

DELIVERING THE BASIN PLAN

Submission to Australian Government
public consultation on innovative ideas to
deliver the Murray-Darling Basin Plan

NSW Irrigators' Council

Executive Summary

This submission is in response to the Australian Government’s public consultation “*to consider all innovative ideas to deliver the Murray–Darling Basin Plan in full*”.¹

NSW Irrigators’ Council (NSWIC) does not support any further water recovery from the consumptive pool available to farmers for irrigated agriculture. Nothing in this submission should be read as any support or endorsement for further water recovery from the irrigation pool.

NSWIC has identified the following options to deliver the Basin Plan’s desired environmental outcomes without causing further socio-economic hardship for Basin communities or negative water market impacts further driving up the price of water to grow food and fibre.

- Expand 450GL eligibility to stock and domestic delivery systems.
- Town water supply efficiencies.
- Coleambally Irrigation Cooperative/Murrumbidgee Irrigation off-farm efficiency project.
- West Corungan Private Irrigation District modernisation project.
- Murray Irrigation Ltd (MIL) Reconnected Floodplains project.
- River operations: Free up more discretionary water for environment through better storage management and more efficient water delivery.
- Market solutions, ie, temporary trade such as Narran Lakes; lease-back models like Kilter Rural/Nature Conservancy Balanced Water Fund.
- Recognition of rules-based recovery since 2012.
- Recognition of IIO Partnerships with the Commonwealth Environmental Water Holder.
- Private property wetlands watering program.
- Expand fish screening program (currently over-subscribed) and save close to three million native fish annually (NSW DPI-Fisheries).
- Fish passage weirs at Menindee, Balranald and Mildura.
- Private property wetland watering offset.

These options are put forward to:

- Avoid further water recovery (i.e. direct buybacks or indirect via on-farm efficiency projects transferring entitlement to the Commonwealth), or SDL reductions with widespread reliability impacts, as could occur under the Basin Plan’s current design;
- Find better ways to achieve environmental outcomes and address the key degradation drivers in the Basin (i.e. such as carp degrading in-stream habitat and maintaining poor water quality no matter how much additional environment water is recovered from farmers).

Legislative changes are required to implement innovative ideas, (i.e. extended timeframes beyond mid-2024). Other changes will be required for the MDBA to move beyond reconciling the Plan only against water recovery progress and scoring Sustainable Diversion Limits Adjustment Mechanism (SDLAM) projects only with simplistic modelled streamflow indicators, rather than total environmental gains embedded in SDLAM projects.

1. <https://consult.dcceew.gov.au/ideas-to-deliver-the-basin-plan>

Additionally, it must be remembered that the centerpiece purpose of the Basin Plan was to implement, and achieve compliance with, the Sustainable Diversion Limits (SDLs). This has now been achieved (SDLAM-adjusted in the southern Basin) - in fact, usage in many valleys is persistently below the SDL. Governments must commit to meeting SDLs, without over-recovery of water.

Communities are concerned that further water recovery will result in water use in many valleys dropping further below their SDL. NSWIC recommends a mechanism to ensure Governments are held to account, to ensure that water can be made available for use up to the SDL in valleys with persistent under-usage, or in valleys subjected to over-recovery (which may be many more in NSW following WRP accreditation).²

Introduction

The Murray-Darling Basin Plan has a water recovery target of 2750 billion litres (gigalitres, or GL) annual average yield from water entitlements by 30 June 2024. The Plan allows for flexibility around this target through the Sustainable Diversion Limit Adjustment Mechanism (SDLAM).

The SDLAM allows the volume of water entitlements recovered to be reduced by up to 605 GL through offset-projects that deliver similar or better environmental outcomes. The SDLAM also allows for up to 450 GL in additional water recovery above the 2750 GL target through water efficiency projects, on condition projects have neutral or positive community socioeconomic and water market impacts³.

Shortfalls in both SDLAM targets are anticipated by 30 June 2024:

- The MDBA estimates a 190 – 315 GL shortfall on the SDLAM 605 GL
- 26 GL of the 450 GL has been delivered or is contracted, leaving a 424 GL shortfall⁴.

Under the Basin Plan, buybacks of farmers' water entitlements are allowed to meet any shortfall in the SDLAM 605 GL. The Basin Plan currently does not allow for the timeframe to complete SDLAM 605GL projects to be extended, nor for new projects to be added into the mix notified in 2019, several of which are delayed, will not yield the estimated savings or have proved unfeasible.

Buybacks are not an option for any shortfall towards the 450 GL without legislative change. As it stands, further water recovery from farmers is possible through on-farm water efficiency projects in which farmers transfer their entitlements to the Government in return for infrastructure funding.

2. <https://www.nswic.org.au/wp-content/uploads/2023/03/2023-03-21-Wheres-the-Gap-FINAL.pdf>

3. The additional 450 GL was a last-minute Commonwealth promise to the South Australian Government in October 2012 to win the State's support for the Basin Plan signed in effect in November 2012. The Basin Ministerial Council in 2018 agreed to socioeconomic impact test criteria to apply to all projects.

