



**GOULBURN
BROKEN**

CATCHMENT
MANAGEMENT
AUTHORITY



GOULBURN BROKEN CATCHMENT MANAGEMENT AUTHORITY

ANNUAL REPORT 2018-19



RATINGS LEGEND

2018-19 performance		Well below target (less than 50%)	Below target (50 to 80%)	On target (80 to 110%)	Exceeded target (more than 110%)	
Catchment condition and Critical attribute affecting long-term catchment health		Very poor	Poor	Satisfactory	Good to excellent	
Risk to system thresholds / tipping point	Trend 2016-19	Increasing significantly	Increasing	Stable	Declining	
	Long-term	Very high	High	Medium	Low	
Long-term strategy maturity		Early	Middle	Late	Watch and maintain	Escalated response

The Goulburn Broken CMA continues to develop its approach to catchment condition and performance reporting using a resilience model aligned to the Goulburn Broken Regional Catchment Strategy 2013-2019.

Appendix 1 (page 128) discusses why and how ratings are applied. Although annual performance indicators have high certainty relative to long-term indicators, the uncertainty in setting and monitoring annual targets is still significant because of irregular timing of projects and project-delivery adaptation throughout the financial year. This uncertainty is reflected in an assessment of delivering 'on target' being defined as a large range.

ABOUT THIS REPORT

This report provides information on the Goulburn Broken Catchment Management Authority's (CMA) performance and finances, which can be assessed against its 2018-19 Corporate Plan targets.

The Goulburn Broken Catchment's resilience is explicitly assessed to inform an adaptive approach, consistent with the Goulburn Broken Regional Catchment Strategy 2013-2019.

The Goulburn Broken CMA aims to provide information which is relevant, easily accessed and understood. More detailed and scientific data can be accessed via the website www.gbcma.vic.gov.au.

This report is prepared in accordance with all relevant Victorian legislation. This includes the requirement under the *Catchment and Land Protection Act 1994* for the Goulburn Broken CMA to submit "...a report on the condition and management of land and water resources in its region and the carrying out of its functions."

Design and print complies with Department of Treasury and Finance Reporting Direction 30D, which aims to achieve consistency and minimise costs and environmental impact across government agencies.

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Front cover

Main photo:

Celebrating the Year of the Paddock Tree

Inset photos (from left to right):

Planting by Hughes Creek

Paddling and fishing on the Goulburn River

Wavy marshwort, Barmah Lake

Platypus monitoring is under way across the Catchment.

Photo Ken Mival

Celebrating completion of the Mosquito Drain 40



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Recognising a major natural resource management contribution –
Colin Walker

Back cover

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Chair's review



The catchment's communities and environment were certainly tested during the past 12 months.

The ongoing dry conditions continue to put the pressure on our waterways, vegetation, wildlife and ultimately people as do the challenges and opportunities presented by the roll-out of the Murray Darling Basin Plan.

During these more challenging times it's important that, as the region's peak natural resource management body, we step up and show leadership.

We are doing this on a number of fronts. In terms of helping the region's agriculture sector cope with the effects of changes to water policy, land-use and climate, we have been heavily involved in shaping the Goulburn Murray Irrigation District Resilience Master Plan. This plan will provide an overarching framework for guiding future regional decision-making that considers people, the environment and the economy in equal parts.

This exciting initiative will be the first time in Australia that industry leaders have committed to building resilience at a regional scale.

Similarly, we are on the front foot in flagging community concerns around the environmental impacts of high unseasonal flows during summer on the lower Goulburn River and Barmah Forest. The record amounts of water being transferred to downstream users at a time when the river flows would normally be quite low is affecting the river bank and vegetation. There is a very real risk that if the transfer of water at a high and constant rate continues it will undo all the good work achieved through delivering water for the environment in recent years, such as improving populations of threatened silver perch, golden perch and Murray cod.

We therefore appreciated Water Minister Lisa Neville accepting our invitation to join us and community members on the river in late May to see first-hand why we're so concerned. We also appreciated Minister Neville committing to finding solutions to address the issue of the effects of future high unseasonal flows on Victoria's hardest-working, heritage-listed river.

Efforts to protect another of the catchment's precious and internationally recognised natural sites, the Ramsar-listed Barmah Forest, are also high priorities. By informing the development of the draft 'Strategic Action Plan: Protection of floodplain marshes in Barmah National Park and Barmah Forest Ramsar site' we ensured that one of the main focuses of the plan was on managing the impacts of feral horses, pigs and other animals on the forest.

We have worked with the park's managers Yorta Yorta Nation Aboriginal Corporation (YYNAC) and Parks Victoria and the community for many years to improve the health of the wetlands and protect them for future generations and look forward to being involved in the roll-out of the action plan once it has been finalised.

Our partnerships with the region's Registered Aboriginal Parties continue to mature and strengthen. As well as working with YYNAC in Barmah and on other projects detailed in its Country Plan we welcomed Taungurung Land & Waters Council's (TLWC) Reconciliation and Settlement Agreement with the state of Victoria, an important deliverable of the TLWC's strategic plan. We look

forward to First Nations groups' increased involvement in managing Country and working with and for them on a range of exciting projects that acknowledge their intrinsic understanding and connection to the landscape.

Local knowledge and connections are critical to the successful delivery of all our projects. An example of where this has seen significant inroads into improved understanding of the inter-connectedness of people and the environment is the community-driven Bogies and Beyond project, funded through Our Catchments Our Communities. The citizen science water bore monitoring sub-project continues to provide information on changes to this valuable, and often only, source of water for farmers in the area. An app developed for another citizen science sub-project in an effort to understand why so many of the area's trees are showing stress is now being used in other parts of the catchment.

Local knowledge also underpinned development of local plans for the Productive Plains and Upland Slopes regions of our Catchment.

These plans, led by groups including GECKO Clans (Productive Plains) and Up2Us (Upland Slopes), consider a range of climate scenarios and how the corresponding impacts and mitigation activities under the most likely scenarios may affect the community and the environment. The priorities and actions in these plans, along with the local plans developed for other parts of the catchment in recent years will be critical in informing renewal of the Goulburn Broken Regional Catchment Strategy (RCS). The RCS guides efforts to protect and improve the region's natural environment and the communities that rely on it to remain prosperous and vibrant.

This renewal will involve significant community engagement and I look forward to meeting and hearing from the many individuals and groups who love living, working, investing and visiting this beautiful catchment during the review period.

Thank you

Thank you to my fellow Board members for their ongoing passion and support during 2018-19, and welcome to Zane Foott, who has joined us as a shadow member as part of an initiative to support emerging young regional leaders. Thank you too to Chief Executive Officer Chris Norman and his staff who continue to provide leadership and support at the local, regional, state and national level. Partnerships are essential to the way we do business and I thank our loyal community for their ongoing efforts to achieve our vision of resilient landscapes and thriving communities.

Responsible Body Declaration

In accordance with the *Financial Management Act 1994*, I am pleased to present the Goulburn Broken Catchment Management Authority Annual Report for the year ending 30 June 2019.

Adrian Weston

Chair

Goulburn Broken Catchment Management Authority

22 August 2019

Chief Executive Officer's report



When times are tough a little goes a long way.

This is particularly the case when it comes to making the best use of water for the environment when conditions are dry.

An example of careful management of this precious resource was the 250ML of water used during June to maintain minimum flows in the

Broken River. This was critical as, due to very little inflow and low operational releases from Lake Nillahcootie, the minimum flow of 15ML/day needed to maintain water quality, bank vegetation and shelter and food for fish and other aquatic wildlife was unlikely to be met in the section of the river between Nillahcootie and Hollands Creek once the irrigation season finished. Using a small amount of available water for the environment to maintain a base flow meant the improvements in native fish numbers including silver and golden perch, Murray River rainbow fish and Murray cod in response to environmental flows delivered the previous year were not lost.

Water for the environment was also delivered this year to a number of wetlands including Gaynor Swamp near Corop and Reedy Swamp near Shepparton to provide refuge for wildlife to feed, shelter and breed during a record hot dry year.

We also took a pro-active approach to planning for low and no-flows in creeks by trialling aerators and working with our partners to prepare to relocate fish to other sites if they became stressed during the hot, dry summer and autumn. Fortunately, much of the work we've done with landowners and the community over the years to revegetate and install instream habitat paid off and our native fish populations found shelter in the deeper pools despite difficult conditions. However, this planning by agencies will not go to waste if the forecast ongoing dry conditions continue.

The ongoing benefits of angler and broader community engagement also saw significant work completed in the upper catchment, including hundreds of boulders placed in the Rubicon and mid and upper-Goulburn. This work will improve and maintain the health of these rivers, which are popular recreational fishing destinations.

In the lower catchment our relationships with councils, agencies and industry meant we recycled and re-used timber cleared for road widening projects, solar farms and other infrastructure projects as snags in the Broken Creek and Goulburn River. Close to 2000 snags have now been placed in waterways across the catchment since 2011. They help restore valuable habitat for native fish and other aquatic wildlife and complement the many other works we do to improve the health of our rivers.

I was pleased therefore that this initiative to reuse timber has been formalised across the state with an MoU signed between VicRoads and Victoria's CMAs in May.

While it's terrific to re-use timber, it's even more preferable to look after our precious remnant vegetation. That's why we declared 2019 'The Year of the Paddock Tree'. Along with partners Greater Shepparton City Council and DELWP Hume we're running a 12-month campaign highlighting the trees' value as shelter for wildlife as well as providing valuable ecosystem services such as food for pollinators and shelter for stock. In addition to raising awareness of trees' value the campaign encourages people to get involved in activities that protect and improve their health.

These activities complement many of the initiatives we delivered in the first year of the Australian Government's Regional Landcare Program (RLP) as well as through Victorian Government initiatives such as the Biodiversity Response Planning, Our Catchments Our Communities and Regional Riparian Action Program.

These projects are largely delivered in partnership with the region's NRM community groups, First Nations people, agencies and, of course, landowners.

The Goulburn Broken CMA continues to proudly spend over 83 per cent of its funds on service delivery. This aligns with a continued appetite for efforts to protect and improve the region's natural resources. For example, there is already a waiting list for next year's call for funding for landowners to complete works on private property after the EOI for the first-year of the RLP-funded Linking Communities and Landscapes project was over-subscribed.

Sometimes though good deeds take a little more time. In a classic case of persistence paying off, it was fantastic to finally complete the Mosquito Drain 40 project. It's taken more than 25 years but this 120km drain, servicing 200 landholders is now finished and will help combat water-logging issues in the Tatura/Dhurringile area. This project involved multiple agencies and extensive community engagement, including with Traditional Owners, which saw the drain design altered to protect significant cultural and environmental sites.

Similarly the planning and support we and our partner agencies offer communities during flood, drought or fire mean we can direct and share resources when and where they are most needed. Examples of these efforts are highlighted each year in the 'Victorian CMAs' Actions and Achievements' report and through the social media #CMAsGetItDone campaign. The tens of thousands of people CMAs engage with and the thousands of hectares of waterways and land protected each year as a result of these relationships highlight just how critical local knowledge and actions are to achieving long-term regional and state outcomes.

We also value cross-border relationships, such as those established through the Tri-State Murray NRM Regional Alliance, which is made up of seven NRM agencies along the Murray River. This year a number of very successful First Nations business forums were held to further explore opportunities to promote First Nations economic autonomy through social enterprises. Examples of successful WA First Nations businesses were shared and an MoU creating an East-West Alliance will allow ongoing support and mentoring for this approach.

Thank you

The support of the Board and the tremendous commitment by all our agency, community and Traditional Owner partners, along with our dedicated staff, continues to provide a solid foundation for Goulburn Broken CMA's ongoing pursuit of increased environmental, economic and social resilience. I also wish to especially acknowledge the significant contribution of staff members Helen Murdoch, Annie Squires, Belinda Senini, Chris Burnett, Peter Geddes and Kerry McFarlane who have now moved on to new careers.

Chris Norman
Chief Executive Officer

Goulburn Broken profile

Goulburn Broken Catchment Management Authority

Powers and duties

The Goulburn Broken Catchment Management Authority (CMA) is a Statutory Authority established by the Victorian Parliament in 1997 under the *Catchment and Land Protection Act 1994*. The responsible Ministers for the period from 1 July 2018 to 30 June 2019 were:

- the Hon Lisa Neville MP, Minister for Water; and
- the Hon Lily D'Ambrosio MP, Minister for Energy, Environment and Climate Change.

(See page 124 for names of all persons who were responsible during 2018-19)

The Goulburn Broken CMA develops and coordinates the Goulburn Broken Regional Catchment Strategy implementation by working with the community, all tiers of government and research and funding organisations. The Goulburn Broken Regional Catchment Strategy sets out the framework for coordinating land, water and biodiversity management in the Catchment.

The Goulburn Broken CMA focuses on private land mostly managed for agriculture and on the interface of private and public land. The Goulburn Broken CMA therefore relies on shared contributions from government and private landholders to undertake works.

The Goulburn Broken CMA's role in water is described under the Water Act 1989 and is to:

- be the caretaker of river health, including managing the environment's right to water (managing the environmental water reserve) and implementing works on waterways via its operational arm
- provide waterway, regional drainage and floodplain management services.

Water storage, delivery and drainage systems are managed by partner agency Goulburn-Murray Water. Urban water and wastewater services are provided by another partner agency, Goulburn Valley Water.

See the 'Governance' section (page 84) for details.

Funding and staff

Goulburn Broken CMA's income for 2018-19 was \$17.4 million, derived from the Victorian and Australian Governments, regional sources and other government entities. As at 30 June 2019, 48.2 (full-time-equivalent) staff were directly employed. See the 'Human resources' section (page 77) for details.

The Goulburn Broken CMA acknowledges the Traditional Owners of land in the Goulburn Broken Catchment and strongly respects the rich culture and intrinsic connection Traditional Owners have to the land.

Our Vision

Resilient landscapes, thriving communities

Our Purpose

Through its leadership and partnerships the Goulburn Broken CMA will improve the resilience of the Catchment's people, land, biodiversity and water resources in a rapidly changing environment.

Our values and behaviours

Environmental sustainability: we will passionately contribute to improving the environmental health of our catchment.

Safety: we vigorously protect and look out for the safety and wellbeing of ourselves, our colleagues and our workers.

Partnerships: we focus on teamwork and collaboration across our organisation to develop strategic alliances with partners and the regional community.

