



ACT
Government

ACT Water Strategy

2022 Report Card



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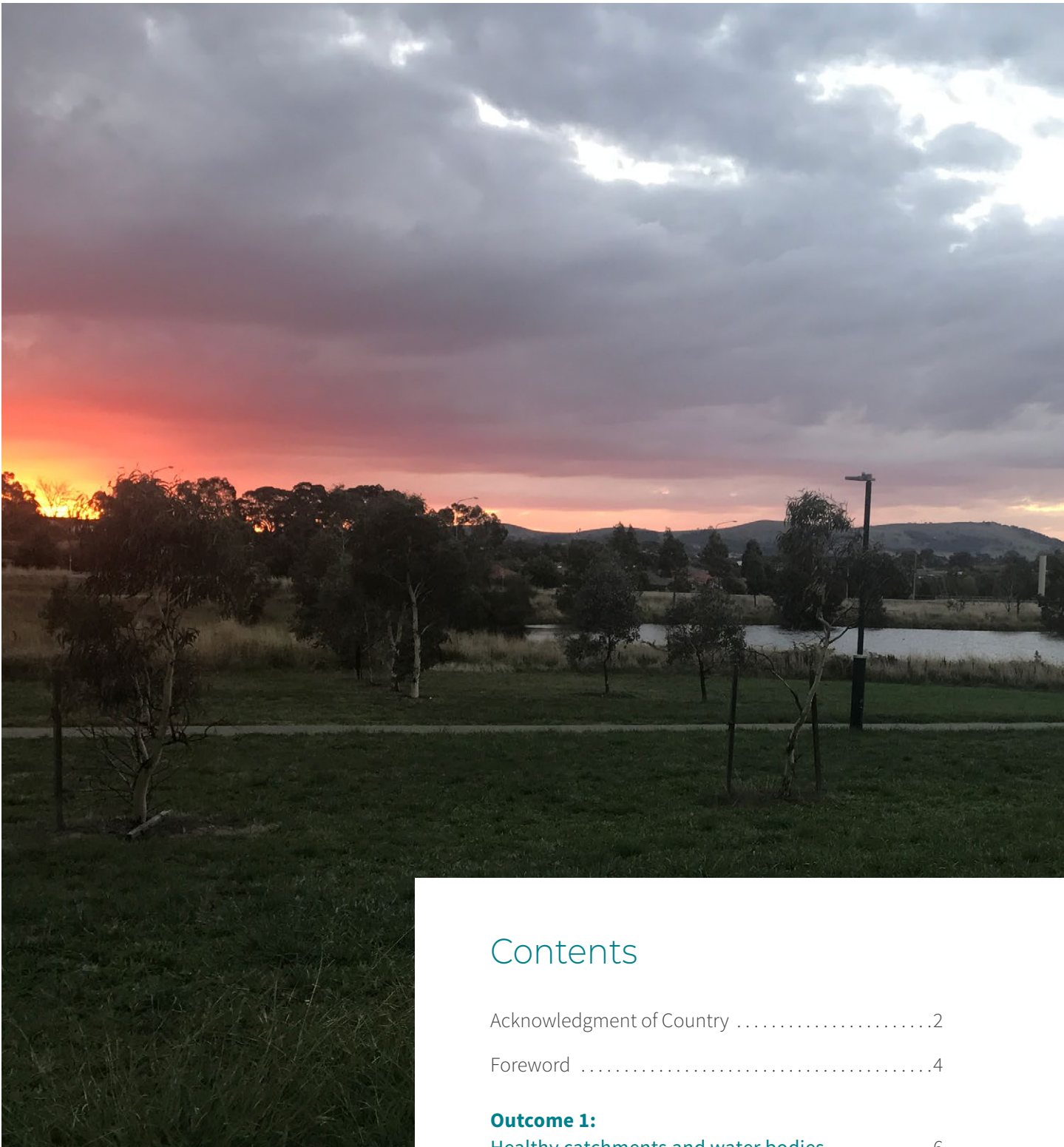
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Acknowledgment of Country

Sharing Ngunnawal people's perspectives on looking after water

*Dhawura nguna ngurumbangu
gunangu Ngunnawal.*

This country is Ngunnawal (ancestral/
spiritual) homeland.

*Nginggada dindi dhawura
Ngunnawalbun yindjumaralidjinyin.*

We all always respect elders, male and
female, as well as Ngunnawal country itself.
They always keep the pathways of their
ancestors alive.

Mura bidji mulanggaridjindjula.

They walk together as one.

Naraganawaliyiri yarabindjula.

Daramulan created Ngunnawal Country giving us our spirituality, culture, lore and law, customs and traditions. We walk as one with one foot in the past and one foot in the present. Maliyan flew across Ngunnawal Country spreading her wings and laying her eggs which are the large rock formations across Country. As Maliyan flew she created the mountains, the waterways, the trees, the animals, the fish, the valleys, the pathways and songlines.

The waterways on Ngunnawal Country have sustained all life including our people, plants and animals. The waterways formed part of our songlines. Songlines are the Ngunnawal memory code that gives us information from the landscape to tell the stories of vital knowledges, cultural values and wisdom. The Songlines are a potent form of cultural memory and the passing on of stories to future generations. The waterways are all connected to each other through the Ngunnawal people informing ceremony, language, song, dance, art and the oral tradition of storylines weaving our history and present with each other and our environment.

The customary belief of the Ngunnawal people is to manage water with an understanding that it is a shared resource flowing through our Country and our neighbours Country. We knew what we did on our Country would impact our neighbours and therefore maintained our waterways to ensure that our neighbours were not detrimentally impacted. We care for everyone's right to access clean water to support contemporary and cultural values, practices and uses.

