

# Draft Western Regional Water Strategy



What we heard

Public consultation: June-July 2022

Publication date: December 2022



Image courtesy of Destination NSW.  
Menindee Lakes, Menindee.

# Acknowledgement of Country

The NSW Government acknowledges First Nations people as the first Australian People and the traditional owners and custodians of the country's lands and water. First Nations people have lived in NSW for over 60,000 years and have formed significant spiritual, cultural, and economic connections with its lands and waters.

Today, they practise the oldest living culture on earth.

The NSW Government acknowledges the First Nations people/ Traditional Owners from the Western region as having an intrinsic connection with the lands and waters of the Western Regional Water Strategy area. The landscape and its waters provide the First Nations people with essential links to their history and help them to maintain and practise their traditional culture and lifestyle.

We recognise the Traditional Owners as the first managers of Country. Incorporating their culture and knowledge into management of water in the region is a significant step towards closing the gap.

Under this regional water strategy, we seek to establish meaningful and collaborative relationships with First Nations people. We will seek to shift our focus to a Country-centred approach, respecting, recognising and empowering cultural and traditional Aboriginal knowledge in water management processes at a strategic level.

We show our respect for Elders past and, present through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places where First Nations people are included socially, culturally and economically.

As we refine and implement the regional water strategy, we commit to helping support the health and wellbeing of waterways and Country by valuing, respecting and being guided by First Nations people, who know that if we care for Country, it will care for us.

We acknowledge that further work is required under this regional water strategy to inform how we care for Country and ensure First Nations people hold a strong voice in shaping the future for their communities.



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Draft Western Regional Water Strategy  
What we heard

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# Introduction

The NSW Government is taking action to improve the security, reliability, quality and resilience of the state's water resources for current and future generations.

As part of this program of investment and reform, the NSW Department of Planning and Environment (the department) has prepared a number of regional water strategies that combine climate evidence and economic and ecological analysis, with input from water service providers, local councils, communities, Aboriginal people, and other stakeholders.

**Figure 1** Map of NSW regional water strategy regions

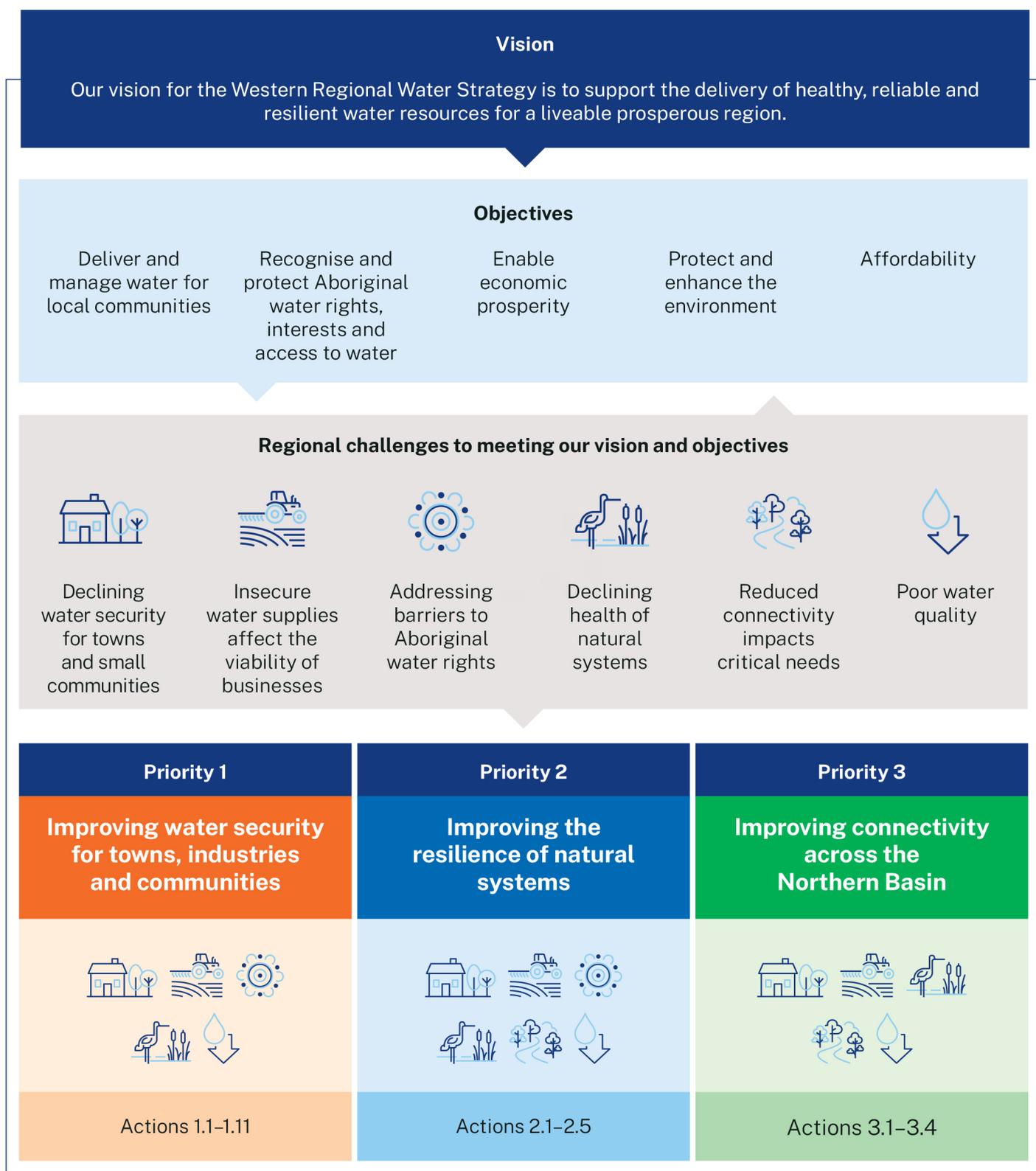


The regional water strategies adopt a long-term approach to strengthening and building the reliability and quality of the state's water resources for the next 20 to 40 years. They consider how much water a region will need to meet future demand, the challenges and choices involved in meeting those needs, and the actions that need to be taken to manage water availability and security risks.

The Western Regional Water Strategy (strategy) has been developed following consideration of:

- improved climate modelling and data
- existing studies that support a greater understanding of risks affecting water resource management in regional NSW
- existing NSW Government commitments, projects and reforms designed to address risks associated with water in regional NSW
- Obligations under the *Water Management Act 2000*.

**Figure 2** Western region vision, objectives, challenges and priorities

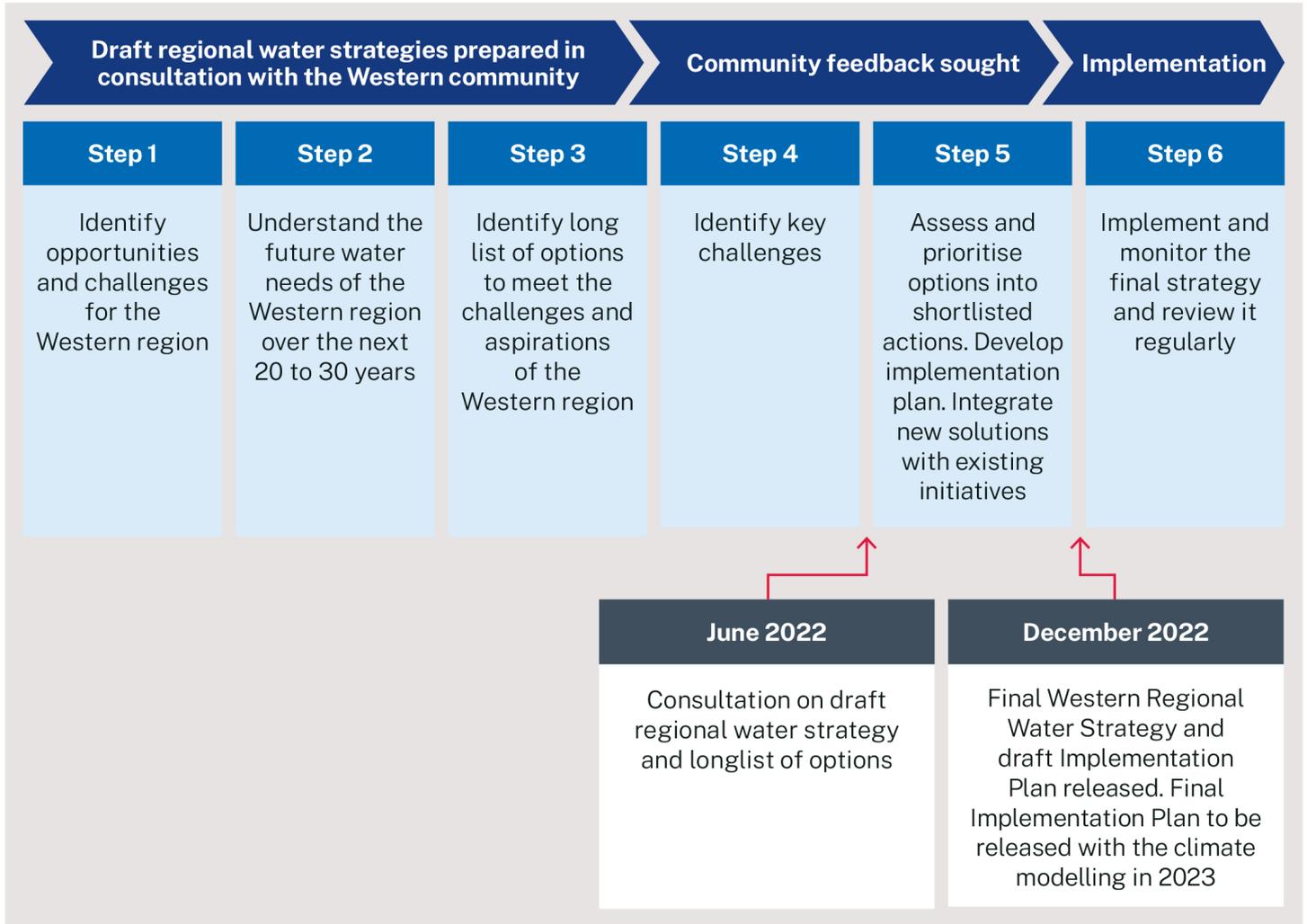


# Consultation

The purpose of consulting with the community across a 3-year phased approach was to share information, gather feedback and seek views on what should be included in the final strategy.

In other regional water strategy regions across NSW, a draft strategy with a longlist of options was released for public comment before shortlisted options were proposed. A different approach was adopted for the Western region due to the significant consultation and analysis that has occurred over the past 3 years and that will continue to occur, including the remake of the Barwon Darling Water Sharing Plan in 2023.

