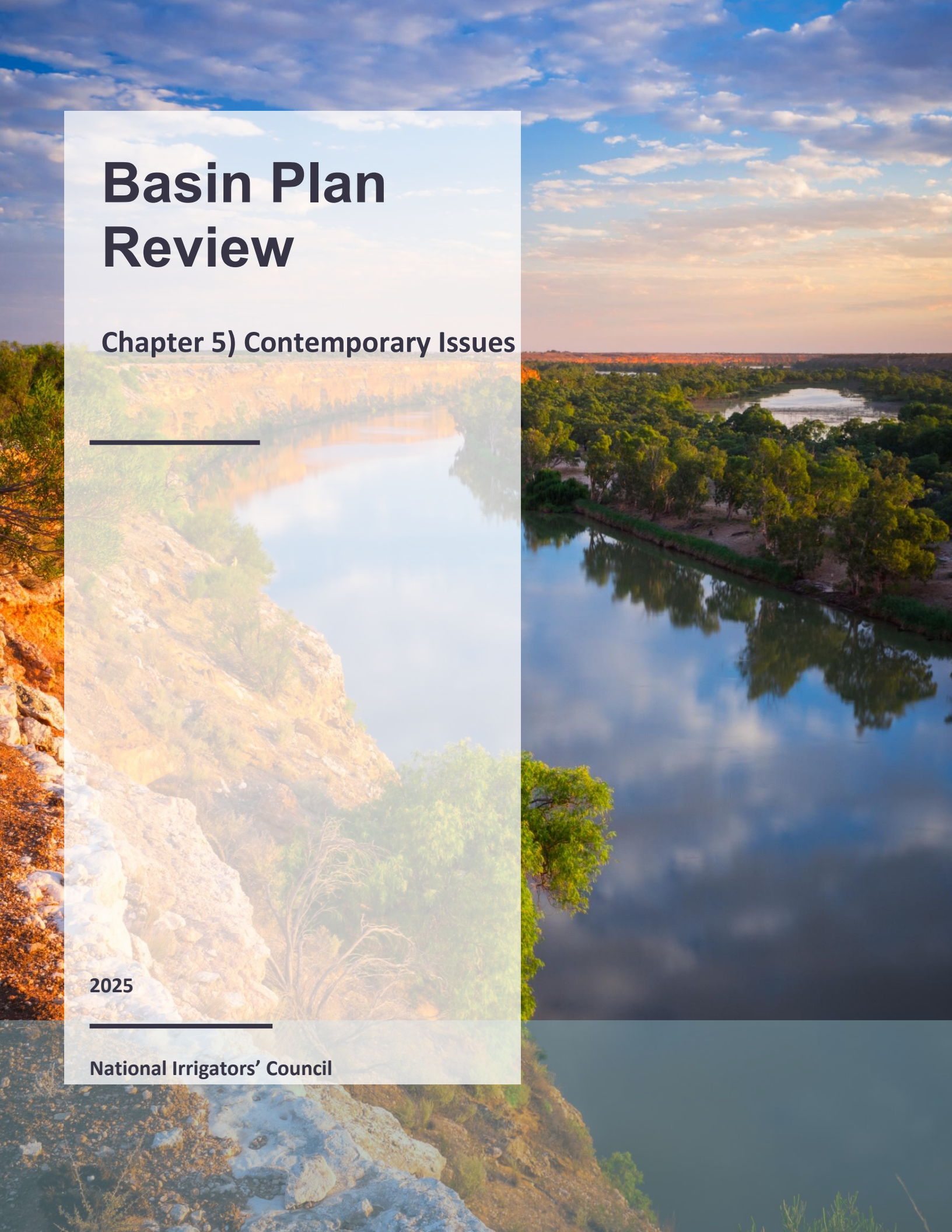


Basin Plan Review

Chapter 5) Contemporary Issues

2025

National Irrigators' Council

Chapter 5: Contemporary Issues

This Chapter looks at a range of contemporary and/or emerging issues for the Basin, including:

a) First-Nation's outcomes;
b) Managing the northern Basin; and
c) Water quality.

If new issues arise, they will form part of this chapter.

Chapter 5a) First Nations

Overview

Key points

- NIC acknowledges the traditional owners of country; their deep connection with land and water, and the strong spiritual obligation of Aboriginal people to care for country.
- First Nation's objectives and aspirations are broad, and this will require multiple levers to do justice to these outcomes.
- The NWI was one of the first instruments to explicitly recognise Indigenous rights and interests in national water policy.
- Recent focus in water policy regarding First Nations has primarily been on notions of 'ownership' and purchasing of entitlements (such as Aboriginal Water Entitlement Program). Along with other aspects of water policy, this singular lever is not enough on its own to properly achieve the outcomes desired.
- We share First Nations desires in wanting to see better outcomes for regional and rural communities and believe working together constructively and respectfully is the best way forward.

What it means for the next Basin Plan

- There is significant potential to achieve meaningful outcomes, beyond just 'entitlements', and we believe a broader approach is needed to recognise the diversity of First Nations aspirations in this policy area (cultural, spiritual, social, economic, environmental, governance etc). This could include investments in safe and accessible drinking water for communities, river management practices that achieve the cultural objectives already instilled in statutory water plans, caring for country programs on a larger scale, employment programs and training/skills development

within the irrigated agriculture sector for willing participants, partnerships, and knowledge sharing practices.

- We welcome First Nations engagement in utilising water to generate economic and social benefit.
- Enduring, transparent and accountable governance frameworks must be in place prior to use of public funds to purchase entitlements for any purpose (cultural, environmental and other). As per all forms of water acquisition or management changes, there must be no third-party impacts to other entitlement holders, or their reliability, nor any legal or practical changes to entitlement characteristics (as required under current intergovernmental agreements).

We recommend:

- Investment in water infrastructure to ensure clean, accessible, and safe drinking water in all communities – particularly those in the most vulnerable areas to water insecurity (i.e. ephemeral river systems).
- Roll-out of a First Nations designed Caring for Country program on a large-scale across the Basin, as part of ensuring First Nations spiritual obligations to care for country can be fulfilled, and instinctual cultural knowledge utilised in healthy rivers. This should provide culturally-appropriate, paid employment, and training and development, to meet the broader cultural outcomes.[1]
- Where there are synergies between environmental and cultural/spiritual objectives, increase knowledge sharing with Held Environmental Water managers (such as the CEWH) to achieve multiple objectives.
- Recognition that not all water is the subject of a water access entitlement (approximately 72% of water in the Basin), and where water is not intended to be diverted/extracted, exploring options with First Nations for cultural and spiritual objectives.