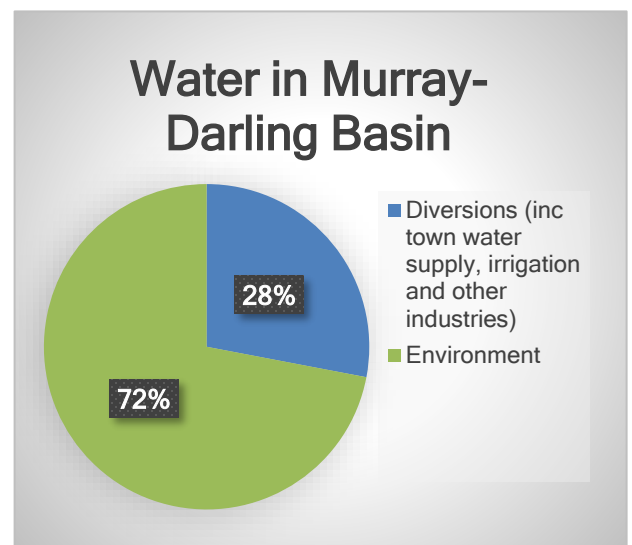
4. Under the Plan's limits of change rules, the full 605GL and at least 62 GL of the 450 GL must be recovered to meet the Basin Plan's 2750 GL benchmark target. Provided the full 605GL in offsets is delivered, water use in Basin valleys are already meeting or under the Sustainable Diversion Limits linked to the 2750GL target.

NSWIC does not support on-farm efficiency projects, as they amount to an indirect water buyback that ABARES⁵ has identified as having a greater negative impact than even direct buybacks (which are bad enough) on food and fibre production and the water market.

NSWIC has identified options that will negate the need for direct or indirect buybacks to make up any shortfall in the SDLAM 605 GL or the 450 GL. These options will deliver positive environmental outcomes without further undermining the resilience and wellbeing of Basin communities, particularly during droughts. This is more important than arbitrary timeframes, remaining trapped in a ‘just add water’ approach informed by an outdated volumetric model, or appeasing political deals.

Background

- The Murray-Darling Plan so far has recovered more than 2100 GL of water (more than four Sydney Harbours), for the environment.⁶
- To put this into perspective, 1 in 3 litres of irrigation water has been redirected to the environment (when combined with 875 GL recovered in pre-Basin Plan water reforms⁷).
- As a result, total diversions for agriculture, towns and industry have been reduced to just 28% of inflows.
- This means the environment now receives 72% of water, which remains in rivers (both Held Environmental Water (HEW) and Planned Environmental Water (PEW)). This is well within globally accepted standards for water diversions⁸.
- The Basin Plan’s central purpose is setting, and achieving compliance with SDLs. This has now occurred (as of 2019), assuming the full 605 GL in offsets is delivered.
- This SDL compliance has been made possible through 98% of surface water recovery and 92% of groundwater recovery against the Bridging the Gap target being complete.
- The amount of water diverted varies each year, based on water availability. This means climate change is already factored into water management in real time and should not be used as justification for additional water recovery (as entitlements receive low or zero water in dry years anyway).
- Recovery of an additional 450 GL in entitlements from farmers cannot be delivered to achieve the environmental outcomes envisaged in the Murray Darling Basin Authority’s October 2012 model



5. [Economic effects of water recovery in the Murray–Darling Basin - DAFF \(agriculture.gov.au\)](#)

6. [Progress on Murray-Darling Basin water recovery - DCCEEW](#)

7. <https://www.mdba.gov.au/sites/default/files/docs/Pre-2009-water-recovery-table-2017.pdf>

8. <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2427.2009.02204.x>

⁸ N. Leroy Poff et. al (2009) “The ecological limits of hydrologic alteration (ELOHA): a new framework for developing regional environmental flow standards

run report⁹, unless all constraints are relaxed. This includes more than 6000 landholders agreeing to voluntary flood easements to allow deliberate inundation at medium and higher flood levels – levels much higher than the below-minor flood proposed as part of the SDLAM 605 GL measures.

- No public consultation or impact assessment was undertaken before the then Federal Government promised South Australia the additional 450 GL. The Productivity Commission in 2018¹⁰ warned that pursuing the 450 GL recovery without relaxing constraints meant the water could be unusable.

Many options other than water recovery from farmers are available to deliver the environmental outcomes linked to the 450 GL. Options include river operational changes to free up more water for discretionary environmental use and complementary measures.

Why we need to go #Beyond Buybacks

Socio-Economics

- ***Proposed water recovery is a substantial proportion of the remaining water available to grow food and fibre***
 - For example, the NSW portion of the 450 GL is the equivalent of nearly half (44%) of the remaining high-security consumptive water (LTDLE) in the NSW Southern Connected Systems.¹¹
- ***Water recovery from farmers costs jobs in Basin communities***
 - 30% (3261) of 10,801.5 FTE jobs lost across 40 southern MDB communities from 2001 to 2016 attributed to water recovery for the environment.
 - Job losses due to water recovery as proportion of total jobs lost by State:
 - NSW 21% (648 FTE)
 - Victoria 30% (1684 FTE)
 - South Australia 45% (929 FTE)¹²
- ***Farmers cannot afford to pay market allocation prices this high, this often***
 - Buybacks have driven allocation prices up an average \$72/ML
 - = Prices higher than \$200/ML in three out of 10 years
 - Another 450GL from the sMDB pool
 - = Prices higher than \$200/ML in eight out of 10 years¹³
- ***Water recovery has large production impacts***
 - 450 GL = \$500 million a year in lost production in southern MDB
 - 760 GL (450GL + SDLAM shortfall) = \$900 million a year forgone¹⁴

9. [Hydrologic modelling of the relaxation of operational constraints in the southern connected system: methods and results | Murray-Darling Basin Authority \(mdba.gov.au\)](#)

10. [Inquiry report - Murray-Darling Basin Plan: Five-year assessment - Productivity Commission \(pc.gov.au\)](#)

11. <https://www.nswic.org.au/wp-content/uploads/2022/08/2022-08-01-450-Report-FINAL.pdf>