**Figure 3** Regional water strategy implementation process



## Phase 1: Targeted engagement (2020-22):

- Joint Organisations, local councils and local water utilities (June 2020 to 2022)
- Aboriginal communities and representatives (March 2021 to 2022), including stakeholder workshops in Mungindi, Walgett, Brewarrina, Bourke, Wilcannia, Menindee and Wentworth
- Connectivity Stakeholder Reference Group meetings (August, October and November 2021) with representatives from Aboriginal nations, water user groups, conservation groups, local government sector, Murray-Darling Basin Authority, Commonwealth Environmental Water Office
- Stakeholder engagement in partnership with Western Weirs Program, WaterNSW and Water Infrastructure NSW
- Interagency panel with representatives from the department's NSW Environment and Heritage, Office of Local Government NSW, and Water, Strategy and Reform groups as well as WaterNSW, Department of Regional NSW (including Local Land Services) and the Department of Primary Industries (Fisheries and Agriculture).

## Phase 2: Public exhibition and engagement (2022):

Public consultation on the draft strategy occurred from 1 June to 13 July 2022. The purpose of consultation was to obtain feedback on the draft strategy and longlist of options. Supporting engagement activities included:

- live webinar (6 June)
- Aboriginal community sessions at Wilcannia (16 June) and Brewarrina (29 June)
- targeted session with Brewarrina LALC (29 June)
- public community sessions at Menindee (15 June), Walgett (28 June) and Bourke (30 June)
- briefing with Brewarrina Shire Council (11 July).

Engagement outcomes from phase 1 can be found in the [Draft Western Regional Water Strategy - Attachment C: What we heard through stakeholder engagement](#)

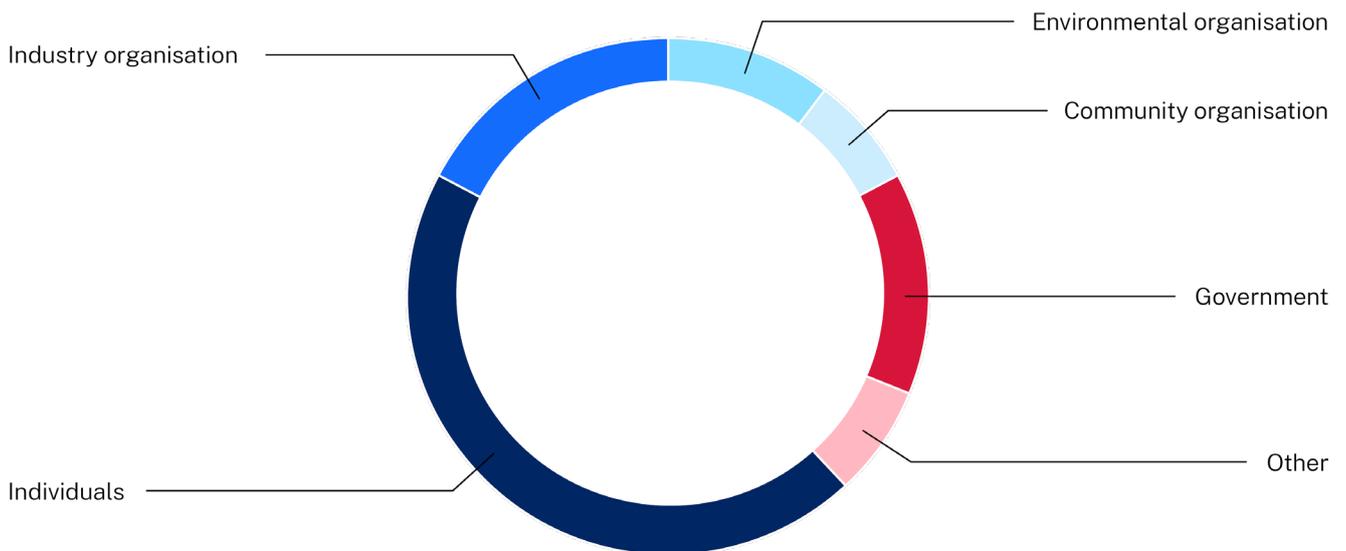
**Figure 4** Western region phase 2 timeline of activities



Figure 5 Public exhibition phase 2 engagement at a glance



Figure 6 Public exhibition phase 2 overview of submissions by stakeholder type



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## About this report

This report summarises feedback received during the phase 2 public exhibition process.

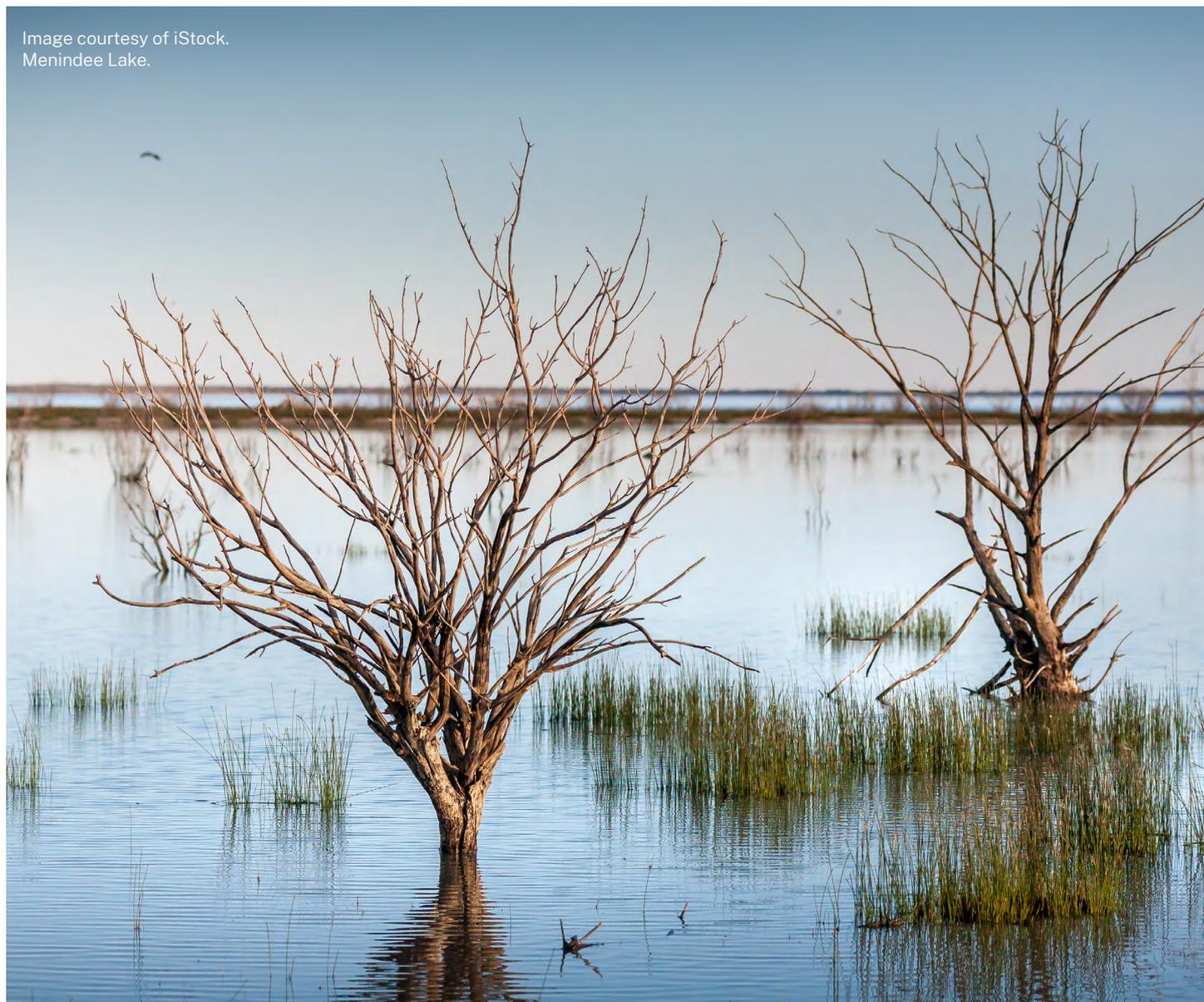
The department received 29 formal submissions and around 200 people participated in engagement activities to support the public exhibition process.

Some of the feedback received was very specific relating to particular actions or options in the draft strategy, while other feedback was more general in nature.

To provide a thorough overview of responses, feedback from submissions, fillable forms and engagement sessions has been documented in this report as follows:

- [Feedback by theme](#)
- [Feedback on options](#)
- [Suggested additional options and commitments.](#)

Image courtesy of iStock.  
Menindee Lake.



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# Feedback by theme



Image courtesy of Michael Scotland,  
Barwon River, Mungindi.

# Feedback by theme

This section provides an overview of the issues and themes that were most commonly raised by those who made submissions and attended engagement sessions during phase 2 of consultation about the draft strategy.

It discusses the issues as expressed by the community and stakeholders. The department's response to submissions is provided at the end of this report.

**Table 1** Western region 'what we heard'

## Summary of key feedback themes



### **Reduced connectivity impacts critical needs**

Connectivity was consistently raised as an important issue, with widespread support for ensuring there are appropriate triggers to minimise or prevent cease-to-flow periods and protect connectivity flows throughout the catchment.

There was support for implementing and expanding the North West Flow Plan objectives to achieve Environmental Watering Requirements and prevent salinity and blue-green algae issues, but there were also calls to ensure that only measures that could demonstratively achieve their intended objectives should be progressed.

A number of stakeholders expressed concern about the 195 GL trigger over all the Menindee Lakes proposed in the draft strategy. These stakeholders noted that a 195 GL trigger would provide less than 12 months of water during periods of high evaporation to support critical human and environmental needs in the Lower Darling.

Some stakeholders suggested that the trigger needs to ensure that the Lower Darling has accessible, manageable water for at least 2 summers or 18 months. These stakeholders suggested that there should be a minimum of 450 GL at Menindee Lakes and 30 GL flow at Wilcannia for 15 consecutive days before upstream access should be allowed.

Support for the proposed targets as long as they provide meaningful benefits and achieve their stated objectives, and are supported by the appropriate gauging, modelling, and forecasting capabilities.



### **Aboriginal people have lost access to water**

There was widespread support for options aimed at improving the participation of Aboriginal people in water management. Ensuring that the needs and values of Aboriginal people are recognised and represented within the strategy was repeatedly endorsed.