Introduction

NIC acknowledges the traditional owners of country; their deep connection with land and water, and the strong spiritual obligation of Aboriginal people to care for country.
We are aware of the importance of *healthy Country, healthy mob*.

NIC supports, recognises and values the Cultural objectives which are included in water planning and management across jurisdictions.

NIC does not stand for divisive or polarising approaches on these important matters.

[1] 2023-01-27-Cultural-Billabong-Restoration-Project-Project-Summary-Package.pdf

We share the vision of wanting to see better outcomes for our First Nations communities, and recognise that irrigated agriculture has an important role in socio-economic wellbeing in Basin communities for both Indigenous and non-Indigenous people (including access to services, health care, schools and employment).

This was noted in a submission by Bourke Shire Council (to the Federal Parliamentary *Inquiry into the Water Amendment (Restoring our Rivers) Bill 2023*), saying:

"A further permanent reduction in water is likely to permanently constrain any economic and social recovery of Bourke and entrench and significantly worsen existing high levels of social disadvantage, particularly among its large indigenous population."

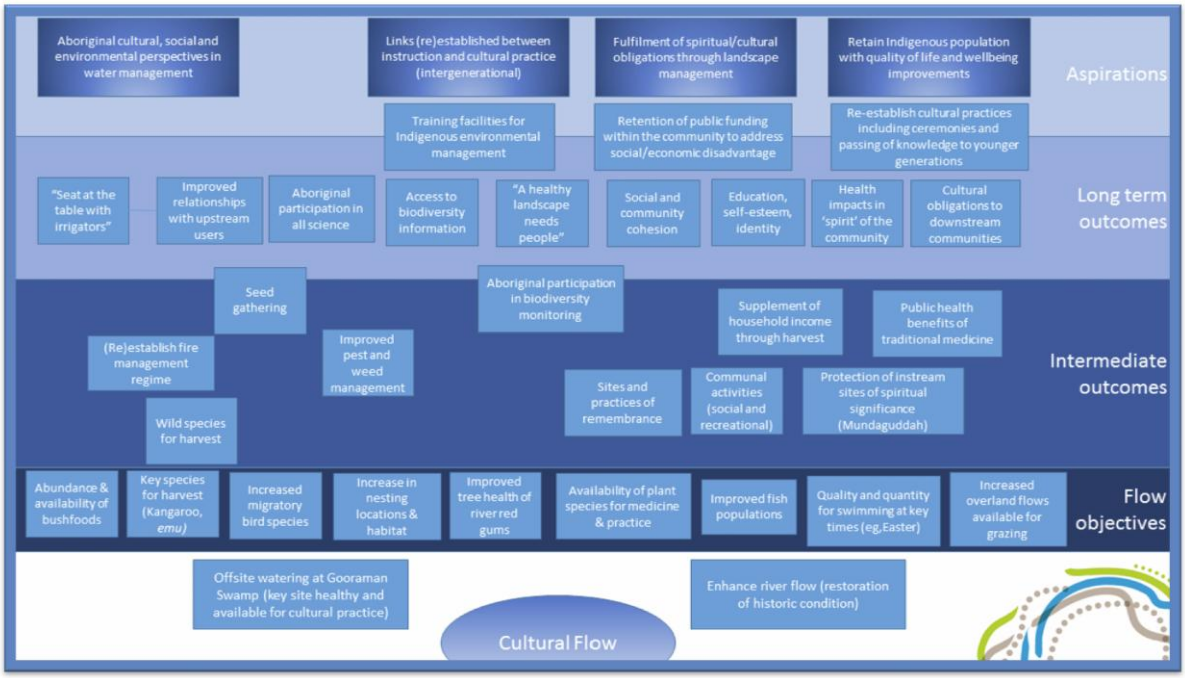
From our observations, current efforts to improve First Nations outcomes in water management tend to also be restricted to a siloed approach of 'water ownership' (as raised earlier in this submission for environmental outcomes too). This narrow focus risks realising the broader and more diverse cultural outcomes (alongside ownership of entitlements) that are essential to achieving the full range of cultural objectives – which ranges from spiritual, caring-for-country, environmental, social and economic aspirations. For example, NIC sees significant potential to expand Caring for Country programs, which as we understand, are an important spiritual obligation of Aboriginal people. There is tremendous potential of partnership approaches, and great examples of success already in the Basin.

NIC also recognises the Indigenous people within our industry, who serve, and have long served, an important role. Where access entitlements are held by First Nations peoples/organisations, within the consumptive pool, we support the use of that water for irrigated agriculture (or however the holder deems best), and realising the flow-on socio-economic benefits to the community, as we do all water access entitlement holders.

What are cultural flows

The National Cultural Flows Research Project (established in 2011) provides knowledge on First Nations' water interests across a range of components, such as Indigenous cultural values and needs in Australia.[2]

[2] National Cultural Flows - Research Reports



In the above, the overall aspirations from cultural flows relate to the fulfilment of cultural obligations through landscape management, links between instruction and cultural practice (intergenerational), Aboriginal perspectives in water management, and retaining Indigenous population with quality of life and wellbeing improvements. The specific objectives towards these aspirations are outlined in the above figure.

Policy Context

The NWI was one of the first instruments to explicitly recognise Indigenous rights and interests in national water policy by acknowledging indigenous and cultural values within the stated public benefit outcomes of the full implementation of the Agreement (23)(iii), and further reiterating the specific needs and values in (25ix). The NWI also included specific actions, with clauses 52 and 53 being:

> *52)i): The Parties will provide for indigenous access to water resources, in accordance with relevant Commonwealth, State and Territory legislation, through planning processes that ensure: i) inclusion of indigenous representation in water planning wherever possible;*
>
> *52 (ii) The Parties will provide for indigenous access to water resources, in accordance with relevant Commonwealth, State and Territory legislation, through planning processes that ensure: ii) water plans will incorporate indigenous social, spiritual and customary objectives and strategies for achieving these objectives wherever they can be developed.*
>
> *53: Water planning processes will take account of the possible existence of native title rights to water in the catchment or aquifer area. The Parties note that plans may need*

to allocate water to native title holders following the recognition of native title rights in water under the Commonwealth Native Title Act 1993.