Caroline Hughes

Co-Chair

Dhawura Ngunnawal Caring for Country



Acknowledgement of Country by the ACT Government

The ACT Government acknowledges that Canberra is located on Ngunnawal Country and the special relationship and connection that the Ngunnawal people have with the land as its first inhabitants and Traditional Custodians. The ACT Government acknowledges the historic dispossession of the Ngunnawal people of Canberra and its surrounding regions. We recognise the significant contribution the Ngunnawal people have made to the ACT and region. For tens of thousands of years, the Ngunnawal people have maintained a tangible and intangible cultural, social, environmental, spiritual and economic connection to these lands and waters. The ACT Government also

acknowledge the many other Aboriginal and Torres Strait Islander people from across Australia who have made Canberra their home, and we pay respect and celebrate their culture, diversity and contributions to the ACT and surrounding region.

The ACT understands the need for recognition of Ngunnawal Traditional Custodian knowledge and cultural values in natural resource management associated with the ACT. The ACT Government acknowledges that engaging Ngunnawal people in water planning and cultural flows will provide beneficial outcomes that support their cultural rights and practices on Ngunnawal Country.



Lake Burley Griffin. Photo: Nigel Dears

Foreword

The Ngunnawal customary beliefs and practices provide a valuable lesson for us all. Protecting the health of our water and waterways is a shared responsibility. Our actions can either enhance or diminish the values and uses that others in our community receive from our waterways.

The ACT Water Strategy 2014-44: Striking the Balance Implementation Plan 2, recognises the shared role and responsibility that exists across government to protect and manage our water resources and environment. Strategic and development planning and water sensitive urban design, the delivery of programs such as Healthy Waterways, asset operation and maintenance, community engagement and education – these are all key activities that collectively contribute to the vision as set out by the Strategy – **A community working together, managing water wisely to support a vibrant, sustainable and thriving region.**

Delivering the outcomes under the Strategy is not without its challenges and opportunities. We are working within a changing climate and managing for a growing population. In response to these challenges, we need to be responsive and adaptable in our activities.

Last year we introduced a new target against Outcome 3 in the Report Card, to recognise the wisdom and value that we can gain from involving Ngunnawal Traditional Custodians in water and land management. Incorporating cultural land and water management practices is supported by the ACT Government's commitment to employ additional Ngunnawal rangers, and in 2021 the first Ngunnawal Water Policy Officer joined the water policy and planning team within the Environment, Planning and Sustainable Development Directorate (EPSDD).

The Report Card takes the approach of reflecting on our progress against the broader multi-year outcomes and celebrating the contribution that we have all made to these outcomes during the past year. The activities presented in the Report Card show an active community dedicated to looking after our lakes and rivers, and the ACT Government and Icon Water working together to improve the health of our waterways and sustainably manage our precious water resources.

More work is needed, particularly in planning for water security and integrated water and wastewater management (Outcome 2), and in engaging Ngunnawal Traditional Custodians. In 2022, the EPSDD began co-designing a new 'Ngunnawal Ngadjung Water Initiative' in partnership with the Ngunnawal community. This Initiative will set out a pathway for greater participation in water management and providing access to water entitlements.

The ACT Government has agreed to establish a new Office for Water that will drive holistic water management in the ACT. The Office will enable Canberra to become a more climate-resilient and water-secure city, and continue to offer residents of the ACT access to healthy rivers and lakes. The Office for Water will be established in EPSDD and bring together water functions including policy and planning into a new entity.

The activities presented throughout this report are testament to the continued commitment of communities within and surrounding the ACT towards improving the health of our waterways and sustainable management of our precious water resources.



Ben Ponton

Director-General

Environment, Planning and Sustainable Development Directorate

Foundational Activity – provide a holistic and coordinated approach to policy and program delivery

Holistic water management is essential for supporting a vibrant and resilient city. The ACT Government is committed to achieving its vision for water management set out in the Water Strategy for a **community working together, managing water wisely to support a vibrant, sustainable and thriving region**.

Key activities in 2021-22 to support holistic water management through good governance

- In 2021-2022, the Environment, Planning and Sustainable Development Directorate (EPSDD) led a review into water governance arrangements to consider the best way to support a holistic and coordinated approach to water management in the ACT and surrounding region.

The EPSDD worked closely with all ACT Government agencies responsible for water management, and with our water utility, Icon Water. The review explored a range of governance reforms, including the role of a new Office for Water to strengthen our water management arrangements.

In June 2022, the ACT Government agreed the establishment of an Office for Water to implement priority governance reforms and new initiatives. The Office for Water will be established in early 2022-23.

- Engagement on the National Water Initiative and Murray-Darling Basin water reforms. The EPSDD continues to support the delivery of key water reform initiatives through the National Water Reform Committee and under the Murray-Darling Basin Plan. Funding received from the Australian Government in 2022 will support a program of work to June 2024, including water recovery for the environment, review of the ACT Environmental Flow Guidelines, improved water metering and reporting, assessing climate change impacts on our water resources and to support community engagement on the Basin water reforms.

Key activities planned for 2022-23 to support holistic water management through good governance

- Establish the organisational arrangements for the Office for Water.
- Commence priority reforms relating to improved monitoring, evaluation and reporting, and capability building.
- Establish a coordination forum to progress cross-sectoral water issues.