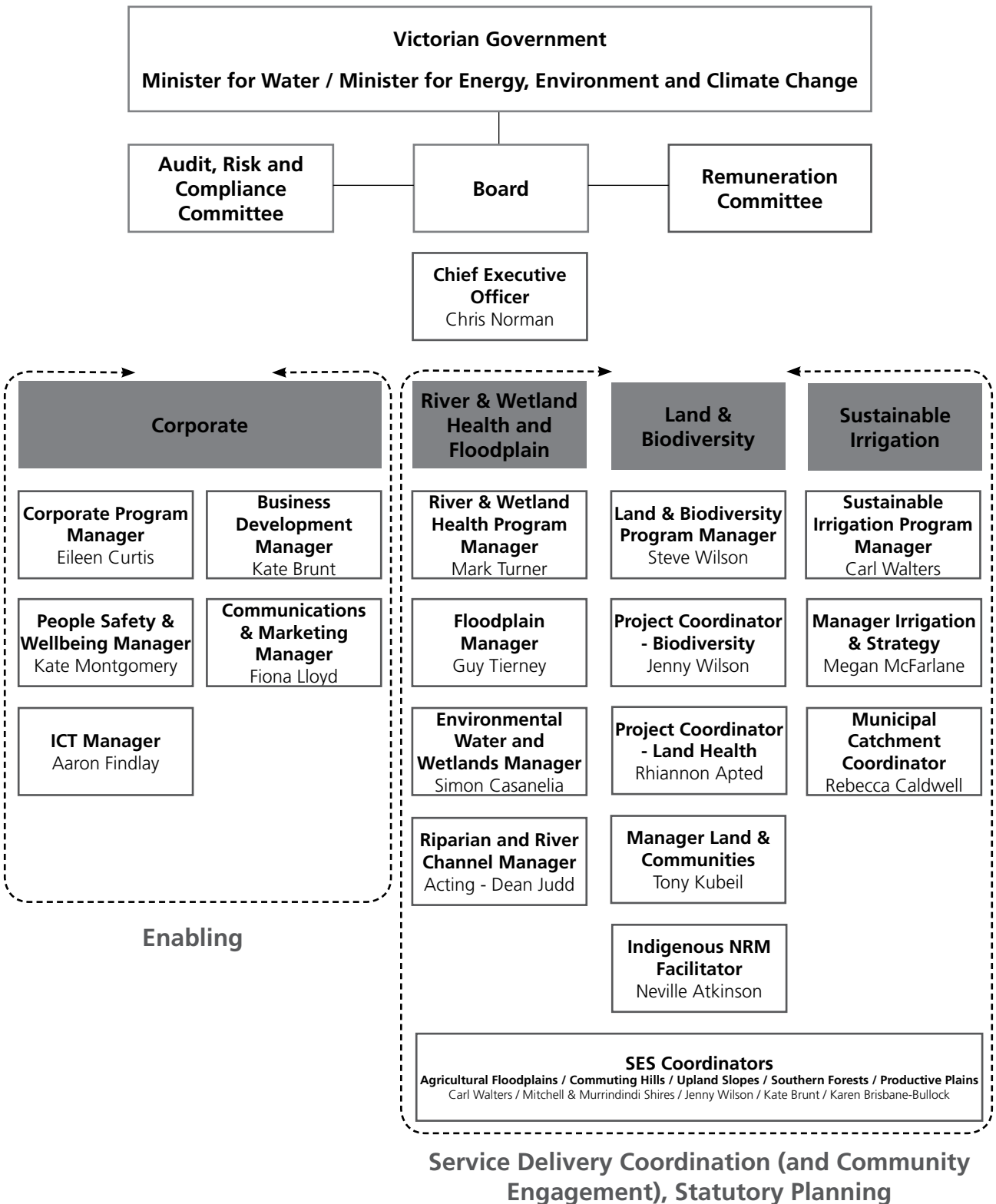
Leadership: we have the courage to lead change and accept the responsibility to inspire and deliver positive change.

Respect: we embrace diversity and treat everyone with fairness, respect, openness and honesty.

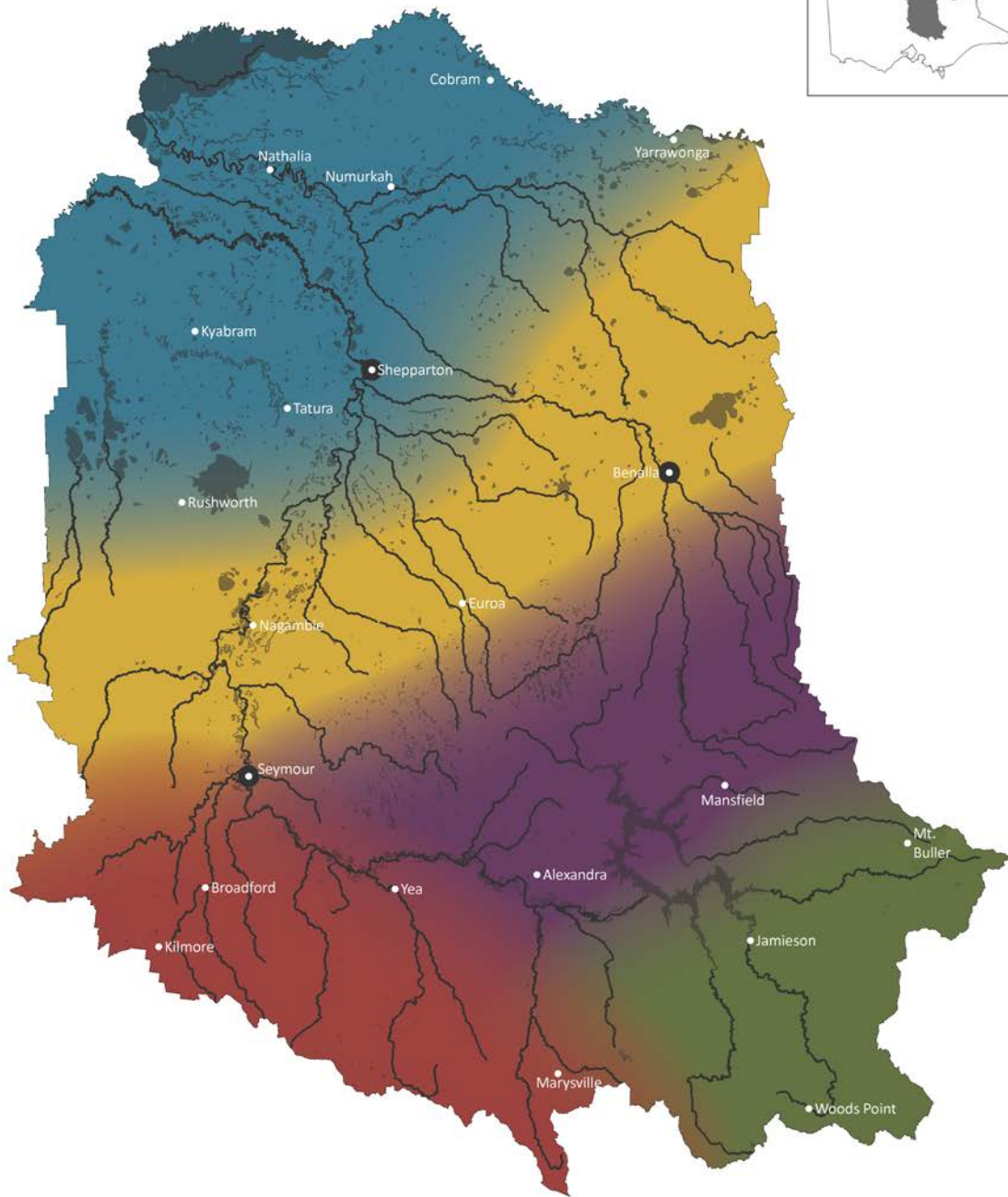
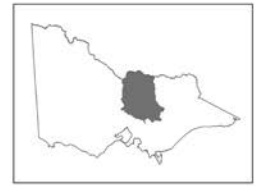
Achievement, excellence and accountability: we do what we say we will do, we do it well and we take responsibility and accountability for our actions.

Continuous learning, innovation and improvement: we are an evidence and science-based organisation and we test and challenge the status quo. We learn from our successes and failures and we are continually adapting using internal and external feedback from stakeholders and the environment. We are an agile, flexible and responsive organisation.

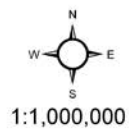
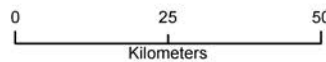
Goulburn Broken CMA business structure



Goulburn Broken Catchment i,ii



- Agricultural Floodplains
- Productive Plains
- Commuting Hills
- Upland Slopes
- Southern Forests
- Urban Centres



- i. The Goulburn Broken CMA Sustainable Irrigation Program oversees delivery in part of the North Central Catchment as well as the Goulburn Broken Catchment.
- ii. Maps of the Catchment showing onground works sites and whole farm plans achieved are included as Appendix 2 and 3 (pages 130 and 131).

Whole of Catchment

The Goulburn Broken Catchment covers 2.4 million hectares, including approximately 10.5 per cent of Victoria, extending north from near the outskirts of Melbourne to the Murray River on the border with New South Wales.

- Has an estimated population of 204,000 people, which includes 6,000 First Nations Australians.
- Includes approximately one million hectares of dryland agriculture and 270,000 hectares of irrigated agriculture. Public land covers 800,000 hectares, including extensive areas for conservation.
- Yields more than 3,500 gigalitres or 10.5 per cent of the Murray-Darling Basin's water.
- Agriculture is a significant contributor to the Catchment economy with a gross value of agricultural production of \$2.37 billion in 2018.

Major environmental challenges include degraded waterways, reduced extent and quality of native vegetation, reduced water quality and quantity, dryland and irrigated area salinity, biodiversity loss, and pest plant and pest animal invasion. These challenges are being exacerbated by changes in climate.

Agricultural Floodplains

Northern floodplains with Murray River along boundary with NSW.

- Landscape highly modified for agriculture with remaining vegetation fragmented and found mainly on waterways, wetlands and roadsides.
- Irrigation supports dairy, horticulture and cropping and a large food processing sector with recent major investment in, on and off-farm irrigation infrastructure.
- Barmah National Park highly valued (Ramsar listed) internationally important breeding site for many bird species.
- Long history of community leadership in managing land and water problems.

Threats: Further loss and decline of vegetation, salinity, poor natural drainage, future farming options and floods continue to threaten production and channel form or stability.

Commuting Hills

Includes the mountainous southern and south western urban fringe.

- Public and private forests support many plant and animals including the Golden Sun Moth.
- Land use also supports a range of agricultural industries and lifestyle communities.
- Waterways remain largely healthy because of the extent of remaining vegetation.
- People drawn to area for natural beauty and lifestyle and commute to Melbourne for work.

Threats: Fire remains a major threat to safety and properties, along with native vegetation loss through population pressures and development.

Productive Plains

Foothills and floodplains towards the north of the Catchment.

- Habitat provided by vegetation along waterways, roadsides, ranges and spring soak wetlands.
- Dryland farming includes cattle, sheep, cropping and viticulture and many farms remain in same families for generations with average farming populations ageing.
- Rivers and creeks in moderate condition and wetlands in moderate to good condition.
- Landcare and conservation management networks establish sustainable farming practices and protect threatened species.

Threats: More habitat loss, ageing farming populations and declining social connection are threats to biodiversity and farming futures.

Southern Forests

South east mountains, waterways and snow covered alps.

- Unique alpine vegetation supports endangered mountain Pygmy Possum.
- Most of the area is public land managed for conservation, but also for recreation and timber production.
- Waterways are in good condition with recreation and tourism highly valued.
- People live in small and seasonal communities and travel to and from this area.
- The interface between private and public land is important for management.

Threats: Waterway health threatened by erosion along with threats to vegetation including fire, weeds and pest animals.

Upland Slopes

Includes the slopes and valleys towards the south of the Catchment.

- Grazing and other agricultural enterprises occur in cleared valleys surrounded by partially forested hills and vegetation along waterways.
- Lake Eildon provides water for agricultural production, recreation, tourism and river health along the Catchment and beyond the boundary.
- Generational farmers live alongside increasing numbers of lifestyle properties and absentee landholders.

Threats: Erosion, weeds and fires are among the threats to the amount and quality of highly valued water, used for many purposes.

Urban Centres

Major urban centres of Shepparton, Seymour and Benalla.

- Biodiversity is poor but urban people value the rivers and remaining vegetation for recreation.
- Provide employment, housing, schools and services surrounded by farming and lifestyle properties on Goulburn and Broken River floodplains.
- Water is pumped from the rivers for domestic use and runs off into rivers following storms.
- Large diverse populations.

Threats: Pollution, land development and aquatic weeds threaten river health, including water quality and floods are an ongoing threat to properties and safety.

Key events 2018

July

Field event at Gobur with Yorta Yorta's Woka Walla works team, CFA and Goulburn Broken CMA staff learning fire training and burning skills - 0.5ha burnt.

Involved in running the Australian Women in Agriculture Conference with 100 women from across the country attend the three-day forum held at Eastbank Shepparton.

A winter fresh peaking at around 9,00ML/day was delivered along the Lower Goulburn River.

Sponsored a NAIDOC event held at Barmah Forest, attended by over 100 people.

Vic No Till Conference held in Moama, with Goulburn Broken CMA supporting a number of landholders to attend.

Fisheries Minister Jaala Pulford launched a new round of Recreational Fishing Licence grants at Seymour on the Goulburn River and acknowledged the Goulburn Broken CMA's long-term efforts in improving river health.

August

Goulburn Broken CMA secured two Australian Government funded '20 Million Trees' applications: Swift Parrot revegetation (\$100,000) and Superb Parrot revegetation (\$100,000), with works to be completed by June 2020.

The Goulburn Broken Integrated Water Management (IWM) Forum finalised the Goulburn Broken Strategic Directions Statement that contains 11 joint IWM projects involving Local Government, the Water Corporations, the Goulburn Broken CMA and Traditional Owner Groups.

Goulburn Valley Water Kilmore offsets program launched

September

Eighty-two turquoise parrot nest boxes installed across the Warby Ranges-Chiltern region.

A tree planting day held with the Australian Trout Foundation at Hughes Creek, a flagship waterway.

The Sustainable Irrigation Manager presented to the Working Group on On-Farm Irrigation at the ICID Regional Conference and 69th International Executive Council (IEC) meeting held in Saskatoon, Canada.

Secured \$1.4 million for a Box Woodland and Iron Bark Forest project, and \$343,200 to undertake works on private land to support Linking the Lower Goulburn to the Barmah Forest through the Victorian Government's Biodiversity Response Planning fund.

October

The Australian Government funded 'From the Ground Up' project ran a successful EOI program for community and industry group sustainable agriculture projects with 14 EOIs received for one to four-year projects.

The Regional Agriculture Landcare Facilitator (RALF) helped coordinate another successful 'Chicks in the Sticks' event with North Central CMA with 70 women attending. The event celebrates and builds the capacity of rural women involved in agriculture and the environment.

Presented on Goulburn Broken CMA's angler partnership work at the Australian Trout Foundation habitat workshop held in Melbourne.

Fisheries Minister Jaala Pulford released fish and launched the Shepparton-based native fish hatchery concept in the lead up to the Goulburn Broken CMA-hosted Gone Fishing Day. Over 200 people attended the event, which was held at Lake Victoria in Shepparton.

The River Health Manager represented the Goulburn Broken CMA at the 21st International RiverSymposium in Sydney highlighting the Twinning Proposal between Goulburn Broken CMA and the Dneister River in Moldova/Ukraine.

November

Monitoring of the existing population of Mountain Pygmy-possum undertaken with Taungurung works team as part of an Australian Government-funded program.

Mid-term review of the Goulburn Broken Waterway Strategy 2014 – 2022 finished.

Managers and the Board Chair attended a community briefing session with Federal Minister for Agriculture David Littleproud in Shepparton where the Minister spoke about the review on live cattle trading, the dairy industry, drought incentives and the Basin Plan.

Presented to a group of 25 local city mayors from the Henan Province in China on local water issues as part of an RMIT-hosted Rural Revitalisation and Agriculture Sector Modernization Training Program.