The NWI focus was on establishing the nationally-consistent water entitlement and planning framework to enable a strong and sustainable system of management. A number of instruments now include these objectives, such as state-based statutory water plans.

In 2009, Australia endorsed the United Nations Declaration on the Rights of Indigenous Peoples, which acknowledges the following rights to water:

- the right to maintain their distinctive spiritual connection to water
- the right to access the resources required to maintain cultural heritage and undertake traditional practices
- the right to determine priorities and strategies for the development or use of their resources
- the right to conserve and protect the environment and the productive capacity of their lands, and
- the right to improve their economic and social conditions.

The Basin Plan refers to indigenous values in a number of ways:
"30. Indigenous use includes for cultural, social, environmental, spiritual and economic purposes. Many Indigenous people view water spiritually—people, land and rivers are inextricably connected. Indigenous economic interests include trading, hunting, gathering food and other items for use that alleviate the need to purchase similar items and the use of water to support businesses in industries such as pastoralism and horticulture. The environmental and cultural health of the Murray Darling Basin is of paramount importance in serving these interests.

31. The concept of cultural flows helps translate the complex relationship described above into the language of water planning and management. The following definition of cultural flows is currently used by the Northern Murray Darling Basin Aboriginal Nations and the Murray Lower Darling Rivers Indigenous Nations: "Water entitlements that are legally and beneficially owned by the Indigenous Nations and are of sufficient and adequate quantity to improve the spiritual, cultural, environmental, social and economic conditions of those Indigenous Nations. This is our inherent right". The provision of cultural flows will benefit Indigenous people in improving health, wellbeing and provides empowerment to be able to care for their country and undertake cultural activities.

People of the more than 40 Indigenous nations across the Basin use the water resources for cultural, social, environmental, spiritual and economic purposes. They see themselves as an integral part of the river system and are reliant on the river for their physical and spiritual wellbeing. Because of their holistic understanding and connection, and practices of lore and customary law, Indigenous people have a deep responsibility for the health of rivers.

Indigenous bodies hold an estimated 81 water licences in the Basin, with a total allocation of 8,237 ML (Arthur 2010)."

This is further detailed in Part 14.

Part 14—Indigenous values and uses

Note: If a water resource plan is prepared by a Basin State, it is expected that the Authority will consult with relevant Indigenous organisations in relation to whether the requirements of this Part have been met, for the purposes of paragraph 63(3)(b) of the Act.

10.52 Objectives and outcomes based on Indigenous values and uses

(1) A water resource plan must identify:

(a) the objectives of Indigenous people in relation to managing the water resources of the water resource plan area; and

(b) the outcomes for the management of the water resources of the water resource plan area that are desired by Indigenous people.

(2) In identifying the matters set out in subsection (1), regard must be had to:

(a) the social, spiritual and cultural values of Indigenous people that relate to the water resources of the water resource plan area (***Indigenous values***); and

(b) the social, spiritual and cultural uses of the water resources of the water resource plan area by Indigenous people (***Indigenous uses***);

as determined through consultation with relevant Indigenous organisations, including (where appropriate) the Murray Lower Darling Rivers Indigenous Nations and the Northern Murray-Darling Basin Aboriginal Nations.

(3) A person or body preparing a water resource plan may identify opportunities to strengthen the protection of Indigenous values and Indigenous uses in accordance with the objectives and outcomes identified under subsection (1), in which case the opportunities must be specified in the water resource plan.

10.53 Consultation and preparation of water resource plan

(1) A water resource plan must be prepared having regard to the views of relevant Indigenous organisations with respect to the matters identified under section 10.52 and the following matters:

(a) native title rights, native title claims and Indigenous Land Use Agreements provided for by the *Native Title Act 1993* in relation to the water resources of the water resource plan area;

(b) registered Aboriginal heritage relating to the water resources of the water resource plan area;

(c) inclusion of Indigenous representation in the preparation and implementation of the plan;

(d) Indigenous social, cultural, spiritual and customary objectives, and strategies for achieving these objectives;

(e) encouragement of active and informed participation of Indigenous people;

(f) risks to Indigenous values and Indigenous uses arising from the use and management of the water resources of the water resource plan area.

Note: For examples of the principles that may be applied in relation to the participation of Indigenous people, see the document titled 'MLDRIN and NBAN Principles of Indigenous Engagement in the Murray-Darling Basin'.

(2) In this section, ***registered Aboriginal heritage*** means Aboriginal heritage registered or listed under a law of a Basin State or the Commonwealth that deals with the registration or listing of Aboriginal heritage (regardless of whether the law deals with the listing of other heritage).

10.54 Cultural flows

A water resource plan must be prepared having regard to the views of Indigenous people with respect to cultural flows.

10.55 Retention of current protection

A water resource plan must provide at least the same level of protection of Indigenous values and Indigenous uses as provided in:

(a) a transitional water resource plan for the water resource plan area; or

(b) an interim water resource plan for the water resource plan area.

Note: the extent of Aboriginal input is currently being disputed with legal action against Minister Plibersek's decision to accredit the NSW Fractured Rock Water Resource Plan[3].

Additionally, the National Agreement on Closing the Gap also has links to water management. For example, "safe drinking water" target (Target 9b), as well as commitments to developing an Inland Waters Target:

[3] https://mldrin.org/mldrin-launches-legal-challenge-over-water-resource-plan/

"The inland waters target will measure progress towards securing Aboriginal and Torres Strait Islander interests in water bodies inland from the coastal zone under state and territory water rights regimes."[4]

What are the challenges?

NIC understands the following challenges exist:

- Access to safe and clean drinking water in regional and remote Aboriginal communities;
- Socio-economic challenges and disparities;
- A desire for greater participation in decision-making;
- Broader constitutional challenges relating to 'aqua-nullius';
- Desire for greater spiritual recognition of rivers;
- Aspirations for increased water ownership or rights.