Initiatives that support the involvement of Aboriginal people in the active management of rivers and water were also supported.



### **Declining health of natural systems and poor water quality**

Protecting and improving the catchment's environment and ecosystems were widely supported.

Initiatives to improve native fish health, fish passage and water quality were also supported.

Concerns were raised about the long-term impacts of infrastructure, erosion, over-extraction and contamination from agriculture.

There was concern about the possibility of environmental harm by including 5-year accounting rules for floodplain harvesting in the water sharing plan rules.

Effective monitoring and management of floodplain harvesting volumes were viewed as essential.

## Summary of key feedback themes



### Declining water security for towns and small communities

Managing water demand and improving water-use efficiency were identified as key priorities.

Further investigation of options for water recycling and managed aquifer recharge (MAR) were also suggested.

The impacts of water scarcity on town water supply remains of widespread concern due to a range of issues, including impacts on mental health and loss of critical industries and skills.

While groundwater was recognised as important to address future climate-related water scarcity issues, there was also concern about the potential impacts of an over-reliance on, and lack of understanding of, groundwater.



### Insecure water supplies affect the viability of businesses

Water security was recognised as critical for economic growth and there was support support for providing greater certainty around the implementation and lifting of water restrictions, such as by including triggers in water sharing plans.

Investigating water efficiency measures was commonly identified as a priority to help address climate change impacts.



### New and existing infrastructure

There were mixed views about the role that infrastructure can play. While there was some support for removing weirs to improve connectivity and help fish species and habitats recover, there was also concern about resulting impacts to water security, stock and domestic users, river health and fish habitat.

There was support for increasing water storage and supply by developing new infrastructure and upgrading existing infrastructure.



### Water management

Increasing the transparency of water management information was supported. There was also support for providing greater opportunities for inter-jurisdictional collaboration to manage water, environmental, social and cultural needs.

Being able to adapt water management practices to better meet environmental needs and the impacts of climate change was also considered important.



### Strategy development and implementation

Ensuring that the strategy is developed, implemented and monitored in a way that is transparent and promotes accountability were considered important.

There was general support for better collaboration and relationship building between the department, community and stakeholders to ensure successful implementation of the strategy.

Further consultation with the community before the strategy is finalised, including stakeholders outside of the Western region, was seen as important, as was adequate consultation with Aboriginal stakeholders and communities.



## Theme 1: Reduced connectivity impacts critical needs

The issue of connectivity was consistently raised as an important consideration for the strategy. Respondents expressed concern about the frequency and impact of cease-to-flow periods in the region.

There was divided opinion on when and how much water needed to flow across catchments and downstream, the role and significance of dry periods in the region's 'boom and bust' cycle and ensuring connectivity through to the River Murray.

The draft Western Regional Water Strategy proposed critical dry condition triggers to restrict supplementary, B-Class and C-Class licences when:

- extended cease-to-flow periods are forecast in the Barwon-Darling, Border Rivers, Gwydir, Namoi and Macquarie catchments
- Menindee Lakes total storage level falls below 195 GL.

These triggers were intended to protect the first flush of water after an extended dry period.

The strategy also presented information on when upstream lower priority licences could be restricted to meet algal suppression and fish migration objectives in the Barwon-Darling (North-West Flow Plan triggers).

### General comments on the triggers

- There was support for protecting the first flush of water following an extended drought and ensuring that restrictions are not lifted without allowing these flows to access all reaches of the Barwon-Darling. Some stakeholders expressed concern that access to the first flush of water has not always been managed equitably.
- There was support for ensuring there are appropriate triggers to restrict lower priority licences upstream in order to protect flows throughout the system during dry periods. This included implementing targets at the end of each tributary and setting higher storage targets for Menindee Lakes before upstream licence holders should be able to take water.
- There were comments indicating that the connectivity actions should be progressed now, but also considered and accounted for in the Murray-Darling Basin Plan review. There were calls for only proceeding with measures and actions where it could be demonstrated that they met stated objectives.
- Some stakeholders expressed concern that the proposed current triggers were not adequate or based on best available science, data and local knowledge.
- Some submissions noted that 30 days of cease-to-flow is in alignment with the conditions of NSW long term water plans.

### Implementation of critical dry condition triggers

There were a range of views on how to implement any trigger that restricted upstream access during dry periods. This included:

- a preference for codifying triggers for implementing and lifting water restrictions in water sharing plans, rather than relying on temporary water restrictions. This was seen as a way of providing greater certainty for water users, with less reliance on ministerial discretion
- triggers being based on 'real time' information about the condition of refuge pools along the Barwon-Darling between Mungindi and Lake Wetherell and in northern tributaries
- restrictions being accompanied by other measures such as improved town water supplies, fishways, restoration of natural rock weirs and water quality improvements.

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## Feedback on the proposed 195 GL Menindee Lakes trigger

- A number of stakeholders expressed concern about a trigger restricting upstream access when there was 195 GL of water across all of the Lakes at Menindee. These stakeholders noted that a 195 GL trigger would provide less than 12 months of water during periods of high evaporation, did not take into account the 125 GL dead storage volume that becomes inaccessible for supporting critical human and environmental needs and that it will contribute to fish kills.
- Some stakeholders suggested that the triggers should ensure that the Lower Darling has accessible, manageable water for at least 2 summers or 18 months. They also noted that there should be a minimum of 450 GL at Menindee Lakes and 30 GL flow at Wilcannia for 15 consecutive days before upstream access should be allowed. It was also suggested that holding 300 GL at Lake Pamamaroo and an additional 180 GL in Lake Wetherell could provide 18 months to 2 years of water security.
- Some stakeholders raised concerns about linking a trigger to the storage level of Menindee Lakes because operational decisions around how that water is used is subject to decision-making by multiple agencies. Instead it was suggested that a target based on flows into Menindee Lakes, rather than a Menindee Lakes storage threshold, may be more equitable. Overall, greater transparency around accountability for release strategies at Menindee Lakes was requested.

## North-West Flow Plan triggers

- There was support for implementing and expanding the North-West Flow Plan objectives to achieve Environmental Watering Requirements and prevent salinity and blue green algae issues. However, some stakeholders suggested that these should only proceed where it could be demonstrated that they met stated objectives.
- There was support for ensuring that triggers and flow targets protect vulnerable water dependent ecosystems and a suggestion that restrictions should only be lifted when Environmental Water Requirements are met in each reach of the Barwon-Darling system.
- There was some concern that the proposed objectives are too limited and that North-West Flow Plan rules should achieve as many of the environmental water requirements as possible.
- There was support for developing environmental flow targets based on the best available science and ongoing monitoring. Noting that these targets should align with long term water plans, be clearly documented and communicated, and regularly revised.
- Support for improved flow forecasting capabilities.

## Related connectivity issues

- There was some concern that upstream water needs are prioritised over the needs of communities downstream of Bourke and that connectivity between the Barwon-Darling and Lower Darling was considered important. Some submissions suggested that the northern basin should be viewed as a connected system across jurisdictional and administrative borders and for applying restrictions equitably. This includes developing a cease-to-pump agreement with QLD for when NSW is in critical need.
- Support for using reliable gauges at the end of each tributary to monitor cease-to-flow and flow targets, arguing that this best represents the condition of the system.
- Some submissions acknowledged that the connectivity objectives were a start to addressing the impacts of climate change, but that long-term historical records may become irrelevant as future climate extremes intensify. There was some support for:
  - implementing adaptive water management practices to enable greater connectivity along the system
  - recognising the importance of connectivity to the region, with flows necessary to meet critical human, environmental and cultural needs
  - enabling river flows after rain, and removing constraints, so that flow can reach significant ecological sites
  - regulating end-of-system flows and ensuring that held environmental water for northern tributaries is protected from extraction.
- There were mixed views about the role of drying cycles and cease-to-flow periods. Some respondents argued that the 'boom and bust' cycle of many Australian rivers makes it difficult to always ensure water flows, while others noted that the Barwon-Darling and Lower Darling were not ephemeral systems and needed a combination of low, medium and high flows.
- A number of submissions expressed concern over the option to regulate the Barwon-Darling with fears this would lead to negative environmental outcomes and outweigh benefits to users.

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## Response to feedback

In response to stakeholder feedback, the department undertook additional analysis on alternative triggers at Menindee Lakes, including a 195 GL active trigger to provide 12 months of water for critical human and environmental needs in the Lower Darling as well as a 480 GL trigger.

The analysis found that:

- **Menindee Lakes triggers do not stop the lakes from depleting**

The main benefit of the critical dry condition triggers is to accelerate drought recovery. Triggers do not stop depletion because during droughts there are often not the flows to protect upstream. A trigger would not have changed the outcome during the last drought.

- **A 195 GL active trigger in the upper lakes can help provide around 12 months of critical human needs in the Lower Darling**

- **A 480 GL trigger would not have stopped the lakes from depleting in the last drought because there was no water being taken upstream to restrict**

It also goes beyond the critical needs threshold by also allowing for Lower Darling general security allocations which are often announced when the lakes are around 300 GL.

Our analysis demonstrated that placing restrictions on low priority licences such as supplementary, floodplain harvesting, B-Class and C-Class licences is unlikely to result in significant changes in flows downstream or at the end of the system during droughts. This is because these licences rely on large natural flows which often do not occur during droughts when there is often no water downstream, and there is no water upstream to restrict. However, protecting water across connected systems at important times is critical to the fair sharing of water, including water for the environment.



## Theme 2: Aboriginal people have lost access to water

The strong cultural connection between Aboriginal communities and water was recognised. It was noted that losing access to water resulted in significant negative impacts on the mental health and wellbeing of First Nations people.

There was wide support for all options aimed at improving the participation of Aboriginal people in water management and for ensuring that the needs and values of Aboriginal communities are recognised and represented.

Initiatives that support the involvement of Aboriginal people in actively managing rivers and water, such as River Ranger programs and cultural licenses, were widely supported, as was including Aboriginal science in water management.

### Support

#### Participation and water management

- Support for embedding Aboriginal participation in water policy and strategy development at all levels of government.
- Support for developing a community-led approach to water management.
- Recognition of the close relationship between Aboriginal people, their cultural traditions and rivers and wetlands.
- Support for enabling active management of rivers by Aboriginal people e.g. through cultural water licenses.
- Support for the River Ranger Program.
- Support for cultural water licenses and other options that enable Aboriginal people to be active participants in river management.
- Support for assisting Aboriginal communities to better understand how much water is needed.