Met with DELWP, GMW and the Murray Darling Association to discuss concerns about the potential environmental impacts on the Goulburn River from continual high summer flows due to IVT.

December

5,000 of the ever-popular Conservation Management Network Calendars sent out across the Catchment.

Goulburn Broken CMA staff spoke to future agricultural students currently in Year 9 and 10 at Dookie college.

Coordinated a community tour of Kanyapella Basin to discuss the area's geology, ecology, cultural values, and environmental water management opportunities and constraints. The tour was attended by local government, GMW, landcare, local community members, PV and Yorta Yorta.

Presented the Goulburn Broken CMA's annual Wilmot Rd PS Environmental Studies Scholarship to Fatma Ghabban.

All eight Local Governments and the VicSES signed on as partners to deliver the Goulburn Broken Floodplain Management Strategy 2018-27.

Facilitated a meeting between MDBA-River Operations, DELWP, VEWH and GMW to discuss the growing issues associated with unseasonal high flows in the lower Goulburn River. The discussion resulted in a nine-point Action Plan.

Key events 2019

January

With hot and dry conditions right across the Murray Darling basin and a high level of attention on the Darling River fish deaths the Goulburn Broken CMA trialled aeration in the Lower Broken Creek to help assess feasibility. Other options including relocation were also discussed and appropriate protocols established in the event of no-flows.

Early in the month, when Gaynor Swamp was still holding some water, 20 Brolga were recorded at the site. This represents approximately 10% of the population in northern Victoria.

February

Surveys undertaken for Mountain Pygmy-possum populations at remote Mount Howitt, with Traditional Owners Taungurung and Gunaikurnai participating.

Tooborac Primary School launched its nest box project, assisted by the Whroo Goldfields CMN.

Attended luncheon to welcome to the Goulburn Valley, Professor Duncan Maskell, Vice Chancellor, the University of Melbourne on the occasion of the 20th anniversary of the establishment of the Department of Rural Health, Shepparton. This networking opportunity was important in Goulburn Broken CMA's quest to continue to build links with the University sector.

Hosted the crew of Merv Hughes Fishing Australia to film an episode on the Goulburn Broken CMA's work at Hughes Creek on the threatened Macquarie Perch and restoration activities within the Goulburn River.

Presented on The Linking Lower Goulburn project to the Our Catchments Our Communities Steering Committee.

March

Northern Rivers Roundup held in Moama. CMN and Landcare facilitators attended for two days of networking, presentations, and learning.

Three workshops held with a focus of biodiversity on farm. Topics discussed included the importance of paddock trees and the benefits pollinator insects on a working farm.

In conjunction with Victorian No-Till Farmers Association organised for soil health expert Nicole Masters to present to 30 farmers as part of a two-day workshop held in Tatura and Ardmona.

Worked with the Australian Platypus Conservancy (APC) to initiate a citizen science program to monitor platypus populations at key sites along the mid Goulburn River and on the Broken River near Benalla. The program aims to increase community understanding and appreciation of platypus and collect information on how platypus population change over time to help inform their management and environmental water planning. Nearly 100 community members attended the information sessions and it is hoped the program will be expanded to Shepparton in the new financial year.

Commenced construction of the Muckatah Community Drain 2/3P after 13 years of planning.

An energy use/decision support calculator for pressurised irrigation systems developed with Agriculture Victoria.

April

38 participants from 19 Hume region NRM organisations and Traditional Owner groups met to discuss ways of improving employment and training opportunities for Aboriginal people.

Eight members from the Victorian Mobile Landcare Group headed to Boweya Community Hub to help build 180 turquoise parrot nest boxes for the 'Villa Turquoise' and 'Nest Boxes for Neo' projects (BBCMN)

Goulburn Broken CMA staff attended the "Go Fish Nagambie" event engaging with participants and attendees and participating in school group education activities.

Staff met with landholders at Loch Garry to discuss the draft Loch Garry Environmental Water Management Plan and the proposed delivery of environmental water to the site in 2019-20

Worked with the Australian Trout Foundation and Mansfield and District Flyfishers in March to complete a large instream habitat project on the Delatite River.

Attended the launch of the Draft Barmah Strategic Action Plan 2013-19 : Protection of Floodplain Marshes by the Environment Minister Lily D'Ambrosio.

May

The Dniester River Project group from the Ukraine toured the Catchment meeting with farmers, resource managers and researchers, to discuss land and water management.

A record amount of Inter Valley Trade of around 385,000 ML delivered down the Lower Goulburn River during the 2018-19 irrigation season.

Celebration of the completion of Mosquito Drain 40 attended by project partners and landholders.

Attended the East-West Alliance at Murray Bridge where a 'Statement of Intent' was signed between Aboriginal groups from Western Australia and along the Murray River Corridor with the Tri-State Murray Alliance, commercial partners, universities and Western Australian Department of Primary Industries.

Hosted Water Minister Lisa Neville on a boat trip down the Goulburn River to see and hear from the community about their concerns over the effects of IVT on the river's banks.

June

Completion of the two-year 'Villa Turquoise' turquoise parrot project (150 nest boxes built and installed, plus community engagement activities), and year one of the two-year 'Nest Boxes for Neo' turquoise parrot project completed. Seventy-five nest boxes have been installed under this Broken Boosey CMN project, as well as extensive community engagement.

Led the co-ordination of the Goulburn Murray Irrigation District (GMID) Vision Forum at Echuca.

Summary catchment condition assessment (Statewide standard format)

In 2016, Victoria's CMAs, supported by DELWP, established a project to adopt a consistent approach to annual reporting on catchment condition, which resulted in a trial using a standard format, as shown in the table below and as per Action 5.1 of Our Catchments Our Communities - Integrated Catchment Management in Victoria 2016-19. Assessments are from the perspective of the catchment manager, based on available evidence. As per the trial, the Goulburn Broken CMA has also provided supplementary regionally-relevant evidence that is applicable to the Goulburn Broken Catchment.

Theme	Catchment condition assessment		Details
	Previous 3 years	2018-19	
Land	Neutral 	Neutral 	pages 59 to 66

In 2018-19, 780 people participated in 38 activities around resilient farming. Agreements totalling \$162,500 (from the National Landcare Program 2) across 13 projects enabled delivery by Goulburn Broken CMA staff and partners, including AgVic, Landcare and producer groups, industry groups including Murray Dairy, Irrigated Cropping Council, Fruit Growers Victoria, Australian Processing Tomato Research Association, Maize Association, Riverine Plains Cropping group, Victorian No Till and Wild Game Resources Australia. Topics included erosion management, lime decision making, spatial variability in soil acidity, variable rate technologies, regenerative grazing, soil health and soil biodiversity, non-wetting soils, soil structure management, soil constraints, increasing biodiversity in orchards. A total of 32 farmers completed the Regenerative Grazing Short Course (page 64).

Goulburn Broken Catchment community NRM groups were awarded 37 project grants through the Victorian Landcare Grants (pages 33 and 139).

Extremely dry years like 2018-19 (graphs page 46) place pastures under pressure and lead to increased soil exposure, which can result in small-scale soil loss events (graphs pages 60 and 61). Farmers have used sacrifice paddocks, weaned early, destocked, reduced breeding herds and flocks, and bought in feed and water. Since 1990, perennial grasses have been returned to steep hills.

However, regional-scale soil repair is incomplete and transitions in farming enterprise are impacting significantly on long-term needs for natural resources. Saline discharge sites remain present and active, with most sites able to be managed, confining impact to the local site or farm.

The purpose and use of the Catchment's 800,000 hectares of public land have generally improved (especially grazing in sensitive areas). However, increased visitor numbers, along with invasive plant and animal pressures, are impacting on environmental and cultural heritage. Elevated land values are driving farm subdivision and land turnover. Invasive plant and animal management is mainly focused on new and emerging species and complementing community activity. High and increasing long-term risks in hot-spot areas from existing and emerging threats include deer in the foothills and feral horses in Barmah National Park.



Community	Neutral 	Concerned 	pages 30 to 34
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There are 97 active natural resource management groups, 12 networks, 3,590 members and 4,446 active volunteers in the Catchment (page 31). While participation remains positive, members of the broader community have continuing concerns about the Catchment's health, relating especially to invasive weeds (88 per cent of respondents), declining numbers of native fish (79 per cent), and pest fish species (79 per cent) (Schirmer et al., 2016). There is a continued increase in social media followers, with June 2019 figures for Facebook 'page likes' reaching 2,168 (up from 1,646 in June 2018) and Twitter account followers at 1,601 (up from 1,401 in June 2018) (see page 32). An Instagram account was established to target a younger market (133 followers at June 2019). The monthly column in the Country News continues to reach more than 44,000 households. Funding available to community NRM groups (including industry) through the CMA was in excess of \$1.1 million in 2018-19. Diverse stakeholders are now represented on high-level regional and local community NRM forums: farmers, Traditional Owners, local and regional government agencies, Landcare and recreation groups, and others work well in partnership and are strongly networked.

In 1990, government devolved significant responsibilities and decision-making to regional and local communities to determine their own futures in the face of emerging salinity problems, but trends since are towards less devolution. Traditional Owners are participating more in high-level decisions and there is significant scope for greater involvement if more funding becomes available. Communities, partner organisations, farmers and others have achieved significant onground changes with appropriate levels of government support. Funding for agencies to provide coordinated support for local community groups and individuals is uncertain and volunteer participation in government programs is dropping off in some locations.

Assessment criteria

Positive 	An optimistic future with evidence that events during the year will have a positive impact on the longer term.	Neutral 	A largely neutral state, where events during the year may have been significant but are within expected variation and will have little impact in the longer term.
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Theme	Catchment condition assessment		Details
	Previous 3 years	2018-19	
Biodiversity	Concerned 	Concerned 	pages 52 to 58

In 2018-19, 12 community groups and networks engaged as delivery partners built capacity and delivered incentives and community engagement projects: four Conservation Management Networks (Longwood Plains, Broken Boosey, Whroo Goldfields, and Strathbogie Ranges); six Landcare Networks (Up2Us, South West Goulburn, Upper Goulburn, Goulburn Murray, Hughes Creek Catchment Collaborative, and Gecko Clan); two Landcare Groups (Granite Creeks Project and Warrenbayne Boho Landcare Groups) and two friends groups (Regent Honeyeater Project and Euroa Arboretum).

A total of 3,784 hectares of remnant vegetation has been fenced since 2013-14, including 499 hectares in 2018-19.

The Linking Landscapes and Communities project delivered 80 hectares of revegetation and 7 land management agreements on private land, and 250 ha of pest animal control and 429 ha of weed control on public land (page 56). The Mending Mountains for Pygmy-possums project increased and improved 33 ha of critical habitat through 6 ha of revegetation, 1,000 ha of cat control, and 30 ha of weed control. Two Victorian government-funded Biodiversity Response Planning projects were delivered: Linking Lower Goulburn delivered 40 ha under management agreements, and Ribbons of Blue and Sashes of Green delivered 81 ha under 10-year management agreements with landowners.

Native vegetation, critical to biodiversity, covers about 30 per cent of the Catchment and has been stable since 2000, although it is difficult to measure and ascertain gains and losses vegetation. Long-term targets are not being met (graph page 57). While native vegetation improvements have been made on about 1.6 per cent of the Catchment's private land in the past 10 years, it is not enough to support all current species of flora and fauna. Ongoing clearing, new and existing invasive pest plants and animals, and other threats continue to add to large-scale habitat loss and degradation caused by historic clearing. Some species, such as Grey-crowned Babbler, Turquoise Parrot, and the EPBC-listed Regent Honeyeater are benefiting from targeted revegetation. A repeat of the millennium drought would have grave consequences for many species.

Waterways	Neutral 	Neutral 	pages 35 to 46
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Stock grazing has been removed or sensitively managed along 217 kilometres of streams through fencing since 2013-14, including 48 kilometres in 2018-19 (pages 44 and 135). A total of 4,885,772 megalitres of water has been released for the environment since 2007-08, including 2,778,492 megalitres since 2013-14 and 449,506 megalitres in 2018-19 (pages 17, 45 and 133). River inflows were generally low to average in 2018-19. Local and regional agency and broader community partnerships associated with waterway management are strengthening. There has been a step-change in the past few years of increased community involvement in raising awareness and onground management (pages 37 and 43). Water quality and fish populations have improved significantly through changes such as stock-grazing and fish-barrier removal, resnagging of streams, tree planting, and the delivery of water for then environment. Phosphorus loads are better and within the long-term target (graphs pages 38 and 69). However, the risk from high unseasonal flows to streambank vegetation and critical habitat in the high-value lower Goulburn River continues to increase. Managing waterways for regional values becomes challenging because of competing priorities from other parts of the southern-connected Murray-Darling Basin.

Waterways are also subject to increasing recreation pressure. Despite increasing waterbird habitat in the Goulburn Broken Catchment through delivery of water for the environment, populations of many species across the MDB seem to be declining. Waterways are at high risk from climate change. Since 2000, waterways have been impacted by prolonged drought, fires and to a lesser extent, floods. Water availability for agriculture has emerged as a major risk for the Catchment's social-ecological systems. In 2010, 15 per cent of stream length in the Goulburn and Broken basins were in good or excellent condition (9 and 6 per cent respectively, using the index of stream condition (bar chart page 38). The overall ratings had not changed significantly since 2004. There have been significant floodplain management improvements in many geographic areas, with others scheduled. As more infrastructure and assets are placed within floodplains, flood impacts potentially increase, but through floodplain management, annual average damages and social trauma have significantly decreased.










Assessment criteria

Concerned 	A level of concern that significant events during the year may have an adverse impact in the longer term.	Highly concerned 	A high level of concern that significant events during the year are likely to have an adverse impact in the longer term.
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Long-term scorecard: Catchment condition and resilience

Ratings in the following table are explained in investment area reports as referenced in the right-hand column. Ratings shown are not a definitive assessment and are a tool for discussion about long-term progress.










Appendix 1 describes the analytical framework, including terms used in this scorecard.



Investment area ¹	Catchment condition summary			Snapshot
	1990	2019	Long-term risk ² (given current support)	
Land 			MEDIUM	<ul style="list-style-type: none"> – The increased awareness of how soils can be improved is being applied on many farms. – Continued dry conditions are also impacting soil health in the region. – The purpose and use of private and public land have generally improved (especially grazing in sensitive areas). – Catchment-wide invasive plant and animal management is now mainly focused on new and emerging species and complementing community activity. Under present arrangements, there are high and increasing long-term risks in hot-spot areas from existing and emerging threats like deer in the alps, foothills and plains, and feral horses in Barmah National Park (especially when extremely dry).
Waterways 			MEDIUM	<ul style="list-style-type: none"> – Water quality and fish populations have improved significantly from changes such as removal of stock-grazing and key fish-barriers, resnagging of streams, tree planting, and the delivery of water for the environment. – Dry periods and climate change continue to be a significant challenge. – Despite increasing waterbird habitat in the Goulburn Broken Catchment through environmental flows, populations of many species across the MDB seem to be declining. – The risk from high unseasonal flows to streambank vegetation and critical habitat in the high-value lower Goulburn River and Barmah Forest continues to increase. Managing waterways for regional values becomes challenging because of competing priorities from other parts of the southern-connected MDB. – Waterways are also subject to increasing recreation pressure. – Local and regional agency and broader community partnerships associated with waterway management are strengthening.
Floodplain management 			MEDIUM	<ul style="list-style-type: none"> – There have been significant floodplain management improvements in many geographic areas and others have been scheduled. – As more infrastructure and assets are placed within floodplains, flood impacts potentially increase, but through floodplain management tools, annual average damages and social trauma have significantly decreased.