12. [Southern Basin community profiles | Murray-Darling Basin Authority \(mdba.gov.au\)](#)

13. ABARES 2020 <https://www.agriculture.gov.au/abares/products/insights/economic-effects-of-water-recovery-in-murray-darling-basin>

14. 2022 Frontiers Report for Victorian Government https://www.water.vic.gov.au/_data/assets/pdf_file/0023/600719/Fact-sheet-Socio-economic-impacts-of-Basin-Plan-water-recovery-in-Victoria.pdf

Water markets

- Buybacks are neither cheap, easy nor quick. Entitlements prices have almost quadrupled since the last buyback tenders more than a decade ago, from around \$2200/ML to \$6000-\$9500/ML.
- The southern Basin water market has shrunk. Less than 100 GL a year in entitlements is now commercially traded a year. Even if the Commonwealth spread out buybacks over several years, it would still distort the market, driving up prices and breaching ACCC recommended reforms to stop market participants capturing or distorting the market.

Ecological

- The 2018 Productivity Commission 5-year Implementation Review¹⁵ found that **unless river constraints are addressed, more water could be recovered from farmers but it could be unusable.**
- With diversions down to just 28% of inflows, the MDB is within international thresholds for sustainable levels of diversion.
- Leading degradation drivers – invasive species (carp); habitat degradation; water quality; fish passageways – require more than just adding water. Until these are addressed, just adding more water is only tinkering at the edges of the major environmental degradation drivers.
- 93% of the wetlands in the Basin are on private property. Achieving landscape level change requires partnerships with private landholders.
- The objectives of the 450 GL, for example, are written into legislation (86AA), as copied below. However, the Productivity Commission’s 2018 five-year assessment of the implementation of the Basin Plan found:

*“Recovering water through efficiency measures has become **increasingly divorced from the environmental outcomes it is meant to achieve.** The current focus of the program is on meeting the legislated target of recovering an additional 450 GL by 2024. There is little evidence that it has been designed to recover water in the places needed to effectively achieve the enhanced environmental outcomes.”*

Given the significant risks and impacts to irrigated agriculture and Basin communities, the intended objectives must be carefully examined, including policy mechanisms capable of achieving them. Furthermore, before progressing such measures, it is important to understand the extent to which many of these environmental outcomes are already being met, the capacity (if any) for proposed policy mechanisms to further address them (and to what extent), particularly without constraints managed, as well as alternative options that may cause fewer and less severe negative socioeconomic impacts.

15. [Inquiry report - Murray-Darling Basin Plan: Five-year assessment - Productivity Commission \(pc.gov.au\)](https://www.pc.gov.au/inquiry/murray-darling-basin-plan/five-year-assessment)

Part 2AA—Water for the Environment Special Account

86AA Object of this Part

- (1) The object of this Part is to enhance the environmental outcomes that can be achieved by the Basin Plan, as in force from time to time, by:
 - (a) protecting and restoring the environmental assets of the Murray-Darling Basin; and
 - (b) protecting biodiversity dependent on the Basin water resources;
 so as to give effect to relevant international agreements.

- (2) Without limiting subsection (1), environmental outcomes can be enhanced in the following ways:
 - (a) further reducing salinity levels in the Coorong and Lower Lakes so that improved water quality contributes to the health of insects, fish and plants that form important parts of the food chain, with the aim of achieving the following outcomes:
 - (i) the maximum average daily salinity in the Coorong South Lagoon is less than 100 grams per litre;
 - (ii) the maximum average daily salinity in the Coorong North Lagoon is less than 50 grams per litre;
 - (iii) the average daily salinity in Lake Alexandrina is less than 1000 microsiemens per centimetre for 95% of years and 1500 microsiemens per centimetre all of the time;
 - (b) keeping water levels in the Lower Lakes above:
 - (i) 0.4 metres Australian Height Datum for 95% of the time; and
 - (ii) 0.0 metres Australian Height Datum at all times;
 to provide additional flows to the Coorong, and to prevent acidification, acid drainage and riverbank collapse below Lock 1;
 - (c) ensuring the mouth of the River Murray is open without the need for dredging in at least 95% of years, with flows every year through the Murray Mouth Barrages;
 - (d) discharging 2 million tonnes of salt per year from the Murray-Darling Basin as a long-term average;
 - (e) further increasing flows to the Coorong through the Murray Mouth Barrages, and supporting fish migration;
 - (f) in conjunction with removing or easing constraints referred to in subparagraph (h)(ii), providing opportunities for environmental watering of an additional 35,000 hectares of floodplains in the River Murray System, to do the following:
 - (i) improve the health of forests and the habitats of fish and birds;
 - (ii) improve connections between the floodplains and rivers in the River Murray System;
 - (iii) replenish groundwater;
 - (g) increasing the flows of rivers and streams, and providing water to low and middle level floodplains and habitats that are adjacent to rivers and streams, in the River Murray System:
 - (i) to enhance environmental outcomes within those floodplains, habitats, rivers and streams; and
 - (ii) to improve connections between those floodplains and habitats, and those rivers and streams;
 - (h) in any other way that is consistent with:
 - (i) the Authority's modelling of the effect of increasing the volume of the Basin water resources that is available for environmental use by 3200 gigalitres; and
 - (ii) easing or removing constraints on the capacity to deliver environmental water to the environmental assets of the Murray-Darling Basin.



Non-buyback options for SDLAM 605GL and 450GL

1. Recognition of reforms outside the Basin Plan

Many changes in water management have occurred outside the Basin Plan throughout the implementation period. These should be accounted for.

