another landholder constructed a storage that was filled by gravity during flood events, in circumstances where, but for that structure, the water would have flowed into the same river. The first landholder requires an access licence, pays fees and charges in relation to that licence, and is liable to compliance action if the landholder pumps water without or otherwise in contravention with the conditions of a licence. The second landholder, on the other hand, may allow the storage to fill and then use that water without a licence, for any purpose, and without contravening the WM Act. In our view, an interpretation that supported this outcome would be contrary to the objects of the WM Act, including:

(a) to protect, enhance and restore water sources, their associated ecosystems, ecological processes and biological diversity and their water quality – s 3(b), and

(b) to provide for the orderly, efficient and equitable sharing of water from water sources – s 3(e)

2.44. Although we acknowledge the uncertainty, our position is therefore that the better view is that passive take constitutes "take" within the meaning of the WM Act.

2.45. As set out below, while not without doubt, in our view there is a strong argument that the use of a work for passive take without a water supply work approval may also constitute an offence.

Defences

2.46. The WM Act establishes four defences, in s 60F(2), as follows –

(a) the water was taken under a basic landholder right,

(b) the water was taken under a consent given under section 71V (interstate assignment of water allocations),

(c) the water was taken under an order under section 85A (authorisation to take water from uncontrolled flows), or

(d) the water was taken under an exemption from any requirement for an access licence in relation to the taking of water from that water source.

2.47. In some circumstances, the taking of water in the course of floodplain harvesting may be permitted as a harvestable right, which is a form of basic landholder right. However, that would only permit the take of a relatively small quantity of water and, as we understand, is unlikely to provide a defence in practice, given the substantial quantities of water taken by floodplain harvesting.

2.48. Exemptions from the requirement for an access licence are set out Part 1 of Schedule 4 of the *Water Management (General) Regulation 2018* (the **Regulation**) (cl 21 of the Regulation). Following the disallowance of the Exemptions Regulation, there is no exemption which specifically deals with floodplain harvesting. None of the remaining exemptions appear to authorise floodplain harvesting. It's not possible to state that none of those exemptions would ever apply to floodplain harvesting, however it does seem unlikely in practice.

2.49. Neither of the remaining defences are relevant to floodplain harvesting.

Construction or use of water supply work without approval

2.50. Part 3 of Chapter 3 of the WM Act applies to water management works, including water supply works.

2.51. Section 91B(1) creates the following offence –

A person—

(a) who constructs or uses a water supply work, and

(b) who does not hold a water supply work approval for that work,

is guilty of an offence.

2.52. The Dictionary defines "water supply work" as (as far as relevant) –

(a) without limiting paragraphs (b)–(g), a work (such as a water pump or water bore) for the purpose of taking water from a water source, or

(b) a work (such as a tank or dam) for the purpose of capturing or storing water, or

(c) a work (such as a water pipe or irrigation channel) for the purpose of conveying water to the point at which it is to be used, or

(d) any work (such as a bank or levee) that has, or could have, the effect of diverting water flowing to or from a water source, or

(e) any work (such as a weir) that has, or could have, the effect of impounding water in a water source,

including a reticulated system of such works, and includes all associated pipes, sluices, valves, metering equipment and other equipment, …

2.53. Such works could be used for the "collection, extraction or impoundment of water flowing across floodplains".

2.54. The Dictionary to the WM Act defines "use a water supply work" as –

(i) to operate the work for any purpose referred to in paragraph (a), (b) or (c) of the definition of water supply work, or

(ii) to allow the work to operate for that purpose.

2.55. If a dam or other storage on a property collected floodwaters, then the landholder would be "using" that dam or storage, within the meaning of s 91B (subject to the issue of passive take, discussed below).

2.56. Section 88A(1) provides that Part 3 of Chapter 3 applies to each water source that is declared by proclamation to be a water source to which that Part applies. Therefore, although it is not an element of the s 91B offence, it is necessary to determine whether Part 3 of Chapter 3 applies to the relevant water source.

Regulated river water sources

2.57. The 2004 proclamation referred to above also provided that Part 3 of Chapter 3 applied to each water source to which a water sharing plan in Schedule 1 to the proclamation applied, and also to "all water use approvals and water supply work approvals" in relation to any of those water sources.

2.58. For the reasons outlined above, water on land adjacent to the Gwydir Regulated River water source is not a water source to which Part 3 of Chapter 3 applies. Accordingly, no offence would be committed for constructing or using a water supply work in respect of that particular water or other regulated river water sources.

Unregulated river water sources

2.59. The 2012 proclamation declared that Part 3 of Chapter 3 applied to each water source to which the Gwydir Unreg Plan applies in relation to "all approvals for any such water source other than drainage work approvals, flood work approvals and aquifer interference approvals".

2.60. Any work which (among other things) captured any water "occurring naturally on the surface of the ground within the boundaries of the Gwydir Unregulated River Water Sources" or which diverted such water would fall within the definition of "water supply work". The use of such a work without a water supply work approval in that water source would therefore constitute an offence under s 91B.

2.61. Therefore, on the basis that other unregulated river water sources are defined similarly to the Gwydir Unregulated River Water Source, we think the better view is that the use of a water supply work for floodplain harvesting in such a water source would constitute an

offence under s 91B, subject to the passive take issue and any defence being made out (see below). However, we note that if the argument that floodwaters did not form part of the water source in unregulated plans (outlined at para 2.24 above) was successful, the offence under s 91B would similarly not apply.

Could 'passive take' in floodplain harvesting constitute as 91B offence?

2.62. In a situation where passive take occurs, we consider that, at least in some situations, a landholder may commit an offence under s 91B(1). That is, using a water supply work without a water supply work approval for that work.