Catchment condition:  Very poor  Poor  Satisfactory  Good to excellent

Resilience assessment							Long-term strategy maturity	Details page
Critical attribute affecting long-term catchment health ⁱⁱⁱ	Contribution to system function		Risk to system thresholds / tipping point					
	1990	2019	Trend 2016-19	With current support	With no support			
Soils for agriculture				MEDIUM	HIGH	Middle	60	
Purpose and use of private land				MEDIUM	HIGH	Watch & maintain	61	
Purpose and use of public land				MEDIUM	HIGH	Watch & maintain	61	
Invasive plants and animals				HIGH	VERY HIGH	Middle	62	
Streamflows and wetland inundation:								
– Dammed (regulated) streams				MEDIUM	VERY HIGH	Early	37, 40-41	
– Undammed (unregulated) streams				HIGH	VERY HIGH	Middle	37, 41-42	
Streamside (riparian) vegetation				LOW	HIGH	Late	37-38, 42	
Water quality				MEDIUM	HIGH	Watch & maintain	38, 42	
Fish passage and habitat				LOW	MEDIUM	Late	38-39, 42	
Flood impact				MEDIUM	VERY HIGH	Late	47-50	

Contribution to system function: Very poor Poor Satisfactory Good to excellent
Risk to system thresholds / tipping point: Increasing significantly Increasing Stable Declining

Investment area ⁱ	Catchment condition summary			Snapshot
	1990	2019	Long-term risk ⁱⁱ (given current support)	
Biodiversity 			VERY HIGH	<ul style="list-style-type: none"> – Native vegetation improvements, such as revegetation and stock control, have improved 1.6 per cent (24,819 ha) of the Catchment’s private land in the past 10 years. This scale of change is not sufficient to ensure long-term survival of all native species. – Current threats, such as clearing, invasive pest plants and animals, and fire management, are exacerbated by climate change and have a compounding effect on past large-scale habitat loss and degradation. – Increased funding required to reduce risk of breaching thresholds.
Community 			MEDIUM	<ul style="list-style-type: none"> – Diverse stakeholders are now represented on high-level regional and local community NRM forums: farmers, Traditional Owners, local and regional government agencies, Landcare and recreation groups, and others work well in partnership and are strongly networked. In 1990, government devolved significant responsibilities and decision-making to regional and local communities for self-determination, but trends since are towards less devolution and unrealistic accountability requirements. – Traditional Owners are participating more in high-level decisions and there is significant scope for greater involvement if more funding becomes available. Communities, partner organisations, farmers and others have achieved significant onground changes with appropriate levels of government support. – Funding for agencies to provide coordinated support for local community groups and individuals is uncertain and volunteers are ageing and participation in government programs is dropping off in some locations.
Sustainable irrigation 			HIGH	<ul style="list-style-type: none"> – Shepparton Irrigation Region (SIR) social-ecological systems depend on highly productive and efficient irrigated agriculture. They are beyond tipping points and are adapting and transforming, creating significant uncertainty and stress. – While water availability for the environment is improving, high unseasonal flows to meet downstream water demands are creating significant impacts to Goulburn River bank vegetation. – Declining water availability for agriculture is threatening farm and regional viability, making it extremely challenging for the region to adapt to a future with less water. – Water quality has improved significantly, and works and long-term dry conditions have stabilised watertables for now. – Intervention is improving some pockets of native vegetation, however most threatened ecosystems remain at high risk. Native vegetation extent is still poor (less than 3%).

Catchment condition:  Very poor  Poor  Satisfactory  Good to excellent

i. Investment areas apply to the whole-of-catchment, apart from the Sustainable irrigation, which applies only to the Agricultural Floodplains social-ecological system (and the associated Shepparton Irrigation Region Land and Water Management Plan).

ii. Risk of systems not being in desired state of resilience in the long term given current support. The desired state is often different from the current state and is usually not the pre-European state. Investment areas can be considered as systems and they are highly interconnected. Support includes government funding and community investment.

Resilience assessment							
Critical attribute affecting long-term catchment health ⁱⁱⁱ	Contribution to system function		Risk to system thresholds / tipping point			Long-term strategy maturity	Details page
	1990	2019	Trend 2016-19	With current support	With no support		
Native vegetation extent				VERY HIGH	VERY HIGH	Early	52-57
Native vegetation quality				VERY HIGH	VERY HIGH	Middle	52-57
Community capacity to influence and lead				HIGH	VERY HIGH	Escalated response ^{iv}	31
Community capacity be involved and act onground				MEDIUM	HIGH	Watch & maintain	31
Water availability for:							
– The environment				MEDIUM	HIGH	Early	68
– Agriculture				VERY HIGH	VERY HIGH	Escalated response ^{iv}	68-69
Water quality				MEDIUM	HIGH	Watch & maintain	69
Watertables				MEDIUM	HIGH	Late	69-70
Native vegetation extent				HIGH	VERY HIGH	Early	70
Farm and regional viability				VERY HIGH	VERY HIGH	Escalated response ^{iv}	70

Contribution to system function: Very poor Poor Satisfactory Good to excellent
Risk to system thresholds / tipping point: Increasing significantly Increasing Stable Declining

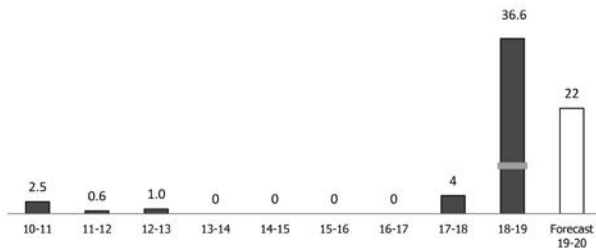
iii. Many critical attributes relate to the 20 to 30-year objectives listed in Goulburn Broken CMA sub-strategies (Level 2 of Regional Catchment Strategy objectives hierarchy; see pages 21 and 22).

iv. ‘Escalated response’ recognises that the situation has shifted so significantly that difficult and sensitive questions about transformation and transitioning must be considered.

Outputs achieved 2010-11 to 2018-19 and forecast 2019-20

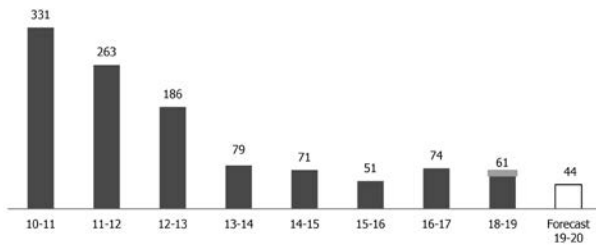
The following outputs were achieved through one or more investment areas (listed on the previous and following pages). They indicate progress towards long-term targets listed in the Regional Catchment Strategy and sub-strategies.

Irrigation drains built, km



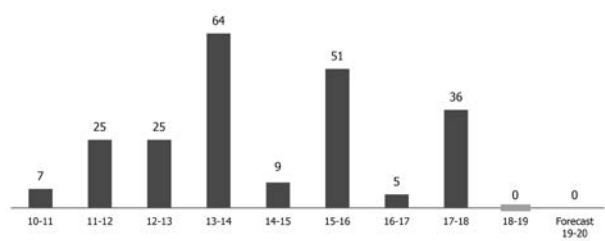
A 2015 review resulted in reduced drainage requirements and renewed priorities. A new hybrid approach is underway (pages 69, 72, 74 and 76).

Whole farm plans prepared, no.



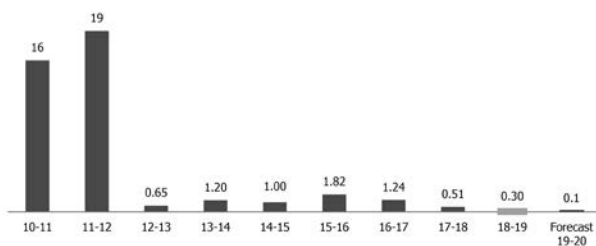
Water-use efficiency has driven whole farm plan numbers in recent years via the (irrigation) Farm Water Program and the Connections Program. The ongoing requirement for whole farm plans is expected to result in steady numbers in future (page 71).

Reuse systems installed, no.



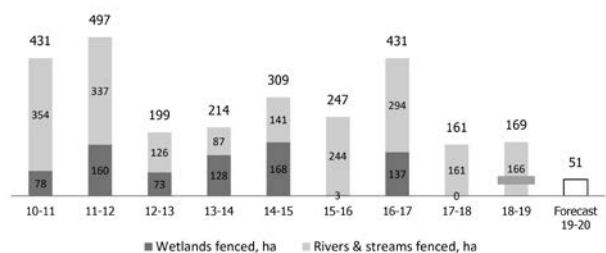
Significant achievements in recent years due to the Farm Water Program. Funding for these works is not available in the Goulburn-Murray Irrigation District from 2018-19 (page 75).

River or stream bed & bank protection actions, km



Hard engineering approaches are used less now, with a preference for vegetation. In the absence of significant flood recovery programs, recent trends are expected to continue (page 38).

Riparian land fenced, ha

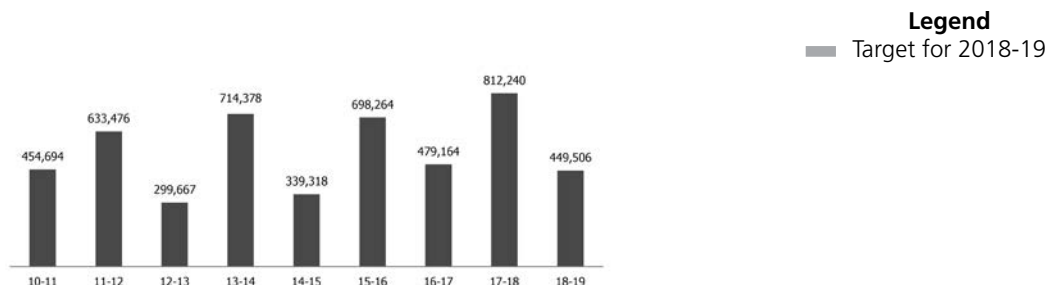


Grazing is now well managed beside long lengths of rivers and streams through fencing from regular and opportunistic fund sources, and through changes in tenure. Significant lengths remain to be improved, and maintenance of previous efforts is becoming a priority (pages 37, 38 & 42).

Note on forecast targets:

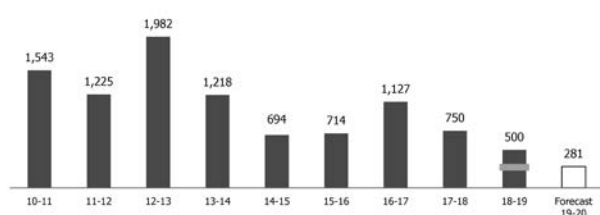
Forecast output targets are generally lower than what was achieved previously because they are based on indicative rather than actual funding received. Forecasts are based on outputs from project submissions for 2019-20 and funded projects as at June 2019. Forecasts may change as new funding opportunities arise and project submissions are negotiated.

Environmental water use, ML



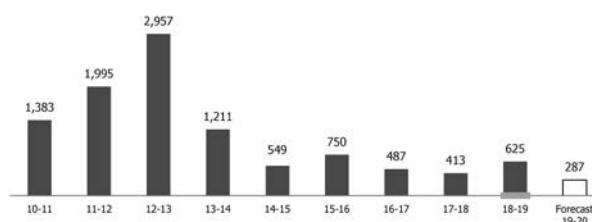
Annual environmental water use is influenced by seasonal conditions and environmental water availability (page 45).

Remnant vegetation fenced, ha



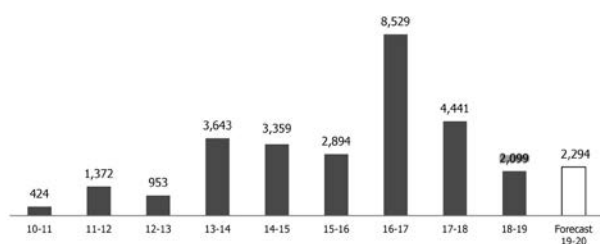
Australian and Victorian government funds are irregular and achievement levels are not enough to sustain many species (page 53). Community interest indicates much more could be achieved. Targets for 2018-19 (given funding) were exceeded through complementary programs like Waterways (page 71).

Indigenous revegetation (planted), ha



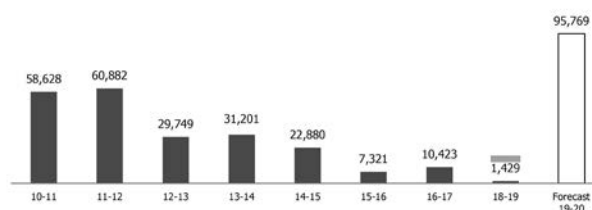
As for 'remnant vegetation fenced'. Also, direct seeding is the dominant method because it is more efficient than planting. Zero 2018-19 target reflects funding uncertainty when the target was set (page 71).

Weeds treated, ha



Largely driven by community interest with support from Goulburn Broken CMA through Australian and Victorian government projects (page 62).

Pest animal control, ha



Community groups drive many activities, often coordinated through support from Local and Victorian government programs. Pests targeted have expanded beyond foxes and now also include deer, pigs and goats.

Annual scorecards

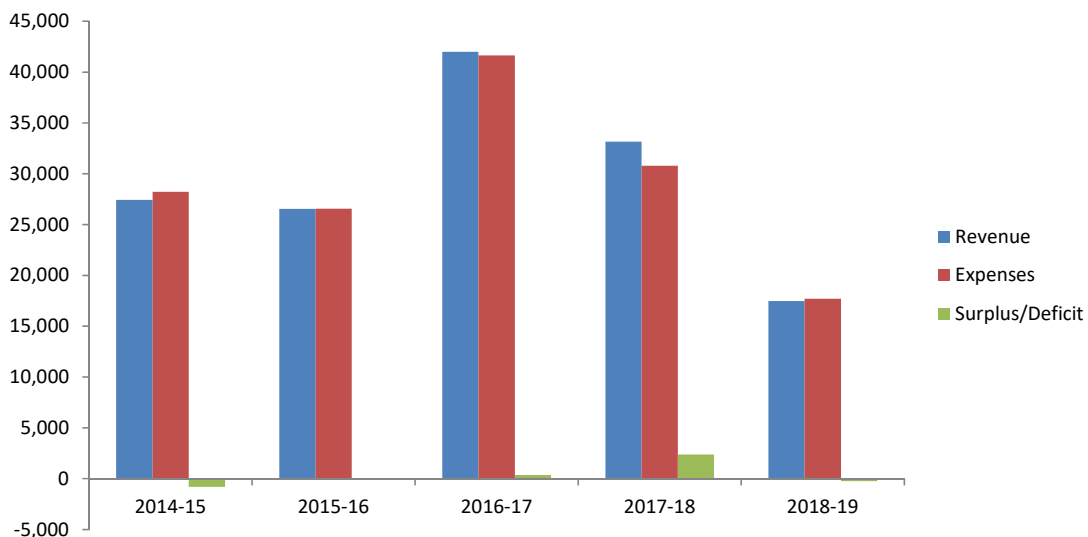
Indicative investment and gross output performances in investment areas

Investment area ⁱ	Investment ⁱⁱ (including partnership funds)				2018-19 performance ^{iv} (outputs)	Details page
	2016-17 \$000	2017-18 \$000	2018-19 \$000	Forecast ⁱⁱⁱ 2019-20 \$000		
Community and the Environment						
Community ^v	537	536	603	628	On target	30
Sustainable irrigation	24,365	21,315	5,509	5,738	On target	67
Waterways	4,224	4,571	3,997	4,085	Exceeded target	35
Floodplain management	861	1,079	940	806	On target	47
Biodiversity	3,358	2,626	2,612	3,086	On target	52
Land	762	814	435	420	On Target	59
The Business (Corporate)						
Governance ^{vi}	1,564	1,214	1,181	1,127	On target	84
Human resources ^{vii}	6,234	6,464	5,598	6,443	On target	77

- i. Appendix 1 describes the analytical framework, including terms used in this table. Ratings legend is inside front cover.
- ii. Investment figures include funding to partners, except for the Invasive plants and animals investment area.
- iii. Based on the budget in the Corporate Plan 2019-20 as at June 2019.
- iv. Performance ratings are based on outputs achieved as listed under investment area details in this annual report. Targets are determined by considering levels of government funding, as listed in the Corporate Plan and any subsequent adjustments over the financial year. Outputs are described in Appendix 4 on page 134.
- v. In addition to specific expenditure, community engagement is integrated into the delivery of outputs across all investment areas outlined above.
- vi. The approach to calculating Governance was revised for the 2016-17 Annual Report to align with note 2.2.1 in the financial statements.
- vii. These are costs rather than investments. Costs are embedded within other investment areas.