Significant other reforms to water management have occurred outside of the Basin Plan, since the Plan commenced. These reforms have led to reductions in long-term average annual diversions. However, these are not recognised or factored into the Basin Plan reconciliation.

A key example is rules-based changes in WSPs. The 2010 Productivity Commission report on mechanisms for water recovery recognizes rule changes as a form of water recovery, particularly for unregulated systems.

To be abundantly clear, NSWIC is not advocating for more of these measures. Rather, NSWIC is advocating for the rule-changes which have already occurred since the Plan commenced (i.e. since the BDL was determined), which have already resulted in lost or restricted access to the consumptive pool, to be acknowledged and accounted for.

To use the Barwon-Darling as an example, WSP rule changes since 2012 have included the introduction of new flow thresholds restricting access under Class A licences; the Resumption of Flow rule; Active Management; and, other new connectivity rules. Similar connectivity rules are being developed for other northern Basin valleys. The technical reports developed as part of the Western Regional Water Strategy provide data on the impacts to long-term average annual diversions of these options, with many showing very high impacts.

Similar examples can be found in other valleys across the Basin.

NSWIC recommends a stocktake of these rule changes across the Basin, including what impacts they have had on the total consumptive pool, and actual levels of take. This is in the spirit of ensuring the Basin Plan is comprehensive in accounting for all changes to water take since the BDL was identified.

Additionally, the Basin Plan was premised on the assumption there would be no impacts on the yield or reliability of entitlements. However, rules changes have noticeably impacted yield and reliability.

2. Partnership models

Recognise the importance of working together



The importance of participatory approaches with landholders is increasingly recognised in the conservation and biodiversity fields (Kearney et al. 2022), but under-recognised in Australian water management, especially under the restrictive Basin Plan model.

The importance of better recognizing and accounting for participatory approaches is writ large in the fact that **of the 30,000 wetlands in the Basin, 93% are on private property.**

The Basin is a landscape mosaic of multiple land and water uses. The southern Basin for example – with significant water infrastructure, such as large headwater storages to regulate flows, and Irrigation Infrastructure Operator (IIO) channels to deliver water – forms a human landscape where various water users, including ecosystems, are inextricably linked. Notions of ‘the environment’ are complex, going

beyond just protected areas or dedicated reserves; and notions of ‘environmental management’ are consequently more nuanced and greater than managing particular environmental sites or assets alone.

This means that working together with landholders is not just a nicety, but ecologically important.

There are significant further opportunities to work together to enable environmental watering and management throughout this mosaiced landscape of public and willing-private land. This would be a much more visionary approach, to achieve landscape level change, than the current focus solely on streamflow indicators in rivers and floodplains that are severely constrained by private land.

Partnership models are at the forefront of contemporary best-practice water policy, and would enable Australia to remain a global leader in this space.

Further, UN SDGAction50827 is a private-sector led (by NSWIC) commitment to boost partnerships with the irrigation sector for environmental water delivery, to public and private lands. There is significant opportunity for future Basin Plan implementation to be working together towards this action.¹⁶

What’s possible?

To put the scale of what’s possible into context, the extensive network of channels to deliver water throughout the landscape, just in NSW, includes:

- Murray Irrigation Ltd (Murray valley): 3000 km of channels to deliver water to more than 2200 land holdings across 724,000 ha.;
- Murrumbidgee Irrigation (Murrumbidgee valley): more than 1740 km of channels to deliver water to more than 3260 landholdings across 378,911 ha;
- West Corugan Private Irrigation District (Murray valley): 565 km of channels to serve approximately 300 properties across 212,000 ha;
- Coleambally Irrigation (Murrumbidgee valley): 516 km of supply channels and 711 km of drainage channels to deliver water to nearly 500 farms across 457,000-ha (Coleambally Irrigation 2021);
- Western Murray Irrigation (Murray valley): 180 km of pipelines to service more than 4100 ha of irrigated land.

This is in addition to private diverters, other landholders, and other regions/States.

What’s already happening?

Numerous examples already exist of successful partnerships between environmental water holders, landholders and Irrigation Infrastructure Operators (IIOs) which enhance ecological outcomes and foster community confidence and trust.

16. <https://sdgs.un.org/partnerships/boost-partnerships-irrigation-sector-environmental-water-delivery-public-and-private>

For more information, see the NSWIC Working Together campaign showcasing great examples.¹⁷

In summary:

IIO	Recent E-Watering
Coleambally Irrigation (CICL)	There have been 33 watering events over 13 sites in the last seven years.
Murray Irrigation (MIL)	Since 2001, more than 205 gigalitres of environmental water has been delivered to wetlands, ephemeral creeks and rivers within the MIL footprint.
Renmark Irrigation Trust (RIT)	Since 2017, the Trust has delivered more than two gigalitres of water for the environment to 12 different sites, inundating 120 hectares.
Murrumbidgee Irrigation (MI)	Since 2015, MI has delivered more than 11 gigalitres of environmental water to identified target areas. Most environmental water in 2021-22 was delivered to Nericon Swamp, an important bird breeding site just outside of Griffith, and the Ramsar-listed Fivebough and Tuckerbil swamps in Leeton, and Campbells swamp in Griffith.

What can be done?

1) Account for new private sector environmental waterings since the BDL was calculated

While some IIOs have done environmental watering for a long time, the developments since 2012 are vastly significant. These developments are currently not factored into or accounted for under the Plan.

