Submission No 50

INQUIRY INTO FLOODPLAIN HARVESTING

Organisation: NSW Irrigators' Council (NSWIC)

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SUBMISSION

Select Committee on Floodplain Harvesting

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NSW Irrigators' Council

The NSW Irrigators' Council (NSWIC) is the peak body representing irrigation farmers and the irrigation farming industry in NSW. NSWIC has member organisations in every inland valley of NSW, and several coastal valleys. Through our members, NSWIC represents over 12,000 water access licence holders in NSW who access regulated, unregulated and groundwater systems.

NSWIC members include valley water user associations, food and fibre groups, irrigation corporations and commodity groups from the rice, cotton and horticultural industries. NSWIC engages in advocacy and policy development on behalf of the irrigation farming sector. As an apolitical entity, the Council provides advice to all stakeholders and decision makers.

NSWIC welcomes this opportunity to provide a submission to the Select Committee on Floodplain Harvesting.

NSWIC sees this as a valuable opportunity to provide expertise from our membership to inform the response. Each member reserves the right to independent policy on issues that directly relate to their areas of operation, expertise or any other issues that they deem relevant.

Irrigation Farming

Irrigation provides more than 90% of Australia's fruit, nuts and grapes; more than 76% of vegetables; 100% of rice and more than 50% of dairy and sugar (2018-19).

Irrigation farmers in Australia are recognised as world leaders in water efficiency. For example, according to the Australian Government Department of Agriculture, Water and the Environment:

> "*Australian cotton growers are now recognised as the most water-use efficient in the world and three times more efficient than the global average*"[1]

> *"The Australian rice industry leads the world in water use efficiency. From paddock to plate, Australian grown rice uses 50% less water than the global average."*[2]

Our water management legislation prioritises all other users before agriculture (critical human needs, stock and domestic, and the environment with water to keep rivers flowing), meaning our industry only has water access when all other needs are satisfied. Our industry supports and respects this order of prioritisation. Many common crops we produce are annual/seasonal crops that can be grown in wet years, and not grown in dry periods, in tune with Australia's variable climate.

Irrigation farming in Australia is also subject to strict regulations to ensure sustainable and responsible water use. This includes all extractions being capped at a sustainable level, a hierarchy of water access priorities, and strict measurement requirements.

[1] https://www.agriculture.gov.au/ag-farm-food/crops/cotton
[2] https://www.agriculture.gov.au/ag-farm-food/crops/rice

NSW Irrigators' Council's Guiding Principles

Integrity	Leadership	Evidence	Collaboration
Environmental health and sustainable resource access is integral to a successful irrigation industry.	Irrigation farmers in NSW and Australia are world leaders in water-efficient production with high ethical and environmental standards.	Evidence-based policy is essential. Research must be on-going, and include review mechanisms, to ensure the best-available data can inform best-practice policy through adaptive processes.	Irrigation farmers are stewards of tremendous knowledge in water management, and extensive consultation is needed to utilise this knowledge.
Water property rights (including accessibility, reliability and their fundamental characteristics) must be protected regardless of ownership.	Developing leadership will strengthen the sector and ensure competitiveness globally.	Innovation is fostered through research and development.	Government and industry must work together to ensure communication is informative, timely, and accessible.
Certainty and stability is fundamental for all water users.	Industry has zero tolerance for water theft.	Decision-making must ensure no negative unmitigated third-party impacts, including understanding cumulative and socio-economic impacts.	Irrigation farmers respect the prioritisation of water in the allocation framework.
All water (agricultural, environmental, cultural and industrial) must be measured, and used efficiently and effectively.			Collaboration with indigenous nations improves water management.

Introduction

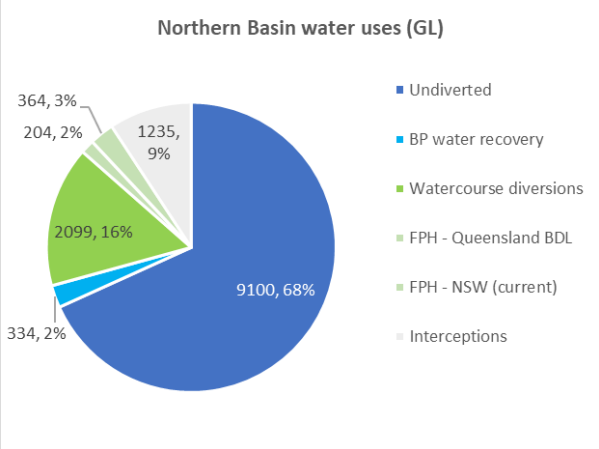
NSWIC welcomes this Select Committee Inquiry on Floodplain Harvesting (FPH) and hopes it can find a fair and reasonable way forward to finally regulate FPH.

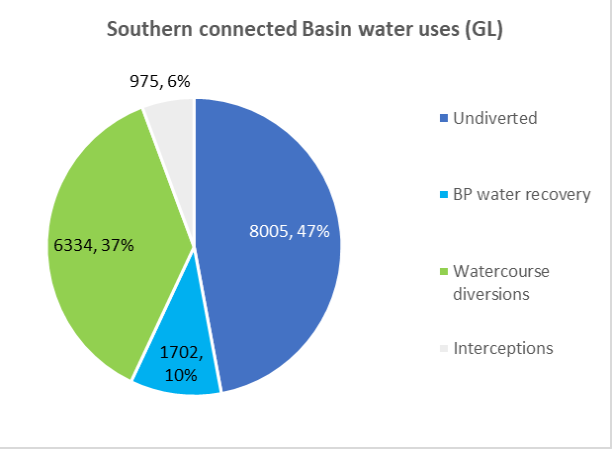
NSWIC supports the Healthy Floodplains Project, particularly the key element of the FPH compliance framework, involving the reduction of FPH to be compliant with the 1994 Cap on diversions, as well as metering and licensing requirements.

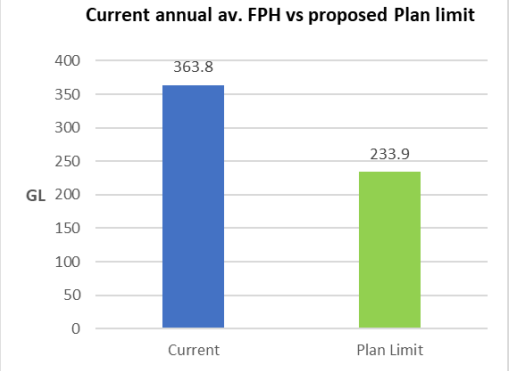
The irrigation industry as well as communities have waited long enough for a stronger regulatory and compliance framework for FPH. Even though this means farmers will access less water than historically, it will regulate the final major source of water available to the industry consistently in NSW.

Importantly, this process does not involve new or more water to irrigators; quite the opposite, it requires an historic form of water access to be reduced to fit within established limits on total water take. This reform will have significant social and economic implications in valleys facing cutbacks, and Government should facilitate a smooth transition to minimise impacts.

FPH is a small but important form of water for communities. Current annual average FPH take in northern NSW makes up just **3% of the MDBA modelled total water**[3] in the Northern Basin. For perspective, this entire reform is about reducing and regulating that 3%.







The intent is to reduce FPH take to what we understand will be a 234 GL Plan Limit; the reduction being added to undiverted water share[4].

This is a unique opportunity for NSW Parliament to introduce regulation with industry support. The industry has not always been accepting of this reform, and it has taken a combination of generational change and strong industry leadership to reach this point.

When this reform journey began (two decades ago), the dominant view was that regulating floodwater take was 'overkill' given water is abundant at those times and in often problematic

[3] *Data sources: Inflows: MDBA 2011 Water Resource Assessment, https://www.mdba.gov.au/sites/default/files/pubs/1111-BPKId-water-resource-assessments-development-baseline.pdf; Water recovery: DAWE recovery progress tables; FPH: MDBA 2019-20 BDL estimate table,* Sustainable Diversion Limit (SDL)s as at 30 June 2019 - surface water.XLSX (mdba.gov.au); *DPIE WSP models for Gwydir, Border Rivers and Macquarie; best estimate for Namoi and Barwon Darling.*

[4] Data sources: DPIE technical reports Gwydir, Border Rivers and Macquarie; best estimate for Namoi and Border Rivers. Volume ex. exempt rainfall runoff.

proportions; the regulatory and administrative burden; costs of installing and maintaining the proposed metering equipment; and, most significantly, the cutbacks in water access.

However, since then, industry leaders have pushed the importance of sustainability, accountability and transparency of water use, and built-up industry acceptance. It is for these reasons that the industry has felt let down by:

- the politicisation and polarisation around FPH regulation;
- misinformation about the nature, extent and history of FPH;
- opportunistic attempts to go beyond what is already a major adjustment for the industry, consistent with limits agreed under the Murray-Darling Basin Plan and the 1994 Cap on diversions;
- misinformation and lack of understanding of the reform objectives and functions; and,
- assumptions that industry acceptance of this reform makes it somehow suspect.

More broadly, it has also been disappointing to see many individuals/organisations stuck in the past, choosing to ignore the comprehensive overhaul of water management in recent times (i.e, post-2017), including:

- the establishment of the independent Natural Resources Access Regulator (NRAR);
- new rules to prioritise river connectivity in northern NSW Basin valleys when droughts break and keep rivers running when conditions are dry; and,
- additional Government investment in data to improve integrity of evidence for the Healthy Floodplains Project.

FPH regulation is a public interest reform. There's no argument that this form of water take should comply with Cap limits, and be licensed and metered, like all other forms of water take.

If the industry actually impacted by this public interest regulation has the goodwill to accept it, others should too. The disallowance of the regulations to provide these public interest outcomes is highly concerning – and it must be on the record that it was not the irrigation industry that advocated for the poor outcome from disallowance, that is, a continuation of unlimited and unmetered FPH.

The recent reform journey has been characteristic of the 'post-truth' era, with misinformation based on selective use of data (or sometimes no data) overriding technical expertise, 'alternative facts' circulating through social media, and rampant suspicion. This ultimately led to what should have been straight-forward machinery regulations being disallowed, contrary to the public interest, and contrary to the advice of agency and independent technical experts published in reports by official agencies. This 'post-truthism' has been evident in many other fields, and it should be most distressing to all to see it play out in the context of water management. If we have learnt anything as a society from the Covid-19 pandemic, it must be – **listen to experts, and act on their advice**.

If our elected representatives don't want to be seen working constructively with an industry on a sustainability and compliance reform – whilst disappointing - they at the very least must listen to technical experts and act upon their advice, not social media celebrities or populist opinions. Numerous reviews and inquiries have made recommendations, based on expert advice, consistent with progressing the regulations to requiring metering and licensing of FPH at Cap diversion levels (see **Appendix 6**). For example, the Independent Panel Assessment of the Northern Basin First Flush Event stated:

"It is vital that reforms continue, not only for reasons of achieving better water management generally, but also because they will help improve management of future first flush events."

In fact, many of these expert reviews have recommended "*timely implementation of the… floodplain harvesting licensing, measurement and reporting policy*", with some even recommending "*governments do all that is possible to accelerate*"[5] the reform.

Disappointingly, contrary to expert recommendations to progress and even accelerate the reform, certain political interests have stalled and even sought to block the reform.

Terms of Reference

1. That a select committee be established to inquire into and report on the Government's management of floodplain harvesting, including:

(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.

2. That the committee report by 30 November 2021.

Overview

There are several key principles that all stakeholders agree on:

a) Floodplain harvesting must be reduced to within the 1993/94 Cap on diversions through licensing requirements (like all other forms of water take)[6];
b) Floodplain harvesting must be metered and measured (like all other forms of water take)[7];
c) Downstream connectivity is important when critical human, environmental and cultural needs are at risk (e.g. in drought and first flush scenarios).

There is a high prevalence of misinformation and 'alternative facts' characteristic of post-truthism regarding FPH and this reform, which ultimately led to the disallowance of a public interest reform, contrary to expert advice and official technical information.

There is a lack of understanding of the hydrology and regulation of the northern NSW Basin, including connectivity measures already in place. There is also little communication of work programs already underway by DPIE-Water to improve connectivity.

Recommendations

1) Implement the Healthy Floodplains Project as a matter of urgency, to limit FPH to the Cap through licensing and metering regulations.

2) Improve communication and water literacy regarding connectivity measures already in place in the northern Basin, including (but not limited to) downstream flow targets.

3) Communicate the work program already underway by DPIE-Water regarding connectivity.

[5] https://www.mdba.gov.au/sites/default/files/pubs/Final-Report-Independent-Panel-fish-deaths-lower%20Darling_4.pdf
[6] See Appendix 1
[7] See Appendix 1

Background

Floodplain harvesting and the Basin water balance

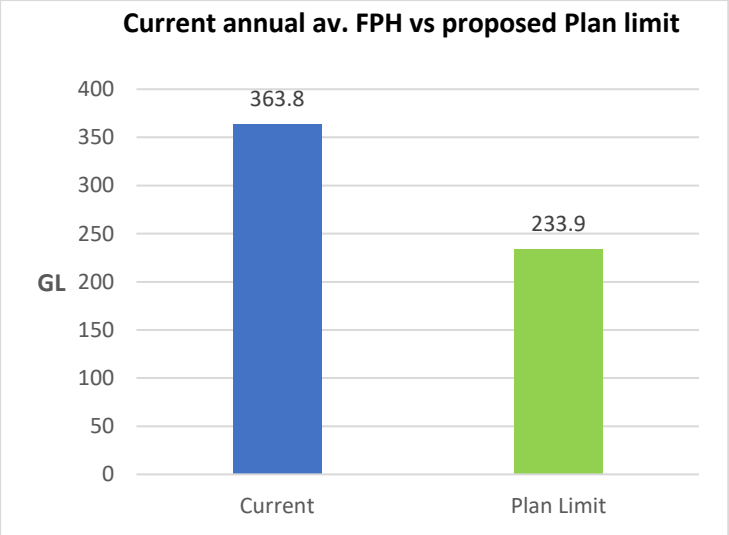
Floodplain harvesting

Multipurpose on-farm storages in the northern NSW Basin are used to store general security and supplementary licence allocations, and groundwater. Many are also used to capture floods when rivers break their banks, in a long-standing practice known as Floodplain Harvesting (FPH).

FPH is the last water take to be brought under the NSW *Water Management Act 2000* for licensing and metering under the 1994 Cap on diversions and Sustainable Diversion Limits in the Basin Plan. Most FPH is in northern valleys, but also occurs on a smaller scale in southern valleys.

Proposed floodplain harvesting reduction[8]

FPH regulations will reduce current annual average floodplain harvesting in northern NSW Basin valleys by about a third to comply with the 1994 Cap, and license and meter FPH so it stays within sustainable limits. While these are annual averages, FPH occurs infrequently about one in five-seven years. Licences will be issued in order to achieve Plan Limit on an annual average basis.

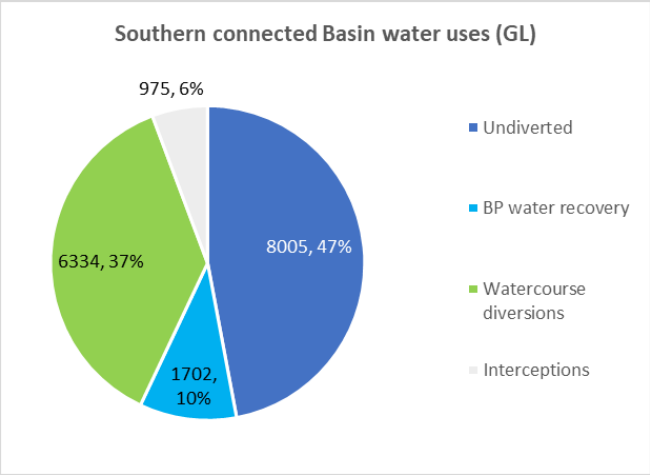


The Basin Plan Baseline Diversion Levels[9]

The Basin Plan's Baseline Diversion Levels (BDLs) represent water use before the Plan. These have been adjusted in most valleys since 2012, as improved information comes to hand. FPH estimates in northern NSW valleys will also change now that NSW has undertaken the required modelling. The 1995 Cap figures were similarly adjusted over time to reflect more accurate knowledge of diversions in 1993/94.

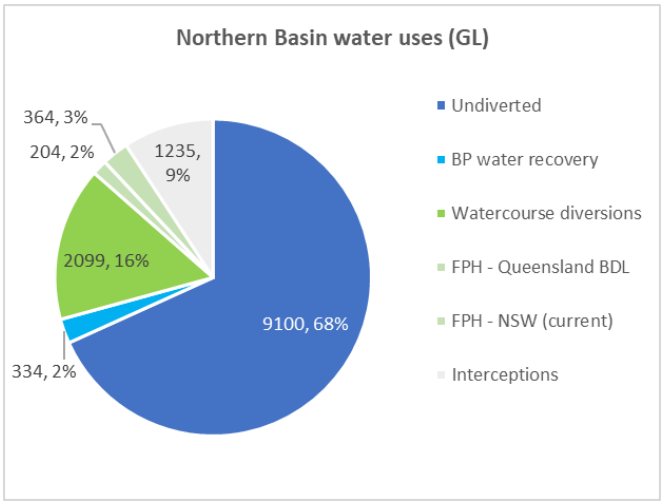
Changes to the BDLs do not mean more water is available for use, they just more accurately recognise and account for existing uses and put them into the right BDL bucket. The volumes to be recovered to achieve the Basin Plan's Sustainable Diversion Limits (SDLs) do not change.