Financial summary 2014-15 to 2018-19, \$000 ⁱ

i. See Financial results summary on page 96 for details.



Aggregate output performance across all investment areas in 2018-19

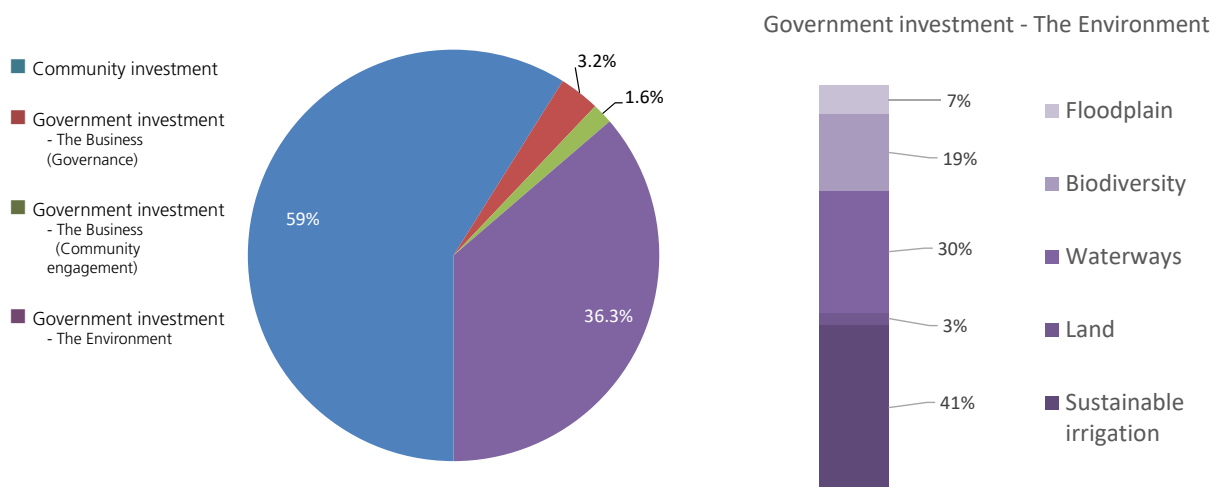
Output ⁱ	Achieved	Target ⁱⁱ	Performance	
			% achieved	Rating
Remnant vegetation fenced, hectares	500	271	184	Exceeded target
Wetlands fenced, hectares	2	0	-	-
Rivers and streams fenced, hectares	166	49	339	Exceeded target
Riparian land fenced, hectares	169	49	344	Exceeded target
Long-term conservation agreements, hectares ⁱⁱⁱ	0	0	-	-
Indigenous revegetation planted, hectares	625	450	139	Exceeded target
Irrigation drains built, kilometres	36.6	10	366	Exceeded target
Reuse systems installed, numbers	0	0	-	-
Laser levelling, hectares	2,538	2,958	86	On target
Groundwater pumps installed, numbers	0	0	-	-
Weeds treated, hectares	2,099	2,687	78	Below target
Rabbits and foxes treated, hectares	1,429	15,490	9	Well below target
Environmental water use, megalitres	449,506		-	-
River or stream bed and bank protection actions, kilometres	0.30	0	-	-
Fishway structures installed and barriers modified, numbers	0	0	-	-
Threatened species projects, numbers	0	0	-	-
Whole farm plans prepared, numbers	61	65	94	On target

- i. Outputs shown in this table are derived from the more detailed set in Appendix 4 on page 134, including the full list of footnotes. Appendix 1 describes the analytical framework. Ratings legend is inside front cover. Detailed outputs are listed in sections devoted to each investment area throughout this report.
- ii. Targets are determined by considering levels of government funding as listed in the Corporate Plan and any subsequent adjustments over the financial year.
- iii. These are shown as 'Binding management agreements' in the detailed outputs on page 134. This target will only be reported once covenants are on title, which takes more than 12 months.

Descriptions of output performance

Investment area details in the community and environment section pages 20 to 76 describe actions undertaken in 2018-19 and illustrate integration between programs, government agencies and priorities, regional authorities, community organisations and individuals.

Goulburn Broken investment share ^{i, ii}



- i. See bar chart on page 30 for cost-sharing details.
- ii. See investment and gross output performance in investment areas table on page 18 for more detail.

The Regional Catchment Strategy, resilience and climate change

Compiled by Kate Brunt and Rod McLennan

This section reports on the planning approach and implementation against objectives of the Goulburn Broken Regional Catchment Strategy 2013-2019 (RCS) and the Goulburn Broken CMA Corporate Plan 2018-19, and provides the overall strategic context for details of implementation reported in other sections.

The RCS:

- is developed with the community and is aimed at achieving social, economic and environmental benefits
- is a requirement of the *Catchment and Land Protection Act 1994*
- was developed in 1997 (coinciding with the advent of catchment management authorities) and revised in 2003 and 2013.

The resilience approach

In recent years, the Catchment's communities and environment have been severely tested by fires, droughts, floods, the global financial crisis and other major events, catalysing the CMA's focus on developing resilience.

Resilience is the ability of the Catchment's people and environment 'to absorb a shock or setback and to flourish in spite of it, maybe even because of it' (Outback, Apr/May 2017). It does not mean 'ploughing through' and doing what we have always done.

The resilience approach to catchment management focuses on connections between people and nature, how these connections change, and what can be done to achieve desired, balanced goals for resilience. The CMA follows key principles for developing the general resilience of the Catchment:

1. Develop a complexity perspective – shifting from a linear perspective to a complexity perspective recognising systems.
2. Govern for change – governance approaches matched to the dynamics of the Catchment.
3. Design for flexibility – design our business to be flexible, mobile, moveable and compartmentalised.
4. Foster self-organisation, participation and openness to change – allow for self-organisation and local solutions.
5. Manage complexity – consider under or over connections which can present risks to the business.
6. Orientate towards leverage and tipping points – tipping points provide a clear focus for managing systems and leverage points can create the change.
7. Value redundancy, backups and buffers – these provide shock absorption capacity and a source of recovery.
8. Retain and build diversity – multiple response options and sources of innovation.
9. Learn for change – forward-focused learning that can drive adaptation and transformation.

(Ryan, P; 2018, Goulburn Broken CMA resilience principles workshop, adapted from Biggs, R.,M. 2012)

Regional Catchment Strategy 2013-2019 objectives hierarchy and sub-strategies

Level 1 provides the 50-year vision, which is a general sense of what the community would like the Catchment to be. The vision reflects the important relationship between protection and use of the Catchment's natural assets, which generate environmental, economic and social benefits.

Level 2 includes the long-term (20 to 30-year) biodiversity, land, water and people objectives, which are found in the relevant sub-strategies developed by the Goulburn Broken CMA, in consultation with the Catchment community. These objectives define what is to be achieved within the different 'asset' classes of biodiversity, land, water and people, which feature in how the Goulburn Broken CMA structures investment and reporting (see scorecard on pages 12 to 15).

The Goulburn Broken CMA values its theme-based RCS sub-strategies that include long-term objectives for one or more of these asset classes and detailed context and direction for investing in onground action. (See the diagram page 22 that shows the relationship between the RCS sub-strategies.) It is assumed that achieving these objectives will position the Catchment community on the path to achieving the vision.

Level 3 has six-year strategic objectives that help communicate the emphasis for management. It is assumed that achieving these cross-cutting objectives will enable progress towards 20 to 30-year biodiversity, land, water and people objectives.

Level 4 includes six-year strategic priorities, which describe the focus for bundles of management measures needed to address the drivers of change. It is assumed that achieving these strategic priorities will indicate achievement of strategic objectives. Management measures generally describe the tasks to be undertaken over the six years.

Local (social-ecological system) plans

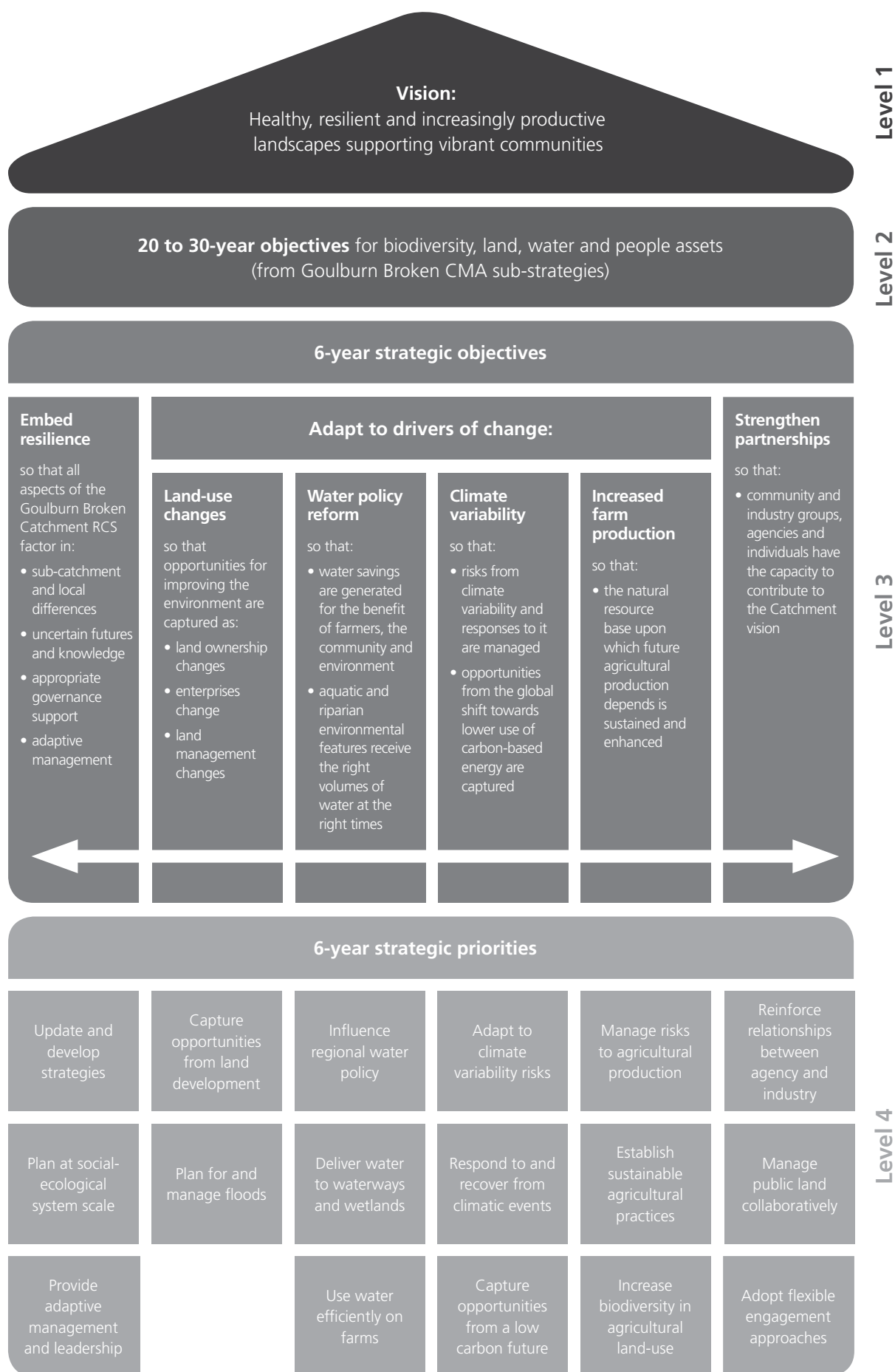
Areas with generally consistent elements of people and nature, including relationships between them, are called social-ecological systems (SES; see map on page 6). Elements include landform, vegetation types, land uses, social structure and dynamics.

Social-ecological systems exist at a range of connected scales, from site to the whole-of-Catchment. The scale chosen for decision-making considers the balance between being small enough to understand details sufficiently, while being large enough to allocate resources efficiently.

Local plans have been developed with the community for each social-ecological system. These plans are reviewed and updated according to community needs and available resources.