However, the ability to form partnerships with IIOs and landholders has enabled held environmental water holders to achieve greater outcomes, further into the landscape, than initially anticipated when the Plan was developed and modelled. IIOs can deliver water to sites – such as blackbox depressions – very efficiently. Not only is this more efficient, but it provides watering at times when these sites may not otherwise receive water.

In a similar way to how constraints management projects in the SDLAM 605GL are premised on the notion of enabling environmental water to reach environmental sites further into the landscape (reducing the need for further water recovery), the use of partnerships to use infrastructure and technology to achieve a similar outcome through more efficient water delivery, should also provide justification to reduce the volume of specific environmental water required.

2) Expand partnerships with willing IIOs

There is also significant potential to achieve better environmental outcomes by utilising existing infrastructure. An example is using IIO delivery networks to get water into sites higher up on floodplains

17. <https://www.nswic.org.au/wp-content/uploads/2022/11/Working-together.pdf>

that might otherwise only receive overbank watering through flooding in extremely wet years (particularly with a changing climate).

Case Study: Murray Irrigation Reconnected Floodplains Project

The Murray Irrigation (MIL) Project would be Australia's largest targeted environmental watering project using a supply network. It could reconnect and rejuvenate 74,000ha of floodplain at-risk ecosystems, including connecting 2000 km of rivers and creeks, and rehabilitating 2000 wetlands (including on private property).

As shown in the below map, MIL has an extensive water supply network overlain with an extensive riparian network. By utilising this network, water can be supplied throughout this landscape efficiently, and at times when natural inundation is not possible.

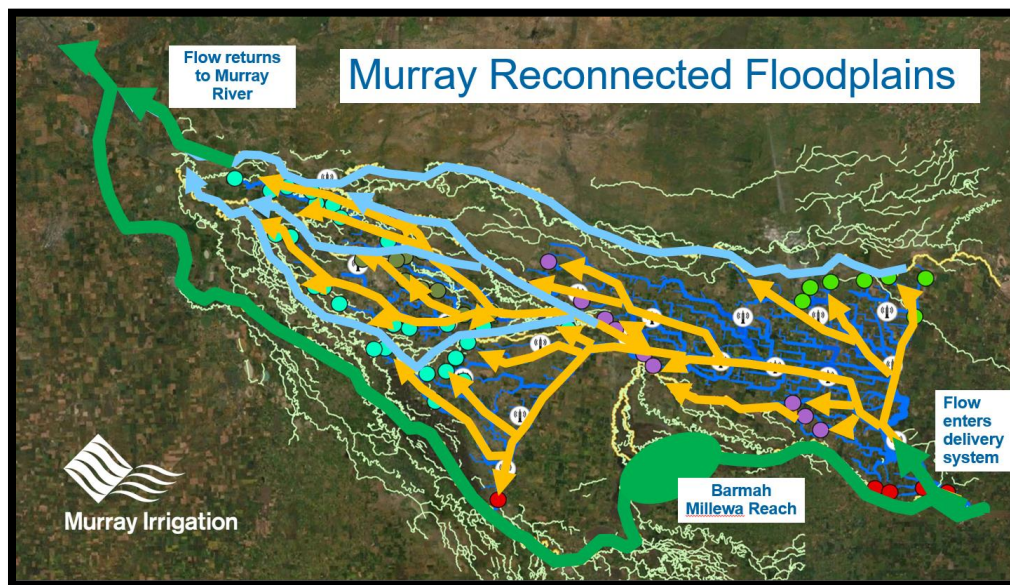


Image source: Murray Irrigation Limited

The project can therefore be considered a climate change adaptation strategy in that it can deliver water to environmental assets at times where this may not be possible even under a natural flow regime, much less in highly regulated river systems.

This image shows how the MIL system can deliver water to wetlands (including on-farm), shallow creeks and deeper creeks at lower flow rates than required from natural river flow events. From an efficiency perspective 100,000ML of targeted flows would effectively achieve the same outcomes as 500,000+ ML of 'natural' flows. The Project also takes pressure off the Barmah-Millewa Reach of the Murray River.

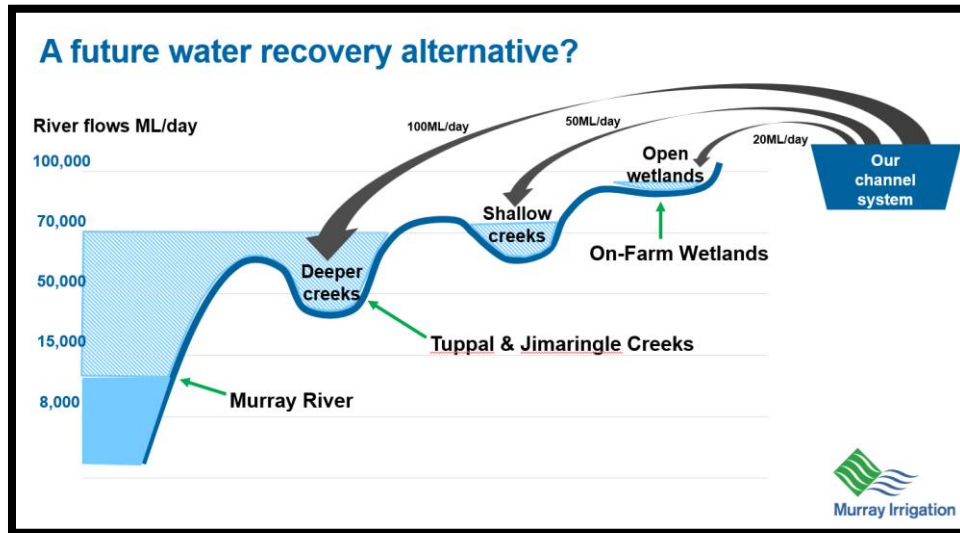


Image source: Murray Irrigation Limited

More information is available here: <https://murray-irrigation.multiscreensite.com/project/murray-reconnected-floodplains>

Similar proposals exist from other IIOs. For example, Coleambally Irrigation Co-Operative Limited (CICL) and Murrumbidgee Irrigation (MI) are investigating the feasibility of a Murrumbidgee Optimisation Program, where delivery of the Basin Plan outcomes in the Murrumbidgee can be achieved by investment in infrastructure and collaborative systems not previously identified by government. This project has elements of both SDLAM (605 GL) and efficiency measures (450 GL). Please refer to respective submissions from CICL/MI for further information.