Supporting references

- ACT Water Resource Plan for surface and groundwater (MDBA. 2019)
- [Water Resources Act 2007 \(ACT\)](#)



Outcome 1: Healthy catchments and water bodies

Lyall Gillespie Corridor, Forde.
Photo: Nigel Dears

Outcome 1: Healthy catchments and water bodies		 On track to achieve this target
Target: The ACT will maintain or improve the quality of water across all sub-catchments within the ACT (30-year target)		
Interim target: A measurable improvement in catchment health (10-year target)		
Strategy	Indicator	
Strategy 1: Achieve integrated catchment management across the ACT and region	a. Water quality monitoring indicates the health of river reaches are maintained or improved b. There is a reduction in the intensity and volume of stormwater flows in urban creeks	
Strategy 2: Protect and restore aquatic ecosystems in urban and non-urban areas	c. Stream flows in regulated water supply catchments are managed in accordance with ACT Environmental Flow Guidelines d. Stream flows in natural and modified ecosystems are managed in accordance with ACT Environmental Flow Guidelines	
Strategy 3: Manage stormwater and flooding		

Key activities in 2021-22 to support Outcome 1

Water for the environment

- Environmental flows assist in the maintenance of water quality and aquatic ecosystems throughout ACT catchments. Requirements are set out in the [ACT's Environmental Flow Guidelines](#), and regulated flows are managed under licence conditions held by Icon Water. All environmental flows from the Corin, Bendora, Cotter and Googong reservoirs were achieved and, in cases, exceeded for 2020–21 (reporting for 2021–22 was not available at the time of publishing this Report Card).

A coordinated approach to regional catchment management

- The EPSDD engaged with regional networks and bodies (Upper Murrumbidgee Catchment Network, ACT and Region Catchment Management Coordination Group (the Coordination Group), and Australian River Restoration Centre) to support a cooperative approach to tackling issues around catchment management and regional water security.
- The EPSDD supported and provided input into the Coordination Group's submission to the NSW Natural Resources Commission on the Water Sharing Plan for the Unregulated Murrumbidgee Water Source (WSP). The submission builds awareness of the environmental, social and cultural impacts from the regulation of upper Murrumbidgee River, and promotes the need to increase and protect environmental flows from the Snowy Hydro Scheme.

- The ACT Government (EPSDD) continued to engage on the implementation of the Murray-Darling Basin Plan, including delivering Basin Plan reporting for the ACT and contributing to:
- planning for 2025 Basin Plan Evaluation through an interjurisdictional working group;
 - delivery of the MDBA-led SDL Accounting Framework Improvement Strategy;
 - water market improvements, including through progressing water trade with NSW;
 - improved compliance and reporting; and
 - facilitating enhanced consultation and engagement with Basin communities on Basin Plan implementation.



Shade cloths used by ACT Parks and Conservation to promote recovery of Sphagnum moss after fire. Photo: Nathan Kay

Water monitoring

- The health of ACT waterways was measured by a range of monitoring programs in 2021-22.
 - The Waterwatch program produced the 2021 Catchment Health Indicator Program ('CHIP') report 229 sites assessed in the upper Murrumbidgee catchment. The results were based on 1,779 water quality surveys, 181 water bug surveys and 219 riparian condition surveys conducted by over 200 volunteers. The results have been overwhelmingly positive for the upper Murrumbidgee catchment, with 43 of the 96 reaches showing improvement, partly attributable to the persistently wet conditions observed over the monitoring period.
 - The Lakes and Rivers Water Quality Monitoring Program collected water quality information from 21 monitoring sites.
 - The AUSRIVAS monitoring program recorded macroinvertebrates in 13 sites as an indicator of the biological health of waterways.
 - Pollutant loads were calculated using data on environmental flows collected through the hydrometric network, coupled with water quality data on pollutant concentration collected under the Lakes and Rivers Water Quality Monitoring Program.
 - Conservation Research continued to monitor the Murrumbidgee fish community to advise on the health of fish species, including threatened species (Macquarie Perch, Trout Cod, Murray Crayfish), angling species (Golden Perch and Murray Cod) and other native species (Smelt, Carp Gudgeon). The program also monitors for changes in alien species (e.g. Carp, Redfin Perch), and advises on necessary river restoration actions and environmental flow requirements. The Murrumbidgee program also assist Icon Water's management of the M2G pipeline water extractions and monitoring the progress of the Upper Murrumbidgee Demonstration Reach.
 - Conservation Research in conjunction with Icon Water also undertook monitoring of fish in the Cotter River to advise on the outcomes of the Environmental Flows Guidelines implementation. Species monitored in the Cotter water supply catchment include threatened Two-spined Blackfish, river dwelling Macquarie Perch and the alien species Brown and Rainbow Trout. Recommendations from this program are used to adaptively modify the environmental flows in the Cotter River and advise on relevant catchment management and restoration activities. Associated with this program is the 2020 fire recovery monitoring of fish in the Cotter River.



Healthy Sphagnum moss recovering after fire.
Photo: Nathan Kay

- The EPSDD continued to monitor the effectiveness of rehabilitation interventions for endangered High-Country Bogs and Associated Fens, installed after the Orroral wildfire of 2020 to prevent erosion and incision, increase peat wetness and promote revegetation. In 2021/22 all priority sites were visited by ACT Parks and Conservation Service staff and shade cloth structures and leaky weirs maintained. Initial monitoring results indicate that the installed shade cloths have been effective at promoting recovery and survival of Sphagnum moss after fire. The vegetation structure of the bog and fen ecosystem has recovered substantially, benefitting from a re-wetting of the landscape due to the La Nina event.