Integration of NIC and First Nations views

NIC is of the view that:

- NIC acknowledges the traditional owners of country; their deep connection with land and water, and the strong spiritual obligation of Aboriginal people to care for country.
- NIC supports, recognises and values the Cultural objectives which are included in water planning and management across jurisdictions.
- NIC supports the use, access and management of water for Cultural objectives, within the current water management framework and market systems. The integrity of the statutory water management framework as developed from the NWI is integral for all water users.
- There is significant potential to achieve meaningful outcomes, beyond 'entitlements', and we believe a broader approach is needed to recognise the diversity of First Nations aspirations in this policy area (cultural, spiritual, social, economic, environmental, governance etc). This could include investments in safe and accessible drinking water for communities, river management practices that achieve the cultural objectives already instilled in statutory water plans, caring for country programs on a larger scale, employment programs and training/skills development within the irrigated agriculture sector for willing participants, partnerships, and knowledge sharing practices.

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[4] *"For the purposes of the Target: • 'Water access entitlement' is a perpetual or renewable entitlement to exclusive access to a share of water from a specified consumptive pool as defined in the relevant water plan, policy, or legislation. This definition includes relevant Strategic Aboriginal Water Reserves and excludes entitlements for the purposes of drinking water supplies and household power generation. • 'Aboriginal and Torres Strait Islander corporations' include Land Councils, Traditional Owner groups, Native Title claimant/s or prescribed body corporate groups, Aboriginal corporations or associations, housing co-operatives, or any other Aboriginal owned organisation or entity, where there is a majority of Aboriginal participation on the governance structure. The definition of Aboriginal and Torres Strait Islander Corporations used is therefore broader than Corporations Aboriginal and Torres Strait Islander (CATSI) Act 2006 bodies and will have regard to the definition of the Aboriginal and Torres Strait Islander organisations in the National Agreement."*

- We welcome Indigenous engagement in utilising water to generate economic and social benefit.
- Enduring, transparent and accountable governance frameworks must be in place prior to use of public funds to purchase entitlements for any purpose (cultural, environmental and other). As per all forms of water acquisition or management changes, there must be no third-party impacts to other entitlement holders, or their reliability, nor any legal or practical changes to entitlement characteristics (as required under current intergovernmental agreements).

We recommend:

- Investment in water infrastructure to ensure clean, accessible, and safe drinking water in all communities – particularly those in the most vulnerable areas to water insecurity (i.e. ephemeral river systems).
- Roll-out of a First Nations designed Caring for Country program on a large-scale across the Basin, as part of ensuring First Nations spiritual obligations to care for country can be fulfilled, and instinctual cultural knowledge utilised in healthy rivers. This should provide culturally-appropriate, paid employment, and training and development, to meet the broader cultural outcomes.[5]
- Where there are synergies between environmental and cultural/spiritual objectives, increase knowledge sharing with Held Environmental Water managers (such as the CEWH) to achieve multiple objectives.
- Recognition that not all water is the subject of a water access entitlement (approximately 72% of water in the Basin), and where water is not intended to be diverted/extracted, exploring options with First Nations for cultural and spiritual objectives.

Chapter 5a conclusion

NIC acknowledges the traditional owners of country; their deep connection with land and water, and the strong spiritual obligation of Aboriginal people to care for country.

First Nations objectives and aspirations are broad, and this will require multiple levers to do justice to these outcomes. These objectives also, often, overlap with the objectives of other stakeholders and it is important to work together where so, to achieve the best possible outcomes for all, within the water management framework.

We stand by our First Nations communities, who are part of our communities, in wanting to see better outcomes, and believe working together constructively and respectfully is the best way forward. As per all parts of this review, we urge a movement away from a siloed approach.

[5] 2023-01-27-Cultural-Billabong-Restoration-Project-Project-Summary-Package.pdf

Chapter 5b) Managing the Northern Basin

Overview

- The Northern Basin is characterized by ephemeral and intermittent rivers, with relatively limited public water storage to regulate river flows. This means the system is highly dependent on the climate and rainfall, in terms of flows.
- There is concern that broader expectations of river flows and environmental condition in the Northern Basin do not reflect the natural hydrology and climate of the region, nor what is physically feasible with available water storages or infrastructure.
- It will be important to consider that many peoples lived experiences of the Northern Basin today have been of a wetter period of this natural cycle, and an understanding of rivers which comes from European or American style rivers (with a snow-pact melt and permanent flow) – not the ephemeral rivers of Australia.
- Efforts to 'regulate out' the natural dry phase of ephemeral rivers to match an unrealistic expectation of what the river should be like under natural conditions, is not appropriate, and poses ecological harm. Focus should instead be on expectations management and public education on ephemeral rivers, as well as securing water supplies for critical human needs so communities (often developed during a wetter phase) are not solely reliant on an ephemeral river for basic needs.
- While water management must inherently *reflect* the unique natures of these systems, it is important that it also *respects* the unique natures of these systems too.
- There has been significant recent, and ongoing, reform to water management in the northern Basin, outside of just the Basin Plan. Any review looking at the northern Basin must look at the full architecture of water management instruments, not just the Basin Plan in a vacuum. Any recommendations must also consider the jurisdiction of the Commonwealth.

Background

NIC agrees with the Early Insights Paper in saying that: "*There are key differences between the northern and southern Basin. These include differences in rainfall patterns, the ability to regulate and store water and manage water flow…*". There are indeed unique hydrological and climatic conditions across the Basin, and significant differences in public water infrastructure, and both the agricultural sectors and systems of water management have developed accordingly.

The below sections show some of these differences. This is not intended to compare these areas in a 'better or worse' way, rather, to simply to show the unique characteristics of these systems, which make them non- comparable.