#### Cultural water

- Support for improving cultural outcomes for Aboriginal people, in line with the Echuca Declaration and the 2020 National Agreement on Closing the Gap.
- Recognition of the cultural significance of the Menindee Lakes, the lower Darling River and Great Darling Anabranch.
- Support for legislating Aboriginal cultural water allocation into the Water Sharing Plan for the Barwon-Darling. These amendments should include cultural flow targets to maintain and improve spiritual, social, customary and economic benefits of surface water to Aboriginal communities.

### Concern

#### Representation and water management

- Noted that the current approach to water management negatively impacts the health and wellbeing of Aboriginal communities.
- Concern that the needs of individual local Aboriginal communities are not represented.

#### Funding

- Request for more information about where the Australian Government's announcement of \$40 million towards Aboriginal water has been allocated.

## Support

### Aboriginal science

- Support for recognising and using Aboriginal science in projections and water management.
- Suggestion to consider Aboriginal knowledge to fill the gap in western science.

## Concern

### Cultural water

- Concern that water take upstream is preventing the community around Bourke from being able to practice culture.
- Concern that cultural water licences do not have good uptake due to lack of infrastructure to support them and because the application process is not culturally sensitive.
- Concern that if cultural water is supplied from Lake Wetherell and Menindee Weir, this may result in between local stakeholder groups and strategy objectives.
- Concern that commercial water licenses for Aboriginal people or groups would require people to 'prove' that they are Aboriginal or result in non-Aboriginal people making false claims.
- Concern that planning controls make access to cultural water and significant sites difficult.

### Better Baaka

- Noted that changing the name of the Menindee Lakes Sustainable Diversion Limit Adjustment Mechanism project to 'Better Baaka' was confusing and could be seen as cultural appropriation.

### Erosion

- Concern that disturbance of alluvial soils has resulted in more silt downstream and negatively impacted the Brewarrina fish traps (Baiaime's Ngunnhu).

### Water quality

- Concern that farming, irrigation and water management can limit opportunities for cultural practices to occur.
- Concern that Aboriginal people are unable to drink or use water due to water quality and access issues.

## Response to feedback

The NSW Government is progressing with a state-wide Aboriginal Water Strategy.

The final strategy sets out 3 key actions to respond to stakeholder comments and address barriers to Aboriginal people's water rights:

**Action 1.7:** Develop ongoing arrangements for participation of local Aboriginal people in water management.

**Action 1.8:** Support place-based initiatives to deliver cultural outcomes for Aboriginal people.

**Action 1.10:** Support Aboriginal business opportunities in the Western region.



## Theme 3: Declining health of natural systems and poor water quality

Protecting and improving the catchment's environment and ecosystems were widely supported, noting that the Barwon-Darling and Lower Darling are listed as an endangered ecological community which underlined the high importance of protecting native fish species and ecological systems.

Referencing recent fish kills and algal blooms, some stakeholders noted that ongoing poor management and unsustainable agricultural practices had impacted the health of natural systems.

Carp and salinity were often identified as major threats to environment and ecosystem health.

Initiatives to improve native fish health and improve water quality received broad support. It was noted that focusing on water quality objectives was as important as the quantity of flows, with the two being closely linked.

Better protection of held environmental water from extraction and use in river operations was also supported by some stakeholders.

Some respondents raised concerns about the Floodplain Harvesting Program, including that the 500% carryover rule may impact environmental and social outcomes. Effective monitoring and management of floodplain harvesting volumes were viewed as essential.

### Support

#### Environment and ecosystem health

- Support for improving riparian habitat and re-establishing threatened native fish species, recognising that the Darling River has been listed as an endangered ecological community.
- The significance of the Great Darling Anabranch ecology was recognised.
- Support for maintaining small, regular flows through the system. However, the importance of drying cycles for the environment was also noted.
- Suggestion to develop and implement a targeted investigation program to monitor and support the protection of native and threatened species.

#### Water quality

- Support for options that improve water quality.
- Support for increasing understanding and knowledge of water quality and water flows and for real-time water quality monitoring of indicators such as dissolved oxygen and temperature.
- Support for implementing raw water quality target values as per the Australian Drinking Water Guidelines.

### Concern

#### Ecosystem health

- Concern over the critical condition of the Darling River leading to fish deaths, blue green algae and decline of water-dependent fauna. Noted that long-term changes to natural ecology (caused by factors such as erosion, water temperature changes, fish habitat removal) have contributed to outbreaks of blue green algae and mass fish deaths.
- Concern about the impacts of over-extraction (e.g. from floodplain harvesting), streamflow decline, poor management and climate change on ecosystem health.
- Concern about the impacts of grazing, land clearing and manipulation of water flows.
- Concern that the impacts of dams and other infrastructure have prevented medium sized flooding in the wetlands and allowed feral carp populations to grow.

#### Water quality

- Concern about water quality health and the resulting negative impacts on community health.
- Concern about the impact of industrial and farming practices on water quality and the environment, e.g. release of dirty water from farm storages when fresh water becomes available following drought.
- Salinity was identified as a key issue for water quality.

## Support

### Fish health

- Support for improving habitat, providing better migration opportunities and removing threats to native fish populations.
- Support for fish-friendly water extraction methods (e.g. fish screens on pumps) and in-stream infrastructure (e.g. fish ladders).
- Support for fish migration targets.

### Groundwater dependent ecosystems (GDEs)

- Support for better understanding how flows, interconnectedness and recharge impact GDEs before implementing changes that increase reliance on groundwater.

### Environmental water

- Support for reserving held environmental water only for environmental purposes and not for river operations and base flows. Noted that relying on environmental water may not meet replenishment requirements as it is highly variable and subject to the same allocations and license conditions as other general security licences.
- Support for recognising and protecting environmental water flows from Queensland and ensuring that there are adequate environmental flows from the Northern Basin to protect the catchment's ecologies.

## Concern

### Erosion

- Erosion was noted as a key issue for the catchment, with the observation that this was worsened by allowing water to flow too quickly through the Menindee gates.

### Climate change

- Concern about the impact of more frequent extreme weather events and patterns on water cycles.
- Concern about the health of the environment and ecosystems as climate change impacts worsen.
- Concern that rising evaporation rates and increasingly severe droughts will further degrade the Murray-Darling system.
- Increased pressure on water sources and communities due to extreme weather events caused by climate change was considered a key challenge for the region.
- Mixed views about the use of 'worst case scenario' modelling in the strategy, with some judging it as unnecessarily alarmist, while others felt it underestimated the likely impacts of climate change.
- Suggestion for the final strategy to also include additional climate change scenarios including low (RPC2.6), moderate (RPC4.5) and high (RCP8.5) emissions scenarios.

### Floodplain harvesting

- Concern that the licensing of floodplain harvesting has increased the frequency and severity of zero and low-flows and severely impacted ecological values.
- Opposition to the 500% carryover rule due to loss of key flood flows for downstream wetlands, groundwater recharge, basic landholder rights, town water supply and Aboriginal cultural values.
- Concern about trading of floodplain harvesting entitlements.
- Concern about the exemption for rainfall runoff.
- Concern that, in its current form, the NSW Floodplain Harvesting Policy would lock-in inequitable and unsustainable usage.
- Concern at the long-term impacts of floodplain harvesting on the catchment's resilience to dry periods. Recommended that these impacts should be better understood before water licenses for floodplain harvesting are provided.
- Concern that introducing new compensable extractive licenses would further reduce water flows in the system.

### Climate change

- Suggestion for better communication about how climate change is factored into water sharing plans.
- Noted that modelling and data in the strategy should consider the full range of potential wet and dry conditions.

### Floodplain harvesting

- Support for reducing floodplain harvesting volumes so they align with environmentally sustainable limits.
- Support for removing harmful floodplain structures prior to granting floodplain harvesting licenses.
- Support for greater regulation and enforcement of floodplain harvesting and the sustainable diversion limit, with case studies to illustrate how this would be implemented in practice.

### In-stream structures

- Support for modifying or removing harmful floodplain structures e.g. weirs, to enable better flows to important ecological sites. Noted that these structures may impede connectivity and the movement of aquatic biota and favour introduced carp.
- Noted that modification or removal of structures should occur prior to granting new floodplain harvesting licenses.
- Noted that the Floodplain Management Plan for the Barwon-Darling Valley (2017) identified 110 priority areas which may include unapproved structures.

## Response to feedback

Future droughts and long-term dry climate change scenarios will increase the pressure to provide environmental water to support ecosystems and native species. The actions in the strategy focus on improving the health and resilience of natural systems to withstand future extreme events and protecting aquatic species and habitats. These actions include:

**Action 2.1:** Fully implement the NSW Floodplain Harvesting Policy.

**Action 2.2:** Remediate unapproved floodwork structures or constraints.

**Action 2.3:** Protect priority aquatic and groundwater-dependent ecosystems.

**Action 2.4:** Undertake broadscale, long-term catchment management and better integrate land use and water management.

**Action 2.5:** Mitigate the impact of water infrastructure on native fish.



## Theme 4: Declining water security for towns and small communities

Improving the way that water is managed for towns and communities was supported.

There was concern that groundwater alone could not meet town and community water needs. Addressing water security was viewed as especially important given the impacts of climate change on available town water.

Respondents noted the strong link between water security and the social and mental wellbeing of towns and communities.

### Support

#### Water quality

- Support for setting transparent and accessible targets for raw and drinking water quality.
- Support for better management of flows and releases from dams to help manage salinity and the presence of metals.

#### Water security

- Support for better supply and demand forecasting and planning and for non-rainfall-based supply options for town water supply.
- Support for pilot programs that investigate alternative urban supply sources, e.g. indirect potable reuse.
- Support for greater investment in options that increase town water supply, e.g. off-river storages.
- Recognition that access to reliable water supply is important to maintaining and supporting local social and recreational facilities.

#### Diversification, efficiency and demand

- Support for focusing on managing demand for water by reducing consumption, particularly if dry periods become longer and more frequent.
- Support for investigating new technologies to improve water efficiency.
- Support for water recycling projects.
- Recognition that water is a scarce resource that needs to be responsibly managed by all levels of government.
- Support for investigating better ways of capitalising on high flow periods.

### Concern

#### Water quality

- Concern about the capacity of local councils to adequately treat water of variable quality.
- Salinity and blue green algae were recognised as key impacts on human health.
- Concern about the cost of water quality issues on communities, such as purchasing bottled water, higher water treatment costs, water carting, restrictions and negative mental health outcomes.
- Concern about reliable supplies of potable water and whether treatment systems currently in place are able to deliver water of adequate quality.

#### Water security

- Concern that irrigation water is prioritised over critical human needs, such as town water and stock and domestic needs.

#### Impact of drought

- Concern that the full extent of the social and financial impacts of water insecurity are not adequately considered by the strategy.
- Concern that lack of access to a secure water supply may lead to the loss of key regional skills and industries.