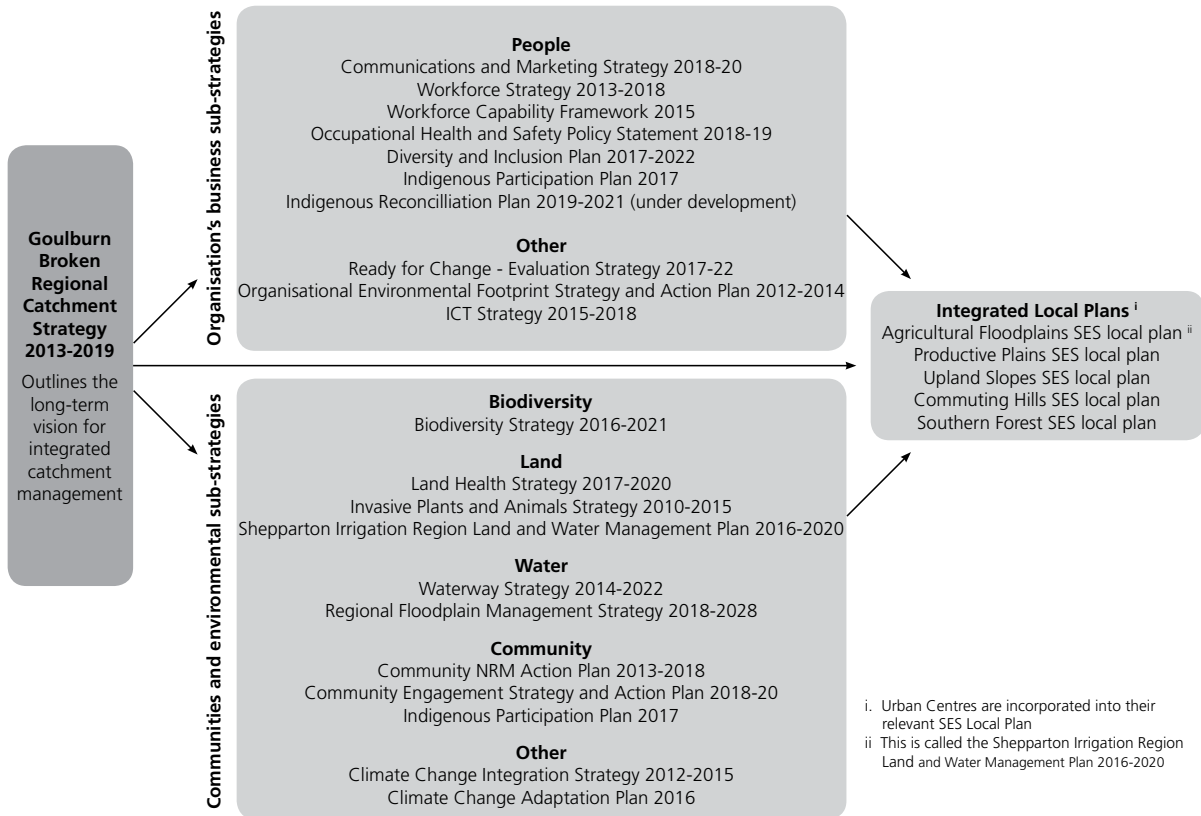
To learn more and have your say about the RCS, sub-strategies and local plans, visit the Goulburn Broken CMA's WeConnect strategy site <http://weconnect.gbcma.vic.gov.au>

Regional Catchment Strategy 2013-2019 objectives hierarchy



Regional Catchment Strategy and sub-strategies structureⁱ

i. see Appendix 8 for the evolutionary status of the sub-strategies



i. Urban Centres are incorporated into their relevant SES Local Plan
 ii This is called the Shepparton Irrigation Region Land and Water Management Plan 2016-2020

Long-term strategy implementation progress

Progress towards the RCS's 20 to 30-year objectives (level 2) is shown in the long-term scorecards (see pages 12 to 15).

The following table summarises progress towards the six 6-year strategic objectives (level 3), the RCS's cross-cutting success components.

In 2016, a mid-term review of the RCS 2013-2019 found 'significant progress' towards the RCS's 6-year strategic objective (level 3) 'adapt to water policy reform', while progress against the other five strategic objectives was 'on track'. The final review of the RCS 2013-2019 is underway.

Progress towards RCS 2013-19 strategic objectives		Details pages
6-year strategic objective: Adapt to climate variability		
<p>There has been a general increase in community acceptance of climate change and climate change projections.</p> <p>Goulburn Broken CMA's network strength has enabled it to link and support agency and community partners in new projects to address climate change.</p> <p>As the community and agencies step-up to address climate change, the Goulburn Broken CMA's involvement in some actions has reduced or is limited, such as in fire planning and response.</p> <p>Future policy changes may result in a call for carbon projects, prompting the need for ready-made projects and with partners ready to respond.</p> <p>The Climate Change Adaptation Plan for NRM in the Goulburn Broken Catchment 2016 has been factored into CMA theme-based and SES plans and various partner efforts, such as the Local Government Agricultural Future project.</p> <p>Goulburn Broken CMA provided leading support in a collective regional adaptive planning approach across the State.</p>	28-29	

Progress towards RCS 2013-19 strategic objectives	Details pages
6-year strategic objective: Adapt to land-use change	
<p>Several drivers of land-use changes are likely to impact on natural resources:</p> <ul style="list-style-type: none"> – transferring of water downstream from the Goulburn-Murray Irrigation District – increased interest in renewable energy (especially solar farms) – population growth and more 'urban style' development, especially in the Commuting Hills – increased recreation pressure <p>The scale of change is large, prompting the need to identify and target key social influencers.</p> <p>Planning and other regulatory tools are important in affecting decisions about land-use changes on private land, although funding of compliance is challenging.</p> <p>The community could become involved in NRM more if supported with contemporary monitoring and other technology, reducing overall costs.</p>	62-66, 71-76, 53-58
6-year strategic objective: Adapt to water policy reform	
<p>Water availability and water policy reform has and will continue to drive significant changes in land use, farm viability and investment.</p> <p>The Connections Project is creating a modernised irrigation system in the Goulburn-Murray Irrigation District.</p> <p>Seasonal watering plans for the environment are developed and implemented.</p> <p>Agricultural Floodplains SES stakeholders collectively identify strongly as an irrigation-based community.</p> <p>Significant effort has gone into building evidence underpinning decisions for managing water for the environment and water for agriculture.</p> <p>Blue-green algae (in storages) and blackwater are the key water quality issues now.</p>	71-76, 40-46
6-year strategic objective: Adapt to increase farm production	
<p>Partnerships with agriculturally oriented community groups have grown in-line with funding. Conservation networks and Landcare groups run hundreds of events each year.</p> <p>Ongoing pressure on farm viability has reduced the area of land managed by full-time farmers.</p> <p>Understanding and integrating private landholder preferences in NRM approaches is critical.</p>	53-58, 62-66, 71-76
6-year strategic objective: Embed resilienceⁱ	
<p>New and updated plans are explicitly including the resilience approach, for example:</p> <ul style="list-style-type: none"> – the community is involved to help identify key tipping points – local (SES) plans have been developed – progress at SES scale and case studies show contributions to local plan implementation (community can comment and add case studies) – 5th update of 30-year Shepparton Irrigation Region Land and Water Management Plan – partnerships with RMIT, CSIRO and other Victorian CMAs support adaptation part of local SES planning. <p>Ongoing pressures mean the Catchment could reach several thresholds, such as water availability for agriculture, prompting the need to consider transformation rather than incremental adaptation.</p> <p>Improved data on trends and tipping points would strengthen the consistent intuitive understanding of, and support for, a resilience approach, which would support more conscious planning and action.</p> <p>'Building resilient pathways in transformation when no one is in charge: insights from Australia's Murray-Darling Basin' was published in an Ecology and Society journal, highlighting Goulburn Broken CMA's leadership in NRM planning for resilience.</p> <p>See the approach to research and development and evaluation and adaptation on page 27 and a summary of the status of RCS sub-strategy updates in Appendix 8.</p>	20-22

i. Relevant Corporate plan target: By 2019, CMA strategies are reviewed and up to date.

Progress towards RCS 2013-19 strategic objectives	Details pages
Strategic objective: Strengthen Partnerships ⁱⁱ	
<p>Partnership strength has increased with the likes of:</p> <ul style="list-style-type: none"> – agricultural industries and regional development groups – Traditional Owners and aboriginal groups – anglers – Landcare and community groups – regional water policy interest groups – NSW and South Australian natural resource organisations. <p>Use of electronic and social media to connect with partners has increased.</p> <p>Building the capability and capacity of Traditional Owner groups in transitioning to manage their Country is important.</p> <p>Partnerships continue to be promoted across the Catchment through the Partnership Team, the Goulburn Broken Indigenous Consultation Group, Community NRM Network Chairs Forum, Sustainable Agriculture Advisory Group and Shepparton Irrigation Region People and Planning Integration Committee (SIRPPIC). SES local planning activities are identifying and building on partnerships.</p> <p>The Goulburn Broken Partnership and Senior Combined Partners Forum continues.</p>	30-34

ii. Relevant Corporate Plan targets: By 2020, the Goulburn Broken Partnership Team meet or exceed key partnership goals; 33 partnership agreements are maintained.

The Corporate Plan is prepared annually in accordance with sections 19C and 19D of the Catchment and Land Protection Act 1994. It follows high-level directions set in the RCS and describes priorities in-line with the Ministers letter of expectations. It satisfies new and emerging requirements from the regional community, the Goulburn Broken CMA Board and government funders, and includes annual details on investment and expected achievements within programs:

- Sustainable Irrigation (page 67)
- Waterways and Floodplain (page 35)
- Land and Biodiversity (page 52)
- Community (identified as ‘Corporate’ in the Corporate Plan page 30).

Victorian Government priority policy area	Goulburn Broken CMA contribution to priority area	Details page
Climate change – Contribute to minimise environmental impacts and mitigate climate change by:		
<ul style="list-style-type: none"> – exploring opportunities to provide carbon offsets; and – partnering with Traditional Owners for carbon sequestration. 	The Goulburn Broken CMA hosts the CMA Statewide Climate Change Coordinator, who will progress the Catchment Carbon Offsets trial.	29
	The Statewide Climate Change Coordinator will coordinate a project focused on First Nations and CMA partnership opportunities for carbon sequestration projects.	29
Waterway and Catchment Health – Provide leadership in delivering programs to improve the health of priority waterways and the catchment by:		
<ul style="list-style-type: none"> – focusing on efforts on large-scale waterway projects, as outlined in Water for Victoria – trialling a new approach to track progress and report back to communities in your regions Flagship Waterways, incorporating citizen science; – better demonstrating the environmental, social, cultural, and economic outcomes achieved through waterway and catchment programs; and – leading a new integrated catchment project for the region. 	The large-scale projects outlined in Water for Victoria and funded through the 4-year Victorian Water Programs Investment Framework will continue to be delivered in this third year.	40-45 53-57
	The Goulburn Broken CMA has installed FLUKER posts at flagship waterway sites and will continue to use this citizen science approach to assist in monitoring the condition of these high value waterways.	42
	The Goulburn Broken CMA will continue to look for better ways to demonstrate outcomes from Traditional Owners to investors and to broader community. This will be done via methods including detailed scientific monitoring reporting through to short, sharp social media material.	33-34
	The Goulburn Broken CMA completed the Our Catchment, Our Communities Linking Lower Goulburn Project and continues implementation of the Bogies’ and Beyond Project.	53, 55-56, 71

Victorian Government priority policy area	Goulburn Broken CMA contribution to priority area	Details page
Water for Agriculture – Support a productive and profitable irrigation sector and vibrant and resilience communities that adapt to change by:		
<ul style="list-style-type: none"> – promoting sustainable irrigation management practices to support the growth and viability of regional communities – planning and coordinating activities to manage salinity, water logging and water quality in agricultural areas, and – provide flexibility for agriculture to continue to adapt and change and help the sector do more with less water. 	<p>The Goulburn Broken CMA will continue to deliver Whole Farm Planning across the irrigated landscape and provide support for the North Central CMA-led Plan2Farm initiative.</p> <p>The Goulburn Broken CMA will work with Catchment partners to assist with farm system modernisation that leads to reduced public irrigation system assets and reduced water losses.</p> <p>With Goulburn-Murray Water, the Goulburn Broken CMA will continue to deliver onground works to manage issues around surface drainage and sub surface drainage.</p> <p>Management and continued reporting of salinity issues as per the requirements under the Basin Salinity Management 2030 will continue.</p> <p>Improving on-farm systems to allow for a future with less water in the Goulburn Murray Irrigation District (GMID) (and irrigation footprint issues) is a key part of activities the Goulburn Broken CMA is leading in the GMID. Knowledge around land use changes and matching it with agricultural practices is a key activity. This includes continuing to improve knowledge around land use changes for managing strategic implications for agricultural practices and the irrigation industry.</p>	<p>71, 75</p> <p>72-73</p> <p>73-74, 76</p> <p>69, 94</p> <p>71, 74-75</p>
Community engagement and partnerships – continue the strong community engagement focus of the Goulburn Broken CMA by:		
<ul style="list-style-type: none"> – continuing to build extensive, effective, and consistent approaches to community engagement and partnerships in regional planning and implementation; and – working collaboratively with organisations and communities to strengthen engagement approaches and capacity. 	<p>The Goulburn Broken CMA will continue supporting, promoting, and building capacity in our community networks across the Catchment. Key focus and community-led groups include:</p> <ul style="list-style-type: none"> – Shepparton Irrigation Region (SIR) People Planning and Integration Committee – Community NRM Network Chairs Group – Goulburn Broken Indigenous Participation Group – Local Government Biodiversity Reference Group – Land and Biodiversity Implementation Forum. <p>These groups feed into a much larger community network: 96 community groups, 12 networks, over 5,089 members.</p> <p>The Goulburn Broken CMA-led Senior Combined Partners forum that brings together leaders across the agencies relevant to the SIR's irrigation landscape will continue.</p>	<p>30-34</p> <p>73</p>
Resilient and liveable cities and towns – contribute to healthy communities and supporting resilient environments by:		
<ul style="list-style-type: none"> – collaborating with water corporations and local government, including the participation in Integrated Water Management Forums, to enhance public spaces through integrated water management in existing and new urban environments; and – participating in the development and implementation of integrated water management plans, particularly through prioritising measures to enhance urban waterway values. 	<p>The Goulburn Broken CMA will continue to participate in Victoria's first Integrated Water Management Forum. This includes the launch of the first Strategic Directions Statement through to driving and supporting key projects (integrated water management plans) identified by the forum.</p> <p>The Goulburn Broken CMA will continue to develop actions to help the GMID adjust to a future with less water for agriculture and build its resilience and adaptive capacity.</p>	<p>8</p> <p>73</p>

Victorian Government priority policy area	Goulburn Broken CMA contribution to priority area	Details page
Recognise and support Aboriginal cultural values and economic inclusion in the water sector – better recognise and manage Aboriginal values by:		
<ul style="list-style-type: none"> – undertaking to increase representation from Aboriginal people on your CMA committees; – implementing DELWP Aboriginal Inclusion Plan annual priorities involving your CMA; – implementing the Aboriginal Participation Guidelines for Victorian CMAs; – engaging with Aboriginal Groups with recognised native title rights or formal agreements with the state, and other Traditional Owner groups that are yet to be formally recognised, to an agreed level to meet obligations; and – reporting to government on plans for Aboriginal inclusion, participation, engagement, and employment. 	<p>The Goulburn Broken CMA routinely consults, engages and supports First Nations integration into its work via the Goulburn Broken Indigenous Participation Group and range of community networks. This includes First Nations participation in CMA project teams and using First Nations works teams.</p> <p>The Goulburn Broken CMA has its own Reconciliation Action Plan that has objectives such as cultural awareness training for staff and partners and promoting First Nations inclusion across the organisation.</p> <p>The Goulburn Broken CMA contributes to regional aboriginal employment targets via the Algabonyah Agreement.</p>	<p>33-34</p> <p>34</p> <p>80</p>
Recognise recreational values – support the well-being of rural and regional communities by considering recreational values in water management as follows:		
<ul style="list-style-type: none"> – engaging with the community to identify and prioritise opportunities to deliver recreational outcomes; – sharing knowledge, user-friendly information and expertise with community members, land managers and potential investors to help achieve recreational objectives; and – sharing information about community recreation objectives relating to waterways with organisations seeking to prioritise investment in regional development, recreation, community wellbeing and tourism objectives. 	<p>In recent years the Goulburn Broken CMA has worked to strengthen relationships with recreational users of waterways. Significant ground has been made with recreational angling groups including VRFish, The Australian Trout Foundation and Native Fish Australia. The Goulburn Broken CMA will continue to work with stakeholders on all aspects of waterway management, including environmental flow planning, riparian vegetation enhancement and instream habitat improvement.</p> <p>The Goulburn Broken CMA will progress the 2017-18 MoU with Goulburn Valley Health to capture opportunities for connecting people to significant natural assets to achieve recreation and mental and physical health benefits.</p> <p>The 2018-19 Goulburn Broken Regional Waterway Strategy interim review acknowledged the need and set the path for a stronger focus on shared benefits.</p>	<p>42-43</p> <p>46</p>
Leadership, diversity, and culture – reflect the diverse needs of its communities by:		
<ul style="list-style-type: none"> – developing strategies and goals that will increase cultural diversity in the workforce and gender equity in executive leadership; and – encouraging staff participation in the Victorian Public-Sector Commission “People Matter Survey” or equivalent survey. 	<p>The Goulburn Broken CMA will continue to implement the 2017-2022 Diversity and Inclusion Plan and the Goulburn Broken CMA Reconciliation Action Plan.</p> <p>Biennial participation in People Matter Survey will continue.</p>	<p>34, 81</p> <p>96</p>