Waterwatch volunteers conducting water monitoring at Tharwa.
Photo: Waterwatch



Water testing by Waterwatch volunteer.
Photo: Waterwatch

Icon Water monitoring

Icon Water continues to monitor water quality and quantity in catchments and share data with the ACT Government to support catchment management programs. Activities conducted during 2021-22 include:

- Co-sponsored the Cooma Waterwatch position, contributed to the annual Catchment Health Indicator Program (CHIP) report for the Upper Murrumbidgee area and ongoing community engagement and communication regarding catchment health and water quality; and
- Triennial report on the survey of ACT drinking water catchments (2019-2021).
 - Climate change impacts, including increasing temperatures, severe storms, prolonged dry weather and rising bushfire severity and their associated detrimental effects on water quality, have all been observed in the survey period.
- Through the Murrumbidgee Ecological Monitoring Program (MEMP), Icon Water conducts monitoring to ensure water abstraction from the Murrumbidgee River remains ecologically sustainable. Monitoring during 2020–21 showed abstraction did not result in the deterioration of ecological communities (reporting for 2021–22 was not available at the time of publishing this Report Card).
- The ‘Actions for Clean Water’ (ACWA) report provides a commentary on the ACT drinking water catchments and prioritise erosion hotspots for attention. This monitoring has identified several sites as posing a risk to water quality and provides guidance on prioritising investment in stabilisation and remediation activities. ACWA reports have now been written for the Googong, Upper Murrumbidgee and Cotter catchments, where land management activities are undertaken by other parties.

Fisheries management

- EPSDD's Conservation Research continued to restock and monitor waterways throughout the ACT. Activities conducted during 2021-22 include:
 - Restocking a number of urban lakes including Lakes Ginninderra and Tuggeranong, and Yerrabi and Gungahlin Ponds with the native fish species Murray Cod and Golden Perch to support urban recreational angling activities. The stocking of these species also helps to balance the lake ecosystem by introducing native predators to compete with pest species such as Carp. Carp are known to reduce water quality of urban lakes.
 - Monitored restocked lakes to assess the success of native fish and changes in the fish community. The monitoring is also used to guide management of fish kills when and if they occur.
 - Carp removal in three ponds on the Tuggeranong catchment. These ponds continue to be stocked with native predator species and are monitored to assess stocking success and identify carp re-invasion.

Infrastructure and assets to improve water quality

- 'Stage 2' of ACT Healthy Waterways is underway with \$14 million investment by the ACT Government. The aims of Stage 2 are to:
 - i. provide government with the capability to manage water quality in line with government priorities and community expectations; and
 - ii. incrementally improve water quality in urban and rural streams.
- In 2021/2022, ACT Healthy Waterways program delivered multiple activities and infrastructure projects.
 - A set of four bioretention swales built around the Kambah Playing Fields to intercept nutrients detected leaking into adjacent stormwater drains.
 - Arrangements for a floating wetland to be installed in Yerrabi Pond in July 2022.
 - A design report for seven water sensitive urban design (WSUD) treatment trains in urban sub-catchments across Canberra.
 - Report objectives of the next tranche of infrastructure to be built, providing Preliminary Sketch Plans (PSP) for a subset of 11 priority water quality assets or groups of assets (9 priority and two reserve projects) that are now being taken forward for approvals and construction.
 - A Design Approach Report that provides design guidance for novel assets with design elements that are not covered by the Municipal Infrastructure Standards for stormwater infrastructure (MIS08). This report will serve as a draft for a MIS08 update.
 - Initiation of the process for infrastructure approvals starting with design reviews for 10 of the 11 priority water quality assets.

The program also delivered non-capital projects including a pilot H₂OK public education campaign (see Outcome 3), and development of modelling and reporting tools for Lake Burley Griffin and Lake Tuggeranong to better manage water quality.

- TCCS continued its management of stormwater assets that contribute to the Healthy Waterways objectives.
 - Maintaining grass swales, cut-off drains and gross pollutant traps (GPTs).
 - Inspect and review all (GPTs).
 - Road sweeping program to prevent leaves entering the stormwater system and reduce load on GPTs (preparation of a manual program).
 - Work closely with EPSDD on the H₂OK community engagement program.
 - Responded to increased asset maintenance and flooding servicing callouts due to wet conditions.
 - Contributed to cross-agency policy development through the water governance review and flood risk management steering committee.



Tuggeranong floating wetlands. Photo: Nigel Dears

Policy review contributing to healthy waterways

- The EPSDD Water Policy team investigated a range of policy options during July-December 2021 to safeguard ACT water quality from the impacts of point source pollution, through detailed analysis and collaborative stakeholder engagement across multiple ACT Government directorates. Point source pollution are single, identifiable sources of pollution. For example, point source pollution includes wastewater from sewage treatment plans, drainage from landfill, stormwater runoff and discharge from individual industrial businesses. The policy position proactively responds to water quality impacts associated with climate change and population growth.

Key activities planned for 2022-23 to support Outcome 1

- In April 2022, the Healthy Waterways program received an additional funding boost of \$14 million to expand the program until June 2023. The expanded program will focus on:
 - Building the 11 priority water quality assets;
 - Extending the Leaf Collective public education campaign to selected other suburbs across Canberra;
 - Efforts to reduce fertiliser use in catchments through internal cross-Directorate collaborations and external engagement with public and private landowners;
 - Restoration of the rural/conservation catchment of the Naas River, including Ngunnawal water assessments (see Outcome 3); and
 - Investigations into the costs of operations and maintenance of water sensitive urban design infrastructure.

The expanded program will also include projects promoting Ngunnawal cultural values associated with waterways in urban areas.

- The EPSDD will undertake the next monitoring and maintenance regime for High Country Bogs and Associated Fens in spring 2022, consistent with the ACT Sphagnum Bog Rehabilitation and Monitoring Plan (2020–31).
- Icon Water will continue to collect water quality and quantity data from catchments, work collaboratively with all land and water management agencies in Canberra to promote sound strategic catchment management priorities, and participate in the Upper Murrumbidgee Catchment Network (including ongoing Executive Committee role).