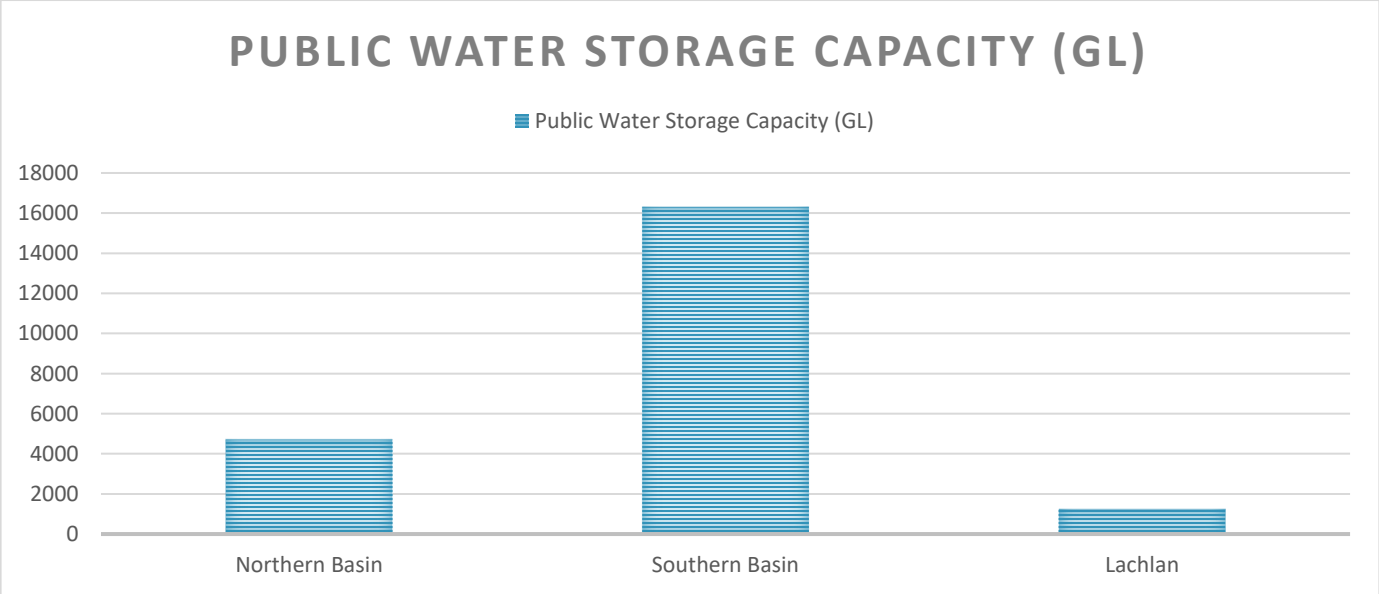
Water Storage

Public Water Storage

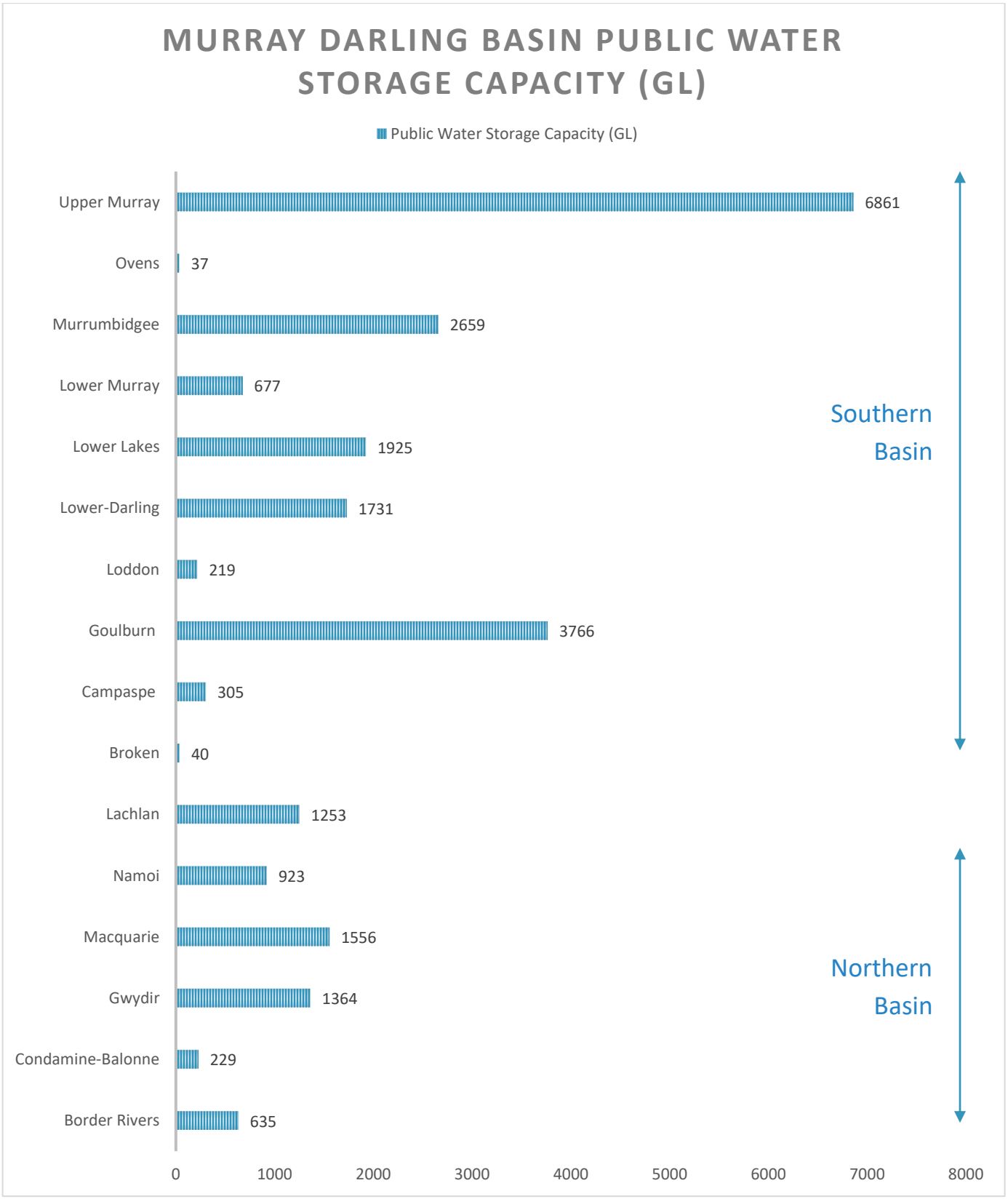
The Southern Basin has significant public water storages (16,296 GL capacity), including Lake Hume (3,005 GL) and Lake Dartmouth (3,856 GL) in the upper reaches, enhancing the ability to regulate river flows. These storages mean river flows are less subject to the climatic conditions of the day, as they provide a buffer to deliver water from wetter periods, during drier times.

The Northern Basin, however, has relatively limited public water storages (4,708 GL), which limits the ability to regulate flows throughout that part of the Basin to the extent possible with larger storages. This means river flows in the Northern Basin are highly subject to the climatic conditions that prevail at the time.