## Support

### Groundwater

- Groundwater was recognised as an essential resource for towns and communities, noting that careful consideration and better understanding of groundwater resources were needed to ensure sustainable use.
- Further investigation into managed aquifer recharge was supported as a means of addressing water security, provided there was also investigation into potential environmental impacts on surface water and aquifers.

### Great Artesian Basin

- Support for better management of the Great Artesian Basin with particular emphasis on the importance of involving and engaging with Aboriginal communities.

### Better Baaka

- Support for progressing the Western Weirs Strategy and Better Baaka Program to provide greater security for town water supplies in Bourke.

## Concern

### Groundwater

- Relying too heavily on groundwater was not supported due to a view that most sources are already fully or over allocated and because groundwater recharge was expected to decline over time.
- Concern that current bore water supplies may not adequately support Bourke's town water needs.
- Recognition of the key role that groundwater plays in regional water security was balanced by a desire for further investigation into availability and demand.
- Groundwater desalination for industry and towns was not supported by some stakeholders.

### Better Baaka

- Lack of support for Better Baaka and the Menindee Lakes SDLAM program options that reduce the volume of water stored in the Menindee Lakes.
- Confusion about the connection between the Better Baaka and Menindee Lakes SDLAM Programs.
- Concern that options involving the Better Baaka Program were being progressed without proper consultation.
- Concern that the Better Baaka should not place unfair water recovery burdens on irrigators.

## Response to feedback

High evaporation rates and extended dry periods present significant risks to the small communities dispersed over large areas across the Western region.

The strategy focuses on building the resilience of towns and industries to future droughts and climate risks.

Improved water security for towns, communities and industries will help to attract and retain people, businesses and jobs in the region and support the growing tourism industry.

The actions in the strategy include:

**Action 1.1:** Augment water supply systems for towns and small communities.

**Action 1.2:** Adopt a stronger focus on water efficiency and demand management for towns.

**Action 1.3:** Address water-related skills shortages and funding challenges in small councils.

**Action 1.4:** Use groundwater more efficiently, innovatively and sustainably.



## Theme 5: Insecure water supplies affect the viability of businesses

Securing water supplies for business and industry was recognised as critical to maintaining the region's economy, as was the important role of agriculture.

Implementing more efficient water practices by industry was seen as critical to improving the region's water security and reliability. Being clear about the rules around restrictions and triggers was also raised as way of providing greater certainty to industry.

Implementing water efficiency measures was widely supported to address the impacts of climate change. This included identifying water-efficient industries to support diversification and using technology (e.g. floating solar farms) as a means of minimising evaporation losses.

### Support

#### Water license reliability and underuse

- Support for investigating issues around water licence reliability and identifying options to help address this.
- Some licence holders in the Barwon-Darling noted that water sharing plan rules make it impossible for water users to reach sustainable diversion limits. As a result, there was some support for investigating issues that prevent water users from reaching sustainable diversion limits.
- Some support for free trade of water within water sources to help water users reach sustainable diversion limits.

#### Water security

- The correlation between water security and economic outcomes was recognised, with recommendations for this to be considered as part of the evaluation of options.
- Suggestion that economic impact assessments be undertaken to understand impacts on water users, particularly during critical times.
- Support for better regulation and distribution of infrastructure to help address water supply and security issues.

#### Water sharing plans

- Support for including triggers and rules in water sharing plans, rather than relying on suspending the regulatory framework through implementing s324s. This would provide more certainty, predictability and transparency.
- Support for better monitoring and regulation of water sharing plans.
- Support for modernising the water allocation framework so that industries can optimise their legal access to water as it becomes available.
- Support for legislating Aboriginal Cultural Water Allocation in water sharing plans.

### Concern

#### Water licences

- A view by some that general security licence allocation should be protected. It was noted that management of the Menindee Lakes is critical to this.
- Concern that allocation of water licences to international organisations could result in negative local impacts.

#### Water sharing plans

- Concern that water sharing plans and water trading practices are unregulated and unsustainable.
- Concern at options or actions that alter water sharing plans and reallocate water from one user to another.
- Concern that upstream users are unfairly protected at the expense of downstream industries and communities. Recommendation to consider connectivity between valleys.

#### Sustainable diversion limits

- Concern that changes to sustainable diversion limits would not be fairly compensated and that incremental reductions could result in 'death by a thousand cuts'.
- Concern that changes to sustainable diversion limits should not occur before the Basin Plan is reviewed.

## Support

### IDEC's and sustainable diversion limits

- Support for temporary trade of individual daily extraction components (IDEC).
- Support for redistributing IDECs according to pump capacity at 2012 and returning to the interim trading rules that were allowed under the 2012 Barwon-Darling Water Sharing Plan.
- Support for adopting a strategy that seeks to maximise productive water use under sustainable diversion limits rather than reducing the productive pool available.
- Support for calibrating the meters and the hydrologic model for the Barwon-Darling.

## Concern

### Better Baaka

- Concern from some that the Better Baaka Program should not place unfair water recovery burdens on irrigators.

### Diversification, efficiency and demand management

- Support for managing and reducing water demand as a key objective of the strategy.
- Support for exploring efficiency measures such as water recycling projects.
- Support for encouraging water efficient industries.
- Support for improving the water efficiency of water dependent industries.
- Support for improving the way that water is consumed and stored to support efficient and sustainable future water supply and management.
- Support for considering a broad range of off-stream options and water conservation practices.
- Support for piping water to improve delivery efficiency, while noting that the economic and environmental costs and impacts must be fully understood, e.g. Basin Plan, sustainable diversion limits and environmental water.

## Response to feedback

The Western region is home to a range of industries. The primary employment sector is the healthcare and social assistance sector, with employment mainly occurring in larger centres like Broken Hill and Cobar. Mining, agriculture and tourism are also important industries, with mining providing the largest economic output for the region.

The key actions to address this challenge in the region include:

**Action 1.4:** Use groundwater more efficiently, innovatively and sustainably.

**Action 1.5:** Improve the collection, analysis and public access to data.

**Action 1.11:** Support adoption of farm climate adaptation and water efficiency measures.



## Theme 6: New and existing infrastructure

There were mixed views about weir removal and replacement. While there was support for removing weirs to improve connectivity and help recover fish stock and habitats, there was also concern about impacts to water security, stock and domestic users and river health.

There was support for increasing water storage and supply through new or upgraded infrastructure, such as off-river storage, augmentation through groundwater solutions or raising weir crest heights.

### Support

#### Weir removal, replacement and modification

- Support for improving connectivity and wetland systems through weir removal or modification.
- Support for constructing covered off-stream storage to augment town water supplies.
- Support for removing non-town weirs to allow for critical low flows and support recovery of fish species and habitats, including Murray Cod.
- Noted that reducing the risk of blue-green algae and evaporation would be positive outcomes of weir removal.
- Support for a better understanding of the role of non-town weirs for stock, domestic supply and social amenity before decisions to remove weirs are made.

### Concern

#### Weir removal, replacement and modification

- Key concerns raised in relation to weir removal and modification, including impacts to:
  - water security along the river system
  - security of town water supply
  - river health, especially during low flows
  - fish and habitat health.
- Removal of some non-town weirs was not supported, due to their importance for stock and domestic users.
- Concern about removal of Weirs 19A and 20A due to impacts to stock and domestic users and villages from salt flowing downstream.
- Concern about negative impacts to tourism, the economy and Toorale National Park if Weirs 19A and 20A are removed.
- Suggestion for fish passage to be upgraded if removal of Weirs 19A and 20A progresses.
- Concern about delay and lack of political will to progress the replacement of Wilcannia Weir.
- Concern that weirs reduce critical flow and medium flows.

#### New and existing infrastructure

- Support for building new or modifying existing infrastructure to provide town water supply, e.g. off-river storages, augmentation through groundwater solutions, raising weir crest heights.
- Support for examining the cost and impact to communities if storages are not increased.
- Support for analysing the extent of environmental and social impacts of droughts and floods and for highlighting the need for additional infrastructure.

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## Response to feedback

There are a number of infrastructure actions in the strategy aimed at improving town water supply, improving connectivity or reducing the impact of infrastructure on fish. These actions include:

**Action 1.1:** Augment water supply systems for towns and small communities.

**Action 2.2:** Remediate unapproved floodwork structures or constraints.

**Action 2.5:** Mitigate the impact of water infrastructure on native fish.

Progressing infrastructure changes often require further consultation and investigations before they can be implemented.



## Theme 7: Water management

Increasing transparency around water management was supported, as was providing greater opportunities for inter-jurisdictional collaboration to manage water, environmental, social and cultural needs.

Adapting water management to meet environmental needs as climate change impacts worsen was considered important.

There was support for removing policy, operational and physical barriers to delivering environmental water.

### Support

#### Water management

- Support for increasing transparency around water management information.
- Suggestion to develop a water register to provide entitlement information and increase confidence in water management.
- Support for developing an accessible platform to provide information on water terms, policies and operations, rules, indicators of supply and demand, and flow and storage access and release triggers.
- Support for expanding local capacity-building initiatives through catchment management authorities and programs such as the Basin Communities Leadership Program.
- Support for holistic management of the catchment.
- Noted that NSW Government compliance with the *NSW Water Management Act 2000* water management principles about water sharing are important.

### Concern

#### Water management

- Adapting water management to meet environmental needs as the climate changes was considered important.
- The need for increased transparency and accountability around management of the Barwon-Darling was noted.
- Concern about the complexity of the water management system.
- Ensuring that the water management framework, including all water sharing plans, can adapt to changing circumstances was considered important.
- Suggestion that management of droughts that cause critical water shortages should be incorporated into standard water management practices in the region.

#### Inter-jurisdictional water management

- Support for greater collaboration between the NSW and QLD governments to better manage cross-border water, environmental, cultural and social needs.
- Support for the strategy to clearly highlight the importance of connectivity between states, to support water management by valleys rather than state borders.
- Support for protection of held environmental water from QLD through the Intersecting Streams and into the Barwon-Darling to improve cross-border management of flows.
- Support for linking the operation of storage dams and tributaries so that they contribute to low flows in the Barwon-Darling and support the health of the river.

**Environmental water**

- Support for better allocation and management of environmental flows to support threatened species and spawning periods, including greater transparency on the release strategies of held environmental water and removing policy, operational and physical barriers to delivering environmental water.
- Support for reviewing the environmental water allowance to consider governance issues.