Supporting references

- Upper Murrumbidgee Waterwatch 2021 [CHIP report](#)
- Icon Water bushfire recovery planning 2020 report [Addendum: Cotter Catchment ACWA, Bushfire and erosion risk assessment in the Cotter River Catchment: risk framework and options for management](#)
- [Icon Water— Murrumbidgee Ecological Monitoring Program autumn 2020, spring 2020, Autumn 2021](#)
- [Icon Water - Drinking Water Quality Report 2020–21](#)
- Icon Water - [Protecting our drinking water catchments](#)



Outcome 2:
**A sustainable water
supply used efficiently**

Scrivener Dam.
Photo: Nigel Dears

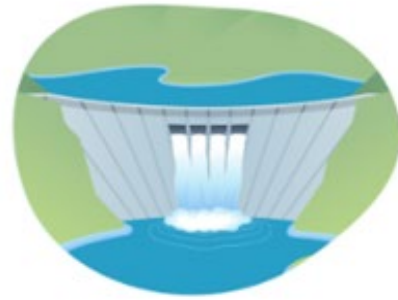
Outcome 2: A sustainable water supply used efficiently		✓
Target: Live within the Sustainable Diversion Limits set in the ACT (30-year target)		On track to achieve this target
Strategy	Indicator	
Strategy 4: Plan long-term water supplies	a. There is a 25% reduction in mains water usage per capita by 2023 b. There is a 40% reduction in mains water usage in new developments, extensions and refurbishments under the Water Sensitive Urban Design code	
Strategy 5: Manage and promote water services efficiently and sustainably	c. Permanent water conservation measures are maintained and additional measures are investigated	
Target: Live within the Sustainable Diversion Limits set in the ACT (30-year target)		
Strategy 4: Plan long-term water supplies		
Strategy 5: Manage and promote water services efficiently and sustainably		

Key activities in 2021-22 to support Outcome 2

- EPSDD completed substantial work to investigate water efficiency measures that would return water to the Murray Darling system for environmental outcomes. EPSDD is in discussion with the Australian Government to realise a 5 to 8 GL efficiency gain.
- In 2021–22 Icon Water launched its new engagement platform [Let's Talk Water and Wastewater](#) and asked the ACT community a series of questions across several themes including water security. A summary of the results is available on the [Let's Talk website](#), with the full report to be published mid-2022. The results show that the community supports the need to plan for the future, this includes water security and exploring alternative water sources.
- Icon Water developed version 2 of its Drought Management Plan, including an assessment tool outlining adaptive pathways for supply portfolios. The plan aims to strengthen the Territory's preparedness for future drought conditions. It has been designed to be adaptive depending on the severity, timing and duration of future drought events by drawing on three management levers: source water management, demand and supply options.
- Icon Water completed its upgrade of the Water Resources Model, increasing the accuracy of the model in response to needs identified during the recent drought and informed by advances in climate change projections and rainfall-runoff modelling.
- Icon Water updated the water design standards and agreement with ACT Fire & Rescue to improve efficiency of water delivery to customers. The new standards better reflect customer consumption patterns and enable designers to meet service targets more efficiently for water consumption and fire-fighting activities.
- The ACT government released its review into Non-potable Water in December 2021. The review investigated the impact of non-potable water costs on high intensity club users (those licenced to take more than 3,000 kL / year).

MOST OF YOU AGREED THAT...

WATER SECURITY IS A HIGH PRIORITY FOR YOU.



You're **CONCERNED** about it, particularly **AFTER THE RECENT DROUGHT AND BUSHFIRES.**

As a result, **YOU'RE WATER-CONSCIOUS**, and proud of it.



YOU KNOW about the various **WAYS YOU CAN REDUCE YOUR WATER USE.**

MOST of you agreed you **AREN'T KEEN ON WATER RESTRICTIONS UNLESS** they're absolutely **NECESSARY.**



YOU're willing to **CONSIDER ALTERNATIVE WATER SOURCE OPTIONS**, like groundwater, purified recycled water, desalinated water and stormwater.

You **DON'T KNOW MUCH ABOUT** each of them and **WHAT THEY INVOLVE.**

You're much **MORE COMFORTABLE** with these types of options **FOR WATERING GREEN SPACES, THAN FOR DRINKING WATER.**

You may be **OPEN TO** these **OPTIONS FOR DRINKING WATER**, but only in extreme circumstances.



We asked you a series of questions across several themes. Here is what you told us.

LIVEABILITY	CUSTOMER SERVICE CHANNELS AND WEBSITE	LEVELS OF SERVICE	WATER SECURITY	INNOVATION
SUSTAINABILITY	TARIFFS			
<p>What we asked...</p> <ul style="list-style-type: none"> How open are people to Icon Water exploring future alternate water options? 	<p>What you told us...</p> <p>Participants considered water security an important area of focus for Icon Water as population growth and climate change continues. This was raised by participants unprompted as an area that Icon Water should invest in.</p> <p>There was a poor level of participant understanding of the different future alternative water options. When listed in discussions, there were concerns raised about:</p> <ul style="list-style-type: none"> the risk of contamination with the use of recycled water and stormwater –particularly for drinking; the potential cost of desalination options; and the environmental impacts of groundwater extraction. <p>The majority of participants were open to exploration of all future water options presented. For example, two-thirds of participants in the quantitative customer survey would support greater investment to explore future alternate water options. Similarly, the majority of key customers supported in principle investment in this area.</p> <p>Other participants such as members of the Customer Advocacy Forum were in favour of this investment due to its potential to reduce water use and costs.</p>			
<ul style="list-style-type: none"> How open are people to the earlier use of temporary water restrictions? 	<p>There were mixed levels of participant support for the earlier enforcement of temporary water restrictions.</p> <p>In the quantitative customer survey, just one-third of participants were supportive of Icon Water spending more on earlier temporary restrictions.</p> <p>There was soft resistance expressed by participants who felt they were already 'doing the right thing'.</p> <p>Concerns were raised by large water users, who noted the large impact water restrictions have on irrigated grounds such as sports ovals. Restrictions mean these grounds can deteriorate and require significant time, effort and funds to recover to a standard accepted by the community for playing on.</p>			

Icon Water's community survey results on water security

Key activities planned for 2022-23 to support Outcome 2

- Icon Water will present the Water Resource Model outputs to stakeholders, action plans, and review the Temporary Water Restriction storage trigger guidelines.
- The government's response to the Non-potable Water Review is being prepared by EPSDD.