3) Create a program for willing private diverters

This option is similar to the above methodology of IIO environmental watering, but for private diverters outside of an IIO footprint.

This could involve:

- Formal partnerships between a landholder & the CEWH (both recognition of existing, and encouraging new opportunities) - this would require assessment of sites to determine environmental value, and ability of the landowner to deliver the water using their pumping equipment/infrastructure; or
- Recognition of where a landholder stores their productive water in a manner to provide environmental benefits before use for production. For example, many landholders voluntarily fill billabongs as a temporary storage which provides environmental benefits prior to that water being used for production.

It is our understanding that there are already, and would be many more willing, landowners to manage wetlands on their property. However, the current absence of an over-arching framework or program for participation prevents this occurring on scale, as well as a lack of funding opportunities at present.

There would also be opportunities to work with landholders on complementary measures (i.e. habitat restoration) to manage these sites. Funding would be critical.

3. Off-farm water saving efficiency projects

Town water

Water security for too many rural and remote towns across the Basin is precarious, largely as a result of inadequate investment in upgrading delivery systems and diversifying town water infrastructure. This was revealed in the most recent drought, with a number of communities (particularly in the northern Basin) reaching or nearing ‘Day Zero’, where they run out of water for critical human needs.

It should be an immediate Government priority to ensure every Australian community has adequate water security, and never reaches Day Zero.

Opportunities to improve delivery efficiency of town water supplies should be sought. Many regional towns have very high ‘loss’ factors in the delivery of their town water supply via channels from rivers. Pipelines would not only improve efficiency and free up more water than can be used for environmental purposes, but could greatly assist in water security for drought-prone towns. Cobar is a case in point.

Governments must prioritise ensuring adequate town water security across the Basin (and Australia), through ensuring appropriate services and infrastructure is in place, maintained, and fit for purpose. This may include (but is not limited to) secondary water supply sources; treatment plants; pipelines, etc (see NSW Western Weirs Program / Western Regional Water Strategy). The existing WESA funding would go a long way to addressing this.

Stock and domestic

In addition to investing in these measures, there is also scope to include Stock & Domestic efficiencies within the criteria for water-saving efficiency measures for willing participants. Such projects will free up a quantifiable volume of water that then be used for environmental purposes.

Irrigation District projects

NSWIC is aware of at least two water-saving efficiency proposals¹⁸:

- Coleambally Irrigation Cooperative/Murrumbidgee Irrigation off-farm efficiency project.
- West Corugan Private Irrigation District modernisation project.

Further information on these and other off-farm efficiency proposals should be sought from proponents. NSWIC includes them in this submission only as options worth further investigation by the Commonwealth and Basin States.

18. Inclusive of both SDLAM 605 and 450

4. River operations

Better storage, delivery and management of water

Improvements to river operations provides significant opportunity to free up more water for discretionary environmental purposes through better storage management and more efficient water delivery.

Work over the past 10 years confirms that substantial volumes of water can become accessible to users through better storage management and more efficient water delivery. This proposal, like the one above, could serve a number of components, such as under-recovery, the 605 or 450.

NSWIC is aware that existing assessments have identified the below river operations options. The respective volumes have already been identified as achievable via independent assessment:

RIVER OPERATIONS PROJECT	MAX VOLUME (GL)
1. Computer Aided River Management for the Murrumbidgee River.	21 GL
2. Barmah-Millewa Forest Environmental Water Allocation.	40 GL
3. Hume Dam Airspace Management.	70 GL
4. Flexible Rates of Fall in River Levels Downstream of Hume Dam.	25 GL
5. Structural and Operational Changes at Menindee Lakes.	106 GL
	262 GL

Other projects have also been circulating in recent times, that are not yet captured by formal policy.

RIVER OPERATIONS PROJECT	MAX VOLUME (GL)
1. <u>Improved Regulation of the River Murray</u> : "... by implementing the proposed rule change, the previously estimated increase of an additional 110 GL/yr of operational loss ... can be avoided." ¹⁹	110 GL
2. <u>Optimisation of Tar-Ru – Lake Victoria</u> : The purpose is to "... develop a risk-based framework for making decisions about the timing and volume of Hume – Tar Ru transfers" ²⁰ , that minimise the risk of resource loss through storage spills and conveyance losses. The last major consideration of this type resulted in the <i>Lake Victoria Operating Strategy</i> ²¹ , which created an average of 19 GL of additional flow to South Australia in dry years (p. 33).	19 GL
	129 GL

Again, further assessment and consultation would be required before NSWIC could formally endorse such options, but options of this kind, in-principle, should be investigated.