**Response to feedback**

The NSW Government recognises the need for continuous improvement of water models to support analysis of future operation, policy and planning decisions and their impacts on all water users, including the environment. This analysis, combined with improved communication and engagement approaches, will provide greater confidence to stakeholders and the community that water sharing and management decisions are informed by the latest scientific knowledge and a strong and credible evidence base. The key actions for this challenge are:

**Action 1.5:** Improve the collection, analysis and public access to data.

**Action 1.9:** Improve cross-border collaboration and information sharing.



## Theme 8: Strategy development and implementation

Providing transparency and accountability when developing, implementing, monitoring and evaluating the strategy were viewed as important.

There was support for improved collaboration and relationship-building between the department, community and stakeholders to ensure successful implementation of the strategy.

Consulting further with the community and stakeholders before the strategy is finalised was viewed as important, as was adequate consultation with Aboriginal stakeholders and communities.

### Support

#### Implementation

- Support for transparency and accountability in developing and implementing the strategy.
- Request for the information that was provided during public information sessions to be shared with stakeholders and the wider community.
- Support for ensuring that the objectives of the strategy are clear and it is obvious how they can be met by the proposed actions.
- Support for ensuring alignment and consistency between the strategy and other water plans and policies, e.g. the NSW Water Strategy, NSW Groundwater Strategy and the Murray-Lower Darling Long-Term Water Plan.
- Support for continued collaboration between the department and key stakeholders to ensure priorities such as connectivity and water quality are addressed.
- Support for the department to enable opportunities for stakeholders to build relationships and work together.
- Strengthening the leadership capacity of regional communities and government agencies was considered important.
- There was recognition of the significant work undertaken to improve modelling and data used to inform the strategy.
- Support for strategy options to undergo detailed analysis and evaluation to determine their ecological sustainability and economic viability.
- Suggestion for strategy options to undergo reliability and cost assessments and for providing information to licence holders about potential cost impacts.

### Concern

#### Consultation

- Concern that previous feedback had not been incorporated into the strategy.
- Noted that there is a need to incorporate cultural knowledge into the strategy and to better understand cultural values, uses and objectives of water.
- Concern about the style and timeframe for engagement conducted during public exhibition.
- Suggestion for community engagement approaches to be strengthened, such as via advisory panels, to ensure ongoing consultation about social, environmental and economic issues.
- Noted that there is a need for governments and communities to engage more effectively on water reforms.
- Conducting consultation beyond the Western region to ensure all impacted water users can provide feedback is important.
- Suggestion for there to be targeted consultation with licence-holders in the NSW Murray and Murrumbidgee regions about relevant strategy options, including operation of Menindee Lakes.
- Importance of developing a more comprehensive stakeholder and community engagement strategy was noted.
- Consultation fatigue was raised as a concern.

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## Response to Feedback

The development of regional water strategies has been a multi-year, multi-step process. Consultation with a range of stakeholders has been fundamental in building our understanding of the key challenges faced by the Western region and in identifying the actions we can undertake that are best-suited to addressing these challenges.

The initial phase of regional water strategy development helped the NSW Government to identify issues that are consistent challenges across the state. These state-wide issues have been included as priority focus areas in the NSW Water Strategy. Many of the options that were identified in the long list of the draft Western Regional Water Strategy have become part of the implementation priorities of the NSW Water Strategy because of their state-wide implications for water management. For the same reason, other options will be progressed through the NSW Groundwater Strategy and the NSW Aboriginal Water Strategy. The Western Regional Water Strategy will take into account the challenges, priorities and actions that are covered by these other strategies. There has been close collaboration to ensure that consistency and timing with the strategies are built into the implementation of the Western Regional Water Strategy.

Your feedback has been considered in finalising the Western Regional Water Strategy, it helped us to refine the actions and to prioritise implementation timing.

An Implementation Plan is attached to the Western Regional Water Strategy. It outlines the timing, responsibilities and funding sources to enable implementation of the actions within the strategy. The Implementation Plan prioritises and sequences the delivery of actions over the 20-year life of the strategy and beyond. The regional water strategies will be a key tool in seeking funding as future opportunities arise, and funding will be considered in when and how the actions will be implemented.

It is our intention that regional water strategies progress will be publicly reported on annually. This will ensure implementation is transparent and accountable. It will also allow the strategy to continue to adapt to address changing and emerging issues. The Western Regional Water Strategy will be reviewed at least every 5 years. This is in recognition that government priorities may change. This could involve new developments in infrastructure and assessments to deliver key outcomes, advances in technology, improvements in modelling, access to new information and changes to legislation.

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# Feedback on options



Image courtesy of Water Infrastructure NSW.  
Copi Hollow Pelicans, Menindee.

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## Feedback on options

There are 6 option groups in the draft strategy. They have been developed to address regional challenges and are supported by proposed options and government commitments:

1. Improving water security for towns and industries.
2. Delivering on Aboriginal people's water rights and improving access to water.
3. Protecting and enhancing natural systems.
4. Managing the impacts of poor water quality.
5. Making water information more accessible and meaningful.
6. Improving connectivity across the Northern Basin.

## Options

Below is a summary of the feedback received via formal submissions and engagement sessions about the proposed options and government commitments. This feedback will be considered alongside the consultation themes outlined in the previous section to inform the final strategy and implementation plan.

*Options nominated by respondents as those that should be considered priorities during the implementation phase are denoted as such in the tables below.*

### Option group 1: Improving water security for towns and industries

These options explore ways to:

- Augment town water supply systems
- Implement water efficiency measures
- Use groundwater more efficiently, innovatively and sustainably
- Invest in research and development to identify the industries of tomorrow.

There was both support and concern for options aimed at improving water security for towns and industries, with feedback focused on reducing water consumption and managing demand from towns and industries.

Increasing water efficiency, particularly in the context of a changing climate, was also supported.

Some stakeholders raised concerns about an over-dependence on groundwater resources and noted the importance of protecting groundwater-dependent ecosystems.

Options	Summary of feedback
<p>1. <b>Promote groundwater desalination for industry and towns</b></p>	<ul style="list-style-type: none"> <li>• Concern about increased dependency on groundwater and potential negative impacts on environmental and cultural values.</li> <li>• Suggestion to evaluate groundwater sources to ensure sustainability of the resource and dependent ecosystems.</li> <li>• Suggestion for further investigation into flows and recharge before increased extraction is permitted.</li> </ul>
<p>2. <b>Seek to increase secure and reliable access to groundwater for towns</b></p>	<ul style="list-style-type: none"> <li>• Concern about increased dependency on groundwater and potential negative impacts on environmental and cultural values.</li> <li>• Suggestion to undertake an evaluation of groundwater sources to ensure sustainability of the resource and dependent ecosystems.</li> <li>• Suggestion for further investigation into flows and recharge before increased extraction is permitted.</li> </ul>
<p>3. <b>Investigate managed aquifer recharge feasibility and policy</b></p>	<ul style="list-style-type: none"> <li>• Suggestion for further investigation into managed aquifer recharge options to assess potential environmental impacts on aquifers and surface water systems.</li> <li>• <i>Suggested in one submission as a priority option</i></li> </ul>
<p>4. <b>Review groundwater extraction limits</b></p>	<ul style="list-style-type: none"> <li>• Support for a review of extraction limits with a small recharge to storage ratio.</li> <li>• Concern about increased dependency on groundwater.</li> <li>• Suggestion for further investigation into flows and recharge before increased extraction is permitted.</li> </ul>
<p>5. <b>Better manage the Great Artesian Basin</b></p>	<ul style="list-style-type: none"> <li>• Support for this option to assist in reducing water consumption of towns and industry.</li> <li>• Support for the Cap and Pipe Program to be progressed and extended as part of this option.</li> <li>• Concern about an increased dependency on the Great Artesian Basin.</li> <li>• <i>Suggested in one submission as a priority option</i></li> </ul>
<p>6. <b>Assess the possibility of water recycling projects</b></p>	<ul style="list-style-type: none"> <li>• Support for this option as a means of reducing the water consumption of towns and industry.</li> <li>• Support for investigating options to reduce demand on potable supplies and to limit extraction from rivers and groundwater sources.</li> <li>• <i>Suggested in one submission as a priority option</i></li> </ul>
<p>7. <b>Investigate residential and non-residential water use efficiency in towns</b></p>	<ul style="list-style-type: none"> <li>• Support for this option as a means of managing water demand and consumption to be prioritised.</li> <li>• Support for this option a means of helping to reduce water consumption of towns and industry.</li> <li>• Support for increasing water efficiency measures, particularly in the context of a changing climate.</li> <li>• <i>Suggested in one submission as a priority option</i></li> </ul>
<p>8. <b>Maintain water-related amenities during droughts</b></p>	<ul style="list-style-type: none"> <li>• Concern about impacts to environmental and cultural values of the Barwon-Darling.</li> <li>• Suggestion for local government to play a role in purchasing water for maintaining water-related amenities.</li> </ul>
<p>9. <b>Repurposing Umberumberka Reservoir for recreation</b></p>	<ul style="list-style-type: none"> <li>• No feedback was received on this option.</li> </ul>
<p>10. <b>Investigate potential pipelines for surface water and groundwater sources</b></p>	<ul style="list-style-type: none"> <li>• Concern about the impacts of development on downstream flows and ecology and the health of the river system.</li> <li>• Concern about an increased dependency on groundwater.</li> <li>• Suggestion to undertake an evaluation of groundwater sources to ensure the sustainability of the resource and dependent ecosystems.</li> </ul>

Options	Summary of feedback
11. <b>Modify or renew town weirs</b>	<ul style="list-style-type: none"> <li>• Support for raising the height of the town weir near Bourke.</li> <li>• Concern about negative impacts on the environment, fish and flows.</li> <li>• Suggestion for weirs to be replaced by covered-off stream storages and for smaller weirs, which include fish passage, to replace town weirs.</li> </ul>
12. <b>Determine the potential for covered off-stream storage</b>	<ul style="list-style-type: none"> <li>• Support for this option to be prioritised to address the challenge of declining water security for towns and small communities.</li> <li>• Support for increasing water efficiency, particularly in the context of a changing climate. <ul style="list-style-type: none"> <li>• <i>Suggested in two submissions as a priority option</i></li> </ul> </li> </ul>
13. <b>Investigate options to secure water for small communities</b>	<ul style="list-style-type: none"> <li>• Support for this option including to improve management of water consumption and demand.</li> <li>• Support for increasing water efficiency, particularly in the context of a changing climate. <ul style="list-style-type: none"> <li>• <i>Suggested in one submission as a priority option</i></li> </ul> </li> </ul>
14. <b>Study the resilience of water-dependent industries</b>	<ul style="list-style-type: none"> <li>• Support for this option to be prioritised.</li> <li>• Support for increasing water efficiency, particularly in the context of a changing climate.</li> <li>• Suggestion for more efficient water use technology to be adopted by the cotton industry. <ul style="list-style-type: none"> <li>• <i>Suggested in one submission as a priority option</i></li> </ul> </li> </ul>

## Option group 2: Delivering on Aboriginal people’s water rights and improving access to water

These options explore ways to:

- Continue to improve participation of local Aboriginal people in water management
- Incorporate Aboriginal knowledge and science into decision making
- Support place-based initiatives to deliver cultural outcomes for Aboriginal people.