Supporting references

- [Non-potable Water Review Final Report](#) (Chief Minister, Treasury and Economic Development Directorate (CMTEDD), 2021).



Outcome 3:
**A community that
values and enjoys clean,
healthy catchments
and waterways**

Lyall Gillespie Corridor, Forde.
Photo: Nigel Dears

Outcome 3: A community that values and enjoys clean, healthy catchments and waterways



Target: Increased community understanding and participation in managing and improving waterways on the ACT (30-year target)

On track to achieve this target

Interim target: The ACT's community's awareness and understanding of waterways, their function, and why their protection is vital has increased (5 year target)

Strategy	Indicator
Strategy 6: Provide clean and safe water for the ACT	a. There is an increase in community participation in activities to manage and monitor waterway health
Strategy 7: Engage the community on understanding and contributing to a more sustainable city	b. Community initiated activities to improve catchment health have increased
	c. Changes in community behaviour and associated activities that impact on water quality are observed
	d. Education campaigns are delivered that supports community engagement and awareness with the aim of improving water quality, domestic water demand management, and waterway function and protection
	e. The cultural water values and uses of our Traditional Custodians is recognised in water management and planning.

Key activities in 2021-22 to support Outcome 3

H₂OK program and catchment group activity

- The H₂OK program is an award-winning government-community partnership. In 2021-22 the H₂OK program supported a range of educational programs teaching the ACT community about what action can help our waterways. Activities included:
 - ran a social media community education campaign about causes of blue-green algae outbreaks and how we can all help prevent them; and
 - partnered with Icon Water and ActSmart to give primary and secondary school teachers more resources to bring water-quality learning activities into the curriculum.
- Through H₂OK, the three ACT Catchment Groups were funded to:
 - support community volunteers in more than 68 local groups to increase stewardship of ACT river and lake catchments, with several new local stewardship groups formed during the year, such as Conder Wetlands Group;
 - teach the wider ACT community about stormwater through 13 educational events; and
 - provide general community engagement and environmental education activities related to catchment health.
- The H₂OK program pilot tested a campaign to encourage householder harvesting of native leaf litter that may otherwise flow down stormwater drains, feeding blue-green algae nutrient sources instead of composting opportunities in garden plants. The education campaign helped people turn leaf litter into a valuable garden resource and busting myths about **Eucalyptus** leaves being unsuitable for compost and mulch. See www.leafcollective.com.au. Results of the pilot show evidence of changes in community behaviour that benefit water quality, and increased community engagement and awareness about nutrient pollution.



Waterwatch volunteer demonstrating the collection of macroinvertebrates (water bugs) at the launch of the Waterwatch CHIP Report at Holder wetlands.
Photo: ACT Government

Icon Water education programs

- In 2021–22 Icon Water delivered a suite of online digital education webinars and online resources (where Covid restrictions prevented face-to-face delivery). Key messages included understanding where water is sourced, catchment protection and sustainable water conservation practices, and what should and should not be flushed down toilets into sewerage ('Gallery of Gross' and 'Free the Poo' campaigns).
- Through the Community Support Program, Icon Water supports a wide range of local community, cultural, educational and fundraising initiatives. One initiative supported in 2021-22 was at Questacon, where Icon Water spent a week in the Q lab, using the aquarium to teach audiences about the importance of keeping waterways healthy.



Icon Water delivered a suite of online digital education sessions.