2.63. As set out above, the Dictionary to the WM Act defines "use" a water supply work as (emphasis added) –

> *(i) to operate the work for any purpose referred to in paragraph (a), (b) or (c) of the definition of water supply work, or*
>
> *(ii) to allow the work to operate for that purpose.*

2.64. Paragraphs (a) to (c) of the definition of water supply work are –

> *(a) without limiting paragraphs (b)–(g), a work (such as a water pump or water bore) for the purpose of taking water from a water source, or*
>
> *(b) a work (such as a tank or dam) for the purpose of capturing or storing water, or*
>
> *(c) a work (such as a water pipe or irrigation channel) for the purpose of conveying water to the point at which it is to be used.*

2.65. If a landholder had a dam for the purpose of capturing water during flooding events and took no action to prevent that dam filling during that event, there is a strong argument that the landholder is "allowing" the work to operate for that purpose. Based on the case law on the meaning of the term "permits", a person permits something if the person knows it is likely that it will occur and takes no action to prevent it (see for example *Department of Environment and Climate Change v Olmwood Pty Limited* [2010] NSWLEC 15 para. 356 and following). Given that the Macquarie Dictionary definitions of "permit" and "allow" are very similar, in our view this case law could be relied in considering whether a landholder has "allowed" a work to operate for a certain purpose.

2.66. On that basis, if a landholder knows that there is a storage on their property that will fill during a flooding event and takes no action to prevent that storage being filled, the landholder will have "allowed" the storage to operate for the purpose of capturing water.

2.67. It is however possible that court would not agree and may take a narrower view of what "allowing" a work to operate means. In addition, it would of course depend on a number of factors in a particular case as to whether an offence could be proven, including questions of whether a landholder was capable of preventing the storage filling, but in our view, it is certainly possible that an act of passive take could constitute a s 91B offence.

Legal advice

Prepared for Department of Planning, Industry and Environment – Water

Planning, Industry & Environment

Defences

2.68. It is a defence to a s 91B offence if the person was exempt under the Act or regulations from the requirement for a water supply work approval (s 91M).

2.69. Exemptions relating to the construction or use of water supply works are set out in clauses 37 to 39 of the Regulation. Following the disallowance of the Exemptions Regulation, there is no exemption which specifically deals with floodplain harvesting and none of the other exemptions appear to authorise floodplain harvesting. As with access licences, it's not possible to state that none of those exemptions would ever apply but again, it does appear unlikely.

Proving that an act of floodplain harvesting is unlawful

2.70. Our consideration above about whether or not the act of floodplain harvesting could constitute an offence is of a general nature only. Establishing that a particular instance of floodplain harvesting, or proving it in court, will depend entirely on the facts of that instance.

2.71. This will be the case in a prosecution for an alleged offence, where it is necessary to prove each of the elements of the alleged offence, within the laws of evidence, beyond reasonable doubt. We also note the recent comments of Justice Pain in the case of *Natural Resources Access Regulator v Harris; Natural Resources Access Regulator v Timmins* [2020] NSWLEC 104 (at [99] – [102]):

> *Another important principle of interpretation, especially when considering a statute regarding a criminal offence, is the principle of legality. As such, it is assumed that, absent clear language, Parliament did not intend to abrogate or curtail citizens' rights, including by the imposition of criminal sanction and if so, only to the extent clearly delineated: Coco v The Queen (1994) 179 CLR 427; [1994] HCA 15 (Coco).*
>
> *In construing such provisions, the convenience in carrying out an object authorised by the legislation is not a ground for eroding fundamental common law rights: Coco at 436 (quoting with approval Plenty v Dillon (1991) 171 CLR 635; [1991] HCA 5 at 654).*
>
> *In the present case, where Parliament purports to prohibit certain conduct and to make it an offence (with a nearly unlimited maximum penalty, currently up to $5,005,000.00 and $264,000.00 per day thereafter), the onus is upon the State to clearly and unambiguously draft the terms upon which such punishment may be imposed.*
>
> *If, applying the principles of construction set out above, there is ambiguity in the section, that ambiguity is to be resolved in favour of the Defendants, or in other words, if there are at least two reasonably open meanings, the Court must give effect to the more lenient one: Beckwith v R (1976) 135 CLR 569; [1976] HCA 55 per Gibbs J at 576.*

2.72. As set out above, there is some ambiguity about whether waters on a floodplain are waters to which the WM Act applies. There are a number of different approaches to statutory interpretation but if a court were to resolve this issue using the approach described in the extract above, it may well construe the ambiguity in favour of the defendant. This adds another area of uncertainty for a prosecution.

2.73. Similarly, it will be necessary to consider the particular facts of each case in the context of other enforcement action, such as the issuing of directions in relation to the potentially unlawful use of water supply works.

3. Advice: application of the 1912 Act

3.1. Finally, the 1912 Act did not require authorisation for floodplain harvesting. Under Part 8 of that Act (now repealed), an approval was required for works situated on floodplains. Such approvals were converted to flood work approvals under the WM Act: Sch 10, cl 3. However, holding a flood work approval does not constitute a defence to either a s 60A or 91B offence.

3.2. Given that there was no authorisation required to take water in the course of floodplain harvesting under the 1912 Act, there was no conversion to an access licence under the WM Act.

3.3. There are no savings and transitional provisions in the WM Act which operate to authorise floodplain harvesting that was lawful under the 1912 Act.

3.4. Part 2 of the 1912 Act allows the issuing of licences to take water but only from rivers and lakes.

3.5. We cannot identify anything in the 1912 Act that would authorise the taking of water for floodplain harvesting or constitute a defence to the s 60A and 91B offences.

APPENDIX 3: The MDB Baseline Diversion Limit Estimates Published by the MDBA, 2012

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.