This is reflected by the Bureau of Meteorology: *"Flow in the River Murray is primarily influenced by the status of regulation. Flow in the Darling River reflects the rainfall pattern for the northern part of the region, with higher streamflows in the late summer–early autumn months (February–March) following the higher summer rainfall period and a second peak in the late winter–early spring months (August–October) following the winter rainfall."*[6]



[6] NWA 2020: Murray–Darling Basin: Region description: Geographic information


MURRAY DARLING BASIN PUBLIC WATER STORAGE CAPACITY (GL)
Public Water Storage Capacity (GL)
Upper Murray
6861
Ovens
37
Murrumbidgee
2659
Lower Murray
677
Lower Lakes
1925
Lower-Darling
1731
Loddon
219
Goulburn
3766
Campaspe
305
Broken
40
Lachlan
1253
Namoi
923
Macquarie
1556
Gwydir
1364
Condamine-Balonne
229
Border Rivers
635
Southern Basin
Northern Basin
0
1000
2000
3000
4000
5000
6000
7000
8000

Private water storage

Partly in response to the limited public water storages in the Northern Basin, governments encouraged farmers to develop private storages on-farm, in order to capture water during wetter periods, to be available in drier periods.

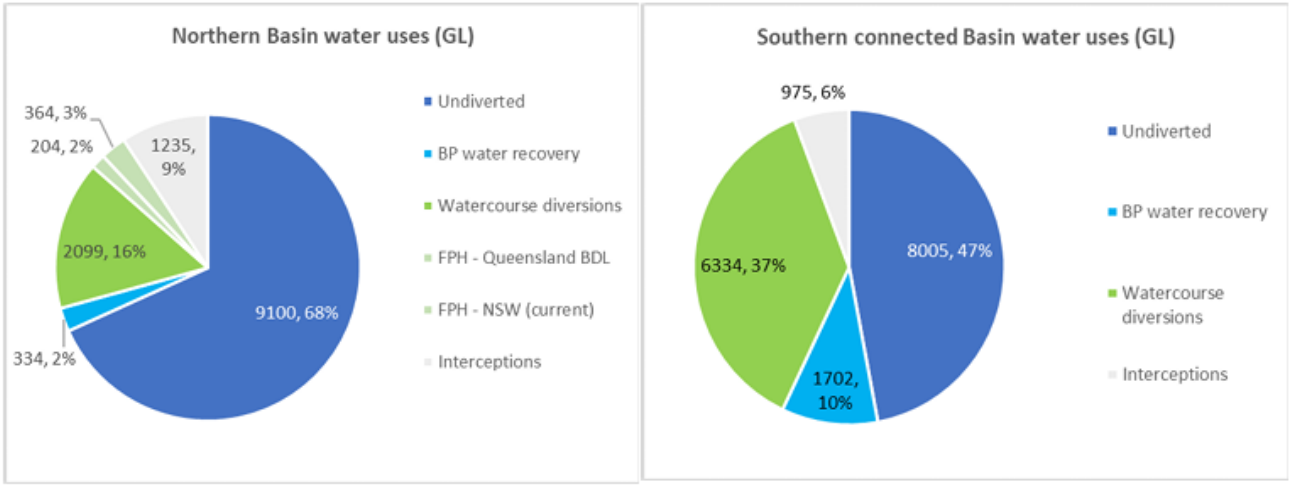
The NSW DCCEEW says: "*There are approximately 1,400 large on-farm storages in the Northern Basin floodplains of the Border Rivers, Gwydir, Namoi, Macquarie and Barwon-Darling valleys. If full, these storages could hold a volume of 1,300 GL.*"

Private on-farm storages are also developed throughout the Southern Basin (to a lesser extent), but are less heavily relied upon where farmers can access water from public water storages via the regulated river or an Irrigation Infrastructure Operator (IIO).

Water Balance

The use of water in various parts of the Basin reflects a number of factors, including climatic conditions, availability of water storages, and the historical development of infrastructure and irrigation regions. The below figures show the water balance for the Northern and Southern Basins, as well as a map of the irrigated area.

Figure: Water Balance in the Northern and Southern Basins[7]



[7] 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.

Figure: Irrigated areas within the Murray–Darling Basin region (source: BoM)[8]

Additionally, the nature of irrigated agriculture varies across these regions, as it has developed to match water availability. For example, the northern Basin predominantly has annual crops (such as cotton), which can be grown in times of water availability, and not grown during dry

[8] NWA 2020: Murray–Darling Basin: Region description: Geographic information

times. The Southern Basin additionally has more permanent plantings (such as citrus, nuts and vineyards), because the greater reliability of water better provides the water security required for this type of agriculture.

Water management

Understanding these unique characteristics is important to inform water management decision-making.

There is concern that expectations of the Northern Basin do not reflect the natural hydrology and climate of the region, nor what is physically feasible with available water storages or infrastructure.

The Northern Basin is characterized by ephemeral and intermittent rivers, and in the absence of significant infrastructure to alter this natural pattern to regulate flows to a significant extent, it would be challenging (and arguably not desirable) to change that. The NSW DCCEEW says:

"A constantly flowing river is not normal for the Barwon-Darling region. The river stopped flowing for extended periods even before there were large dams and significant agricultural water use upstream. There is a relationship between the river drying and dry climatic periods."[9]

"The Barwon-Darling region naturally goes through wetting and drying cycles that can last decades… The cease to flow periods experienced in the most recent drought have been long and severe, but are not unusual when compared to conditions in historical dry periods."

"The Barwon-Darling river has often stopped flowing for periods of time. The cease to flow conditions we saw in the most recent drought were severe and had significant impacts on communities, ecosystems and industries, but they are not unique when compared to the historical record. Our lived experience is mostly drawn from the wet period when there were very few cease to flow periods."[10]

The below graph from the NSW DCCEEW shows the number of cease to flow days per year across different points in the Barwon-Darling river, from pre-1900s to the present. What this shows is that the river experienced cease-to-flow periods on many occasions throughout the past century, including well prior to the development of irrigated agriculture.