[8] Data sources: DPIE technical reports Gwydir, Border Rivers and Macquarie; best estimate for Namoi and Border Rivers. Volume ex. exempt rainfall runoff.
[9] MDBA Current diversion limits for the Basin | Murray-Darling Basin Authority (mdba.gov.au)



Current water uses under the Basin Plan[10]

In the southern Basin, 37% of inflows are diverted for irrigation, stock and domestic for farms, towns and industry. Another 6% is intercepted for human use, for example by small farm dams and plantations. The rest (57%) is used by the environment, including 1702 GL recovered from irrigators under the Basin Plan for rivers and wetlands.

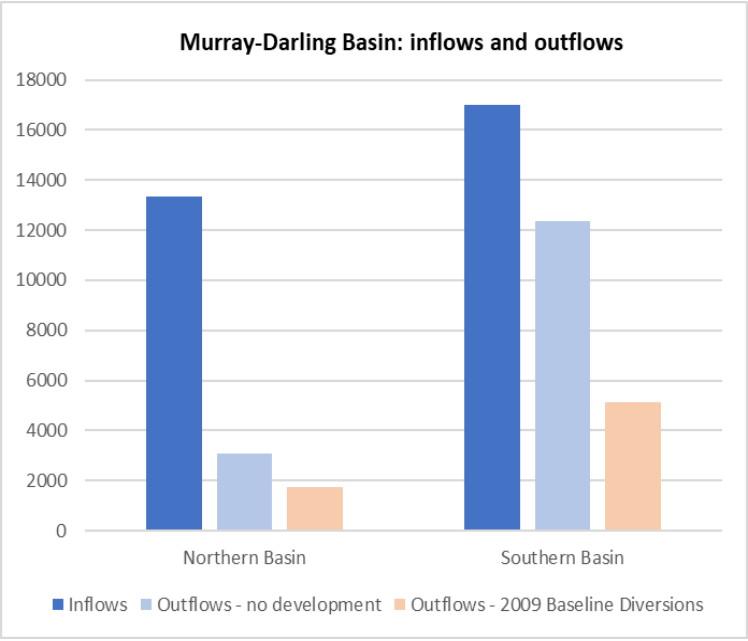


In the northern Basin, 21% of inflows are diverted for irrigation, stock and domestic for farms, towns and industry. This includes 204 GL annual average floodplain harvesting in Queensland, and an estimated 364 GL current annual average take, or BDL, in northern NSW. Another 9% is intercepted, for example by small farm dams and basic landholder rights. Licensing and metering will reduce NSW FPH current take to an estimated 234 GL, with the difference added to undiverted flows.

Basin inflows and outflows[11]

The northern Basin (Qld and NSW) is hotter, drier, windier, flatter and has more variable rainfall than the southern Basin. That's why under a no development scenario, about an annual average 23% of its inflows flow out into the Murray system. The rest is used by the environment or lost to evaporation and seepage. With 2009 BDL development as well as water used by the environment, outflows are about 13% of inflows.

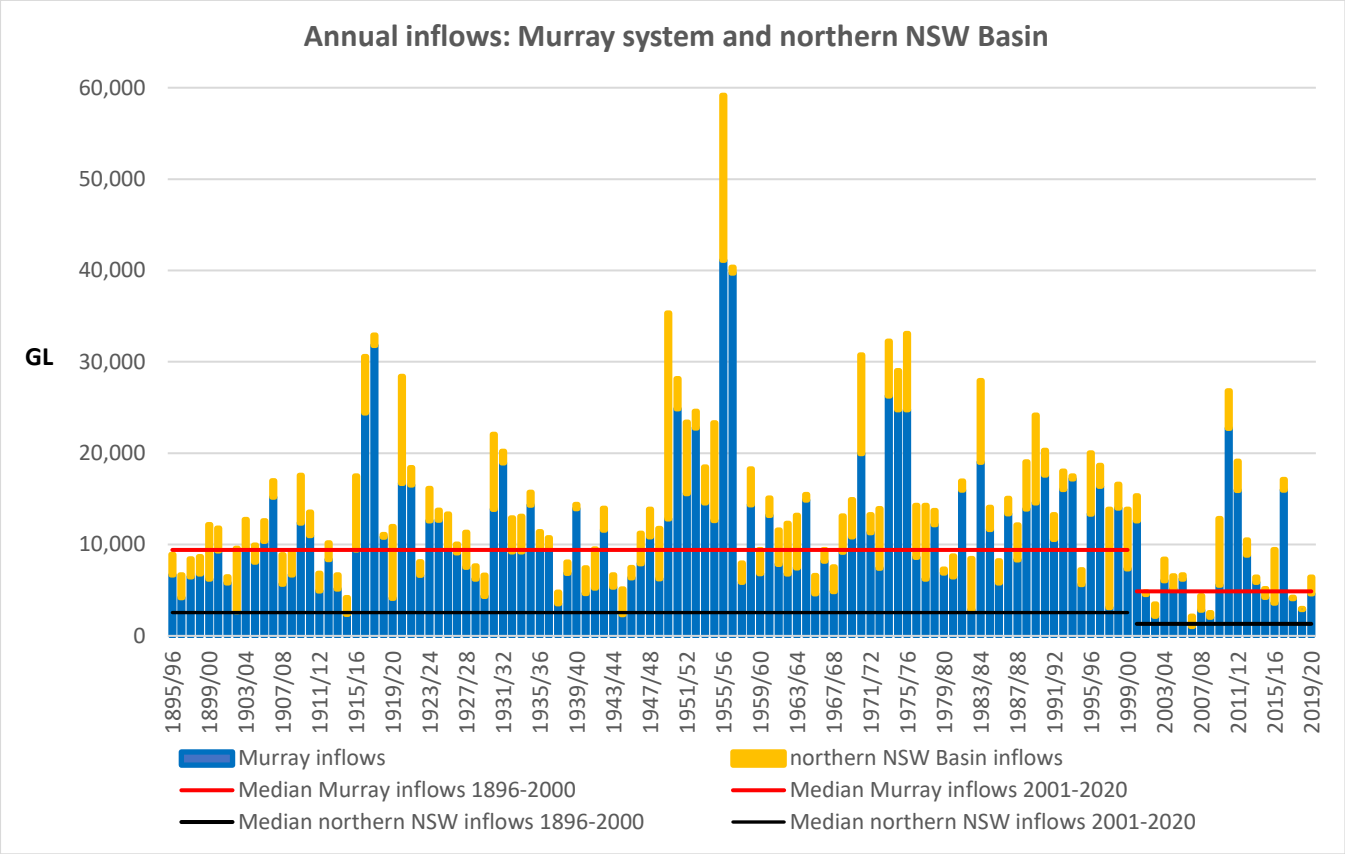
The southern Basin is cooler, wetter, has more reliable rainfall and a snowpack. Under a no development scenario, about 73% of its inflows would flow out to sea. With 2009 BDL development as well as water used by the environment, outflows are reduced to about 30% of southern Basin inflows.



[10] *Data sources: Inflows: MDBA 2011 Water Resource Assessment, https://www.mdba.gov.au/sites/default/files/pubs/1111-BPKId-water-resource-assessments-development-baseline.pdf; Water recovery: DAWE recovery progress tables; FPH: MDBA 2019-20 BDL estimate table,* Sustainable Diversion Limit (SDL)s as at 30 June 2019 - surface water.XLSX (mdba.gov.au); *DPIE WSP models for Gwydir, Border Rivers and Macquarie, Namoi and BD best estimate.*

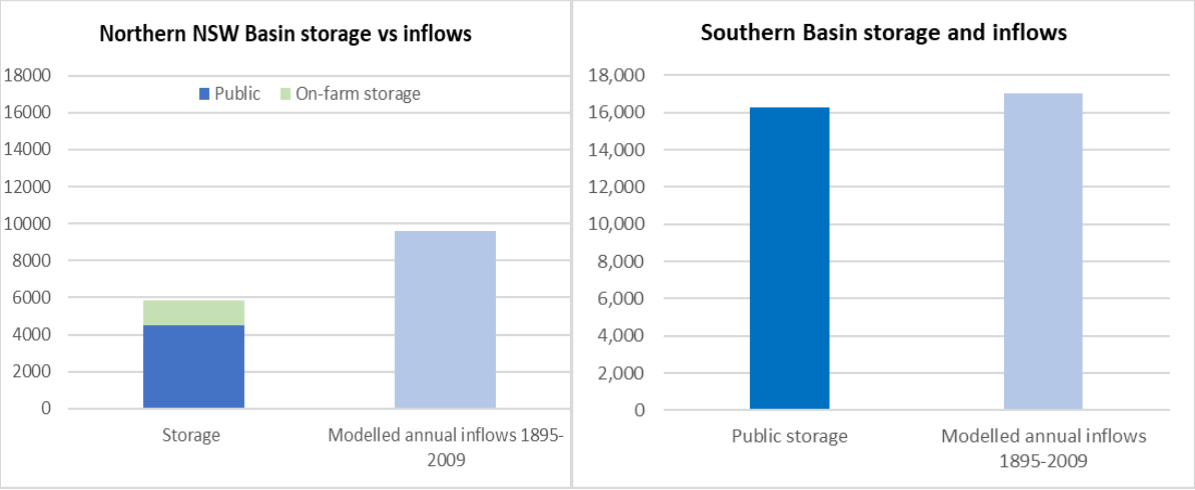
[11] *Data source: MDBA 2011 Water Resource Assessment, https://www.mdba.gov.au/sites/default/files/pubs/1111-BPKId-water-resource-assessments-development-baseline.pdf.*

Floods and droughts[12]



Murray-Darling Basin inflows are highly variable, particularly in the northern Basin where it is hotter, drier, windier and rainfall is less reliable. Inflows are more reliable in the cooler, wetter, southern Basin, but still subject to large variation. A step-change is evident in the last 20 years, with fewer flood years and inflows overall almost halving.

Storage capacity[13]



[12] Data sources: MDBA and WaterNSW. Murray inflow data does not include inflows into tributaries. For example, it includes inflows to River Murray at Balranald, not total inflows to the Murrumbidgee River. Water trade deliveries and environmental deliveries were also excluded from the Murray system inflows. In the northern valleys, the data includes inflows into the Barwon-Darling tributaries, and those tributaries collective outflow into the Barwon-Darling.

[13] Data sources: Inflows: *MDBA 2011 Water Resource Assessment, https://www.mdba.gov.au/sites/default/files/pubs/1111-BPKId-water-resource-assessments-development-baseline.pdf;* Storage capacity: MDBA and DPIE-Water

Public storage capacity across the Basin is designed to capture floods and high flows, to provide greater water security in dry seasons and droughts. In the northern NSW Basin, public storages are not large enough to keep rivers running to supply towns and irrigators on demand, as is the practice in the southern Basin. That's why on-farm storages have been built, so farmers can store what could be several months' general security allocation released in mass 'blocks' to minimise losses enroute. Farm storages also store supplementary licence allocations and groundwater pumped ready for use.

Many on-farm storages are also used to capture floodwater when rivers break their banks, and store it for future use. This helps even out the peaks and troughs of water availability in a river system with highly variable rainfall.

Connectivity rules and protocols

FPH only occurs when it floods. River connectivity is not an issue at these times (except for first flush events, that is, drought-breaking rains). This is evident in the continuing strong flows out of tributaries into the Barwon-Darling and Menindee Lakes since the drought began to break with storms over Christmas 2020 and then major floods in the Border Rivers and Gwydir valleys in February-March 2021.

DPIE-Water has compiled a stocktake[14] of the extensive connectivity rules already in the Northern Basin (which includes but goes beyond downstream flow targets), and has already organised a diverse stakeholder reference group focused on further ways to improve connectivity.

The management of first flush events is currently being redeveloped, following recommendations from the Independent Assessment of the Management of the Northern Basin First Flush Event[15]. Standard practice to manage first flush events involves a total embargo (S 324) placed on all water take, to ensure this water can get to critical needs (as occurred in March 2020). The Independent Assessment recommended clear rules be written into the regulatory framework to provide predictability, certainty and transparency for how these events will be managed. This work program is underway, and has a broader scope to FPH reform.

[14] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0019/356032/stocktake-of-northern-Basin-connectivity-water-management-rules.pdf

[15] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0007/321649/final-report.pdf

Submission

This submission will address each of the points identified in the terms of reference.

Water Regulations published on 30 April 2021

The below three regulations were gazetted following public consultation in December 2020[16] and publication of significant communication material by DPIE-Water (including video tutorials), as the necessary regulations to implement the Healthy Floodplains Project.

Below is a brief summary of the separate regulations, their purposes and effect.

Water Management (General) Amendment (Floodplain Harvesting Access Licences) Regulation 2021

Purpose:

- To reduce FPH so that total take from all water sources is within the 1994 Cap, or Long-Term Average Annual Extraction Limit (LTAAEL), whichever is the lower for each valley.

Mechanism:

- Where the volume of FPH has grown, irrigators would have faced a proportionate percentage cutback so that the total take in the valley is reduced to Cap or the LTAAEL.
- Licences are to be issued consistent with the reduced volume to ensure FPH remains within limits into the future.
- The regulation also defines 'eligible works' for storing flood water. Only works built before 3 July 2008 are eligible, so that no new FPH structures can be created.

Effect:

- The regulation would have meant less flood water could have been harvested by farmers, and more water must stay on the floodplain or in streams and creeks.
- This would have benefited native birds, fish, reptiles and other wildlife, as well as native vegetation.
- It would have reduced the amount of water farmers in the five northern valleys can access to grow food and fibre but these farmers embraced the reforms in the public interest.

Water Management (General) Amendment (Floodplain Harvesting Measurement) Regulation 2021

Purpose:

- Imposes mandatory requirements for floodplain harvesting to be metered.

Mechanism:

- Floodplain harvesting would have required telemetry-enabled metering equipment (with tamper-evident seals), which must be installed by a duly qualified person. This is outlined in the Floodplain Harvesting Measurement Policy[17].

Effect:

- Provides accurate and reliable data on the volume of water take.
- Ensures strong compliance and enforcement with water laws.

[16] https://www.industry.nsw.gov.au/water/news/floodplain-harvesting-regulations-what-we-heard-reports-released
[17] Floodplain Harvesting Measurement Policy: https://www.industry.nsw.gov.au/__data/assets/pdf_file/0005/317093/floodplain-harvesting-measurement-policy.pdf

Water Management (General) Amendment (Exemption for Rainfall Run-off Collection) Regulation 2021

Purpose:

- This regulation was to cover circumstances where farmers do not FPH but catch rainfall runoff. It applies across NSW.
- This regulation is required because the definition of overland flow in the *Water Management Act* includes other sources of take such as rainfall runoff as well as floodplain harvesting.
- All landholders must capture rainfall runoff and tailwater (used irrigation water) from farmland to minimise the risk of contaminants such as fertilisers entering waterways. It is a condition of their works approvals under the *Protection of the Environment Operations (POEO) Act 1997*.
- This regulation clarifies that capturing rainfall runoff/tailwater across NSW is exempt from requiring a licence.

Mechanism:

- The regulation says a licence is not required when irrigators are capturing rainfall runoff/tailwater.

Effect:

- This regulation is important for water users outside the five northern valleys who are not yet on a transition pathway to licensing take from overland flows.
- This regulation allows water users to continue managing water on-farm consistent with their works approval conditions.
- Without this regulation, irrigators are stuck between inconsistent laws that both require them to capture water, and simultaneously to not capture, that same water.

Disallowance of the regulations

The disallowance has been a distressing product of the 'post-truth' era, characterised by widespread misinformation and the spread of 'alternative facts' through social media, feeding distrust towards official information. Unfortunately, this resulted in what should have been a straightforward process to introduce machinery regulations indisputably in the public interest, being disallowed. Table 1 unpacks these 'alternative facts' and directs the Committee to the official information developed by technical experts inside and outside the Government.

Table 1: Reasons for disallowance of the FPH Regulations

Reason	Detail
Environ-mental Harm	Some claimed regulating FPH would be a "death sentence for our rivers and wetlands"[18] causing significant environmental harm. However, environmental outcomes technical reports published by DPIE-Water[19], showed the policy would, for example, provide a mean annual additional volume back to the environment of 58.5GL (13%) in the Gwydir, 15.5GL (18%) in the Border Rivers, and 4GL (0.2%) in the Macquarie[20]. Without the regulations, this water remains available for FPH, rather than remaining on the floodplains or potentially returning to rivers to flow downstream.

[18] https://twitter.com/naturensw/status/1388027170258243588

[19] *'Environmental Outcomes of Implementing the Floodplain Harvesting Policy' reports, for each valley – for example: https://www.industry.nsw.gov.au/__data/assets/pdf_file/0012/350202/environmental-outcomes.pdf* .

[20] The Macquarie is smaller owing to the valley already being significantly below the Cap, and thus no reduction to FPH is required to achieve Cap Compliance with the inclusion of FPH.