Victorian Government priority policy area	Goulburn Broken CMA contribution to priority area	Details page
Improved performance and demonstrating outcomes through:		
<ul style="list-style-type: none"> – delivering its annual plan on time and to budget; – fulfilling its funding obligations; – collaborating with the DELWP to improve reporting systems and processes; and – delivering efficiency through shared services, smarter procurement, and lower-cost technology. – committing to work collectively via Vic Catchments membership to strengthen collaboration and performance in the catchment management sector in Victoria; and – committing to the delivery of Our Catchments Our Communities Integrated Catchment Management program, including supporting the development of, and be signatories to, a new Catchment Partnership Agreements 	<p>The Goulburn Broken CMA maintains the policies, procedures, and resources to deliver on reporting and funding obligations.</p> <p>The Goulburn Broken CMA will continue to be an active member of the Regional Investment Coordinators Group, which collaborates with DELWP on reporting processes.</p> <p>The Goulburn Broken CMA will continue to host the Statewide Climate Change Coordinator as a shared resource across all 10 CMAs.</p> <p>The Goulburn Broken CMA continues to work with the nine other CMAs to reduce costs through shared services (e.g. GIS) and systems (e.g. Finance), smarter procurement (e.g. VicFleet) and lower-cost technology (e.g. shared firewall) to reduce the impact of the funding environment.</p> <p>The Goulburn Broken CMA will continue as a member of Vic Catchments.</p> <p>The Goulburn Broken CMA will continue to deliver the two Our Catchment Our Communities Integrated Catchment Management projects (Linking Lower Goulburn and Bogies' and Beyond).</p> <p>Our Catchment Our Communities will continue to support partnership and community engagement in catchment planning and investment decisions.</p> <p>The Goulburn Broken CMA will maintain its Catchment Partnership Agreements.</p>	<p>88-95</p> <p>29</p> <p>85</p> <p>53, 55-57, 71</p>

Research and development, evaluation and adaptation

While government funding agencies require project reports on short-term performance and impacts on long-term progress, the lack of a standardised approach in catchment management reporting means that requirements change regularly and often differ between and within agencies.

Against this backdrop, the Goulburn Broken CMA has held critical evaluation processes constant, such as monitoring against benchmarks, allowing an understanding of long-term progress (including impact on Catchment condition) to be gained.

The Goulburn Broken region follows a systematic process of reviewing and updating plans and strategies. This was first described in the 2004 Goulburn Broken CMA Monitoring Evaluation Reporting (MER) Strategy that was reviewed and updated in 2016-17 to align with the RCS. The Ready for Change – Evaluation Strategy for the Goulburn Broken Catchment 2017-22 articulates how the Goulburn Broken CMA monitors progress against strategies and plans. This includes the need for adaptation of existing strategies, or the development of new strategies in response to emerging issues or critical drivers, within a resilience framework.

Local social-ecological system (SES) planning across the Catchment is helping the Goulburn Broken CMA understand critical attributes and thresholds. This is critical in local adaptive planning and implementation to build the resilience.

Integrated catchment management involves decisions based on information from different backgrounds and disciplines.

The Goulburn Broken CMA's efforts to standardise outputs since 2002-03 (see page 134) and to summarise progress via long-term scorecards since 2005-06 (see pages 12-15) are important in developing a uniform language and framework, enabling comparisons over time and helping the Goulburn Broken CMA, the community, agencies and government investors to understand the benefits and trade-offs of decisions. The framework provides a stable and ongoing approach, while government funding frameworks and language change frequently.

The linking and aggregating of site-specific actions (or outputs) to long-term outcomes via the McLennan-O'Kane equation, $Outputs \times Assumptions = Outcomes$, has further fostered common understanding between disciplines and identified priority knowledge gaps. This helped drive many regional and national research and development projects over several years.

During the mid-term review of the RCS, a snapshot of the recent research activities and priorities was undertaken to identify how these activities and priorities support the implementation of the RCS, and what gaps exist. This review documented the many research activities that support RCS strategic priorities, for example monitoring and research that improves our knowledge around the effective delivery of environmental water. A review of the whole RCS is underway, due for completion in September 2019.

Investment in partnerships that enable the Goulburn Broken CMA to invest in and access research and development activities and information continues to be a priority. Efforts during 2018-19 are highlighted within each investment area section of this annual report.

What's next?

- Finalise the RCS review to prepare for its renewal, which will be aligned with guidelines and the Australian Government Regional Land Partnerships agreement. The Board has discussed key drivers of change and established key principles.
- Continue implementing and reviewing sub-strategies, as has been done for more than two decades, aligning them with the RCS and its resilience approach and emphasis on social-ecological systems. Each sub-strategy's context varies and continuously changes, so they are renewed independent of the over-arching RCS renewal cycle. Sub-strategies are developed in consultation with government and community organisations and individuals, providing details for investment plans and priorities.
- Build on the successful first three of four years' implementation of a \$2 million project funded by the Victorian Government's Our Catchments, Our Communities – Integrated Catchment Management in Victoria 2016-2019. Two integrated catchment management projects were developed that support RCS implementation in two priority landscapes that address critical thresholds.
- Continue building knowledge of the Catchment's critical thresholds, including how to monitor and use them in NRM planning, especially in discussions around transformation and implementing an adaptive management framework.
- Refer also to the table on page 22 'Progress towards RCS 2013-19 strategic objectives' for further areas of future emphasis.

Climate change

Climate change impacts significantly on the resilience of the Catchment's natural resources, and therefore across all Goulburn Broken CMA investment areas.

Climate change projections and projected impacts

Murray Basin average temperatures in all seasons are projected to continue to increase and less cool season rainfall is projected (with high confidence) by 2090. Rainfall will remain unchanged in the warm season (medium confidence).

Natural variability is projected to dominate for the near future.

Even though mean annual rainfall is projected to decline, heavy rainfall intensity is projected (with high confidence) to increase, along with harsher fire weather (Timbal, B et al. 2015. Murray Basin Cluster Report. CSIRO and Bureau of Meteorology, Australia).

Land

Climate change is anticipated to negatively affect soils and production generally.

Climate change is likely to affect the distribution and viability of agricultural enterprises, such as cropping and grazing, because of extreme weather and climate events and changes in pest and disease distribution. Agricultural industries will need to adapt to a changing climate to be viable in the long term.

Biodiversity

Reduced water availability and increased temperatures will drive biodiversity's response to climate change.

Climate change is anticipated to exacerbate existing pressure on biodiversity, primarily related to habitat loss, resulting in flora and fauna being unable to move through fragmented landscapes, increasing extinction risks through elevated inbreeding and subsequent loss of subpopulations.

Predicting how populations, species and communities will respond is challenging because each is likely to be different.

Almost all biodiversity will be affected by climate change, with alpine, terrestrial and freshwater ecosystems likely to be the most vulnerable.

Waterways

Climate change is projected to exacerbate pressure on water condition.

Most water condition indicators were neutral or trending negatively (the former reflecting NRM program outcomes and water policy reforms).

Terrestrial and freshwater ecosystems are most vulnerable to climate change effects.

Climate change will particularly affect water supply, use and management. The interactions of environment, water policy and use, community desires and increased unpredictability of the amount, seasonality and distribution of water are complex.

Climate change is anticipated to lead to new pressures through rainfall and snow regime changes, reduced average runoff and increased evaporation rates from increased air and water temperature.

Recent climate events

- 2002-2009 extreme drought: exceptionally low stream flows and historically low water allocations. In combination with federal environmental policy and farm demographic structure, it led to unprecedented irrigated dairy industry restructure.
- 2009 fires: covering 185,000 hectares (seven per cent) of the Catchment, with 190 kilometres of vegetation along major rivers burnt. This has changed patterns of settlement in some areas.
- 2010, 2011 and 2012 floods: while improving the condition of floodplain systems, these floods may change patterns of settlement in some affected areas.
- 2014 fires: covering approximately 27,800 hectares in the Goulburn Broken Catchment – approximately 9,700 hectares in the Wunghnu-Numurkah region, approximately 4,800 hectares in the Kilmore area (total area burnt including neighbouring catchments was approximately 26,800 hectares), approximately 5,000 hectares at Creighton's Creek, approximately 2,600 hectares at Stewarton and approximately 5,700 hectares in the Boweya/Lake Rowan region.
- 2018-19 very low summer rainfall: significant pressure on native vegetation; widespread *Eucalyptus* species dieback across the Strathbogie Ranges.

Climate change planning in the Goulburn Broken Catchment

The Goulburn Broken CMA aims to be a leader in helping the community and natural environment respond and adapt to climate change.

'Climate variability' is a 'driver of change' in the Goulburn Broken RCS (see diagram page 21).

It is difficult to communicate and respond to the complex, uncertain and interconnected interactions between climate, natural resources, industries and communities. Responses to climate change require complex modelling, strategies and adaptive management.

The CMA's policy statement on climate change is:

'In dealing with climate change and the likely impacts, the Goulburn Broken CMA will focus on adaptation strategies to increase catchment resilience; greenhouse gas sequestration activity (e.g. carbon brokering) will be engaged for the purpose of assisting adaptation responses; and mitigation initiatives led by local government will be actively supported.'

The CMA implements this policy statement via its Climate Change Integration Strategy 2012-2015, which updated the 2007 position paper, and which has outcome aims that remain current (see below). Implementation is supported by the Climate Change Adaptation Plan for Natural Resource Management (NRM) in the Goulburn Broken Catchment 2016, which identifies:

- priority landscapes for climate change adaptation and mitigation in the context of improving the resilience of natural resources
- options for change adaptation and mitigation, including carbon sequestration, with a focus on priority landscapes
- risks to catchment processes from carbon sequestration activities and mitigation actions.

This adaptation plan has been acknowledged as important in implementing Victoria's Climate Change Adaptation Plan.

Climate change implementation responses

The Goulburn Broken CMA is committed to continuing to implement activities that support the following Climate Change Integration outcomes:

- integrate climate change into Goulburn Broken CMA programs
- improve understanding of climate change
- pool and attract resources
- build catchment resilience into sequestration activities
- support community mitigation efforts
- minimise the Goulburn Broken CMA footprint.

2018-19 performance

Most climate change actions are integrated into investment area programs.

As a result of reduced specific funding for climate change, most actions are implemented through statewide collaboration, facilitated by the statewide climate change coordinator and managed through the NRM Planning for Climate Change Vic forum. Actions include:

- Goulburn Broken CMA's local social-ecological system planning focused on climate change, enabling the community to consider a range of climate futures and critical tipping points that will be key inputs into RCS renewal in 2020-21.
- On behalf of Victorian CMAs, the Goulburn Broken CMA completed the Catchment Carbon Offset Project, producing a series of tools that water corporations and CMAs can use to test Catchment Carbon Offsets project ideas.
- On behalf of the Victorian CMAs, the Goulburn Broken CMA led a project that looks at CMA and Traditional Owners partnership opportunities in carbon sequestration. The project included a series of workshops across the State, and the final report will be completed in August 2019.
- The Goulburn Broken CMA is a member of the Victorian CMA NRM Planning for Climate Change Forum that began in 2013. A part-time climate change coordinator who supports the Forum was housed at the Goulburn Broken CMA until April 2019. Through the coordinator, the Forum actively works with the Victorian Government to influence and embed recently-developed regional climate change adaptation plans and strategies into State policy development.
- The Goulburn Broken CMA represents Victoria on the NRM Regions Carbon Working Group, which identifies opportunities for NRM Groups across the country, provides feedback on national policies and reviews, and shares information across state jurisdictions.

What's next?

- Continue implementing the Climate Change Adaptation Plan, including embedding information into Goulburn Broken CMA project planning systems, identifying key projects in priority areas for climate change adaptation, and advocating use of regional climate change NRM plans in development of Victorian and Australian government policy.
- Work with DELWP to have input into the Regional Climate Change Adaptation Plan and NRM Sector Adaptation Plan.
- Work with Traditional Owners to pursue viable carbon sequestration projects.
- Include climate change as a key focus in the RCS renewal.
- Continue supporting Victorian CMAs' Regional NRM Planning for Climate Change Forum, the Victorian CMA statewide climate change coordinator, the Goulburn Broken CMA climate change coordinator, and associated projects.

Investment area - Community

Compiled by Chris Norman, Kate Brunt, Steve Wilson, Fiona Lloyd, Rod McLennan, Darelle Siekman, Tony Kubeil, Gaye Sutherland and Neville Atkinson.

Long-term and annual scorecard ⁱ

2018-19 performance On target

Catchment condition ⁱⁱ	1990	2019	Long-term risk
		Satisfactory	Satisfactory

Diverse stakeholders are now represented on high-level regional and local community NRM forums: farmers, Traditional Owners, local and regional government agencies, Landcare and recreation groups, and others work well in partnership and are strongly networked. In 1990, government devolved significant responsibilities and decision-making to regional and local communities for self-determination, but trends since are towards less devolution and unrealistic accountability requirements.

Traditional Owners are participating more in high-level decisions and there is significant scope for greater involvement if more funding becomes available. Communities, partner organisations, farmers and others have achieved significant onground changes with appropriate levels of government support.

Funding for agencies to provide coordinated support for local community groups and individuals is uncertain and volunteers are ageing and participation in government programs is dropping off in some locations.

Resilience assessment						Long-term strategy maturity ^v	
Critical attribute affecting long-term catchment health	Contribution to system function ⁱⁱⁱ		Risk to system thresholds/tipping point ^{iv}			Start	Stage
	1990	2019	Trend 2016-19	Long-term (10+ years)			
				Current support ^{vi}	No support ^{vi}		
Community capacity to influence and lead	Good	Satisfactory	Risk increasing	High	Very high	1990	Escalated response ^{vii}
Community capacity to be involved and act onground	Poor	Satisfactory	Risk increasing	Medium	High	1990	Watch & maintain

- i. Appendix 1 describes the analytical framework. Ratings legend is inside front cover.
- ii. Critical attribute contributions and risks are major considerations in rating catchment condition, along with indicators on higher level outcomes from managing these critical attributes, such as viability of threatened species and gross value of agricultural production. Long-term risk assumes ongoing support at current levels.
- iii. System is Community; benchmark for contribution is the desired level, as defined (formally or informally) in 2019.
- iv. Risk that system will not be in desired state of resilience in long term because of level of critical attribute contribution. Risks can be from biophysical threats, such as climate, or other, such as community's adaptive capacity. Desired state might be other than current state.
- v. Long-term strategies vary significantly in formality: 'start' approximates when holistic, integrated approach to influencing critical attribute began.
- vi. Support includes government funding and community (including individual) in-kind and financial investment for onground works and helping communities and individuals adapt.
- vii. 'Escalated response' recognises that the situation has shifted so significantly that difficult and sensitive questions about transformation and transitioning must be considered.