[9] River flows and climate over time
[10] Cease to flow periods in the Barwon-Darling | NSW Government Water

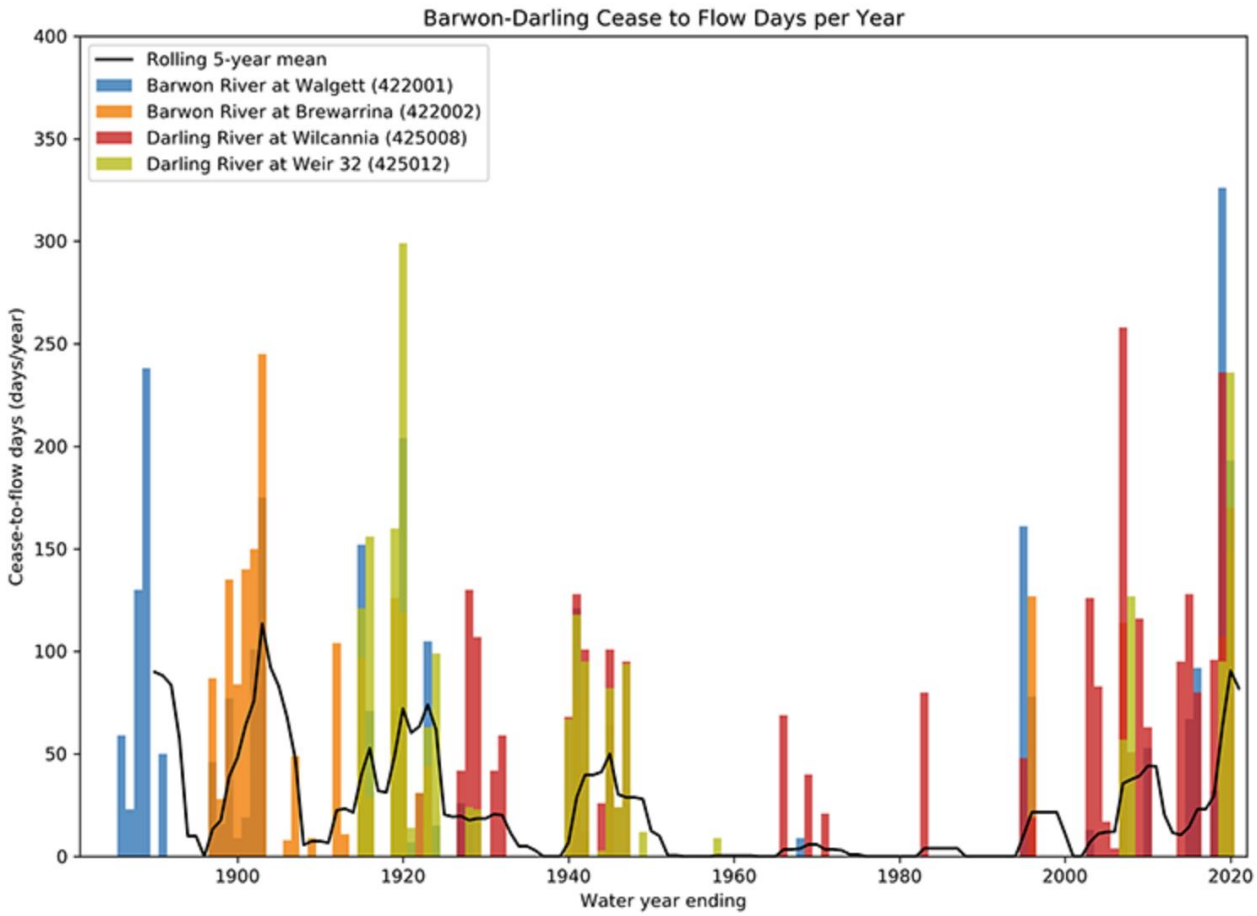


Figure: Number of cease to flow days per year across different points in the Barwon-Darling river, from pre-1900s to the present (source NSW DCCEEW)[11]

It will be important for decision-makers to be aware that many peoples lived experiences of the Northern Basin today have been of a wetter period of this natural cycle. It is also important to note that most people's understanding of rivers comes from European or American style rivers with a snow-pact melt and permanent flow – not the ephemeral rivers of Australia. This will require expectations-management, or public education, on the nature of Australian rivers – not a re-engineering of Australia's ephemeral rivers to suit a false or incorrectly informed expectation. Indeed – these dry and wet cycles are important to the ecology of this system, and efforts to eradicate the dry cycle pose ecological risks (while acknowledging dry periods are very challenging for people and communities).

Put simply – the crisis is not these ephemeral rivers, at times, stopping to flow – the crisis is people not understanding this, and putting unrealistic demands or expectations on the river to deliver water without any rainfall, snow melt, or dam to do so.

[11] Cease to flow periods in the Barwon-Darling | NSW Government Water

Therefore, while water management must inherently *reflect* the unique natures of these systems, it is important that it also *respects* the unique natures of these systems too. To this end, the following questions are posed from the MDBA Early Insights Paper, shaping this review.

Statement in Early Insights Paper	**Response**
"The Basin Plan does not however fully acknowledge the fundamental differences in water management between the northern and southern Basin"	It is unclear what is meant by this, and how else it could be intended to acknowledge these differences in a practical sense. The setting of extraction limits and water recovery volumes did factor in these differences in terms of historic levels of water access, types of access, and proportionate water availability/take in the setting of shared and local recovery targets. These differences were also considered in the Northern Basin Review and the development of the NBT.
"Beyond setting stricter limits and ensuring stronger compliance, the Basin Plan has had limited influence in how Basin states have managed less regulated rivers in the northern Basin."	This is not correct. For example, the use and management of HEW has changed how rivers are managed, including through active management. There are also more barriers to rules-changes, such as to ensure the protection of PEW, and other Basin Plan requirements. Further, this statement is disappointing in saying "beyond setting stricter limits", which was the entire purpose of the Plan. Achieving this feat, is significant, and such a statement downplays this.
"We know that maintaining connectivity during drought, low flow regimes and resumption of flows are all critical."	The Northern Basin is characterised by ephemeral river systems, which means at times, such as droughts, rivers cease to flow. It is not possible to maintain connectivity during drought. We are concerned that statements like this by the MDBA set a false and unrealistic expectation of what 'should' happen, that cannot be met.
"*In some cases, attempts to maintain connectivity and manage environmental water events using held environmental water has relied on the discretion of decision-makers for protection*"	This is not correct (or is out dated). Active Management rules are in force to protect HEW and protections for QLD water are well developed.
"To complement state arrangements, the Basin Plan needs to focus on managing water across borders."	Should this instead be referring to the Murray-Darling Basin Agreement, as the primary tool to manage inter-state water sharing?