	The technical reports used best-practice methodology to look at a range of hydrological metrics, such as flood magnitude (volume and flow rate), frequency of events, timing and duration. The environmental outcomes technical report for the Gwydir valley[21] finds: *"The majority of these metrics are predicted to improve once the policy is implemented. Outcomes vary with location on the floodplain; however, in general, mean annual volume, seasonal volumes, duration of days with flow, and frequency of events are predicted to increase, and inter-event periods are predicted to reduce.* *Mean annual volumes are predicted to increase by at least 11% in most breakout zones with the largest percentage change, a 22% improvement (2.2 GL) at Deadman/Biniguy and 19% improvement (16.5GL) in Mehi breakout zone.* *In consideration of all hydrological metrics, Gwydir/Gingham breakout zone is expected to have the greatest improvement with: an increase in mean annual volume of 13% (13 GL), an increase in number of events (109%), an increase in flood duration (51%) and reduced periods between floods (reduction in inter-event period) (-54%)."* The results also showed significant positive benefits to waterbirds, native vegetation and native fish species. In the NSW Border Rivers, the results were a 24% improvement in metrics for waterbirds, 46% improvement for native vegetation and 16% improvement for native fish. In the Gwydir, metrics improved for waterbirds by 56%, for native vegetation by 32% and for native fish by 19%.[22] A mapped summary of predicted outcomes for water birds, native vegetation, native fish and water volumes is provided in the environmental outcomes technical reports[23], to demonstrate the breadth of positive environmental outcomes. The environmental benefits clearly demonstrated in these technical reports is at odds with the dominate public discourse that portray these reforms as being somehow to the detriment of the environment. The 'alternative fact' that the reform would lead to environmental harm, was even a reason stated by the mover of the disallowance motion: *"We cannot allow one group of people – literally fewer than 1000 potential licence holders – to hold our rivers, wetlands and downstream river communities hostage."* Unfortunately, where the regulations would have provided these environmental benefits, the disallowance of the regulations on the premise of the 'alternative facts' led to a missed opportunity to increase environmental flows and boost environmental outcomes across floodplains and in rivers. Because now, this form of take continues to occur unmetered and unmanaged.
Downstream Impacts	Some hold the view FPH is the reason why the Darling-Baaka River runs dry during droughts, such as the recent three-year extreme drought of 2018-2020[24]. This view simplistically correlates growth in on-farm storage capacity with system inflow analysis that shows an almost

[21] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0012/350202/environmental-outcomes.pdf
[22] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0004/368140/summary-of-predicted-environmental-outcomes.pdf
[23] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0012/350202/environmental-outcomes.pdf
[24] https://twitter.com/naturensw/status/1389097891977998337

halving of system inflows over the last 20 years across the Murray-Darling Basin. This flawed analysis correlating storage capacity with rivers flows has fuelled concerns about the impacts on downstream users if FPH is regulated. This is incorrect.

Changes in inflows are driven by a range of factors and have reduced Basin-wide due to recurrent severe droughts and the general warming, drying trend of the past 20 years. As the Inspector-General for the Murray-Darling Basin identified:

"Median inflows into the Menindee Lakes have reduced by about 80% in the last 20 years relative to the recorded period prior. Eight of the 13 driest years on record occurred in this period, most yielding zero or close to zero inflows. Although years of low inflows to the Menindee Lakes are common in the historical record, the dry years in the past two decades have been much more severe."[25]

This is consistent with the Regional Water Strategies, which are being developed for each valley. The draft Gwydir Regional Water Strategy says:

"The region has just experienced its driest 36-month period on record (March 2017 to February 2020) according to the Bureau of Meteorology. Over the same period, potential evapotranspiration was either the highest on record, or significantly above average across the entire region."[26]

This is similar in the draft Lachlan Regional Water Strategy (note: the Lachlan Valley is not one of the valleys part of the current FPH licensing process):

"*The Millennium Drought was the worst drought on record for the region—a period of almost 10 years without significant rainfall or inflows into the region's main storages*."[27]

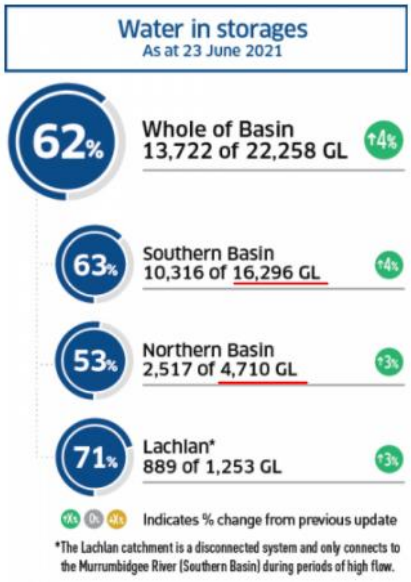
"In the 40 months to April 2020, there has only been 380 GL of inflows to Wyangala Dam. These flows are only marginally higher than the lowest historic 40-month inflow sequence (318 GL for the 40 months up to July 2005)."[28]

To be clear, FPH access does not create droughts. FPH only occurs when there is a flood event – that is, when there is an abundance of water. This helps farmers to continue growing crops, employing workers and supporting local service industries when dry conditions and drought inevitably return. The difference between northern floodplain systems, is that this boom-and-bust cycle, is more prominent with summer-dominant, cyclone-influenced rainfall.

WaterNSW as part of drought updates confirmed the severity of the drought and limited natural inflows.[29] It highlighted that with negligible rainfall and no natural flows coming in below the public dams, the northern rivers would have stopped flowing in 2017 if not for water being released from the public dams.

[25] https://www.igwc.gov.au/sites/default/files/2020-09/iig_final_report.pdf [P 12].
[26] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0016/324511/draft-rws-gwydir.pdf [P 40].
[27] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0019/324514/lachlan-strategy.pdf
[28] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0019/324514/lachlan-strategy.pdf
[29] https://www.waternsw.com.au/__data/assets/pdf_file/0003/152535/Regional-Drought-Monthly-Report-140120.pdf

Northern NSW Basin valleys do not have the very large public storages in their headwaters like those in southern valleys, where water is captured and delivered to irrigators on demand. The below figure from the MDBA shows the northern Basin has 4,710GL of public storages, whilst the Southern Basin has 16,292GL.



[30]

The on-farm storages are also multi-purpose. Northern irrigators need on-farm storages to hold water allocated under their licences (i.e general, supplementary and groundwater licences) which is often delivered in bulk given the nature of the river systems – and, when it floods, to hold some of that water, too.

Modelling reviewed and approved by independent experts[31] shows the FPH volumes taken are also a relatively small proportion of the large volumes of water flooding across the landscape; regulating FPH will reduce the take but also enable more accurate measurement of the take in each event using modern telemetry devices in storages. This will ensure take remains within the licensed limits.

So, while it may be easier, simpler and convenient to point fingers at irrigators, there are other factors driving reduced flows throughout the system. Climate change is evidently a problem that needs to be confronted.

In regards to the impact of FPH on water users in the Murray system, the Inspector-General also highlighted that:

"The most telling finding is the dramatic reduction in inflows that has been experienced in the River Murray system over the last two decades or so. This remains the primary driver of reduced water availability, and there is little anyone can do to influence when and how much it rains."

"More than two-thirds of the decline in median total system inflow volumes is attributable to changes in flows from the Murray upstream of Albury and the Victorian tributaries."

[30] https://www.mdba.gov.au/basin-brief
[31] https://www.industry.nsw.gov.au/water/plans-programs/healthy-floodplains-project/harvesting

There are of course very legitimate concerns about declining water entitlement reliability in the southern Basin (and across the state), however, it is important that the drivers are properly understood so that meaningful and effective ways forward can be developed. The drivers needs unpacking, but this is a separate (albeit important) conversation to one on FPH.

NSW DPIE-Water's technical reports provide factual information about these downstream impact concerns, known as the "*Modelled downstream effects of licensing floodplain harvesting in the Gwydir valley Report*" (and in each respective valley). These reports assumed 100% of foregone diversions return to the river, and that 100% of that returning water contributes to end-of-system flows.

These assumptions (like any assumptions) are not the reality in practice (as the reports indicate), as a significant volume of floodwater naturally does not return to the river (owing to the hydrogeomorphology of the landscape, and the losses as the water moves across the landscape).

However, these reports provide a best-case scenario, that:

"*By the time these foregone diversions reach the end of the Barwon-Darling the model indicates that implementation of the Policy in the upstream Border-River and Gwydir will provide an annual average* ***increase*** *of up to 26.2 GL (1.9%) at Wilcannia".*

"Policy implementation [in the Border Rivers and Gwydir valleys] *is simulated to provide an annual average* ***increase*** *of 28.3 GL to Menindee inflows or 1.8% of the total. This additional volume has a negligible impact on diversion and/or allocations in the Lower Darling and Murray systems.*

To be clear, these reports are highlighting that because the regulations will reduce the amount of FPH, downstream flows will increase as a result, albeit a very small and often immaterial increase owing to the hydrogeomorphology of the landscape in upstream valleys.

DPIE-Water also published a webpage with the headline 'Common Misconceptions" about the impacts of FPH growth[32] to directly address whether "*growth in floodplain harvesting is having a significant impact on Murray River allocations*". The website says:

"This is false. Inflows from the Lower Darling River represent, on average, 14% of the total inflows into the River Murray. This means that major changes to inflows from the northern Basin have only minor impacts on total Murray inflows. For example, a 10% reduction in inflows from the Lower Darling would result in only a 1.4% reduction in total inflows to the River Murray."

The website also unpacks the claim that "*the Darling River contributes 39% of the supply[33] to South Australia each year*". The website says:

[32] https://www.industry.nsw.gov.au/water/plans-programs/healthy-floodplains-project/faqs/topics/impacts

[33] The long-standing Murray Darling Agreement between NSW, Victoria and South Australia has, since 1973, mandated that NSW and Victoria between them must ensure at least 1850GL goes over the SA border each year from storages, except under extreme drought circumstances. This 1850GL does not include additional environmental flows enabled by water recovery such as the Murray-Darling Basin Plan, or unregulated flows.

	"This is false. This figure comes from Assessment of environmental water requirements for the proposed Basin Plan: Lower Darling River System published by MDBA in 2012[34] … Best available information is in the Murray-Darling Basin Authority technical report 2010/20[35], which suggested an average 86% of Murray inflows came from sources other than the Darling River over the climatic period from 1895 to 2009." The source of the 39% figure in the 2012 MDBA report is an earlier report written in 2000, which says Menindee Lakes (not the Darling River), contributed about 39% of the entitlement[36]. The Menindee storages fill when it floods in the northern Basin upstream; this is clear from the hydrological records. The Menindee Lakes are then used to enable regulated releases into the lower Darling to supply towns, industry, environment, cultural needs and maintain connectivity with the Murray River. With climate change, and particularly the changed rainfall patterns experienced since the turn of century, it is not possible to guarantee the volumes that historically flowed into Menindee Lakes, unless historic rainfall patterns return (or significant new and large public water storages are built upstream to regulate river flows in what is now a largely unregulated (natural) system). There are two conclusions to be drawn from this: **(1)** whilst reduced flows down the Darling and reduced water availability for downstream entitlement holders are matters of serious concern, FPH is not the cause, as by definition it only occurs during floods when water is in abundance, as evident from the recent floods in March 2021; and, **(2)** even if there was causation, regulating and reducing FPH will increase downstream flows when it does flood (albeit not significant enough to generate material changes to water availability, particularly not to the degree of previous climatic scenarios).
Support by irrigation industry	There was a common perception that because the irrigation industry (particularly in the five northern valleys) supported the regulations, the reform must be in their interest financially, at the expense of others. This is not the case. It must be noted that the irrigation industry has not always supported these reforms, largely owing to: the significant cutback in water access which has major impacts on farm productivity and viability, and consequent social and economic impacts on the broader communities; the burden of increased regulation such as the costs of installing and maintaining new metering equipment with new reporting requirements; and a view regulation was not necessary given flood events by definition mean water is more than plentiful. The Policy itself results in a cutback in floodwater access, to the degree of just over 30% in one valley (the Gwydir valley, for example). In the Gwydir valley alone, the Policy will result in an estimated average loss of

[34] The 2012 report itself references the 39% figure as sourced from the *River Murray Scientific Panel Report on Environmental Flows,* January 2000, Thoms et al. Murray Darling Basin Commission. This report makes only a passing reference (p123) to 39% being supplied from the Menindee Lakes storage (not the Darling River), with no information on how it was calculated or the assumptions underlying it. Recurrent floods regularly filled Menindee during the wetter last decades of last century up to 2000, so it possible the Menindee storage was regularly contributing a substantial portion of SA's base 1850 GL entitlement. However, recurrent severe droughts and the warming, drying trend since 2000 have almost halved annual average inflows and the frequency of floods. With fewer floods, Menindee rarely now holds enough to contribute to SA's base 1850GL entitlement. The climate change challenge now is holding enough in Menindee to at least ensure a secure water supply for towns, community, environment and cultural needs in the lower Darling River.

[35] https://www.mdba.gov.au/sites/default/files/pubs/1111-BPKId-water-resource-assessments-development-baseline.pdf

[36] *River Murray Scientific Panel Report on Environmental Flows,* January 2000, Thoms et al. Murray Darling Basin Commission, p123.

	$92 million[37] of economic activity, transferred to environmental benefits. There was great suspicion as to why industry supported the reform, and this led to incorrect conceptions of 'windfall financial gains' (see next row). Rather, it has taken a generational change amongst industry to reach a point of acceptance for the regulation, and the hard work of industry leaders and advocates across the state to reach this point. The drivers of this change have been: • Increased pressure on the industry for sustainable, responsible, transparent and accountable water use (Industry shares the public acceptance of these principles); • The two-decade long reform process which has led to reform fatigue, and a sense of farmers just wanting it over and done with. • The anxiety and uncertainty that results from farmers having little regulatory framework to manage what they should do when it floods. • The growth of FPH - the longer a regulatory framework is absent, the more potential for growth, which means the 'pie' of available water will have to get cut into more slices (meaning each farmer gets a smaller slice to accommodate new slices). • A desire for consistency for all forms of water take and water sources to be managed within the same regulatory framework. • The media and political games surrounding the reform which take a toll on the mental health and wellbeing of these communities, who have been subjected to relentless vilification.
Windfall Financial Gain	There was a perception that the FPH reforms would lead to windfall financial gains to those receiving a licence, in the order of $4 billion in total. This too, was not correct, and can be disputed on many fronts. FPH licences (when issued) will be the lowest reliability licence type, lower than supplementary or general-security licences. This is because FPH requires a flood event, which in the five northern valleys occur infrequently and episodically, approximately one in every 5-7 years. The capacity to trade licences is also highly limited, with no temporary trade permitted. The claim of $4billion in value is based on two incorrect assumptions. Firstly, it was assumed that the volume of licences issued will be equal to current on-farm storage capacity (this is not true, as the entire purpose of the reform is to reduce FPH, and the storages are multipurpose, also storing other forms of water take, and restricted by Water Sharing Plan rules). Secondly, it was assumed that the value of that water would be $2745/ML, which is the rate the Commonwealth Government paid Eastern Australia Agriculture for water recovery in Queensland in 2017; it was found to be twice the independent valuation[38]. Regardless of what the final total value would likely be, the cutback in water access which flows on to lower productivity or profitability on-farm (as farmers would have to purchase water to offset the cutback, or face lower production), far outweighs an apparent financial gain. Whilst licensing does provide the security and certainty of an asset,

[37] Calculated from the average volume being reduced by the opportunity cost to the community per foregone ML which is $1742/ML ($800/ML farm gate times 2.178 ABS community multiplier).
[38] https://www.abc.net.au/news/2021-03-17/government-overpaid-by-13-million-for-water-buyback/13252520

	(1) this value is already held in the land value and is simply being unbundled and is not new wealth; and, (2) this comes at an enormous cost of reduced water access, which in the long-run far outweighs the financial benefit of having an asset. The process of 'unbundling' water entitlements from land titles has already occurred for other licence types across the Murray-Darling Basin. In the impacted valleys, there was no perception of a windfall financial gain, rather there was deep distress about the cutbacks and adjustment the impacted farms would have to make to business practices to meet the future of less floodwater availability. As outlined above, it took generational change to value the certainty and sustainability of the industry, greater than the financial benefit of unrestricted and unmanaged take as it currently stands, to gain support for the reform.
The volume of FPH	A further misperception is that the regulations were determining the volume of the FPH limit, and 'locking in' a volume. This is incorrect. The reforms do not determine nor lock-in the final volume for FPH, rather, they provided a mechanism to make FPH comply with the State's existing limits on water use – the 1994 Murray-Darling Basin Cap on Surface Water Diversions and Murray-Darling Basin Plan Sustainable Diversion Limits. The Cap was introduced in 1995 to prevent growth in diversions above the level in 1993/94, however, there has been no mechanism to properly account for floodwater diversions within this limit, until these regulations were gazetted. The Department has undertaken a public consultation and peer review, of the "numbers" and modelling outcomes.[39] *Available Water Determinations* All water licences are designed to be flexible and responsive to how much water is available in the system (see Appendix 2). They are not a right to a set amount of water, rather a share of that category of water when and if it is available. The amount that can be extracted under each licence is allocated via an annual Available Water Determination (AWD). An AWD is defined as: "a water allocation, which informs licensed water users how much water they can extract, is a type of announcement known as an available water determination"[40]. Allocations can be updated through a season if conditions change. The NSW Floodplain Harvesting Policy is clear that AWDs will apply to FPH licences. This means if less water is available, or licences need to receive less water, the AWD can be adjusted accordingly. The Policy says: *"It is also possible that once individual licences have been issued, estimates of the total long-term average annual take associated with floodplain harvesting could be recalculated due to better information or further improvements in model accuracy.*

[39] https://www.industry.nsw.gov.au/water/plans-programs/healthy-floodplains-project/water-sharing-plan-rules/gwydir-valley
[40] https://www.industry.nsw.gov.au/water/allocations-availability/allocations/determinations

In recognition of this possibility, water sharing plans will permit available water determinations for floodplain harvesting access licences to be adjusted."[41]

The *Water Management Act 2000* (WMA) has very clear rules in making AWDs (60 – Rules of distribution applicable to making of available water determinations), which outlines the priority of water users. First priority is domestic purposes and essential town services; second priority is the needs of the environment; and third priority is given to stock water, high-security entitlements (commonly permanent plantings such as orchards and vineyards), and electricity generation. The lowest priority is then given "to the taking of water for purposes authorised by any other category or subcategory of access licence". This is where floodplain harvesting licences would fit – as the lowest priority, the last to receive water when it does become available.

Irrigators are very familiar with the idea of water allocations, and only receiving a share of what water is available, and facing adjustments if higher priority users require that water. This is the way it works for other licence types, and is standard practice. For example, the 2021-22 AWD for the Gwydir and Border Rivers reduced supplementary water licence access by 50% and 25% respectively. This was to keep the total water use within Plan Limits, because while the Government has modelled FPH take in those valleys, it has no way without the FPH regulations to limit that form of water take instead to stay within Plan Limits.