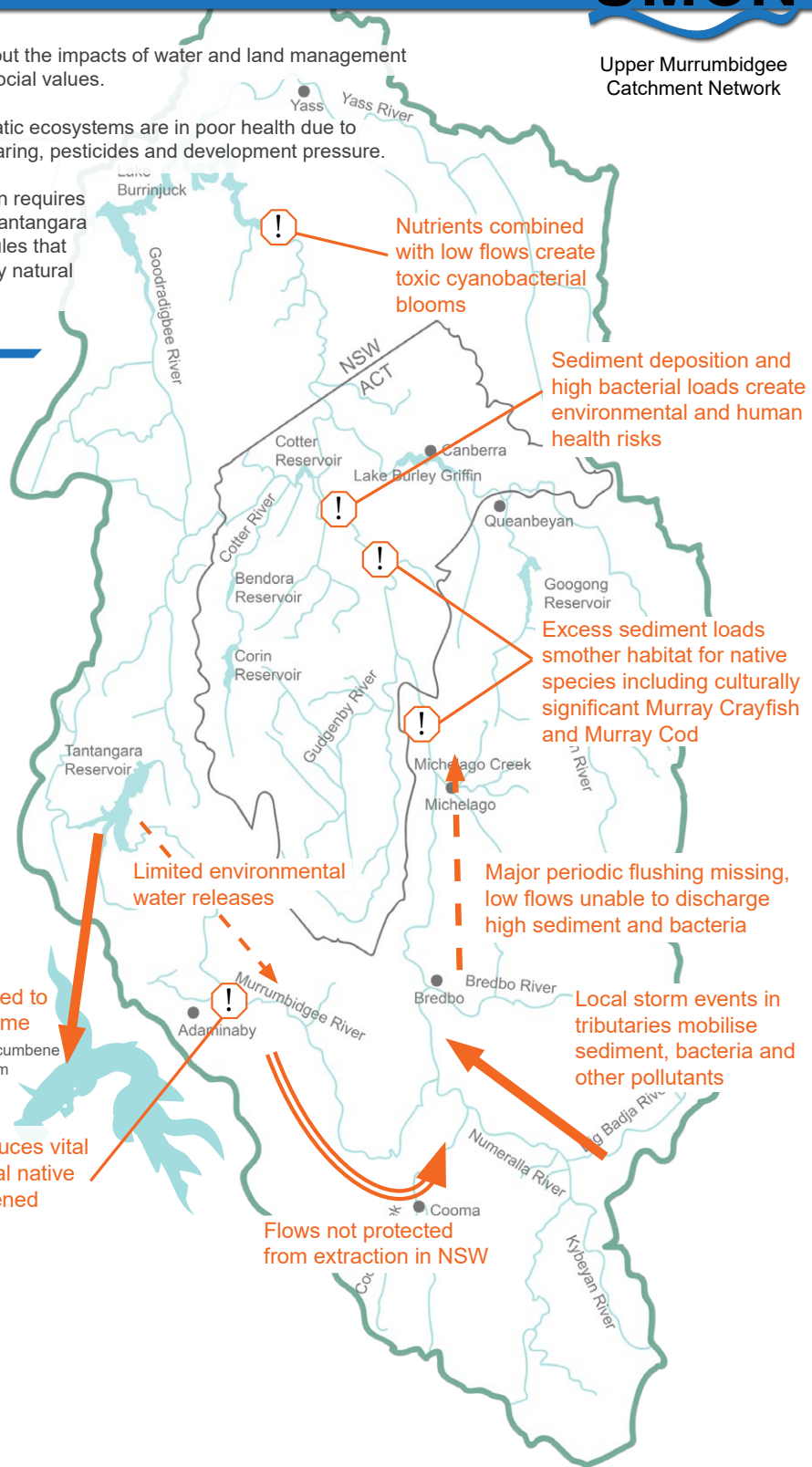
Towards a Healthy Upper Murrumbidgee River

Issues Overview



Upper Murrumbidgee Catchment Network

- Communities are concerned about the impacts of water and land management on environmental, cultural and social values.
- Upper Murrumbidgee River aquatic ecosystems are in poor health due to impaired flow, historical land clearing, pesticides and development pressure.
- Improving outcomes in the region requires enhanced water releases from Tantangara Reservoir, water management rules that protect flows and complementary natural resource management activities.



- After storm events, bacterial levels can exceed guidelines for human health
- One of the few river reaches where natural self-sustaining populations of Macquarie Perch and Murray Cod survive
- Murray Crayfish are listed as vulnerable (ACT and NSW) and are iconic due to importance in Aboriginal subsistence fisheries

Nutrients combined with low flows create toxic cyanobacterial blooms

Sediment deposition and high bacterial loads create environmental and human health risks

Excess sediment loads smother habitat for native species including culturally significant Murray Crayfish and Murray Cod

Limited environmental water releases

Major periodic flushing missing, low flows unable to discharge high sediment and bacteria

Local storm events in tributaries mobilise sediment, bacteria and other pollutants

>90% of flow diverted to Snowy Hydro Scheme

Sediment deposition reduces vital aquatic habitat for several native species including threatened Macquarie Perch

Flows not protected from extraction in NSW

Upper Murrumbidgee Catchment Network developed an infographic highlighting issues in the Upper Murrumbidgee River



Community learning about the changed urban waterscape near Holder wetlands with local artists and catchment experts.
Photo: Gemma Fischer Photography, courtesy of Kirsten Wehner, University of Canberra Creative Recovery and Resilience Program

Other community actions and activities

- Through the Waterwatch program, volunteers helped collect data for the 2021 Catchment Health Indicator Program (CHIP) Report (see Outcome 1). More than 200 volunteers conducted regular monitoring at 229 Waterwatch sites across the upper Murrumbidgee catchment. In 2021, Waterwatch also launched the new [‘Platy and Ratty Sighting Portal’](#), which allows the public to report and search sightings of platypus and rakali (water-rat) across the ACT and Region.
- Under the ACT Environment Grants Program, several local community groups received grants in 2021-22 to undertake works to help manage the health of waterways and catchments, including:
 - revegetation along the Murrumbidgee and Gudgenby rivers to improve riparian zone habitat, biodiversity and riverbank stability riparian restoration (Outward Bound and Southern ACT Catchment Group);
 - Molonglo riverbank woody weed regrowth control (Molonglo Conservation Group); and
 - improving turtle habitat for turtles nesting in the city (Ginninderra Catchment Group).
- The [Upper Murrumbidgee Catchment Network](#) (UMCN) is a network of individuals, community groups, businesses and organisations (government and non-government) committed to improving natural resource management in the upper Murrumbidgee catchment. Water management is a priority issue for the network.
 - In July 2021, the UMCN [surveyed its members](#) about water quality and water security and respondents identified river health and biodiversity, water for the environment, and climate change as the top three issues of concern.
 - UMCN’s theme for 2022 is ‘Year of Water’, and in the first half of the year the UMCN developed an [infographic](#) presenting an overview of upper Murrumbidgee water issues, and held a [Water Quality and Security online forum](#) to bring together experts, community members and decision makers to discuss issues impacting the health of the upper Murrumbidgee river.
- The Upper Murrumbidgee Demonstration Reach (UMDR) partnership continued to facilitate community involvement in activities to raise awareness and improve fish habitat and river health in the upper Murrumbidgee, supported by funding from the Native Fish Strategy via the Murray Darling Basin Authority’s joint programs. In 2021/22 the UMDR:
 - held online webinars on sustainable catch and release methods to reduce angling impact on Murray cod, the status of native fish and Murray crays in our catchment and two regional projects including the Reaching for Recovery of the Macquarie Perch and Saving the Stocky Galaxias (supported by Australian River Restoration Centre);

- built the Adventurous Volunteer Program, with community volunteers mapping weeds and habitat and carrying out environmental weeding and restoration activities along the Upper Murrumbidgee River; and
- worked with catchment partners (Local Land Services, NSW Crown Lands, ACT Government, Australian River Restoration Centre, Greening Australia) and landholders on bushfire recovery projects to improve riparian and instream condition (funded by Australian, ACT, NSW Governments and Caterpillar Foundation).