19. [10-Improved-Regulation-of-the-River-Murray-IRRM-Current-notification-Amendment-1-Redactions-applied.pdf \(water.vic.gov.au\)](#)

20. [Review of impacts of system-wide drivers on Tar-Ru - Scoping report - Stage 1 \(mdba.gov.au\)](#)

21. [Lake Victoria Operating Strategy 27 MAY 2002 \(mdba.gov.au\)](#)

5. Market mechanisms



Market products can provide ways for water to be available for the environment when required, and available for production at other times (thereby not having as severe impacts as direct buybacks). It also enables partnerships to be formed between environmental holders and irrigators.

A further benefit is that – practically speaking – conservation and environmental management cost money – and these models provide financial pathways for environmental works – thereby being sustainable in the long term.

A number of market product options are available, many of which are already operating with demonstrable success.

As a case study, the Murray-Darling Basin Balanced Water Fund by Kilter Rural is “*Australia’s only explicit impact water fund investing in southern Murray-Darling Basin water markets to deliver financial returns and environmental impact through water donations to culturally important wetlands and ecosystems*”.

It has already had significant positive impact, having donated over 10GL of environmental water to 30 wetlands across Victoria and NSW since 2015. Through partnerships with the Murray Darling Wetlands Working Group and The Nature Conservancy, the water is coupled with on-ground management of sites. The Fund has supported an increase in bird diversity by up to 212% and an increase in bird abundance of 282%.²²

A number of other models are available – such as (but not limited to):

- Temporary trade options (i.e. Narran Lakes borrow)
- Impact investment funds / lease-back options (i.e. the Murray-Darling Basin Balanced Water Fund by Kilter Rural²³)
- RiverReach
- WaterFind proposal

NSWIC is not in a position to specifically endorse some of these options at this stage (further consultation required), but notes that these types of mechanisms are available for further investigation and consideration.

6. Integrated Catchment Water Management

Optimising environmental water - the importance of complementary measures.

While significant environmental gains have been achieved from water recovery to date, water recovery alone can only go so far. The need for complementary measures alongside environmental watering is increasingly recognized among scientists.

For example, scientists have rightly pointed out:

22. <https://kilterrural.com/bwf/>

23. <https://kilterrural.com/bwf/>

“While recovering water will provide good outcomes, as a sole intervention, it is not enough to deliver the desired environmental benefits...”

... recovering water is not enough to deliver all the anticipated environmental benefits. In a highly modified system, equal attention should be given to addressing other threats that water delivery alone cannot ameliorate.”²⁴

The largest environmental challenges in the Basin are now:

- Invasive species (i.e., carp now make up 90% of fish biomass in some areas, damaging habitat and riverbanks, and causing poor water quality that will not improve no matter how much additional water is recovered from farmers for environmental flows);
- habitat degradation for native species;
- barriers to fish passage (such as weirs), and lack of fish screens on pumps;
- poor water quality (i.e., blackwater events) and cold-water pollution.

This requires moving beyond just shifting more water away from productive use to increase river flows, to other levers.

A shift to Integrated Water Catchment Management (IWCM) is needed, to make the most of the additional environmental water now available. IWCM refers to the integrated or coordinated management of land, water and related resources.



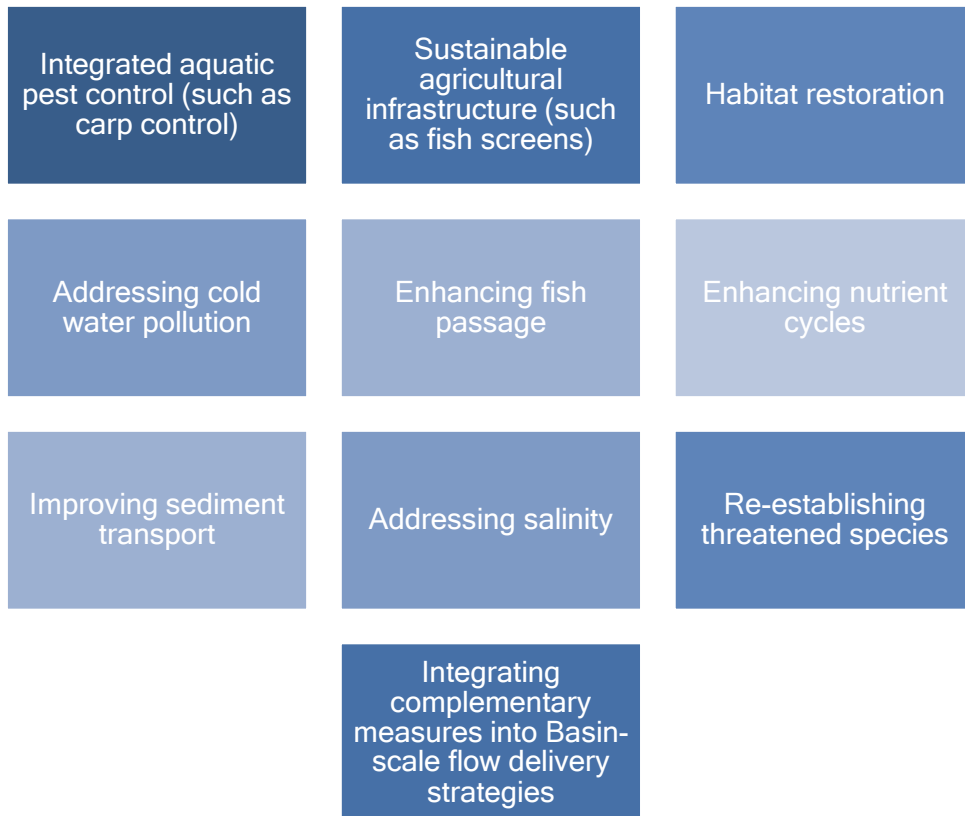
Carp in Moulamein, January 2023 - This cannot be fixed by just adding water. (Image: J Morton)

Specifically, IWCM does not consider land, water, and biodiversity management as separate activities – but inter-related.