Updating limits

Additionally, on the topic of FPH licence volumes, there was a perception that a predetermined volume of licences should be available. One such suggestion was 210GL, which was based an estimate of the volume of FPH made in 2012 for both Queensland and NSW as part of estimates for the Basin Plan. There are a number of problems with this. Firstly, as communicated on the DPIE-Water website:

"Legal limits in both water sharing plans and the Basin Plan are defined as long-term volumes under a certain set of development and management conditions. These limits are described as formulae and are estimated using models. They reflect the best available information that was available at the time of modelling. Volumetric estimates can be updated through formal approval processes when there is better information about the development and management conditions that they reflect."

The DPIE-Water website continues (in relation to the 210GL):

"The information that this estimate relied on at that time was poor, and it used river system models that were not built for this purpose."

Accordingly, the NSW Government expects that this estimate will change significantly to reflect better information and the use of better modelling tools. For NSW, valley-specific, peer-reviewed technical reports which describe the modelling process and the data relied upon to re-estimate these legal limits, are being published for transparency."[42]

[41] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0017/143441/NSW-Floodplain-harvesting-policy.pdf
[42] https://www.industry.nsw.gov.au/water/plans-programs/healthy-floodplains-project/faqs/topics/impacts

	To be clear, changes to incorporate new information does not change the historical volumes of FPH, rather, it gives a better indication of what those historic (and current) levels are. Many other forms of take and estimates for both water sharing plans and the Basin Plan have been adjusted with new and improved information (see examples)[43]. As the MDBA says: *Changes to the limits do not mean more water is available for use, this water is being used already or is available for use—it is just bringing this use into the new system, ensuring it can be monitored, and use does not grow over time beyond these limits.*[44] The main conclusion to be drawn from this section is that the reforms did not determine the limits on FPH, nor did they lock-in those limits with any permanency – contrary to public perception. Further, the regulations do not establish the licence rules, they merely set up the framework for licensing as machinery regulations
Carryover (account limits)	There were concerns that carryover (a mechanism common to water entitlements that allows unused water to be carried from one season to the next) would significantly increase the volume of FPH that could occur (with the proposal for 500% carryover). This too is incorrect. FPH licences are designed in a way that the entitlement size is directly linked to the licence rules and accrual accounting limits (described in this instance as 'carryover'). This is explained by DPIE-Water as: *"The size of modelled entitlements for floodplain harvesting (regulated river) access licences is directly linked to the length of the accounting period.* *An annual accounting framework, with no ability to carry over water between years, will result in large entitlements.* *Conversely, a five-year accounting framework would average out the water taken between years, resulting in comparatively smaller entitlements."*[45] The concept of smaller entitlements with an accrued 500% account limits was on the basis that entitlement holders would need to 'accrue' a full maximum annual volume over a rolling five-year accounting periods to reflect years of no or little water take; this concept mimics the natural availability of floodwater. This means that if there are consecutive flood events, waters cannot keep filling storages to capacity. This ensures there is not excessive FPH. This is communicated by DPIE-Water as: *"Smaller entitlements resulting from five-year accounting have environmental benefits and will protect against the effects of any future growth in use. They will also give landholders an appropriate level of flexibility to carry over unused allocations between years."*[46] DPIE-Water also says:

[43] *MDBA 2019-20 BDL estimate table,* Sustainable Diversion Limit (SDL)s as at 30 June 2019 - surface water.XLSX (mdba.gov.au)
[44] MDBA Current diversion limits for the Basin | Murray-Darling Basin Authority (mdba.gov.au)
[45] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/350237/what-we-heard-report.pdf
[46] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/350237/what-we-heard-report.pdf

	"It is important to clarify that 5-year accounting will not result in 5 times the entitlement being taken each year."[47] Adopting the alternative (large entitlements with little/no carryover) would put significant pressure on the annual Available Water Determinations to ensure take remains within limits. Whilst possible, from a regulatory best-practice perspective, that is not desirable. This is because "*Annual accounting, without carryover, results in large entitlements*" and "*conversely, 5-year accounting results in comparatively smaller entitlements*"[48]. As an example from the Border Rivers, "*the entitlements provided under 5-year accounting are about 3 times smaller than that provided under annual accounting*"[49]. Importantly, licence rules (such as carryover) were not the subject of the disallowed regulations. The licence rules were in the process of undergoing public consultation and are included in the WSP for the respective valley. The key point for industry is that the relationship between entitlement size and account management rules such as carryover is understood and respected. It is also worth noting that the Commonwealth Environmental Water Holder has supported the 500% carryover (accrual account limit) as the most sustainable approach for the environment in limiting FPH[50].
Downstream Flow Targets	In the lead up to the gazettal of the regulations, stakeholders (particularly environmental) were advocating for downstream flow targets to be developed and implemented, as trigger points for when FPH could, or could not occur, to provide for connectivity. The immediate query raised in response to this, was that during flood events, rivers are already full and overflowing, and thus downstream flows are not the issue at the times in which FPH can occur. Downstream flow regimes are a very important regulatory mechanism (and many exist already in WSPs), however, they are largely and typically a part of drought management, not flood management. As a result, they are an important, but separate conversation to that of FPH reforms in all but exceptional circumstances. Where drought management and flood management intersect (i.e. the exceptional circumstance), is at periods known as 'first flushes'. This is the term for the first flows following substantial rainfall during or at the end of droughts (as occurred in early 2020 in the northern Basin, for example). In these circumstances, the irrigation industry fully supports (and even has a history of advocating for) suspending extraction until downstream flow targets are forecast to be met. During the 2020 first flush event, NSWIC said in a media statement that: *"All we are asking for is a flow target for this event that would give downstream communities certainty that water is on its way to serve their needs, including the needs of the environment; whilst giving*

[47] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/350237/what-we-heard-report.pdf
[48] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/350237/what-we-heard-report.pdf [P 10].
[49] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/350237/what-we-heard-report.pdf
[50] CEWH: Response to NSW on implementation of floodplain harvesting access licencing rules (environment.gov.au)

upstream communities certainty that they will be able to recover from drought during this critical opportunity. We need certainty so we can all recover from this drought."[51]

Following the aforementioned first flush event, the *Independent Panel Assessment of the Management of the 2020 Northern Basin First Flush Event*[52] was conducted. In submissions, the position of the industry and many other stakeholders was aligned in supporting downstream flow targets:

"NSWIC strongly agrees that WSPs should include targets for first flush management, but also agrees that these targets must be properly, robustly and scientifically developed to avoid compromising the environmental, social, cultural and economic outcomes."[53]

The Final Report by the Independent Panel made a number of recommendations, such as to develop first flush arrangements; revise objectives and targets used to manage such events based on learnings; ensure the evidence-base is quantified, science-based and publicly available; and importantly, "*embed the management of first flush events in the regulatory and policy framework for managing drought*". The Final Report also said that:

"Connectivity must be a primary objective of first flush management in the Northern Basin if insufficient water is available to meet tributary and downstream critical water needs. However, the arrangements to meet downstream critical water needs, of necessity, also have to be reflective of and responsive to the ephemeral and intermittent flow nature of the rivers in the Northern Basin."

There thus seemed to be furious agreement by diverse stakeholders for the need for downstream flow targets for first flush events. Where disagreement emerges in the context of the FPH reforms was merely a matter of sequencing.

Many stakeholders saw the development and commencement of downstream flow targets as a contingent safeguard – and thus prerequisite - for the FPH regulations to progress. Others, including the irrigation industry, recognised that any work on downstream flow targets requires a scientific and transparent process to develop effective rules and protocols, with opportunity for public consultation; This would unfortunately take time to do with proper due process. Continuing to allow unregulated and unlimited FPH during this period was in no one's interests.

The view of the industry was that limiting and metering floodplain harvesting was a higher priority, and whilst work to develop downstream flow targets should commence immediately, it should not hold back nor delay the important step of reducing FPH to limits, and metering. There were also specific circumstances that required consideration in developing connectivity rules, such as situations of localised flooding that may not be large enough to contribute to downstream outcomes. Simply, the view was that FPH should be limited and metered first (given

[51] https://www.nswic.org.au/wordpress/wp-content/uploads/2020/02/2020-02-18-NSWIC-Calls-for-Clear-Plans-for-Drought-Recovery.pdf
[52] https://www.industry.nsw.gov.au/water/allocations-availability/northern-basin-first-flush-assessment
[53] https://www.nswic.org.au/wordpress/wp-content/uploads/2020/06/2020-06-07-NSWIC-Submission-Independent-Assessment-of-the-Northern-Basin-First-Flush.pdf

	the work is all but ready to go), whilst any further work on downstream flow targets occurs as promptly as possible. The sequencing issue was particularly argued by industry on the basis that at the time of the disallowance, a La Nina had recently been declared with flooding in the northern Basin already leading to forecasts for 950GL to flow into Menindee Lakes. This meant even interim targets of any magnitude would likely be satisfied for a reasonably long period of time, owing to this flooding of the northern systems and filling of Menindee Lakes. The priority at this time was evidently flood management, not drought management, nor the exceptional circumstance of first flushes. The view of the Independent Panel on sequencing was expressed in the Final Report itself in 2020: *"The work we have suggested can be carried out alongside current work programs to improve connectivity, complete rollout of the floodplain harvesting licensing reforms, undertake improved measurement and monitoring programs, and deliver regional water strategies."* Ultimately, it seems almost nonsensical to delay an important flood management reform during a wet period whilst first flush measures are developed (which would require another lengthy dry period, and then a breaking rain, to actually come into effect). The reasoning largely came down to a lack of trust in Government that this later work program (which we understand is already underway) would be completed. The FPH regulations were thus being used as the political bargaining chip, in order to ensure this later work was completed. Now – however – changes to the WSP for the Border Rivers have already been made to accommodate that work program and set a deadline for its completion by 1 July 2023, which we hope will give stakeholders confidence this is happening.
Legal Status	• NSWIC refers to the legal advice sought from Holding Redlich, and urges that legal arguments must be made by suitably qualified legal professionals, and not the court of public opinion. • **FPH is not illegal**. • Legal advice states that present arrangements for FPH are: *"without the need for an access licence or a works approval and without any water sharing rules within the relevant water sharing plan to ensure that the extraction of water from the floodplain can be carried out below the long-term average annual extraction limit set by the relevant plan."* • In simple terms, this is because the **water source has not yet been 'switched on' to include the floodplain**/overland flow. This is consistent across most legal advice, including DPIE-Water, the Crown Solicitor and Holding Redlich – details from each are below. For example, our legal advice states: "*the relevant water sources in each of the water sharing plans do not include water taken from the floodplain.*" • There has **never been an intent for FPH to be illegal**. No government in NSW has ever sought to make FPH 'illegal', but

	consecutive governments across politics over two decades have sought to regulate it. • If, hypothetically, it was ever found that there are gaps/errors/omissions in the legal framework that do not match the intent (of multiple governments over decades) – that is all the more reason for the reform – to align the legal framework with the intent. This, thus, makes the legal arguments **almost irrelevant**, as they produce the same outcome – to regulate FPH in line with all other types of water. • Attempts to **oversimplify legal analysis** to deem FPH as 'illegal' are unreasonable, unethical and unjust. Such attempts do not afford justice to the individuals impacted who have done nothing wrong. The various legal opinions (to our knowledge) have not been tested in a court of law, and thus remain simply opinions. • Most (but not all) stakeholders recognise that FPH should not be illegal, but does require better regulation. • Making FPH illegal would **not change extraction limits** – instead, it would shift the timing of take away from flood periods (the time it is most abundant and most sustainable time for take) and into other existing licence categories such as supplementary entitlements – thus making it undesirable from a sustainability perspective. Thus, illegality is not even desirable for sustainability. Further detail is provided in the section below "Legality of FPH".

Legality of FPH

1) General Comments

See overview points above.

The legality of FPH is a matter for government and the courts of law, not the court of public opinion. Any legal questions must only be addressed by suitably qualified and experienced legal professionals. For this reason, the core of the NSWIC response to this item in the Terms of Reference can be found [HERE] in the professional legal advice NSWIC obtained.

2) Legality of FPH

FPH is not illegal.

There has never been an intent for FPH to be illegal.

Legal advice states (P 3):

5. The wider implications of the disallowance

(f) Without the mechanics in place to adopt the floodplain harvesting licensing framework under the WMA it will not be possible to issue access licences to authorise and regulate the extraction of water from the floodplain.

(g) Extraction of water from the floodplain will continue to occur under the present arrangements; that is without the need for an access licence or a works approval and without any water sharing rules within the relevant water sharing plan to ensure that the extraction of water from the floodplain can be carried out below the long-term average annual extraction limit set by the relevant plan.

(h) Those landholders who constructed works after 3 July 2008 that may capture and detain water from the floodplain will be able to continue to use those works despite them not being eligible works under the *Floodplain Harvesting Policy* (2018).

(i) The disallowance of the Measurement Regulation will also mean that there is no mandatory metering framework in place for existing approvals that may collect and store water from the floodplain.

In particular, we draw the Committees attention to 5(g) above.

It is correct that FPH is not currently regulated within the water management regulatory framework in NSW, but it is highly erroneous (and oversimplified) to conclude that this makes FPH 'illegal' by default. Simply, it means the practice is not subject to such regulation.

Further legal advice from Holding Redlich states:

(e) With these amendments, the NSW Government brought water on the floodplain within its regulatory reach. From here, the floodplain harvesting licencing framework will seek to 'replace' what was previously an unregulated and largely unmonitored common law rights for landholders to capture water coming off the floodplain during a flood event, with a statutory licence.

3) Consistency of legal advice

There is **consistency** across legal advice (DPIE-Water, Crown Solicitor, Holding Redlich/NSWIC) on the core legal issue.

That is, the core question of: Is a floodplain (i.e. overland flow water) 'switched on' to be recognised as a water source under the *Water Management Act*?

Legal advice is generally consistent on this - that **there is doubt whether a floodplain is recognised as a 'water source'**, and therefore **doubt that FPH is recognised as form of 'water take'**, under the current legislative framework.

This is the core of the issue, as this informs whether FPH currently falls within the regulatory framework, or not, and thus whether it is subject to those requirements.

Table 2 below provides examples, and we encourage the Committee to read these legal opinions in full.

Table 2: Various legal opinions on floodplains as a water source and FPH as a form of water take in NSW (emphasis added).

Legal Advice	**Excerpt** (full versions are available online)
Crown Solicitor (10 November 2020)	*"There are two main areas of ambiguity as to whether a person could carry out floodplain harvesting if they did not hold a water access licence, water supply work approval or basic landholder right in respect of that activity. First, there is potentially some doubt as to whether "water flowing across a floodplain" is, or forms part of, a declared water source, that is, a water source the subject of a proclamation under ss. 55A or 88A of the WM Act. This depends on the language used in each proclamation and in the water sharing plans to which they refer. Secondly, depending on the circumstances in which it is undertaken, there is a question as to whether floodplain harvesting constitutes a "take" of water from a water source for the purposes of s. 60A of the WM Act"*
DPIE-Water	*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.* *...* *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.* *...* *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.* *...* *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).*
NSWIC (Holding Redlich)	*(iii) the relevant water sources in each of the water sharing plans do not include water taken from the floodplain.*

Whilst many would agree a floodplain '*should*' be recognised as a water source under the State's water legislation, and the legislation shows intention for that to occur in time, legal opinion seems generally consistent that it has not yet been 'switched on' for most WSPs.

It is our understanding that this recognition of overland flow as a water source would occur through progression of the Healthy Floodplains Project.

4) Historical Context

It must be remembered that the private on-farm storage infrastructure in the northern Basin was encouraged by Governments to store floodwater (because of the lack of public water infrastructure). Since that time, there has been no change of government policy to criminalise the practice, nor has there been communication from Government to cease the practice.

Simply, **there has never been an intent of any government in NSW history to make FPH illegal.**

A detailed history is available at **Appendix 4.**

Context here is critical. This reform is part of a larger transition for all forms of water take and water sources to be regulated within the new contemporary framework. **This transition has already occurred for regulating surface water (rivers) and groundwater take, and floodwater remains the final step**. This transition is thus nothing new, but simply the next form of water to undergo this transition.

Surface water (rivers) and groundwater were prioritised for transitioning as they are larger forms of water use, and FPH was last, due to a range of factors, including:

- size of water use (i.e. relatively smaller);
- infrequency of water use;
- significance given floods are at times of water excess and not scarcity; and,
- lack of data availability (decades ago)[54].

It has always been the intent to regulate floodwater following these other water sources. It of course would have been preferable for this transition/unbundling for FPH to have happened sooner, just like river and groundwater, so that all forms of water take and water sources would have been transitioned into one consistent framework (i.e. licensing) by now.

5) Individual compliance

It is of interest that NRAR has not undertaken any compliance action (to our knowledge) to date in relation to FPH. NSWIC would assume that if FPH was 'illegal' and 'criminalised' there would have been widespread prosecutions since the transferral of water approvals across to the *Water Management Act* in 2014/2015. NSWIC encourages the Committee to engage with NRAR directly to understand its position.

It should be noted that upon DPIE-Water recommending irrigators seek their own legal counsel prior to undertaking FPH for their individual circumstances, a number of irrigators adhered to that recommendation, and received legal advice indicating they may proceed.

Reading multiple official sources there is significant language showing a shared perception that FPH is a legitimate and legal form of take. For example, in the statutory five- yearly review of the Basin Plan:

*"Previously landholders with approved works had **legally** been able to extract water in this way without restriction. Under the policy, landholders' extraction volumes will instead be*

[54] There has now been a significant work program to address this.

tied to entitlements granted by the NSW Government, as is the case for other forms of consumptive water take."[55]

6) Misinformed attempts to make FPH illegal

The Committee must be aware that the minority calling for FPH to be made 'illegal' are misinformed.