Catchment management and on-farm riparian restoration

- The ACT Natural Resource Management Group (ACT NRM Group) built landholder capacity to manage water resources in the Naas Valley through using Australian Government Drought Resilience Program funding. This program worked in partnership with the ACT Rural Landholders Association, Naas Valley farmers, the ACT Government, the Australian River Restoration Centre, Landcare and citizen scientists to undertake riparian restoration work and establishing drought refuges on farms in the Naas Valley.

Understanding community values

- In April 2022, the EPSDD began consultation with the Ngunnawal Community to develop a new Cultural Resource Management Plan for the ACT, provided for under the Nature Conservation Act 2014 (ACT). The Plan will support and empower the aspirations of Ngunnawal Traditional Custodians to access stone, ochre, plant and water resources for cultural use. It will help Ngunnawal peoples to:
 - identify their resource use needs to fulfil cultural practices and obligations;
 - identify the required governance and protocols to ensure that resource collection is compliant with relevant legislation (Nature Conservation Act 2014 (ACT), Fisheries Act 2000 (ACT) and Heritage Act 2004 (ACT)); and
 - support a transition to co-management of the ACT Parks and Reserves estate.

Key activities planned for 2022-23 to support Outcome 3

Engaging with the Ngunnawal community on water

- The EPSDD will continue to work with the Ngunnawal community to finalise the ACT's first Cultural Resource Management Plan (planned for launch in December 2022).
- The EPSDD is working with Ngunnawal community to co-designing a new Ngunnawal Ngadjung Water Initiative. The initiative will set out a program of activities to be conducted in partnership with the Ngunnawal Traditional Custodians, that progress the aspirations of the Ngunnawal people in water resource management. Activities will aim to:
 - build the cultural economy through access to water entitlements and licences and establishing a framework for water use;
 - support the integration of traditional value and uses in waterway management, for example cultural flows; and
 - strengthen Ngunnawal participation in policy, planning and program delivery.
- From June 2022, the EPSDD will facilitate a series of Aboriginal Waterway Assessments with the Ngunnawal Community. The assessments are used by Traditional Custodians as a tool to assess the cultural health of Country and guide objectives relating to water management.



Erosion control works carried out at this site by the NSW Soil Conservation Service are part of bushfire recovery efforts to stabilise mass movement of sediment (seen upstream of rock flume) and prevent it from smothering aquatic habitat in the upper Murrumbidgee River downstream.
Photo: Ashley Bolton, NSWSCS

Catchment management activities and on-farm riparian restoration

- The UMDR will continue works to improve the health of the Murrumbidgee River in 2022-2023 with funding from the Murray Darling Healthy Rivers Program
 - targeting woody weed control;
 - improving instream habitat in sand affected streams;
 - monitoring pest fish species via a recreational angling program;
 - improved environmental flow planning; and
 - supporting work to carry out cultural water assessments.
- The ACT NRM Group will continue its work in the Naas valley, and in 2022-23 will expand this into the Gudgenby valley. The work will initially be funded by the expanded Healthy Waterways program and will demonstrate landscape-scale restoration of riparian environments by slowing water flow through the catchment and rehydrating the landscape. Activities will include:
 - river corridor planting and creation of windbreaks and shelterbelts to increase riparian habitat and landscape connectivity;
 - fencing/stock management to increase water quality and quantity; and
 - working collaboratively with landholders to change how they manage the river corridor.
- The ACT NRM Group will help to build the resilience of the Naas and Gudgenby river catchments to climate change, by preparing a catchment plan in collaboration with landholders, park managers, Ngunnawal Traditional Custodians and the broader community. The plan will aim to restore riparian and instream habitats in the Naas and Gudgenby river catchments and their tributaries by investigating key sources of sediment in their rural reaches, identifying erosion hot spots, and prioritising sites for specific restoration works. The plans will include recommended mitigation measures and help guide future funding.

Educational activities

- The H₂O_K program will continue its partnership with catchment groups, scaling up the Leaf Collective, and working with private green space managers to reduce fertiliser use in catchments.
- The Icon Water 2022/23 Education program will continue to deliver a range of educational campaigns, face-to-face tours and education program sessions for our community, schools and tertiary audiences to increase water and wastewater literacy in the Canberra community. Messages and campaigns will have an ongoing focus on Permanent Water Saving Measures and include water-wise behaviours.
- Icon Water will engage an Aboriginal and Torres Strait Islander provider to develop and deliver training to contribute to understanding of the local Traditional Owners water and catchment management practices and experience.



Through the Leaf Collective, the Mt Taylor Scout Group collected leaf litter at Lake Tuggeranong joined by MLAs Shane Rattenbury and Rebecca Vassarotti. Photo: The Leaf Collective



Volunteers from Friends of Harrison Wetlands planted native wildflowers to improve local grasslands and increase groundcover to reduce erosion and improve water quality. Photo: Ginninderra Catchment Group