The problem is that water management in the Basin, to date, has taken a very singular focus on just adding more water alone, becoming increasingly detached from land management, biodiversity, conservation and other related outcomes.

24. Lee J. Baumgartner, P Gell, J D Thiem, C Finlayson, N Ning (2019) “Ten complementary measures to assist with environmental watering programs in the Murray–Darling river system, Australia”: <https://onlinelibrary.wiley.com/doi/abs/10.1002/rra.3438>

Scientists have already identified the types of measures that should be used to complement environmental watering and river flows in the Basin. For example, Baumgartner et al (2019) identify 10 complementary measures to assist with environmental watering programs in the Basin.



Complementary measures should not be dismissed as inferior or secondary to water recovery. Rather, they are a critical component of Basin water management, and one which has been inadequately acted on to date. A comprehensive, strategic and coordinated package of complementary measures is required. Funds should be reinvested towards measures of this kind.

Further information is available in the NSWIC ‘Beyond Buybacks’ Campaign.²⁵



25. https://mcusercontent.com/c6e5c2d75b14461767c095feb/files/a5b591bb-6d1a-9475-a5e5-119d75679d5d/2023_01_31_Beyond_buybacks_Campaign.pdf

7. The circular economy - a pilot

The Murray-Darling Basin Plan's development and implementation to date has been narrowly focused on delivering volumetric water recovery targets as a crude proxy for improved environmental outcome, ignoring the complex systems thinking required to improve environmental health in what is now a regulated river system within a highly modified landscape.

The bottom-up circular economy model developed by the community and industry in the Bega valley²⁶ merits investigation to inform the delivery of truly triple-bottom line outcomes in the Murray-Darling Basin Plan. Funding for a pilot in a discrete catchment, or across an irrigation district, should be considered.

Limitations: need for legislative change

Irrespective of the merits of the above options, the current rigidity of the Plan will not enable many of these highly worthwhile projects and measures to be implemented. For most, if not all, of the above projects to be considered in delivering the Plan, legislative change will be required.

For example:

- Projects currently must be operational by mid-2024 – this timeframe is impossible for projects only just commencing implementation following this consultation, therefore timeframe extensions would be required;
- New SDLAM 605GL projects can't be added to the mix notified by Basin States in 2019 – this criteria would need to be expanded to enable the addition of new projects.
- Requirement that water counting towards targets such as the 450 GL must be in the form of entitlements ('held' water) – this would need to be amended to be inclusive of non-HEW initiatives (i.e. environmental outcomes from complementary measures or rules-based approaches) not just GL;
- Requirements for permanent entitlement transfer out of the pool for growing food and fibre – this prevents a number of options, and would require amendments to consider options such as temporary trade or market product models.
- The SDLAM 605 GL projects being scored against simplistic modelled streamflow indicators rather than accounting for their total embedded environmental gains in the system.

If the requirement for efficiency projects to involve the transfer of an entitlement to the CEWH was removed, a whole suite of new environmental initiatives would be made possible through existing WESA funding. These – arguably – would better provide the desired enhanced environmental outcomes than current policy settings and make the best use of the 2107 GL of CEWH held water already.

26. [Home - Bega Circular Valley](#)

Whilst necessary, NSWIC is concerned by the high-risk of politicisation if legislative changes were put before parliament. NSWIC seeks that DCCEEW reduces this risk through effective communications about the barriers/challenges of the status quo (i.e. that additional water cannot achieve objectives without constraints managed), and the genuine benefits of these alternative measures.

The Plan was always intended to be an adaptive management Plan. It is not acceptable for agencies or politicians to simply say “the Plan does not enable it”, and disregard worthwhile options. If there are new, and better, ways of delivery the Plan – these must be considered and adopted.

If that requires legislative change – to get better ecological outcomes without harming communities – that needs to occur.

Conclusion

NSWIC is pleased the Federal Government is undertaking public consultation to find new and innovative ideas to deliver the Plan. Continuing down the narrow path set in the Basin Plan as enacted in November 2012 is untenable. It will compound the already significant hardship this reform has imposed on communities and Australia’s food and fibre supply, while not addressing the key degradation drivers nor being able to achieve the optimal environmental benefits envisaged.

NSWIC has presented the high-level ideas in this submission in the spirit of collaboration, co-operation and innovation.

All ideas require further assessment and detailed consultation on their design and associated changes required in legislation and the accounting methods used by the MDBA. NSWIC is not in a position to endorse any options until such time as detailed developed proposals are available to consult with our members. However, we do support the in-principle further assessment of these options to develop a roadmap forward on improving the Basin Plan.

NSW Irrigators' Council

The NSW Irrigators' Council (NSWIC) is the peak body representing irrigators and irrigation communities in NSW. NSWIC has member organisations in every Murray-Darling Basin valley of NSW, and several coastal valleys, representing more than 12,000 water access licence holders.

NSWIC is a leader in sustainable and productive water policy solutions, and advocates for and advises on best-practice water management. Our vision is for the secure, sustainable and productive management of water resources in NSW.

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”²⁷

“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.”²⁸

NSW 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 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 with compliance enforced by the NSW Natural Resources Access Regulator (NRAR).

27. <https://www.agriculture.gov.au/ag-farm-food/crops/cotton>

28. <https://www.agriculture.gov.au/ag-farm-food/crops/rice>