Most reasonable and informed stakeholders recognise that such an action would not change the levels of extraction (as the Cap is for all total water take, irrespective of the type), and thus not achieve their intended objective. To the contrary, if, hypothetically, FPH was ever made illegal, that volume could simply be made up by increased extractions by other forms of water take (such as river pumping) to reach the Cap or respective Sustainable Diversion Limit. This would likely have a greater environmental impact, and greater impact downstream, as that water would be sourced from a river channel and not during a flood when water is plentiful (albeit still subject to licence rules, allocations, etc).

Thus, making FPH illegal is not even desirable - particularly from a sustainability perspective.

FPH allows irrigators to capture water when it is in excess (floods) and use it later when it is dry, which is an important principle for sustainable water use. Farmers should be encouraged to capture water during floods, and use it throughout dry times, as this reduces demand on rivers during drier times. This is a basic concept of sustainable resource management.

7) Relevance

Given there has never been a government intent across multiple decades to make FPH 'illegal', and making FPH illegal would not even be desirable (from a sustainability perspective as it would not change the extraction limits, but would instead shift timing of take away from flood periods) – clearly, it *should* not be illegal.

This then brings into question the relevance of various legal arguments, as regardless of the outcome:

- If the dominant legal opinion stands that the water source has not yet been switched on, and there are no legality concerns: the reform can proceed without further interruption.
- If – hypothetically – the unlikely event that the outlier legal opinion which deems FPH 'illegal' is found to be correct: that would simply show the legal framework has not kept pace with the intent and the policy framework, and is all the more reason for this reform, to address this inconsistency and align the legal framework with the intent.

It is considered most unethical and unreasonable for some parties to think that if there (hypothetically) are unintended outcomes or lags in the legal framework, that it is an opportunity to abolish the practice all together and impact thousands of livelihoods in farming and service industries.

The Committee should focus on what the ideal/preferred FPH regulatory framework should be, and how to get that framework in place as a matter of urgency. Whilst countless hours could be spent analysing the various legal findings (and interpretations of those findings) that have been presented on FPH – ultimately:

- There is widespread agreement that the status quo is not good enough, and a desire for consistency with all other water sources;
- The various legal opinions (to our knowledge) have not been tested in a court of law, and thus remain as simply opinions; and,

[55] https://www.pc.gov.au/inquiries/completed/basin-plan/report/basin-plan.pdf

- Most (but not all) stakeholders recognise that FPH should not be illegal but does require better regulation.

8) Vilification

It has been most disappointing that some parties have raised legality arguments to vilify those who FPH, to portray these farmers as criminals, or to discredit them, and divide communities. This has, understandably, led to significant mental health impacts on those involved, including their families, and communities.

NSWIC encourages the Committee to be mindful of these attempts, and actively call out such behaviours, particularly in instances where they are unsubstantiated. Farmers are sick of being called 'thieves' because, through no fault of their own, successive governments have delayed regulating FPH, and the Upper House has blocked the current Government's attempts.

9) Processes

In 2018, DPIE-Water commissioned legal firm *Maddocks* to conduct a probity review on certain aspects of the implementation of the Healthy Floodplains Project. As the DPIE-Water website says:

"It found the licensing processes were lawful and well-documented and the eligibility criteria were consistently applied."[56]

The full review is available on the DPIE-Water website.[57] The 3 key findings are:

"2.1.1 the ROI [Registration of interest]*, IBQ* [irrigator behaviour questionnaire] *and WIP* [Water Infrastructure Plan] *processes were lawful, documented and followed;*

2.1.2 the ROI criteria were consistently applied; and

2.1.3 the ROI, IBQ and WIP processes afforded natural justice to people who had submitted an ROI."

Conclusion

NSWIC encourages the Committee to seek the advice of suitably qualified legal professionals and notes the largely consistent findings to date on the core legal questions. The complex, detailed and technical components of the legal analysis should not be determined by the court of public opinion.

Whilst NSWIC reserves detailed comment on legality matters to the legal advice provided by Holding Redlich – on a higher level, it is clear that the question of the legality of FPH ultimately distracted from the intent of the reform to regulate a long-standing and ongoing practice.

It is our view that the untested and highly disputed claim that FPH is 'illegal' was a key driver in blocking, or at least significantly delaying, this practice from being regulated to date. There was a false perception that the regulations would have made an 'illegal' practice 'legal', when in actual fact, the regulations bring in stricter regulation of an existing practice (which has never been made 'illegal' nor criminalised).

[56] https://www.industry.nsw.gov.au/water/plans-programs/healthy-floodplains-project/harvesting/probity-review
[57] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0008/226691/Probity-review.pdf

With such clearly documented government intents over decades, it can be clearly established that there has never been an intent for FPH to be 'illegal'. At best, (hypothetically) if it was ever shown to be an omission or anomaly from the legal framework, that is all the more reason for the reform to align the legal framework with the intent. Trying to catch people out in desperate efforts to abolish the practice is unjust and unfair. Thus, there is a degree of irrelevance to the many arguments around the legality of FPH, because ultimately they all lead to the same outcome – the need to regulate FPH consistent with all other types of water.

How FPH can be licensed, regulated, metered and monitored sustainably

There are a number of key principles that all stakeholders agree on:

a) Floodplain harvesting must be reduced to the 1993/94 Cap on diversions through licensing requirements (like all other forms of water take)[58];
b) Floodplain harvesting must be metered and measured (like all other forms of water take)[59];
c) Downstream connectivity is important at times when critical human, environmental and cultural needs are at risk.

Appendix 1 exemplifies this support from various diverse stakeholders. Where there is nearly universal agreement, action must be taken to implement these items at the earliest feasible opportunity.

Licensing and metering

The regulations published on 30 April 2021 addressed both (a) and (b) above, in full. It must be noted that the regulations published on 30 April were machinery regulations required to license and meter FPH. Unless Parliament accepts regulations of this kind, it simply will not be possible for FPH to be regulated in a consistent way with all other major forms of water take.

It also must be noted that many of the concerns and hesitations of stakeholders are not matters that fall within these machinery regulations (i.e. they relate to Water Sharing Plan rules). Getting a regulatory framework in place, to provide the framework to manage FPH, must be the priority of NSW Parliament as the critical first step of delivering the reform.

In order to get these regulations in place, the following steps are recommended:

i. The hesitations and concerns that led to the disallowance of the regulations were not adequately informed. We strongly believe that if these concerns are explained and clarified, there should be no reason for such concerns to continue to exist (see Table 1).

   It is our view that DPIE-Water provided ample explanatory material, including videos on each regulation, fact sheets, webpages, and has hosted numerous public webinars to explain the regulations. We therefore do not believe the problem was information availability, rather, it was misinformation availability. There must be a more active effort by authorities to counter misinformation and 'alternative facts'.[60]

[58] See Appendix 1
[59] See Appendix 1
[60] For example, at the same date and time as DPIE-Water hosted a public information session on FPH (February 11th), a stakeholder group hosted a separate webinar, which we have concerns led to lower participation at the DPIE-Water session and thus missed opportunity for those individuals to access the official information. More information here: https://twitter.com/nswirrigators/status/1366255459951288321

This will also require considerable leadership, particularly by parliamentarians, to be clear on the actual objectives and functions of the regulations. With so much misinformation prevalent, parliamentarians will need to be highly discerning of the information they receive and should verify it against official sources.

ii. Secondly, it must be recognised that there is a degree of **urgency** to this reform. Given we are amid a La Nina period of high rainfall and flooding, there is a high likelihood of unlimited and uncontrolled FPH occurring, which makes this reform a priority.

There also must be respect towards those involved who are impacted by the now delayed reform pathway. Examples include (but are not limited to):

- Supplementary licence holders: the growth in FPH has led to the Minister taking Cap-compliance action to reduce supplementary water take, to ensure total take including FPH remains within the Cap.

  Under the *Water Management Act 2000* the Minister for Water is compelled to act to remedy over-extraction. Without FPH inside the licensing framework, the government is **left with no means to limit FPH**, and thus must reduce other water entitlements instead (i.e. supplementary water entitlements) to ensure Cap compliance.

  In June 2021, the Water Allocation Statements for the Gwydir and Border Rivers came out advising reduced AWDs for supplementary access, as a result of growth in floodplain harvesting. This has created a significant equity issue, and third-party impact of the disallowance. In simple terms, without the regulations "Bill can pump as much as he likes in a FPH event, and Peter who has no FPH will pay for it".

  The FPH regulations provided the lever to limit this form of take within water sharing plans, but now, other levers are having to be relied upon i.e. supplementary licences. NSWIC understands that a new Water Allocation Statement can be issued to redress the supplementary reduction once FPH licences are in effect, however until such a time, these other licence holders are having their water access cut instead.

- Local meter suppliers in the impacted irrigation communities: there are only a small number of suppliers for the FPH meters, and these local businesses have purchased the necessary equipment from manufacturers to have in stock for their customers. However, the disallowance of the regulation that would have required metering of FPH has jolted consumer confidence, so people are no longer demanding these meters. This has left these (small) local businesses in a very difficult position. NSWIC encourages the Select Committee to contact these suppliers in the course of the Inquiry.

iii. It is our understanding that many of the concerns raised by stakeholders previously in the reform are now either addressed or being significantly progressed – particularly regarding connectivity. However, there has been little communication of this.

It is our understanding that DPIE-Water is conducting a significant work program on connectivity, and changes are already observed in the Border Rivers WSP (further details below). It is important for Government to communicate this work program to address stakeholder confidence, and also for stakeholders and other parliamentarians to be aware of this work so the reform is not further delayed for no reason.

iv. Finally, there must be a fair and reasonable approach adopted by all stakeholders and MPs. This is a very significant reform already, in and of itself, and it will be important that it is not used opportunistically to address matters beyond scope. This reform will not, and is not intended to, address every concern with water management in the State.

    Nonetheless, regulation of FPH will be an important step forward for water management in NSW. There also must be sensitivity to those negatively impacted by this reform – i.e. the irrigators facing cutbacks in water access but embracing this reform in good faith.

Recommendation:
Machinery regulations are required to license and meter FPH. Unless Parliament supports regulations of this kind, it will not be possible to regulate FPH in this preferred and consistent way.

Communication of broader DPIE-Water work programs is essential to stakeholder confidence to show that connectivity concerns in drought management have, and are being, addressed.

Downstream targets

(i) Introduction

It must be noted that FPH licensing and metering is generally concerned with flood management, in which rivers are full and spilling, and critical needs are met. Flow targets are generally instruments used for drought management, in which water scarcity is the problem, (ephemeral) rivers are drying up, and critical needs (town water supplies, critical environmental needs and cultural needs) are at risk. FPH does not and cannot occur without a flood. Where flood management and drought management intersect is known as 'first flushes', which is the circumstances in which downstream targets is mostly concerned.

See Table 1, 'Downstream Impacts' for more information, including why NSWIC also supports (and has a history advocating for) downstream targets during first flush events.

(ii) Measures already in place

There are already measures in place to manage/restrict upstream extractions to protect downstream needs – **including downstream flow targets** – as well as a broader suite of connectivity mechanisms. These include end-of-system targets, the Resumption of Flows Rule in the Barwon-Darling, Individual Daily Extractions Components (IDECs), as well as many others designed to meet the specific circumstances of each valley.

(iia) Stocktake of connectivity measures

The NSW Government developed a "*Stocktake of northern Basin connectivity water management rules*" (February 2020) to which we refer the Committee.[61] The document details a broad range of provisions already in place to contribute to connectivity, including:

- Long term average annual flow (LTAAF) – *"Under water sharing plans, water must be reserved for the fundamental health of a river or aquifer and the ecosystems that depend on it"*[62] – see 5.1 of the Stocktake.
- Supplementary water - see 5.2.
- Environmental Water Allowances (EWA) or release – see 5.3.

[61] https://www.industry.nsw.gov.au/ data/assets/pdf file/0019/356032/stocktake-of-northern-Basin-connectivity-water-management-rules.pdf
[62] Ibid [P10].

- Held Environmental Water – see 5.4.
- End-of-system flow rules – see 5.5.
- Flow classes and cease-to-pumps and commence-to-pump rules – see 5.6.
- Interim Unregulated Flow Management Plan for the North West (IUFMPNW) – see 5.7. Rules to support the implementation of the IUFMPNW are imbedded into the WSPs for the northern tributaries. Objectives include to:
    - *Provide opportunity for the passage of fish across the major weirs in the Barwon-Darling River;*
    - *Protect flows needed to suppress blue-green algae blooms;*
    - *Protect flows needed to meet basic landholder rights requirements along the Barwon-Darling River.*

Part 6 of the document also details specific WSP rules for hydrological connectivity. This includes **15 full pages worth of specific connectivity measures**. We encourage the Committee to read this document to appreciate the breadth and depth of existing measures.

Another key point from this stocktake is the acknowledgement that *"The main tool in the WMA 2000 for managing the state's water resources and hydrological connectivity is water sharing plans."*[63] This is why the FPH regulations themselves did not include connectivity measures, because the correct location for such measures is in WSPs, and they are already in WSPs.

(iib) Specific Case Studies

Macquarie

In the Macquarie, before supplementary water licences can access water, the first 5000ML must be protected for the environment which is a full river (as well as in excess of needs to supply environmental water provisions, replenishment flows, etc).

Extract from Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source 2016 - 47 Extraction of water under supplementary water access licences[64]

> *(4) Taking of water under supplementary water access licences shall only be permitted when flows, including any releases from Burrendong Dam FMZ, are in excess of those required:*
> *(a) under the environmental water provisions specified in Part 3 of this Plan,*
> *(b) to supply domestic and stock rights and native title rights,*
> *(c) to supply higher priority access licence requirements, and*
> *(d) to provide replenishment flows as specified in clause 58.*
> *(5) Extraction of water by supplementary water access licences with extraction components that permit the taking of water from, and downstream of, Burrendong Dam water storage shall only be permitted when flows in the river will produce a flow which* ***exceeds 5,000 ML/day*** *at Warren above the requirements specified in subclause (4).*

Gwydir

In the Gwydir valley, supplementary water sharing rules provide the first 500ML to the Gwydir Ramsar-listed wetlands, and then share any unregulated flows above that 50:50 between the environment and users. This provides connectivity along the rivers and creeks in the regulated system, providing connectivity to the Barwon Darling at Collarenebri and near Mungindi.

Additionally, there are specific volumetric flow targets to supply water to basic landholder rights, fish passage, and to supress blue-green algae in the Barwon-Darling before supplementary access is permitted (and provided water is excess of downstream replenishment flows).

[63] Ibid {P 9].
[64] https://legislation.nsw.gov.au/view/html/inforce/current/sl-2015-0630#sec.47

Extract from Water Sharing Plan for the Gwydir Regulated River Water Source 2016 - 47 Taking of water under supplementary water access licences[65]

(4) Taking of water under supplementary water access licences should only be permitted when there are uncontrolled flows at the point of extraction and the uncontrolled flow is in excess of that required to provide any required downstream replenishment flows specified in clause 58.
…

(6) The supplementary water event volume is:
(a) the volume of uncontrolled flows in the water source that are downstream of Copeton Dam, minus
(b) the volume of uncontrolled flows in paragraph (a) required to provide sufficient flow to:
(i) meet the environmental provisions of the Plan,
Note—
This includes the clause 13 provisions requiring that inflows from the Horton River, Myall Creek and Halls Creek up to 500 ML/day per day be passed through to the Gwydir wetlands.
(ii) satisfy downstream domestic and stock rights and native title rights,
(iii) satisfy the water orders placed by regulated river (general security) access licences and higher priority access licences, and
(iv) provide any required replenishment flows specified in clause 58.
(7) Taking of water under supplementary water access licences nominating works on the Mehi River, Carole Creek, or on rivers which receive effluent flows from the Mehi River or Carole Creek, shall not be permitted, or shall be restricted, when this is required to ensure the passage to the Barwon-Darling River of locally generated uncontrolled flows needed to meet the requirements of the Interim Unregulated Flow Management Plan for the North West.
…

(9) The requirements of the Interim Unregulated Flow Management Plan for the North West are:
(a) a flow of 14,000 ML/day in the Darling River at Brewarrina for 5 consecutive days, or 10,000 ML/day in the Darling River at Bourke for 5 consecutive days, during the period September to February inclusive, providing two such flow events have not already occurred during that period in that water year,

Note— This paragraph is intended to provide opportunity for the passage of fish across the major weirs in the Barwon-Darling River.

(b) a flow of 2,000 ML/day in the Darling River at Wilcannia for 5 consecutive days during the period October to April, inclusive, providing flows of this quantity have not already been reached during the preceding three months within the October to April period, and

Note— This paragraph is intended to protect flows needed to suppress blue-green algae blooms.
(c) a flow of:
(i) 150 ML/day in the Darling River at Wilcannia,
(ii) 280 ML/day in the Darling River at Louth,
(iii) 390 ML/day in the Darling River at Bourke,
(iv) 550 ML/day in the Darling River at Brewarrina, and
(v) 700 ML/day in the Barwon River at Walgett,

Note— This paragraph is intended to protect flows needed to meet basic landholder rights requirements along the Barwon-Darling River.

Barwon-Darling

There are a range of new rules in the Barwon-Darling Water sharing Plan to promote connectivity. For example, the 'Resumption of Flow' rule in force from 1 July 2020 restricts

[65] https://legislation.nsw.gov.au/view/whole/html/inforce/current/sl-2015-0629#sec.47

extraction if downstream flows drop below specified thresholds for a prolonged period. This rule was triggered in January 2021, and WaterNSW has published the outcomes:[66]

"This January 2021 trigger of the rule resulted in restrictions to pumping and the protection of flows until enough water was forecast to flow through the system to obtain connectivity in the system from the Queensland border to Menindee Lakes and met the flow conditions to relax the rule."