There was support for increasing the participation of Aboriginal people in water management and decision making. The River Ranger Program was supported, as was integrating Aboriginal knowledge into groundwater decision making and incorporating Aboriginal history of water and culture into water data.

Options		Summary of feedback
<b>Government commitment 1.</b>	<b>River Ranger Program</b>	<ul style="list-style-type: none"> <li>• Support for the River Ranger Program and for increased recognition of Aboriginal cultural knowledge, water rights and interests.</li> <li>• Support for increased participation of Aboriginal people in water management.</li> </ul>
<b>15.</b>	<b>Cawndilla Creek Watering</b>	<ul style="list-style-type: none"> <li>• Concern that this option has been shortlisted due to its connection with the Menindee Lakes Rescoping Project.</li> <li>• Understanding how this option aligns with the Sustainable Diversion Limit Mechanism framework was considered important.</li> </ul>
<b>16.</b>	<b>Support long-term participation of local Aboriginal people in water-related matters</b>	<ul style="list-style-type: none"> <li>• Support for increased recognition of Aboriginal cultural knowledge, water rights and interests.</li> <li>• Support for increased participation of Aboriginal people in water management.</li> </ul>
<b>17.</b>	<b>Review Aboriginal cultural water access licences</b>	<ul style="list-style-type: none"> <li>• Support for increased recognition of Aboriginal cultural knowledge, water rights and interests.</li> <li>• Support for increased participation of Aboriginal people in water management.</li> <li>• Suggestion for Aboriginal cultural water allocations to be included in the Barwon-Darling Water Sharing Plan .</li> </ul>
<b>18.</b>	<b>Fund water entitlements for Aboriginal communities</b>	<ul style="list-style-type: none"> <li>• Support for increased recognition of Aboriginal cultural knowledge, water rights and interests.</li> <li>• Support for increased participation of Aboriginal people in water management.</li> </ul>
<b>19.</b>	<b>Secure flows for water-dependent cultural sites</b>	<ul style="list-style-type: none"> <li>• Support for increased recognition of Aboriginal cultural knowledge, water rights and interests.</li> <li>• Support for increased participation of Aboriginal people in water management.</li> <li>• Suggestion that the volume and quality of water should be considered in the delivery of water for cultural purposes.</li> </ul>
<b>20.</b>	<b>Shared benefit project (environment and cultural outcomes)</b>	<ul style="list-style-type: none"> <li>• Support for increased recognition of Aboriginal cultural knowledge, water rights and interests.</li> <li>• Support for increased participation of Aboriginal people in water management.</li> </ul>

Options	Summary of feedback
<p><b>21. Integrate Aboriginal knowledge into groundwater decision making</b></p>	<ul style="list-style-type: none"> <li>• Support for increased recognition of Aboriginal cultural knowledge, water rights and interests.</li> <li>• Support for engagement with Aboriginal communities along the waterways to understand their cultural practices.</li> <li>• Support for increased participation of Aboriginal people in water management, including in local and state government decision making.</li> <li>• Support for greater Aboriginal stakeholder and community involvement in development and implementation of the strategy.</li> </ul>
<p><b>22. Incorporate Aboriginal history of water and culture in the Northern Basin into water data</b></p>	<ul style="list-style-type: none"> <li>• Support for increased recognition of Aboriginal cultural knowledge, water rights and interests.</li> <li>• Support for increased participation of Aboriginal people in water management.</li> </ul>

## Option group 3: Protecting and enhancing natural systems

These options explore ways to:

- Fully implement the floodplain harvesting reforms
- Enable water to flow across landscapes more easily
- Improve habitats for native species
- Change the management of Menindee Lakes
- Better protect groundwater dependent ecosystems.

There was support for options aimed at protecting and enhancing natural systems, with commentary on improving floodplain connections and remediating fish passage to improve outcomes for native fish species, riverine ecosystems, river health, waterbirds and wetlands.

There was a mixed response to fully implementing the NSW Floodplain Harvesting reforms.

Options		Summary of feedback
<b>Government commitment 2.</b>	<b>Fully implement the NSW Floodplain Harvesting reforms in the Barwon-Darling Valley</b>	<ul style="list-style-type: none"> <li>• Support for:               <ul style="list-style-type: none"> <li>– reducing harvesting volumes</li> <li>– consistency with the sustainable diversion limits and the Murray-Darling Basin Plan limit of 16.5 GL on licences.</li> </ul> </li> <li>• Concern about the 500% carryover rule.</li> <li>• Concern about impacts of floodplain harvesting on low flows, reduction of near-annual flow pulses and the environment.</li> <li>• Concern about fully implementing the reform, but recognition that regulating the licencing framework is important.</li> <li>• Concern about any strategy or policy which that aims to ‘lock in’ unsustainable levels of additional floodplain harvesting take.</li> <li>• Suggestion for the commitment to include a reduction in floodplain harvesting volumes, measures to protect the environment and removal of harmful floodplain levees.</li> <li>• Suggestion for examples to be provided of how floodplain harvesting will be measured and monitored to support compliance.</li> </ul>
<b>Government commitment 3.</b>	<b>Implement fish-friendly water extraction</b>	<ul style="list-style-type: none"> <li>• Support for improving outcomes for native fish species, riverine ecosystems, waterbirds and wetlands.</li> <li>• Suggestion that installing pump screens on large pumps should be mandatory, with the cost to be funded by industry.</li> <li>• Noted that the Darling River is an endangered ecological community and therefore river health should be restored through improved water management and protection from flood events.</li> </ul>
<b>Government commitment 4.</b>	<b>Improving floodplain connections: modifying or removing floodwork structures causing adverse impacts</b>	<ul style="list-style-type: none"> <li>• Support for improving outcomes for native fish species, riverine ecosystems, river health, waterbirds and wetlands.</li> <li>• Support for modification or removal of harmful floodplain structures prior to licences being granted.</li> </ul>
<b>23.</b>	<b>Remediate fish passage</b>	<ul style="list-style-type: none"> <li>• Support for improving outcomes for native fish species, riverine ecosystems, waterbirds and wetlands.</li> <li>• It was noted that operational protocols would need to be developed and implemented to support effective fish passage.</li> <li>• It was suggested that fish passage design specifications should be shared to ensure it reduces fish mortality and encourages upstream and downstream movement.</li> </ul>

Options	Summary of feedback
<p><b>24. Restore riparian habitat and re-establish threatened fish species</b></p>	<ul style="list-style-type: none"> <li>• Support for river health to be restored by improved management and to improve outcomes for native fish, river health and ecosystems, and waterbirds and wetlands.</li> <li>• Noted that management actions in the Barwon-Darling Long Term Water Plan may be relevant to this option.</li> </ul>
<p><b>25. Remove constraints to enable flows to reach important ecological sites</b></p>	<ul style="list-style-type: none"> <li>• Support for improving outcomes for native fish species, riverine ecosystems, river health, waterbirds and wetlands.</li> <li>• Improving flows to ecological sites to support effective environmental water delivery and ecological outcomes was supported.</li> </ul>
<p><b>26. Improve protection of groundwater dependent ecosystems</b></p>	<ul style="list-style-type: none"> <li>• Support for improving outcomes for native fish species, riverine ecosystems, waterbirds and wetlands.</li> <li>• Support for improving understanding of potential impacts to ecosystems from water resource development, climate change and extraction.</li> <li>• Suggestion for investigation undertaken as part of this option to be considered in Options 1-4.</li> </ul>
<p><b>27. Consider listing the Menindee Lakes under the Ramsar Convention on Wetlands of International Importance</b></p>	<ul style="list-style-type: none"> <li>• Support for improving outcomes for native fish species, riverine ecosystems, waterbirds and wetlands.</li> <li>• Noted that there are a number of considerations, including nomination by relevant state or territory, a comprehensive assessment and community consultation, before a Ramsar listing is made.</li> <li>• Noted that this option is a matter for the relevant landholder or owner.</li> </ul>
<p><b>28. Develop and implement technology to create fish refuges</b></p>	<ul style="list-style-type: none"> <li>• Support for improving outcomes for native fish species, riverine ecosystems, waterbirds and wetlands.</li> <li>• Suggestion for this option to include fish hotels and in-stream infrastructure.</li> <li>• Noted that the protection of drought refugia from water extraction should be prioritised, with this option only to be implemented during times of extreme drought.</li> </ul>
<p><b>29. Recognition of Queensland gifted water</b></p>	<ul style="list-style-type: none"> <li>• Support for this option to be a government commitment in the strategy.</li> <li>• Support for improving outcomes for native fish species, riverine ecosystems, waterbirds and wetlands.</li> <li>• Noted that gifted water should be protected to ensure that the Basin Plan environmental objectives are met.</li> </ul>

## Option group 4: Managing the impacts of poor water quality

These options explore ways to:

- Consider broadscale, long-term catchment management and better integrate land use and water management
- Identify water quality monitoring, modelling and research gaps
- Review water sharing plan rules.

Options to improve water quality were widely supported. Increasing knowledge and understanding of water quality and flows and restoring river health through improved water management were considered important. It was noted that the Darling River is an endangered ecological community where native fish species, alongside general river health, must be protected and improved.

Options	Summary of feedback
30. <b>Review the environmental water allowance rule for the Lower Darling Water Source</b>	<ul style="list-style-type: none"><li>• Support for this option to improve water quality.</li><li>• Noted that the Darling is an Endangered Ecological Community and therefore river health should be restored through improved water management and protection from flood events.</li></ul>
31. <b>Investigate the costs and benefits of a river and catchment recovery program</b>	<ul style="list-style-type: none"><li>• Support for options to improve water quality.</li></ul>
32. <b>Better integrate strategic planning for land use and water management</b>	
33. <b>Analyse gaps in water quality research and modelling</b>	<ul style="list-style-type: none"><li>• Support for this option to improve water quality.</li><li>• Support for increasing knowledge and understanding of water quality and flows.</li><li>• Accessing real-time water quality data on dissolved oxygen and temperature was considered beneficial.</li></ul>
34. <b>Collect water quality data in the Lower Darling</b>	<ul style="list-style-type: none"><li>• Support for this option to improve water quality.</li></ul>
35. <b>Manage groundwater salinity</b>	<ul style="list-style-type: none"><li>• Support for this option to improve water quality.</li><li>• Noted that there are salinity issues for the new Abattoir in Bourke and for vulnerable communities, such as Aboriginal people and those with poor health, which should be considered.</li><li>• Noted that salinity issues cause health problems for Aboriginal communities and town residents.</li></ul>

## Option group 5: Making water information more accessible and meaningful

These options explore ways to:

- Better understand how water is used
- Consider climate change in water management decision making
- Build the capacity of communities to engage with water management
- Improve public access to and understanding of information and water availability forecasts
- Improve our understanding of groundwater.