As indicated in the above Table, it will be important for the Review to look beyond just the instrument of the Basin Plan, to the full suite of regulatory instruments, if it intends to make claims about the management of the northern Basin. This is because a number of other instruments,

such as state Water Sharing Plans (WSPs) manage water in these systems, and analysing the Basin Plan in the vacuum of this does not give an accurate indication of the management regime in place.

Finally, in the context of the Basin Plan Review, it will again be important to examine what the role of the Commonwealth (or MDBA) is in this context, compared to the role of State Governments, who are responsible for water management. To our knowledge, the limited referral of powers from the States to the Commonwealth relates to the setting of extraction limits, and does not extend to dictating how States manage their river systems. Given this goes to the Australian Constitution (requiring referendum to change), it will be critical the Commonwealth understands the limitations of their jurisdiction.

Chapter 5b conclusion

It will be critical that if including a specific section on the Northern Basin in the review, that:

- There is genuine recognition of the ephemeral nature of the northern Basin, and any proposals are consistent with this hydrological circumstance;
- There is recognition of the current rules and policies in place in state jurisdictions in the Northern Basin (outside of just the Basin Plan) – i.e. just because they are not in (or required by) the Basin Plan does not mean they do not exist;
- There is recognition of the recent and ongoing reform in the northern Basin (at a state-level), which is occurring outside of the Basin Plan;
- There is recognition of the scope/remit/jurisdiction of the MDBA and Commonwealth Government on many of these matters, given most of these are matters for the State Governments and not within the current referral of powers;
- There is clear articulation of the problem-definition and assessment of the feasibility to 'solve' it – i.e. it is not possible to make ephemeral rivers run all the time during drought, nor is this "natural".

NIC encourages the MDBA to reconsider this focus area – on the grounds that this is:

- Out of scope of the Basin Plan, which at its core is about setting sustainable extraction limits and ensuring compliance;
- Goes beyond the jurisdiction of the Federal Government – as the management of water by a state, is a matter for that state;
- Is the subject of significant recent and ongoing reform by state governments already – and this risks duplication, unnecessary additional intervention, crossing into state powers, and reform fatigue.

Chapter 5c) Water Quality

Overview

- Poor water quality is defined by a range of measures and metrics that are largely designed to protect the quality of water for humans, animals (the environment) and agricultural use.
- Not all poor water quality events are fully preventable. There are a number of drivers of poor water quality, and improvements will require a broad suite of measures to tackle these various drivers.
- Water quality challenges emerge in both dry and wet periods.
- Water quality, and our need to maintain a desired range of quality for various uses is now a larger issue than water quantity, at many times.
- The concept of simply diluting poor water quality is troublesome – not only does this fail to truly address the cause of the problem (just waters down the symptoms), it is also an incredibly water-inefficient method with high cost, and is not always an option (particularly during dry periods).

Drivers of poor water quality

The 2025 Sustainable Rivers Audit (SRA) says: "*Water quality in some areas of the Basin is highly sensitive to extreme events. Salinity, nutrient pollution from runoff, and elevated turbidity levels from erosion continue to be the primary factors affecting water quality.*"

However, we believe further work is required to better understand the drivers of poor water quality in the Basin. For example, some of the factors which we believe require better understanding of their role in water quality, include:

- **Carp** - the prevalence of carp, which stir up river sediment increasing turbidity, are also a primary driver of poor water quality, which is seldom acknowledged. Carp have also been found to be one driver of fish death events, as their sheer population outcompetes other species for available oxygen, water and other essential factors – and their decomposition further contributes to deoxygenation.
- **Vegetation** – the decline of riparian vegetation is also likely to be a contributing factor to poorer water quality, as this vegetation acts as a natural filter to restore water quality.
- **Wastewater management (sewage and stormwater runoff)** – for example, the degree of treatment prior to discharge, and unplanned discharges into rivers (such as during flood events).
- **Higher flows at increased velocity** – and the potential impact of this on water quality, given a slower moving river would enable sediments to settle with less erosion,

compared to a faster moving river which picks up more sediment and biomatter from the landscape(noting a very slow or stagnant river poses it's own challenges).

- **Agricultural runoff** - nutrients and chemicals from agriculture are also often referred to as the main driver of poor water quality. Over the last 20-years there has been significant regulation of agricultural run-off (particularly for irrigation farms) and chemical application, as well as ongoing improvement and innovation in on-farm management which has aimed to minimise runoff impacts which is often not well understood or recognised.

Further research is required to better understand these various drivers, as well as benchmark improvement in agriculture techniques.

We also question the evidence behind the frequent claims about the impacts of agricultural runoff on water quality, noting strict regulations in place that prohibit any water that has been on a developed irrigated area being released back into river systems.

Measuring water quality

The 2025 SRA considers 3 water quality indicators:

- salinity
- blue-green algae
- dissolved oxygen.

While important indicators, properly assessing water quality must go well beyond this. For example:

- Nutrients (nitrogen and phosphorus)
- Pathogens (eg Cryptosporidium, faecal coliforms or E coli)
- Virus and protozoans (non-bacterial pathogens)
- Turbidity
- Temperate – in terms of cold water pollution.

Addressing water quality

The most common mechanism to date for addressing water quality has been to simply dilute it. This is problematic as:

- it doesn't get to the source of the issue (only waters down the symptoms temporarily),
- is not a viable option in many circumstances (such as during dry periods where water is scarce, when the scale of the issue is large such as after a flood or bushfire, or where the source water is also poor quality to dilute it with)
- is water inefficient, in that it requires very large volumes of water to dilute water sufficiently; and

- is often not effective, as evidenced by the algae outbreaks in the river despite strong flows.

Properly addressing water quality requires a suite of measures, to target the various and multiple drivers. For example:

- Carp control programs
- Riparian re-vegetation programs
- Restoration of wetlands, billabongs and floodplains (which act as filters)
- Support for local councils in wastewater management (both point and diffuse source), including the suitability of treatment plants, and resilience of sewage works to flooding
- Cold water pollution management initiatives.

Properly delivering on a program of measures to address water quality requires several partnerships (with landholders, and local councils, for example). This must come from a place of supporting partners to improve water quality outcomes.

Chapter 5c conclusion

Water quality is a significant issue in the Murray Darling Basin, and efforts to better manage it will require moving beyond 'just add water' in diluting it, to properly targeting the causes. More work is required to better understand the diverse drivers of poor water quality, and the various levers available to improve outcomes. Parternships will be the key to success.