The rule suspended extraction until a minimum 400 ML/day was forecast to flow past Wilcannia for at least 10 days. In the event, more than 1000 ML/day flowed past Menindee for 10 days, and the river has remained flowing since.

Extract from Water Sharing Plan for the Barwon-Darling Unregulated River Water Source 2012 - 50 Resumption of flows[67]

(1) Despite clause 49A, the Minister must make a No Flow Class announcement for a management zone in River Section 1 for each day following the occurrence of one or more of the following—

(a) the flow in the Barwon River at Dangar Bridge (Walgett) (422 001) has been less than 326 ML/day for more than 150 consecutive days,

(b) the flow in the Barwon River at Brewarrina (422 002) has been less than 468 ML/day for more than 150 consecutive days,

(c) the flow in the Darling River at Bourke Town (425 003) has been less than 450 ML/day for 120 days consecutive days,

(d) the flow in the Darling River at Wilcannia (425 008) has been less than 200 ML/day for 90 consecutive days.

…

(3) Despite clause 49A, the Minister must make a No Flow Class announcement for a management zone in River Section 2 for each day following the occurrence of one or more of the following—

(a) the flow in the Barwon River at Brewarrina (422 002) has been less than 468 ML/day for more than 150 consecutive days,

(b) the flow in the Darling River at Bourke Town (425 003) has been less than 450 ML/day for 120 days consecutive days,

(c) the flow in the Darling River at Wilcannia (425 008) has been less than 200 ML/day for 90 consecutive days.

…

(5) Despite clause 49A, the Minister must make a No Flow Class announcement for a management zone in River Section 3 for each day following the occurrence of one or more of the following—

(a) the flow in the Darling River at Bourke Town (425 003) has been less than 450 ML/day for 120 consecutive days,

(b) the flow in the Darling River at Wilcannia (425 008) has been less than 200 ML/day for 90 consecutive days.

..

(7) Despite clause 49A, the Minister must make a No Flow Class announcement for a management zone in River Section 4 for each day following a period where the flow in the Darling River at Wilcannia (425 008) has been less than 200 ML/day for 90 consecutive days.

These measures have all been designed specifically for the circumstances of the individual valleys and their unique needs (environmental requirements, hydrological connectivity and flow conditions).

[66] https://www.waternsw.com.au/__data/assets/pdf_file/0019/165034/Resumption-to-Flows-event-report-January-2021.pdf

[67] https://legislation.nsw.gov.au/view/html/inforce/current/sl-2012-0488#sec.50

(iic) Section 324s

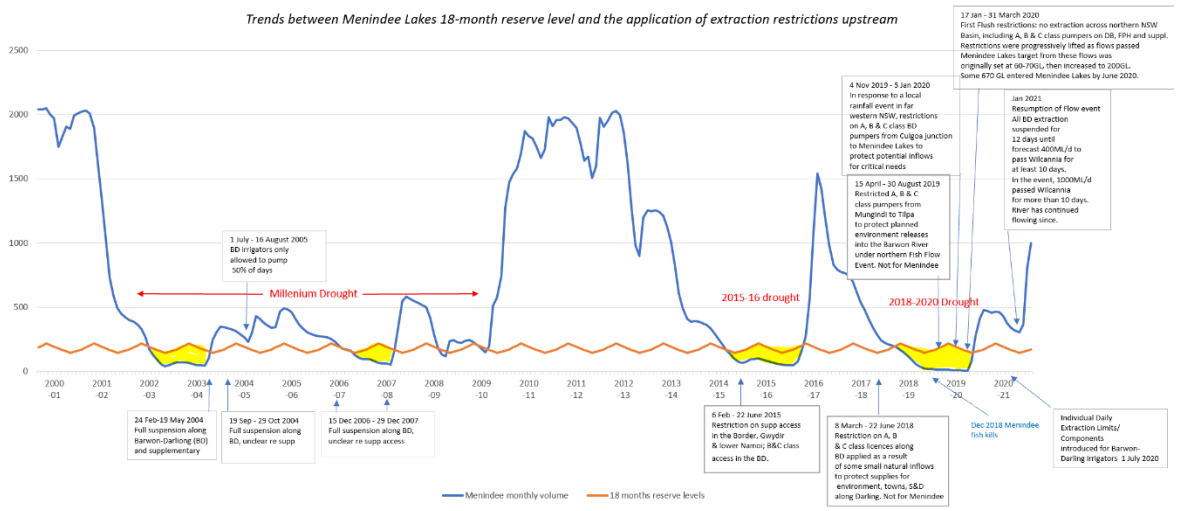
Additionally, it is also standard practice historically to apply S324s (total embargo on water take) when critical needs must be met (as occurred during the March 2020 first flush event).

Figure 1 (enlarged at Appendix 5) shows 'Trends between Menindee Lakes 18-month reserve level and the application of extraction restrictions" over the past two decades.

In this diagram, monthly storage levels in Menindee Lakes are shown by the blue line, and the orange line indicates levels required for 18 months reserve to supply for critical needs. This level is adopted as it was the previous operating arrangement when the town water supply for Broken Hill was supplied from the Menindee Lakes, before the pipeline was constructed to the Murray River. The yellow shading indicates where the volumes in Menindee storage dropped below the critical 18-month supply level. There are two key findings on this graph:

(1) It has been standard practice over the previous two decades to apply restrictions on upstream access when supplies drop below this critical level.
(2) There has been an increasing tendency to apply restrictions on access to the northern Basin since 2016 due to changes in inflows into the Lakes, despite the 18 months reserve no longer being required to also secure supply to Broken Hill following the town's connection to the Murray via the pipeline built in recent years.

Figure 1: Trends between Menindee Lakes 18-month reserve level and the application of extraction restrictions



Work already underway

NSWIC is of the understanding that DPIE-Water is undertaking a separate but concurrent work program to review, design and deliver mechanisms focusing on connectivity, in part, as a response to the recommendations of the *Independent Assessment of the Northern Basin First Flush Event*. That work program will take time to conduct the necessary scientific inquiry and public consultation (in our view, that due process is paramount), and is also a much broader program of work beyond just FPH.

Bypassing due process (i.e. by implementing new interim targets that are not scientifically backed or consulted on) would only further erode public confidence and lack transparency, and is likely not needed given the La Nina period and significant water volumes in Menindee Lakes and river systems already.

The FPH regulations are not the mechanism for improving connectivity in non-flood periods; such arrangements need to be, and already are in, WSPs. The outcomes from the consultation on WSP rules (still ongoing for some valleys) indicated WSPs will also include amendment provisions to amend or introduce new downstream targets if required following due process.

For example, the Border-Rivers '*what we heard document*' said:

> *"Amendment provisions*
>
> *Section 45 of the Water Management Act 2000 allows the department to amend water sharing plans. To improve transparency and increase confidence amongst stakeholders, we propose including specific amendment provisions to allow us to introduce access rules:*
>
> *a) to allow flexibility, should environmental flows be targeted to create overbank flow, or*
>
> *b) in response to monitoring, evaluation and reporting outcomes of environmental benefits from licensing floodplain harvesting, or*
>
> *c) in response to improved understanding of the influence of floodplain harvesting on downstream flows."*[68]

This has transpired, and these provisions can already be seen in the latest WSP to be gazetted in July 2021 (Border-Rivers), which says:

> *"The Minister may amend Schedule 1 to add, modify or remove flow targets as reasonably necessary to ensure the taking of water under supplementary water access licences does not jeopardise the critical needs of the environment, basic landholder rights, domestic and stock access licence holders and local water utility access licence holders in the BarwonDarling River."*[69]

This also includes that the Minister will "*seek and consider recommendations from an independent expert panel*"[70]. It also includes a timeframe for the connectivity work to be completed by 1 July 2023.

It is thus clear that the necessary arrangements for downstream targets are already in place and subject to further work already. For confidence, these new developments can already be seen in the most recent WSPs. The reform of FPH is not contingent on this work program which is underway (and goes beyond just FPH). Table 1 goes into more detail on this sequencing matter, but as aforementioned, the view of the Independent Panel on the matter of sequencing was expressed in their Final Report on the First Flush in 2020:

"The work we have suggested can be carried out ***alongside*** *current work programs to improve connectivity,* ***complete rollout of the floodplain harvesting licensing reforms****, undertake improved measurement and monitoring programs, and deliver regional water strategies."*

Whilst this work program has been signalled on the DPIE-Water website[71] for some time, and there were communications at the time of commencement, NSWIC recommend that the NSW Government does a further round of renewed communication on this work to ensure all stakeholders are aware of it.

[68] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/350237/what-we-heard-report.pdf
[69] https://legislation.nsw.gov.au/view/pdf/asmade/sl-2021-370
[70] https://legislation.nsw.gov.au/view/pdf/asmade/sl-2021-370
[71] https://www.industry.nsw.gov.au/water/allocations-availability/northern-basin-first-flush-assessment

It is our understanding that this work program will require further public consultation, and NSWIC understands a connectivity diverse stakeholder reference group has now been established.

Conclusion

NSWIC is concerned that the conversation on downstream flow targets:

- Assumes 'downstream flow targets' is a new concept and lacks understanding of the existing measures already in place to provide for connectivity, which include (but goes beyond) downstream flow targets;
- Lacks understanding of which regulatory instrument provides for connectivity (i.e. WSPs);
- Is not aware, or ignores, the work programs already in place to review current connectivity measures, and update where required.
- Is not aware, or ignores, the amendment provisions in WSPs specifically to update connectivity measures if deemed necessary, based on expert advice.
- Does not recognise that connectivity is a broader conversation which goes beyond the scope of FPH regulation.
- [In some instances] is suggesting an overly simplistic blanket approach of a singular flow-target (i.e. at Menindee), which would be a backward step as it would not take into account:
    - The unique conditions and requirements of each tributary valley;
    - The hydrological connectivity of some creeks and rivers;
    - The nature of semi-terminal systems like the Gwydir and Macquarie which have relatively low levels of connectivity to the Barwon-Darling in all but very wet years, and have ecologically important Ramsar wetland sites at their valley that require watering.
    - Localised flooding events where it may be hydrologically impossible for that water to make it out of a valley to contribute to a downstream target.
- [In some instances] attempts to bypass due process by seeking to rush in targets that are not scientifically developed, nor open to public consultation on how they will operate within WSPs.

Recommendations:

Select Committee to recognise connectivity measures already in place, including the work program already underway, and recent WSP changes.

Government to better communicate the connectivity work program already underway to alleviate stakeholder concerns.

Communication, and leadership on why the regulation of FPH is a separate and much more specific process and that connectivity is a separate – but highly important – matter.

Other matters: Rainfall Runoff

Introduction

Irrigation farmers across NSW have developed their farms with precision to manage water on-farm according to best management practices. This includes managing and recycling water on-farm, for a number of purposes, such as to prevent potentially contaminated water from irrigated fields entering waterways. This is required under pre-existing environmental rules in their works approvals.

The Rainfall Runoff (RRO) Exemption Regulation allows these best-management practices to continue with certainty, without farmers being stuck between conflicting legal obligations.

Rainfall runoff is not new water, nor is its retention on farms a new practice; it simply is tidying up the water management framework.

This RRO Exemption Regulation is necessary because Government has decided to recognise overland flow (including rainfall runoff) as a water source. It thus must do something to formally account for rainfall runoff within water management arrangements.

This regulation clarifies that capturing rainfall runoff/tailwater across NSW is exempt from requiring a licence, and instead will be regulated as a water source via a *licence exemption*.

For clarity, licences are not required for rainfall runoff currently, and the licensing exemption simply clarifies in the regulatory framework that the status quo will continue.

Ultimately, NSWIC supports this RRO Exemption Regulation because:
(1) we don't want irrigators across the State exposed; and,
(2) we don't want Irrigation Infrastructure Operators (IIOs) legally exposed,
for best management practices to retain water on farms to meet pre-existing environmental obligations.

DPIE-Water says, "*this is a state-wide exemption*"[72].

NSWIC has sought legal advice on the operation and necessity of the '*Water Management (General) Amendment (Exemption for Rainfall Run-off Collection) Regulation 2021'*. NSWIC is prepared to make this available to the Committee in full. Key points are cited below.

Reason for the RRO Exemption Regulation

As background, 'overland flow water' is defined in the WMA to include floodwater and rainfall runoff (see 4A below).

4A Meaning of "overland flow water"

(1) In this Act, ***overland flow water*** means water (including floodwater, rainfall run-off and urban stormwater) that is flowing over or lying on the ground as a result of—

Legal advice states:

- *"…once the water sharing plans are amended to include overland flow as part of the water source some form of either a licence or an exemption will be required to account for rainfall run-off."*
- *"The NSW Government has elected to as part of change to the FPH Policy in 2018 to* ***seek to include rainfall run-off as part of a water source*** *and then exempt it from the need for a licence."*

Simply: once the water source is amended in the various WSPs to include 'overland flow water', a mechanism (i.e. a licence exemption) will be required to deal with the rainfall runoff component.

DPIE-Water explains why the exemption is needed on its website.[73]

More broadly, DPIE-Water says:

[72] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/368111/What-We-Heard-Tailwater-Drain-Exemption.pdf
[73] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/368111/What-We-Heard-Tailwater-Drain-Exemption.pdf

"This regulation fills an existing gap, providing clarity to water users and the Natural Resources Access Regulator."

NSWIC assumes that the reason this 'existing gap' has now been identified and Government is seeking to address it, is largely due to:

(1) the recent establishment of NRAR which is bringing such gaps to attention for the purpose of ensuring compliance; and,

(2) NSW obligations under the Murray-Darling Basin Plan to account for all water use.

Inconsistency with environmental law without RRO Exemption Regulation

All landholders are required under law to capture rainfall runoff and tailwater (used irrigation water) from cultivated farmland to minimise the risk of contaminants such as fertilisers entering waterways.

Legal advice states:

- *"A person who pollutes any water is guilty of an offence. Releasing rainfall run-off water contaminated by fertiliser, herbicides and pesticides into a watercourse would be considered an offence under section 120 of the POEO [Protection of the Environment Operations] Act."*
- *"Without the Rainfall Run-off Regulation, or a floodplain harvesting access licence that authorises the taking of rainfall run-off a licence holder would potentially breach the WMA by taking water by means of a tailwater drain from an irrigated field. Conversely releasing rainfall run-off water from a field contaminated by fertiliser, herbicides and pesticides into a watercourse would be considered an offence under the POEO Act."*

Simply: without this regulation, irrigators are stuck between inconsistent laws that both require them to capture water, and simultaneously to not capture, that same water.

NSWIC is concerned that if a farmer does not feel they have adequate legal clarity (or is at risk of prosecution) if they capture rainfall runoff, they may release this water into waterways, in order to avoid prosecution and being considered a water thief. We do not want to see fish deaths or other ecological disasters resulting from contaminated water being released into waterways, because farmers were scared to contain that water due to unclear rules.

There are significant penalties for breaching the POEO Act of up to $1,000,000 (companies) or $250,000 (individuals), so this is a significant decision if farmers feel they have to chose which law to break and which penalties to potentially face. It is absurd for farmers to be put in this position. It is particularly absurd when the matter could so simply be clarified, so that farmers can keep doing what they have long been required to do according to best-management practices and environmental obligations.

Harvestable Rights does not cover it

NSWIC is aware of claims that rainfall runoff is covered by harvestable rights, and thus a (mis)perception that the RRO Exemption Regulation is not required.

DPIE-Water has clarified that:

"Run-off from irrigation areas is typically not captured in harvestable rights dams."[74]

[74] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/368111/What-We-Heard-Tailwater-Drain-Exemption.pdf

NSWIC legal advice also clarifies (consistent with DPIE-Water) that:

- *"**Harvestable rights should not be seen as superseding the requirements for the Rainfall Runoff Regulation** because of the limits on what can be constructed relying on the various harvestable rights orders."*
- *"While it may be the case that certain dams can be constructed relying on the harvestable rights order, but such dams must be constructed on minor streams, have a maximum capacity (determined by reference to the order) and **cannot be used to capture, contain and recirculate drainage or to prevent the contamination of a water source.**"*

Rainfall runoff is not a backdoor to FPH

NSWIC is also aware of a (mis)perception that the RRO exemption regulation is a backdoor means of FPH. This can be clarified through Clause 17C(2) of the Regulation itself:

*"The exemption conferred by this clause **does not apply** during a period in which a work on the land, other than a tailwater drain, takes overland flow water."*

DPIE-Water has also specifically addressed and debunked this concern in its 'What We Heard' document following consultation on the regulations in 2020:

"The regulation amendment sets out clearly that the exemption stops when structures other than tailwater drains, such as channels or dams, start to take overland flow."[75]

NSWIC legal advice also says:

- *"In effect, landholders would <u>not</u> be exempt from taking rainfall run-off under the Rainfall Run-off Regulation whilst a floodplain harvesting work is being used on the land to capture water off the floodplain."*

Simply: the RRO Exemption Regulation ceases to apply when FPH is occurring.

In any case, whilst we are confident there are no 'backdoors', the metering and surveillance of storages would reveal if any 'backdoor' does exist, a door that NRAR would slam shut through compliance action.

Alternatives

NSWIC understands that the only alternative to exempting rainfall runoff from requiring a licence, would be to subject rainfall runoff to a licence. That is, having a licence for drainage.