There was support for making water information more accessible and meaningful and for improving water information.

Options to improve understanding of groundwater sources, review water markets and trade and improve cross-border management of flows received the most support out of options in this group.

Options	Summary of feedback
36. <b>Better understand water use through data collection and analytics</b>	• Support for options to improve water information.
37. <b>Develop water education and capacity building programs</b>	
38. <b>Develop a culturally appropriate water knowledge program</b>	• Support this option to improve water information. • Support for capacity building, participation and inclusion of Aboriginal people in water planning and management. • Support for improving understanding of cultural values and traditional knowledge.
39. <b>Improve understanding of groundwater sources</b>	• Support for this option to improve water information and to improve knowledge of groundwater before increased use is encouraged. • Understanding groundwater sources will become more important in the context of climate change.
40. <b>Improve information about the impacts of state significant developments and state significant infrastructure on water</b>	• Support this option to improve water information.

Options	Summary of feedback
<b>41. Review the allocation and accounting framework surface water</b>	<ul style="list-style-type: none"> <li>• Support this option to improve water information.</li> <li>• Entitlements that are held environmental water should be acknowledged in the review.</li> </ul>
<b>42. Review water markets and trade</b>	<ul style="list-style-type: none"> <li>• Support for limiting international trading and ownership of water licenses.</li> <li>• Support for a public register of all water traders.</li> <li>• Support for providing transparent information for water users to understand the pricing of water entitlements, water allocations and the operation and rules governing water trading.</li> <li>• Suggestion that this option would need to comply with the agreements in the Basin Plan.</li> </ul>
<b>43. Improve cross-border management of flows</b>	<ul style="list-style-type: none"> <li>• Support this option to improve water information.</li> <li>• The protection of environmental water from Queensland was supported to help improve the cross-border management of flows.</li> <li>• Noted that this is currently a NSW Government commitment under the Basin Plan and should be included in the strategy.</li> <li>• <i>Suggested in one submission as a priority option</i></li> </ul>

## Option group 6: Improving connectivity across the Northern Basin

These options explore ways to:

- Reduce the frequency of cease-to-flow periods
- Continue protection of the first flush of water after an extended drought
- Suppress algal blooms
- Support fish migration.

Improving connectivity across the Northern Basin, particularly for modifying and removing non-town weirs and making 6 of the 7 intersecting streams free flowing, was supported.

There was concern about regulating the Barwon-Darling River due to the possible negative environmental outcomes, including native fish health, vegetation, ecosystem function, water quality and the cost and feasibility of regulating the river.

Options		Summary of feedback
<b>Government commitment 5.</b>	<b>Review the North-West Unregulated Flow Plan rules</b>	<ul style="list-style-type: none"><li>• Support for the North-West Unregulated Flow Plan rules to meet the environmental water requirements (EWR) under the Murray Darling Basin Plan and Long-term Watering Plan.</li><li>• Support for expanding the objectives of the plan to meet as many EWRs as possible through implementing the Plan in all years.</li><li>• Support for ensuring that all targets and triggers are clearly communicated, peer-reviewed and available to the public.</li><li>• Some opposition to replacing the riparian target with the 195 GL Menindee Lakes target with suggestions that targets for each reach are needed.</li><li>• Noted that the preferred flow options in the North-West Flow Plan discussion paper (Attachment D) of the draft Western Regional Water Strategy give priority to avoiding impacts on extractive users in the Northern NSW tributaries, rather than considering what is needed to restore endangered ecological communities.</li><li>• Support for the targets as long as they provide meaningful benefits and achieve their stated objectives</li><li>• Preference for held environmental water to be used to achieve outcomes, wherever possible, from some stakeholders.</li><li>• The proposed regulatory measures must be accompanied by infrastructure to meaningfully address some of the critical water supply challenges</li></ul>

## Options

## Summary of feedback

### Government commitment 6.

#### Develop critical dry targets for the Barwon-Darling River

- Support for larger critical dry targets, particularly at Menindee Lakes. It was recommended that minimum 450 GL and 30 GL of flow at Wilcannia for 15 consecutive days, or 480 GL held in Lakes Pamamaroo and Wetherell.
- Support for an option to restrict water diversions to low priority license holders in the tributaries when Menindee Lakes drops below 450 GL or 480 GL as a way of improving connectivity to Lower Darling and Murray River.
- Concern that 'dead storage' is included in the critical dry targets.
- Some stakeholders suggested triggers for lifting restrictions should require both 450 GL to be stored in Menindee Lakes and that a set of targets based on several Environmental Watering Requirements being met in each reach of the Barwon-Darling.
- Some stakeholders had concerns regarding the feasibility of a target at Menindee Lakes, given the volume of water held in Menindee Lakes is subject to decision-making by multiple agencies and governments. Instead, a target at Wilcannia was proposed.
- Support for the proposed targets as long as they provide meaningful benefits and achieve their stated objectives, and are supported by the appropriate gauging, modelling, and forecasting capabilities
- The targets should be strengthened by other measures to improve critical water needs such as improved town water supplies, fishways in weirs, restoration of natural rock weirs.

#### 44. Modify and remove non-town weirs

- Support for removing weirs to enable better connectivity of low flows and protect fish migration and larval spawning.
- Concern that some of the weirs may play a role in providing stock and domestic water supply and this would need to be considered before removal.
- Recommendation for replacing weirs with covered off-stream storages.

#### 45. Making six of the seven Intersecting Streams free-flowing

- Conditional support that no 'Better Baaka' options should be shortlisted before public comment has been sought.
- Support for improving connectivity and secure environmental flows between Queensland and NSW by buying back 15 GL of water licenses.

#### 46. Deliver replenishment flows from the Border Rivers, Gwydir, Namoi and Macquarie valleys

- Conditional support that held environmental water should not be used for base flows.
- Support for reviewing the end-of-system targets for NSW tributaries and developing end-of-system targets to increase flows to the Barwon-Darling.
- Support for replenishment flows to mitigate the impacts of dry conditions such as fish kills, poor water quality and algal blooms.

#### 47. Review cease-to-pump flow-class thresholds

- Support for using adaptive management to account for the variable climatic conditions seen in the Barwon-Darling. This includes reviewing cease-to-pump flow class thresholds and IDEC's that allow for better protection of water and connectivity.

Options	Summary of feedback
<p><b>48. Regulate the Barwon-Darling River</b></p>	<ul style="list-style-type: none"> <li>• No support for this option</li> <li>• Concern about negative environmental outcomes, including impacting native fish health, vegetation and ecosystem function.</li> <li>• Concern that damming would produce poor water quality and result in further water extraction.</li> <li>• Concern about the cost and feasibility of regulating the Barwon-Darling and the potential water losses associated with storing the water long-term.</li> </ul>
<p><b>49. Better protect a range of flows under a changing climate</b></p>	<ul style="list-style-type: none"> <li>• Support for protecting environmental water from extraction and prioritising environmental watering needs.</li> </ul>
<p><b>50. Deliver water down the Great Darling Anabranh</b></p>	<ul style="list-style-type: none"> <li>• Support for options that enable accessing ‘dead storage’ in Lake Cawndilla or recognising the Great Darling Anabranh as a flow path that could be used for delivery of water to meet consumptive demands in the Lower River Murray.</li> <li>• Support for an option to encourage more regular flows to the Darling Anabranh.</li> </ul>
<p><b>51. Develop sustainable total daily extraction limits for the Barwon Darling Water Sharing Plan</b></p>	<ul style="list-style-type: none"> <li>• Support for reviewing water sharing plans to ensure adequate downstream flow targets are in place, extractions are metered and compliance is ensured.</li> <li>• Recommendation to replace the 300% annual take rule in the Barwon Darling Water Sharing Plan with a rule allowing for 450% over 3 years.</li> <li>• Support for measures that protect the first flush of water to reach the Murray Junction.</li> </ul>
<p><b>52. Review how the Menindee Lakes are operated</b></p>	<ul style="list-style-type: none"> <li>• Conditional support that when management returns to NSW control, 480 GL is held in Lakes Pamamaroo and Wetherell and does not include any ‘dead water’.</li> <li>• Noted that under a different management, it should not be expected that the Commonwealth environmental water is solely required to meet the environmental needs of the lakes themselves.</li> </ul>

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## Suggested additional options and commitments

Variations to proposed options and government commitments were sometimes implicit in matters raised by participants, which can be seen in the earlier comments in this report.

With regard to specific feedback on possible additional options and government commitments, those raised related to connectivity, infrastructure, held environmental water and water trading and licencing. These specific suggestions should be balanced with the broader views expressed through engagement.

Options	Feedback
<b>International ownership of water</b>	Connecting water back to land, with no water trading to large, foreign owned multinational companies that do not understand local issues.
<b>Public register of all water traders</b>	Develop a public register of all water traders.
<b>Water license reliability and underuse</b>	Investigate the trend of declining water license reliability and implement options to restore this.
<b>Sustainable diversion limit underuse</b>	Assist water users to reach their sustainable diversion limits. Including by: (i) Calibrating water meters on the Barwon Darling; (ii) Calibrating the hydrologic model for the Barwon Darling; (iii) Redistributing IDEC's according to pump capacity at 2012; (iv) Return to the interim trading rules of the 2012 Barwon Darling WSP.
<b>Lake Woytchugga</b>	Provide flows to Lake Woytchugga to provide recreation and tourism opportunities and to protect burial sites.
<b>Brewarrina Fish traps</b>	Develop a stand-alone policy, water target and a process of removing the slit from the fish traps.



Image courtesy of Destination NSW.  
Menindee Lake, Menindee.



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**More information:**

[water.dpie.nsw.gov.au/plans-and-programs/regional-water-strategies](https://water.dpie.nsw.gov.au/plans-and-programs/regional-water-strategies)



Image courtesy of Destination NSW. Darling River, Bourke.

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