NSWIC does not consider this necessary, nor the best possible way forward, because:

1. RRO is a relatively small volume of water;
2. In most instances, RRO is the result of a field already having been irrigated with water already licenced and metered, such that its high soil moisture profile causes the rainfall runoff. Thus, licensing rainfall runoff would largely be duplication;
    a. Note: DPIE-Water states: *"It* [the RRO Exemption Regulation] *also acknowledges that much of the run-off may be used irrigation water that has already been measured under an existing water access licence."*
3. There is not currently considered to be a 'problem' that requires solving, so introducing a licence for RRO is considered unnecessary and would not be aligned with good regulation principles;

[75] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/368111/What-We-Heard-Tailwater-Drain-Exemption.pdf

4. There would be a high-cost to low-benefit ratio, given the time and resources required to develop and issue correct licences (this would not be considered a valuable use of taxpayer's money to undertake the processes required, as RRO is not a priority water management issue);
5. An Exemption Regulation is simpler, and leads to equitable outcomes across the State;
6. RRO licences would pose additional administrative, regulatory and financial burden on water users for little purpose or benefit;
7. An Exemption Regulation provides consistency in recognising rainfall runoff as a water source across the State, which is critical to meeting Basin Plan and other legislative obligations of accounting for all water;
    a. Note: DPIE-Water says: *"The Basin Plan requires that all forms of taking water are accounted for whether they are licensed or not. The NSW Government is committed to working with the Murray–Darling Basin Authority to ensure that all forms of take are properly accounted and managed through water resource plans."*[76]
8. Licences would need to be accompanied by a comprehensive metering/measurement/reporting regime, which would be challenging and expensive, with little gain.
9. Farmers do not want licences for RRO.

NSWIC is of the position that the RRO Exemption - which seeks to 'tidy up' the regulation to allow best-management-practices to continue meeting pre-existing environmental obligations – should capture all potential issues and leave no one (nor entity) within the irrigation sector exposed. NSWIC encourages further consultation with Irrigation Infrastructure Operators (IIOs) to ensure the regulation captures all possible issues, and there are no outstanding risks, inconsistencies, or vulnerabilities that could otherwise be captured in regulation of this kind.

Conclusions on RRO Exemption Regulation

NSWIC supports the RRO Exemption Regulation in order to provide farmers across the state with certainty and clarity that they can continue operating their farms as they have historically to manage water on-farm according to best-management practices.

NSWIC reiterates that rainfall runoff is not new water, nor a new practice. The exemption simply tidies up the water management framework, given the intention to recognise overland flow (and rainfall runoff) as a water source in all Water Sharing Plans across the NSW Basin.

NSWIC sees this as a technical and administrative tidy-up, and nothing new nor extraordinary. We see it as necessary to prevent farmers being in a situation of legal jeopardy, based on the advice of DPIE-Water and others that deems this as necessary.

Further resources

- NSWIC Letter to MPs (5 May 2021) – "Floodplain Harvesting Regulations – industry says no thanks to disallowance" [HERE]
- NSWIC Submission (April 2021) – "Floodplain Harvesting licence rules in Water Sharing Plans" [HERE]
- NSWIC Submission (December 2021) – "Proposed legislative amendments for floodplain harvesting in NSW" [HERE]

All submissions are available on our website [HERE].

[76] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/368111/What-We-Heard-Tailwater-Drain-Exemption.pdf

Conclusion

To conclude, limiting FPH to the 1994 Cap on diversions through licensing and metering is a necessary public interest reform.

NSWIC does not see reason to radically change the regulations but does see a pressing need to overcome the misinformation and 'alternative facts' that have eroded public confidence in this reform.

NSWIC is of the position that the reasons for disallowing these regulations previously are either the product of misinformation or reflect concerns that are already being addressed through dedicated work programs (which due process requires to be scientifically informed and transparent with public consultation).

We urge our elected representatives to base their decisions on expert evidence, primary sources of information, and the facts, not popular opinion and social media celebrities.

This is a unique opportunity for NSW Parliament to introduce regulation to an industry that is not only accepting of regulation, but actually calling for it. The irrigation industry has worked hard to foster support for this reform, and we continue to support this reform as a necessary step for sustainable, transparent and accountable water use.

NSWIC welcomes further discussion and/or clarification of any points raised in this submission

Recommendation:

1) Implement the Healthy Floodplains Project as a matter of urgency, to limit FPH to the Cap through licensing and metering regulations.

2) Improve communication and water literacy regarding connectivity measures already in place in the northern Basin, including (but not limited to) downstream flow targets.

3) Communicate the work program already underway by DPIE-Water regarding connectivity.

Kind regards,

NSW Irrigators' Council.

Appendix 1: Stakeholder Expressions of Support for Floodplain Harvesting Licensing & Metering

WENTWORTH GROUP OF CONCERNED SCIENTISTS	**Wentworth Group of Concerned Scientists** *"We recognise the progress made on these much needed reforms to ensure all forms of take are licenced, metered and brought into a compliance framework based on diversion limits. We also appreciate that the proposed reform is aimed at reigning in the growth of FPH diversions that have occurred since implementation of the 1993/94 valley-wide Cap on diversions."*[77]
Australian Government Commonwealth Environmental Water Office	**Commonwealth Environmental Water Holder** *"Bringing floodplain harvesting (FPH) into the NSW licencing framework is supported by the Commonwealth Environmental Water Holder (CEWH), in the context of knowing the overall use of the water resource and thereby providing a means to protect significant environmental assets and ecosystem functions within NSW."*[78]
Environmental Defenders Office	**Environmental Defenders Office** *"There are benefits to bringing floodplain harvesting within a licensing and associated compliance framework, such as a requirement that the water taken under a licence must for the first time be metered and measured.* *Further, not all floodplain harvesting that has occurred up to the present day will be licensed (that is, the licensing is supposed to reduce the volume of water that is being diverted from floodplains)."*[79]
MURRAY–DARLING BASIN AUTHORITY	**Murray-Darling Basin Authority** *"The MDBA is supportive of the suite of reform measures that NSW is undertaking to bring floodplain harvesting into both the NSW licensing and regulatory framework and the Commonwealth framework for regulating water resources in the Murray–Darling Basin.* *Measurement and metering of take by floodplain harvesting is critical to building confidence and understanding of the impacts of this form of take on the environment and river flows."*[80]

[77] https://wentworthgroup.org/2020/12/border-rivers-fph-rules/2020/
[78] https://environment.gov.au/system/files/pages/dca287c3-73bd-4ec1-a3b1-c29dd5cf95f9/files/cewh-submission-independent-review-floodplain-harvesting-nsw-water-resource-plan-nov-2018.pdf
[79] https://www.edo.org.au/2020/12/09/floodplain-harvesting-without-the-necessary-protections-legal-action-is-a-risk/
[80] https://www.parliament.nsw.gov.au/lcdocs/submissions/67992/0001%20Murray%E2%80%93Darling%20Basin%20Authority.pdf

NSWIC NEW SOUTH WALES IRRIGATORS' COUNCIL	**NSW Irrigators' Council** *"We want full licensing and metering for floodplain harvesting as soon as possible."*[81]
SOUTH AUSTRALIA Government of South Australia Department for Environment and Water	**South Australian Royal Commission** *"A licensing and metering regime for floodplain diversions is necessary. New South Wales and Queensland must act on this issue to restore confidence within their own communities and amongst Basin States.* *In New South Wales, it is frankly remarkable that a floodplain diversion policy has still not been implemented. Although the policy has been revised, it reveals no substantial change that could justify the failure to implement it. There is no objection, in principle, to the approach canvassed by New South Wales that would require floodplain diversions to be licensed and floodplain structures to be approved, having regard to the impact of diversions and the construction of infrastructure upon the environment and downstream users by reference to a Floodplain Management Area Plan."*[82]
Government of South Australia	**South Australian Government** *"The Royal Commission also recommended a licensing and metering regime for floodplain diversions. South Australia supports Basin Governments developing this proposal to strengthen and improve existing regimes aimed at addressing water theft."*[83]
MURRAY REGIONAL STRATEGY GROUP	**Murray Regional Strategy Group** "*It [FPH] must be metered and compliant to a total water take equal to or less than the Cap, as legislated under the Basin Plan 2012, with total water user in each valley equal to or below this susintable diversion limit.*"[84]

[81] https://www.nswic.org.au/wordpress/wp-content/uploads/2020/09/2020-09-22-MR-FPH-Exemption-Regulation.pdf
[82] https://www.environment.sa.gov.au/topics/river-murray-new/basin-plan/murray-darling-basin-commission
[83] https://www.environment.sa.gov.au/files/sharedassets/public/river_murray/basin_plan/sa-response-mdb-royal-commission.pdf
[84] https://www.pressreader.com/australia/deniliquin-pastoral-times/20210618/281728387472048

Appendix 2: Fact Sheet – How licensing adjusts to water availability

Concerns have been expressed that too many floodplain harvesting licences will be issued, or that too much water will be licensed. While these concerns are reasonable, the water management framework already addresses these issues through water allocations.

DPIE-Water has published videos explaining this:

- How is water in NSW allocated? [HERE][85]
- How is water prioritised for different uses? [HERE][86]

The simple answer:
Floodplain harvesting licences (like other water licences) are designed to be flexible and responsive to how much water is available in the system. The amount that can be extracted under each licence is allocated via an Available Water Determination (AWD). This means if less water is available, or licences need to receive less water, the AWD can be adjusted accordingly.

What is an Available Water Determination?
"*A water allocation, which informs licensed water users how much water they can extract, is a type of announcement known as an available water determination (AWD)*"[87].

How does it work?
Water Sharing Plans specify the amount of water available for extraction from the water source through the *Long Term Average Annual Extraction Limit (LTAAEL)*.

The available water within this extraction limit is shared between water access licences based on the *share component* of each licence. This is generally expressed as a number of unit shares.

The AWD (made on 1 July, and as required throughout the year) specifies how much water is available for each water licence, based on the licence's share of the available water (i.e. the share component). This means that changing the AWD changes how much water each licence can access.

For example, if a water access licence has 10 unit shares, and an available water determination is made for 1 ML per unit share, then the water access licence's water allocation account will be credited with a water allocation of 10 ML.[88]

What does the NSW Floodplain Harvesting Policy say about AWDs?
"It is also possible that once individual licences have been issued, estimates of the total long-term average annual take associated with floodplain harvesting could be recalculated due to better information or further improvements in model accuracy.

In recognition of this possibility, water sharing plans will permit available water determinations for floodplain harvesting access licences to be adjusted."[89]

What are the rules in making an AWD?
The rules of distribution are contained in the *Water Management Act* (S 60). First priority is domestic purposes and essential town services; second priority is the needs of the environment; third priority is given to stock water, high-security entitlements, and electricity generation.

[85] https://www.youtube.com/watch?v=qmlK8Qda9Iw
[86] https://www.youtube.com/watch?v=s4Nx523_aCY
[87] https://www.industry.nsw.gov.au/water/allocations-availability/allocations/determinations
[88] https://www.industry.nsw.gov.au/water/licensing-trade/licences/types/water-access
[89] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0017/143441/NSW-Floodplain-harvesting-policy.pdf

The lowest priority is then given "to the taking of water for purposes authorised by any other category or subcategory of access licence".[90] This is where floodplain harvesting licences would fit - last.

Who carries the risk of changes to AWDs, and is it compensable?
In short - licence holders do, and no, changes in AWDs are not compensable.

The risk assignment is outlined in the Water Act 2007 (Sch 3A). This says "*water access entitlement holders are to bear the risks of any reduction or less reliable water allocation*" arising from "*seasonal or long-term changes in climate*" and "*periodic natural events such as bushfires and drought*"[91].

Government carries the risk if there is a change in government policy.

Are licences perpetual?
Yes. The *Water Act 2007 (Cth)* defines *water access entitlement* as: "a perpetual or ongoing entitlement, by or under a law of a State, to exclusive access to a share of the water resources of a water resource plan area". While the entitlement itself must be *perpetual* and *ongoing* under Cth law, the AWD varies how much water each entitlement receives, to share water based on water availability.

What do irrigators think about fluctuating water availability on licences?
Irrigators are very familiar with the idea of water allocations, and only receiving a share of what water is available, and facing adjustments if higher priority users require that water. This is the way it works for other licence types. It will work the same for floodplain harvesting licences.

[90] https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2000-092#sec.60
[91] https://www.legislation.gov.au/Details/C2017C00151

Appendix 3: Fact Sheet - The 'Cap' and Floodplain Harvesting

What is the Cap?
The Murray Darling Basin Ministerial Council agreed in 1995 to set a Cap on diversions, represented by the levels of development in 1993/94, to stop any further growth in extractions and water use. It can otherwise be thought of as a 'moratorium'.

Can the Cap change?
Yes, but no. The Cap uses the best available information to understand historic levels, so if new information is available (such as through new technology) then the understanding of historic levels is updated to continue to reflect the best available information.

Importantly, "*This does not mean more water is available for use, this water is in use already—it is just ensuring that it is robustly measured and can be monitored to ensure use does not grow over time.*"[92]

This is common and has happened for many water types in many valleys in recent years.

Is FPH regulated under the Cap?
"Floodplain harvesting has been regulated under the cap system since 1995, although it has never been fully measured and accounted for."[93]

"In the past it has been hard to accurately estimate how much floodplain water has been used or 'harvested', and therefore this water use has not been accounted for in the rigorous way other water use is accounted for."[94]

Will the Cap be updated for FPH?
Yes – previous estimates of the historic levels of FPH have always been acknowledged as having a high degree of uncertainty. However, *"Over the past few years, NSW has considered data from hydraulic models, gauged streamflow, remote sensing, satellite imagery, aerial photos, flood and licensing records, as well as survey and on-ground inspection data."* This means there is now an improved understanding of historic levels.

"As floodplain harvesting is licensed and accounted for, it will be incorporated within the sustainable diversion limits established under the Basin Plan. This will see the sustainable diversion limit increase."[95]

Importantly, this will not increase water take.

Will the Cap adjustment increase water take?
No – it just improves the understanding of what the historic levels of water take were. In fact, because FPH has increased since 1993/94, it will be reduced to be compliant with those levels.

[92] https://www.mdba.gov.au/basin-plan/sustainable-diversion-limits/floodplain-harvesting-overland-flows
[93] https://www.mdba.gov.au/basin-plan/sustainable-diversion-limits/floodplain-harvesting-overland-flows
[94] https://www.mdba.gov.au/basin-plan/sustainable-diversion-limits/floodplain-harvesting-overland-flows
[95] https://www.mdba.gov.au/basin-plan/sustainable-diversion-limits/floodplain-harvesting-overland-flows

Appendix 4: Historical Context of Floodplain Harvesting

Authored by Tim Napier, Executive Officer - Border Rivers Food & Fibre

We consider it important that the committee understands the context of water management in the north of the state is necessarily quite different in some ways, to the rest of the state.

Historically, the development of irrigation industries in the northern basin occurred several decades later than the southern system and was done quite differently, for good reason. Where the southern system had a reliable 'snow-melt' and winter rainfall in the Snowy Mountains which suited large headwater storages and regulated systems, the northern valleys have summer-dominant rainfall which falls often in storm events on the plains, downstream of the headwater storages.

It is also true that flooding was considered a major problem for communities in these regions as it damaged crops and livestock, mostly wool-growing, interrupted access by cutting roads and caused a lot of damage in towns and to regional infrastructure, so flood mitigation was a major factor in Government thinking at the time. In fact, most of the dams were built in the 1970's and the NSW Government had a program to find suitable irrigation industries to utilise the water resources now stored in them. The NSW Government had departments working hard to convince landholders to take up the water to develop new irrigation industries. It was possible for any landholder with access to the river to apply for water licences, but the uptake was initially very slow as wool and wheat were the successful industries at the time. It was not until the 1980's that cotton emerged as the best option, as it was suited to the climate and soils, it was commercially viable and was grown as an annual crop, so that when droughts occurred crops were not planted. Land was also ideally suited to development for irrigation as there were large areas of relatively flat land that was cheap to develop for irrigation.

It is for this reason that when NSW governments were encouraging the development of irrigation industries in the 1970's and 80's, they promoted the building of large on-farm storages and made available for extraction water that occurred instream and across the floodplain from the episodic storms and other rainfall events that are typical of the northern basin. Floodplain Harvesting became the norm as it reduced a problem and created a valuable resource at the same time, one of the fundamental principles of water conservation throughout history. This created an irrigation industry without the NSW Government having to invest tax-payer's money into more large dams and government-owned irrigation schemes. Also, the irrigation industry was developed on private properties that were typically extensive sheep and cattle grazing or broadacre cereals, so were large acreages.

In contrast, much of the southern systems were developed by government resuming existing large holdings, subdividing them into small acreages for intensive horticulture and then building large-scale irrigation infrastructure to service these areas developed by government. The construction of the Murray and Murrumbidgee irrigation schemes were spectacularly successful in developing the inland of NSW and creating the desired food-security and increases in wealth over the previously less-productive land uses. They provided a much-needed injection of economic activity and export income into the state and national economy which was desperately needed in the post-war period. The NSW Government expanded the development of irrigation industries into the north of the state but did not have the motivation to replicate the Snowy Mountains Scheme, despite comparable project options being available,

and still are today. While there were some small government-schemes built in the Border Rivers for tobacco growing, the state government encouraged the investment of farmer's own capital into the development of irrigation infrastructure to facilitate regional development instead of the reliance on tax-payers money. This was also very successful as new industries became established and regional towns developed, expanded, and bloomed, as had occurred in the southern regions.

As well as episodic rainfall and extended periods of flooding, the Border Rivers is also occasionally prone to long periods of drought, so it became obvious that crops with a constant requirement for water (permanent plantings) were not well suited for a region with such episodic water supply in large quantity, so the focus was on annual crops that could be grown when water was available. Subsequently, water management arrangements were developed on this principle.

All water in the NSW Border Rivers was administered under the NSW Water Act 1912 until the Water Management Act 2000 came into being. Floodplain Harvesting was always an approved class of water extraction under the 1912 Act as it was storing water when it was at its most abundant for use when it was not. Its legal authority is based in the Part 2 and Part 8 Works Approvals. Under the 1912 Act it was not required to be licenced and the practice has continued to this day on that basis. With bipartisan support, the licensing process has continued under the Floodplain Harvesting Policy since Minister Nathan Rees announced it in 2008. The licensing of Floodplain Harvesting will bring it under the Water Management Act 2000, requiring compliance with the principles of the National Water Initiative (NWI) which included that all water take is to be licenced, metered and accounted-for. The 2000 Act required the creation of Water Sharing Plans (WSP's) for the first time in each water source in the state. Initially, these Plans administered the highest priority water licences, High Security, General Security, Supplementary, Groundwater and Unregulated, as these were in most common use and had the greatest volumes. The first NSW Border Rivers Regulated River WSP was gazetted in 2008. Floodplain Harvesting was not included in the first Water Sharing Plans as it was recognised that it required a significant project to progress to licensing and this was not considered a priority by the NSW Government of the day.

When the Murray-Darling Basin Plan was first conceived in 2007, a key component for NSW was the licensing of Floodplain Harvesting. This was outlined in the Basin Plan with estimates of its volumes included in the Baseline Diversion Limits (BDL's), with the commitment being made to the NSW government and it's stakeholders that the BDL numbers would be adjusted once a volume was established through the licensing process. The Commonwealth provided funding for NSW government to undertake the licensing process in the early Inter-Governmental Agreements that saw the states cede some of their water management responsibilities to the Commonwealth. Over that time, we have continually sought, and received, assurances about Floodplain Harvesting as a continuing legitimate water source from NSW Ministers Macdonald, Koperberg, Costa, Rees, Humphries, Hodgkinson, Blair and Pavey as well as their senior bureaucrats. The same assurances were also sought and provided from Federal Ministers Turnbull, Wong, Burke, Joyce and Littleproud.

It is sometimes wrongly claimed that Floodplain Harvesting is "new" extraction which "will allow more water to be taken from the rivers". In fact, the practice has occurred since at least the 1960's in most valleys with the blessing and encouragement of the NSW state government, spanning all sides of politics. Whilst volumes have never been monitored historically, the purpose of licensing is that it requires that all take be metered and accounted-for and that all works are approved, making any "new" extractions illegal.

It is also incorrectly claimed that Floodplain Harvesting only occurs in the 5 northern NSW valleys where the licensing is occurring, which is also untrue. NSW DPIE acknowledge that Floodplain Harvesting occurs all over NSW but is most concentrated in northern NSW, so licensing is being prioritised there first. It is unclear at this stage when licensing requirements will extend to the rest of the state where it occurs.

It must also be understood that water sharing in the NSW Border Rivers is based on allowing access to a well-defined share of the water resource **only when it is available**. As mentioned above, the Border Rivers does not enjoy the luxury of large headwater storages to guarantee supply every year but have adapted to natural conditions. Also, the Border Rivers is subject to water sharing arrangements with Queensland under the Border Rivers Act 1946 and subsequent numerous Intergovernmental Agreements.

The licensing of Floodplain Harvesting should be completed as soon as possible to include one of the last pieces of the water management framework. The Basin Plan, for all its faults, is now an established process which will continue to determine in a robust, scientific way, whether extraction volumes (Sustainable Diversion Limits (SDL's)) are suitable. If reductions in SDL's are determined to be required in future, then there is an established recovery system also in place, funded by the Commonwealth, to address imbalances.

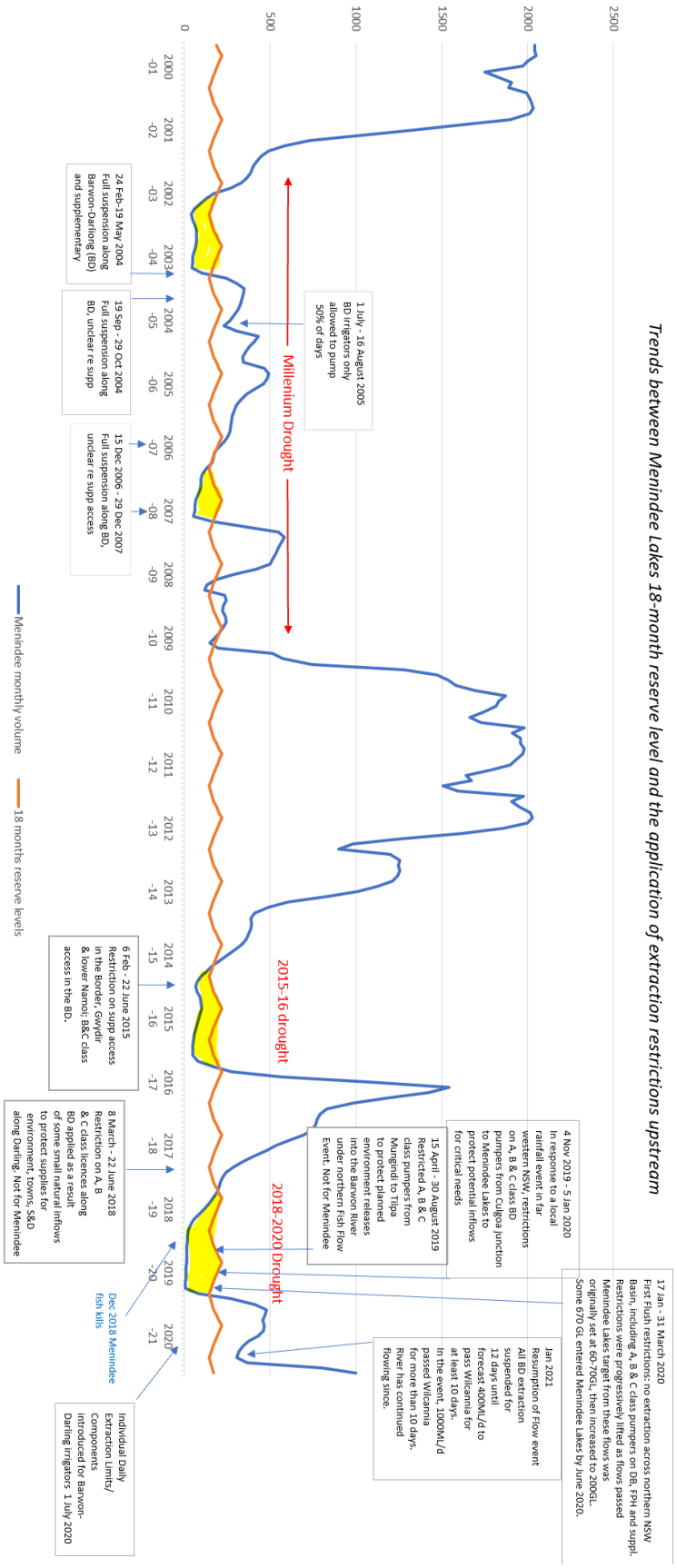
The take-home message is that Floodplain Harvesting is a long-standing, historical form of water take, which was encouraged by all NSW state governments for many decades, owing to the unique conditions and hydrology of the northern basin. Regulating this form of water take has been long foreshadowed and comes as no surprise to our industry that has witnessed this process already for the other forms of water take. This is nothing new and is very much the final step in a long and much broader reform process, that will bring Floodplain Harvesting in line with the regulation of other types of water take.

Tim Napier

Executive Officer.

BRFF
BORDER RIVERS
FOOD & FIBRE

Appendix 5: Trends between Menindee Lakes 18-month reserve level and the application of extraction restrictions



Appendix 6: Sample of Recommendations and statements from Inquiries

The below table provides recommendations and extracts of statements from a sample of recent inquiries and reviews. We encourage the Committee to read these in full.

Inquiry/Review	Date	*Recommendation*	Consistent to Proceed with Regulations
Independent Panel Assessment of the Management of the 2020 Northern Basin First Flush Event – Final Report[96]	September 2020	*"The **continued implementation** of NSW reforms regarding metering, floodplain harvesting and connectivity is **crucial to improving first flush management**."* *"Both management of the event, as well as compliance and enforcement activities, would have benefited from the pending reforms for non-urban water metering and telemetry, and floodplain harvesting licensing and measurement."* *"It is **vital that reforms continue**, not only for reasons of **achieving better water management** generally, but also because they will help improve management of future first flush events."* *Recommendation 8a: "**timely** implementation of the non-urban water metering reforms and floodplain harvesting licensing, measurement and reporting policy".*	Yes
Independent assessment of the 2018-19 fish deaths in the lower Darling – Final Report[97]	March 2019	*"Third, improvements are required in the ability to properly measure and/or estimate diversions, including floodplain harvesting, rather than relying on approximation and (in some cases) long-term averages. This will ensure connectivity protection and assist in compliance of Sustainable Diversion Limits."* *"We have been advised that NSW and Queensland are working towards tightening controls on floodplain harvesting activities and improving measurement, monitoring and compliance arrangements."* *"We recommend that **governments do all that is possible to accelerate and deepen these programs** and in so doing, redress a serious lack of knowledge and transparency around activities which have a significant bearing on Basin hydrology."*	Yes
Murray-Darling Basin Plan: Five-year assessment **Productivity Commission Inquiry Report**[98]	December 2018	*The implementation of the New South Wales Floodplain Harvesting Policy will provide a more accurate basis for compliance of this form of take (chapter 6).*	Yes

[96] https://www.industry.nsw.gov.au/__data/assets/pdf_file/0007/321649/final-report.pdf
[97] https://www.mdba.gov.au/sites/default/files/pubs/Final-Report-Independent-Panel-fish-deaths-lower%20Darling_4.pdf
[98] https://www.pc.gov.au/inquiries/completed/basin-plan/report/basin-plan.pdf

SA Royal Commission[99]	January 2019	*"**A licensing and metering regime for floodplain diversions is necessary**. New South Wales and Queensland must act on this issue to restore confidence within their own communities and amongst Basin States.* *In New South Wales, it is frankly remarkable that a floodplain diversion policy has still not been implemented. Although the policy has been revised, it reveals no substantial change that could justify the failure to implement it. There is no objection, in principle, to the approach canvassed by New South Wales that would require floodplain diversions to be licensed and floodplain structures to be approved, having regard to the impact of diversions and the construction of infrastructure upon the environment and downstream users by reference to a Floodplain Management Area Plan."*	Yes
Impact of lower inflows on state shares under the Murray–Darling Basin Agreement – Interim Inspector general of Murray-Darling Basin Water Resources[100]	March 2020	*"Both the NSW and Queensland governments have been investigating and implementing opportunities to improve floodplain harvesting policy and management. NSW made changes to its 2013 floodplain harvesting policy in 2018, which it is continuing to implement to ensure all relevant licences and approvals are in place by July 2021.* *An independent peer review into floodplain harvesting in northern NSW was also commissioned in 2018 (Weber & Claydon 2019). The review made a number of recommendations that the NSW Government **accepted in full**, responding with a Floodplain Harvesting Action Plan (DPIE 2019a).* *This work aims to ensure that floodplain harvesting in NSW is licenced and brought within the allocation framework, and that NSW ensures that any floodplain harvesting is undertaken within **sustainable diversion caps** set under the Murray–Darling Basin Plan (the Basin Plan)."*	Yes
Investigation of the causes of mass fish kills in the Menindee Region NSW over the summer of 2018-19 – Australian Academy of Science[101]	February 2019	*"**Implement regulation of floodplain harvesting** across New South Wales and Queensland, incorporating understanding of assessment of take at Murray-Darling Basin Cap levels and accounting for long-term groundwater impacts."*	Yes

[99] https://www.environment.sa.gov.au/topics/river-murray-new/basin-plan/murray-darling-basin-commission
[100] https://www.igwc.gov.au/sites/default/files/2020-09/iig_final_report.pdf
[101] https://www.science.org.au/supporting-science/science-policy-and-sector-analysis/reports-and-publications/fish-kills-report

Appendix 7: Images from most recent flood event (March 2021)

The recent heavy rainfall event in the northern Basin (March 2021) led to Lake Wetherell (within the Menindee Lakes) receiving 1,006GL (2 Sydney Harbours). This was even without regulation in place to limit and meter FPH.

If FPH regulation was in place for this event (such as account limits for 500%), many irrigators would have reached their limit, and thus would be unable to access that volume of floodwater for another 5 years. However, those rules are still not in place.

The WaterNSW Operations Update "Northern NSW End of Year Update 2021"[102] provides data from this flood event, as well as the operation of drought rules (such as the Resumption of Flow Rule in the Barwon-Darling to provide for connectivity).

The Gwydir River flooded at Yarraman. (Picture: Haylee Dixon)

Moree submerged by floodwater (Picture: Sascha Estens)

[102] https://waterinsights.waternsw.com.au/api/water-source/v2/updates/689/attachment

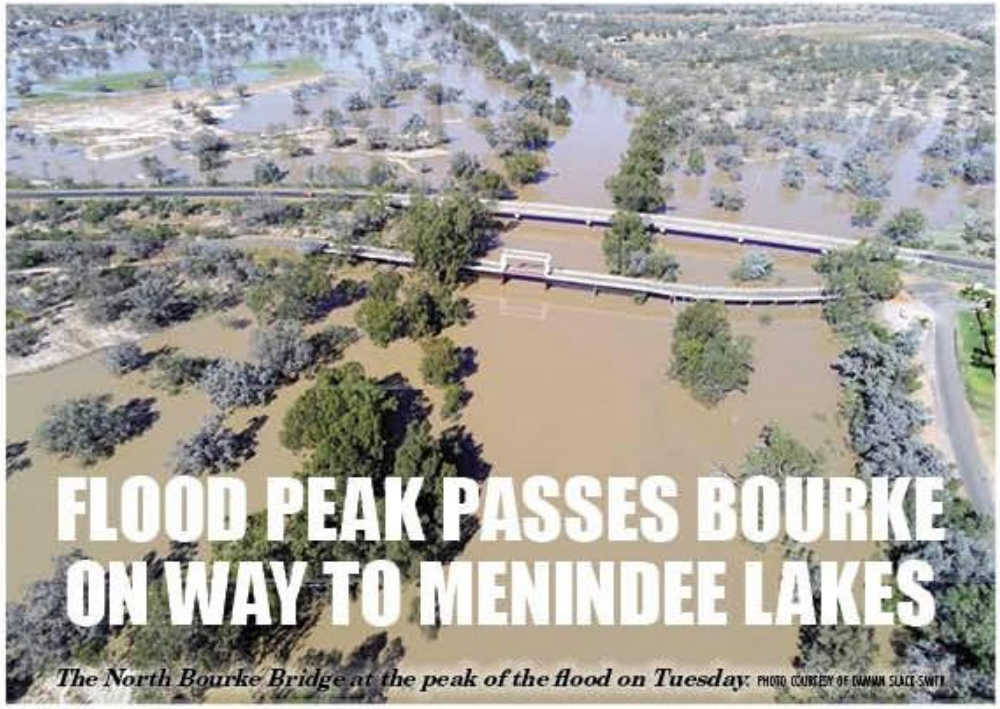
Photo: Near Moree (Photo: Moree Champion[103])

Photo: Barwon-Darling (near Bourke)

[103] https://www.moreechampion.com.au/story/7183232/your-photos-of-floodwaters-in-and-around-moree/#slide=2

BOURKE'S COMMUNITY NEWSPAPER

FLOOD PEAK PASSES BOURKE ON WAY TO MENINDEE LAKES



The North Bourke Bridge at the peak of the flood on Tuesday. PHOTO COURTESY OF DAMIAN SLACK-SMITH

A minor flood peak of near 11 metres passed through Bourke this week, causing some minor inconvenience, and giving the river a good flush.

At the time of writing (Tuesday 27 April), the Darling River at Bourke was 10.93 metres and rising slowly.

The volume of water passing Bourke on Tuesday was just over 43,000 megalitres per day – or 43 billion litres per day.

According to WaterNSW, over half a million megalitres, or 500 billion litres, has already flowed past Bourke during this flood. This water, on its way downstream to Louth, Tilpa, Wilcannia, and the Menindee Lakes is equal to the capacity of Sydney Harbour and there's much more to come.

The Darling River at Louth was 9.04 metres and rising on Tuesday, above the minor flood level, and is expected to peak at 10.60 metres in early May, with moderate flooding.

At Tilpa, the Darling rose above minor flood level (9 metres) on Monday and is expected to reach 11 metres in early May, with moderate flooding.

The Darling River at Wilcannia was 7.79 metres on Tuesday, and the river there is expected to reach around 9.40 metres in late May with minor flooding.

After a good flow in the Darling River last year, the Menindee Lakes had received over 650,000 megalitres of water – about a third of total capacity of the lakes.

But due to water use in the Lower Darling River and the massive summer evaporation rates of the Lakes, this volume had dropped to 300,000 megalitres by March 2021.

WaterNSW is currently expecting up to 900,000 megalitres to flow into Menindee Lakes bringing the total in the Lakes to well over 1 million megalitres.

Menindee Lakes storage comprises four main lakes – Cawndilla, Menindee, Pamamaroo and Wetherell – and several smaller lakes with a combined capacity of 1,731,000 megalitres, three and half times the capacity of Sydney Harbour.

The Menindee Lakes can lose up to 700,000 megalitres per year to evaporation when they are full. Average annual evaporation losses are over 400,000 megalitres per year.

Spokesman for Barwon-Darling Water Ian Cole said that evaporation losses from Menindee Lakes had long been a concern for successive state and federal governments.

"The lakes are in a semi-arid area and are extremely shallow storages with huge surface areas. In most years they lose the equivalent of one Sydney Harbour of water to evaporation," Mr Cole said.

"This huge loss of such a precious resource is taken into account when governments are making decisions about releasing water from the lakes," he said.