Government investment, \$000

2016-17	2017-18	2017-18	2019-20 ⁱ
537	536	603	628

i. Forecast based on the Corporate Plan 2019-20.

Strategic references

The Goulburn Broken Community Engagement Strategy and Action Plan 2018-2020 and the Goulburn Broken Community NRM Action Plan 2013-2018 factor in numerous national, state and local strategies and policies that aim to engage community groups, partner agencies, and individuals, and often to support them in leading long-term decisions and implementation. Several strategic engagement documents reflect the needs and knowledge of the Catchment's Traditional Owners, the Yorta Yorta and Taungurung peoples. See Appendix 6 for the list of strategic documents related to community engagement.

Major contributions to natural resources management, \$million



Background

The future of the Goulburn Broken Catchment's environment depends on its people. The regional community typically invests \$1.50 for every dollar of government funding (see bar chart). Influencing how others invest is therefore a very important activity for the Goulburn Broken CMA. The following page includes a table of community participation (as volunteer hours for different activities).

This section demonstrates how the Goulburn Broken CMA is committed to involving individuals and organisations to make the best long-term decisions and achieve onground change.

Catchment condition - Community (since 1990)

Goulburn Broken Catchment communities' resilience benefit from the legacy of having to face significant threats to the environment and economy in the late 1980s and 1990s. Community leaders at the time recognised the complexity of these threats, uncertainties about responding, and the need for a whole-of-Catchment response that integrated solutions across different disciplines and geographic areas.

From the start of this 'integrated catchment management', strong partnerships between different stakeholders, especially the communities and government, were at the core of the approach.

The many achievements in the Goulburn Broken Catchment indicate the 'we-can-do-it' culture and community resilience, including the ability to respond decisively to changing conditions collectively and differently, and the ability to collaboratively plan.

A step-change in integration was achieved when waterways and land management responsibilities became part of regionally based organisations with the advent of Victorian CMAs in 1997. The integrated catchment management approach of the Goulburn Broken CMA enabled immediate and strong follow-up responses to significant threats and opportunities in recent years. The Catchment's communities have demonstrated their ability to self-organise and adapt. Examples include: response to unprecedented drought, fires and floods; the \$1 billion Foodbowl Initiative in 2008; the Farm Water Program; and being able to deliver NRM benefits in their own right several times.

For more than a decade, the Goulburn Broken CMA's recognition and inclusion of Traditional Owners, Yorta Yorta and Taungurung peoples, and their knowledge have been reflected in managing the Catchment. The Goulburn Broken CMA has supported Traditional Owners to develop 'Whole of Country Plans' that reflect the values, actions and objectives of the Traditional Owners in relation to caring for country. Building the capacity of the Traditional Owners to be self-determining has been a priority with the employment of a First Nations facilitator, establishment of a cadetship program, specific capability building events and ongoing support for Traditional Owner-led natural resource management businesses and employment programs.

The following page includes a bar chart of the status of Landcare group health over the past seven years.

Long-term strategy implementation progress and 2018-19 performance

Each Goulburn Broken CMA strategic document highlights the pivotal role of people in achieving environmental outcomes. Community capacity to influence and lead, to be involved and act onground are critical attributes for long-term community resilience. A major function of the Goulburn Broken CMA is to support community groups and individuals and government agency partners, so they have adequate capacity.

The Goulburn Broken CMA relies on landholders, Traditional Owners, school children, community NRM groups (including Landcare groups, Conservation Management Networks, 'Friends of...' groups and others) and individuals to deliver programs across the Catchment that protect and improve streams and habitat for native animals and plants, recognise the region's cultural heritage, and bring about changes in practice.

Efforts to boost the Catchment's resilience can lead to increasingly productive landscapes, which will support the long-term viability of our communities in the face of constant change.

Community capacity

Long-term (Corporate Plan) objective: By 2020, deliver 300 capacity building events.

Community capacity activity includes:

- Performance of landholder (especially farmer) works consistent with the RCS, with works on thousands of sites covering thousands of hectares and multiple benefits. Onground works generally were on target for the given budget. See bar charts page 16 and 17.
- 35 per cent of Goulburn Broken CMAs Municipal Catchment Coordinator position is funded by the three municipalities in the Shepparton Irrigation Region. These municipalities also contribute 17 per cent of funding for the Public Salinity Works operation and maintenance costs and in some circumstances fund road structures on Community Surface Drains. See further information on pages 72 and 74.
- Community organisations: 97 active groups, 12 community NRM networks; 3,590 members plus 4,446 volunteers (2017-18 Landcare survey); see also Regional Agriculture Landcare Facilitator and Landcare under the Land section on page 59.
- \$1.1 million for 87 Victorian and Australian government grants to community and partner organisations (see table page 33 for details).
- Goal includes increasing stakeholder investment in, and support for, the Goulburn Broken RCS and associated programs: a 2017 community awareness survey found the Goulburn Broken CMA continues to perform as well or slightly better in promoting understanding of importance of land and water resources compared to previous years.
- Goulburn Broken CMA Indigenous Partnership Plan finalised with Yorta Yorta Nation Aboriginal Corporation and Taungurung Land and Waters Council. This plan defines the cooperative relationship between Traditional Owners and the Goulburn Broken CMA.

Awareness and information highlights 2018-19

- 48 media releases prepared with almost 100 per cent take up.
- Monthly column in the Country News (reaching more than 44,000 households).
- Monthly session on ABC Goulburn Murray's breakfast show discussing all things flora and fauna.
- Monthly 'info-graphic' promoting the multiple/shared benefits of environmental flows along the lower Goulburn River continues to appear in Shepparton's free paper, targeting urban recreational users.
- Continued increase in social media followers, with Facebook 'page likes' reaching 2,168 (up from 1,646 in June 2018) and followers of our Twitter account increasing to 1,601 (up from 1,401 in June 2018). Established an Instagram account in May to target a younger market (133 followers at June 2019).
- Increased emphasis on creating engaging content using video and apps that can be shared and distributed across multiple platforms.
- Promotion of the combined efforts of all 10 CMAs via the #CMASGetItDone social media campaign to highlight, primarily to investors, the sector's genuine commitment to collaboration and community engagement.
- Quarterly Connecting Community and Catchment e-newsletter has more than 1,00 subscribers, the sustainable agriculture-focused Landcare Links produced by the Regional Agriculture Landcare Facilitator continues to grow its base (1,300 subscribers) while Beyond SoilCare and the Hughes Creek newsletters are highly targeted project-based newsletters with 300 and 100 subscribers respectively.
- Continued to provide updated content to the most popular sections of the Goulburn Broken CMA website: floodplain management information and forms, jobs and tenders, news and events and EOI calls for various grants.

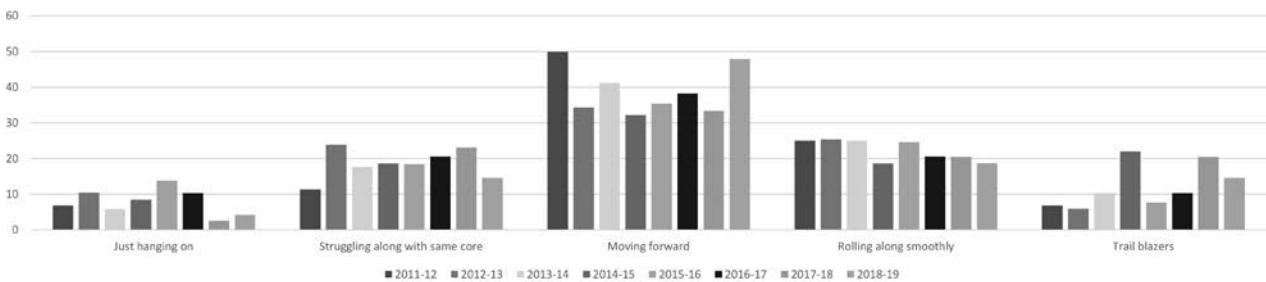
Community volunteer contributions in 2018-19

Activity	Hours ⁱ
Onground works	21,286
Learning and training	14,217
Promotion and communications	4,199
Planning and other administration	9,537

i. Excludes network chair meetings and conservation network facilitator meetings and their other work.

Landcare group health status

Data from annual surveys of Landcare groups.



Tri-State Alliance

The Tri-State Murray NRM Alliance is made up of the seven NRM agencies along the Murray Corridor who are working together to build the capacity and capability of the region to 'Grow the Economy, Secure the Environment and Motivate the Community'.

The past 12 months has seen the Alliance primarily focus its efforts on the Native Fish and Indigenous programs.

The Native Fish project has produced a 'blueprint' map and Fish Connections, a short document for the three distinct native fish groups in the Murray River corridor – fast flowing, channel and wetland species. These guide priorities across Tri-State Murray Alliance partners, with some priorities already implemented or funded. A forum of over 30 researchers, community members and delivery staff was held in May to focus on wetland species. The forum produced a status report for the species, a detailed action plan and a strengthening of the knowledge and relationships between the different groups.

The Indigenous project is now the Aboriginal-led East-West Alliance initiative with a signed MOU between the First

Nations groups and the partners. The role of the Tri-State Alliance is to provide natural resource and sustainable agricultural expertise and capability building to the developing aboriginal businesses.

The annual review of the performance of the Tri-State Alliance shows the additional benefits to partners being secured through the sharing of knowledge and programs, including collaboration across sites and partnerships with other whole-of-Murray organisations.

The Alliance will continue to build capability and capacity of the Murray Corridor by working with First Nations groups to build their economic independence through caring for country, progressing delivery aligned to Murray River native fish priorities, and using outcomes and learnings from the new Land Resilience project.

Grants to community organisations from Victorian and Australian Governments

Victorian and Australian Government grants to community organisations for activities like revegetation and regeneration of native vegetation, eradication and control of invasive plants and animals, support of capacity building initiatives and education and awareness raising activities:

Total grants paid to community groups and other organisations 2018-19	No. of projects	Amount paid \$ (ex GST)
Australian Government - National Landcare Program	2	\$64,663
Australian Government - Regional Land Partnerships Program	20	\$246,401
Victorian Government - Biodiversity Response Planning	4	\$94,000
Victorian Government - Our Catchments, Our Communities	11	\$225,717
Victorian Government - Regional Riparian Action Plan	4	\$52,693
Victorian Government - Victorian Landcare Grants	37	\$210,836
Victorian Government - Victorian Water Programs Investment Framework	5	\$158,781
Victorian Government - Other	4	\$69,596
Grand Total	87	\$1,122,687

See Appendix 7 for full list of payments made during 2018-19.

The total grants paid in the table above will not reconcile with the grants paid amount in Note 3.3 of the financial statements.

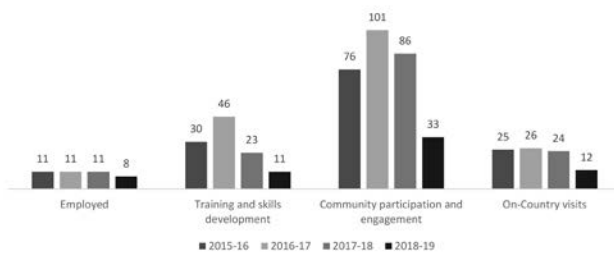
The amount stated in the financial statements includes all incentives paid, including those to individuals for activities such as the Farm Water Program.

Traditional Owner capacity, engagement and involvement

Long-term objective: More Yorta Yorta and Taungurung people in sustainable employment, traineeships, and GB CMA-funded projects

Traditional Owners involved in GB CMA projects

no. people



Since 2015, Traditional Owner capacity has grown significantly through Goulburn Broken CMA projects involving development of Yorta Yorta Nation and Taungurung NRM work teams. Several team members continue to be employed in subsequent Goulburn Broken CMA projects.

Several projects have spring-boarded off the general capacity built through training and engagement with TO and associated community networks.

However, this capacity has weakened in recent years because funding has declined for both general network engagement and participation and for NRM-specific projects directed at capacity building and cultural strengthening. The reduced TO engagement has created a very high medium-term risk of losing tens of thousands of years of traditional ecological knowledge as well as significant cultural sites. Staff support for TO projects declined from 1.6 to 0.8 'full-time equivalents' between 2015-16 and 2018-19.

Since 2015, the Goulburn Broken CMA has worked actively with landholders, designers, local government and TOs to ensure whole farm plans recognise significant cultural sites, using the aboriginal cultural heritage sensitivity layer to guide development. Improvements have been negotiated on 50 plans.

Significant sites have been protected, including a 4-hectare burial site on farmland and numerous scar trees.

Long-term objective: Increased use of Traditional Owner Knowledge in Goulburn Broken CMA projects

The Goulburn Broken CMA involves all staff and Board members in cultural awareness training to ensure that protocols for engagement and protection of Aboriginal cultural heritage are understood across the organisation. Traditional ecological knowledge is included where possible in planning and delivery of projects, in collaboration with Traditional Owners. In 2019, 48 staff, 5 Board members, and 10 field-based partners received a full day's training in cultural heritage awareness.

A recent Goulburn Broken CMA gap-analysis in implementing statewide First Nations participation principles highlights that capacity building and training opportunities for Aboriginal people are essential to facilitate increased engagement in natural resource management, but are limited by current resources.

A similar gap analysis of implementing TO knowledge highlights that programs passing on Traditional ecological knowledge are highly dependent on available funding, and this has been restricting the Goulburn Broken CMA's ability to deliver.

What's next?

The Goulburn Broken CMA will remain vigilant in watching and responding to potential and actual changes impacting on the Catchment's communities and their capacity to contribute to NRM. Community engagement and partnerships continue to be a priority during implementation of the RCS and is supported by:

- implementation of projects aligned to Our Catchments Our Communities and implementation of statewide guidelines
- continuous investigation and development of the best ways to engage with the community to plan at a local scale
- inclusion of a community engagement component in

- all project planning and development (with a focus on the social-ecological systems)
- continued implementation of the Goulburn Broken Community Engagement Strategy increasing staff community engagement and communication capability
- review and update of Goulburn Broken CMA Community Engagement Strategy and Action Plan and Goulburn Broken CMA Communication Strategy and Action Plan
- continued support for statewide and national engagement and communication approaches, such as promoting the benefits of environmental flows
- targeted communication and community engagement activities during renewal of the RCS

- engagement through TLWC and YYNAC Indigenous Consultation Groups, which have been expanded to include neighbouring North East and North Central CMA areas that also include Taungurung and Yorta Yorta Country
- agreement between Taungurung Land and Waters Council and the State of Victoria (through the Traditional Owner Land Settlement Act 2010) for cooperative management of nominated public land areas on Country
- finalisation of the Goulburn Broken Reconciliation Plan.
- review of Goulburn Broken CMA Community NRM Action Plan, demonstrating how the CMA will help the community deliver.

Investment patterns and maturity (stages) of implementation ⁱ

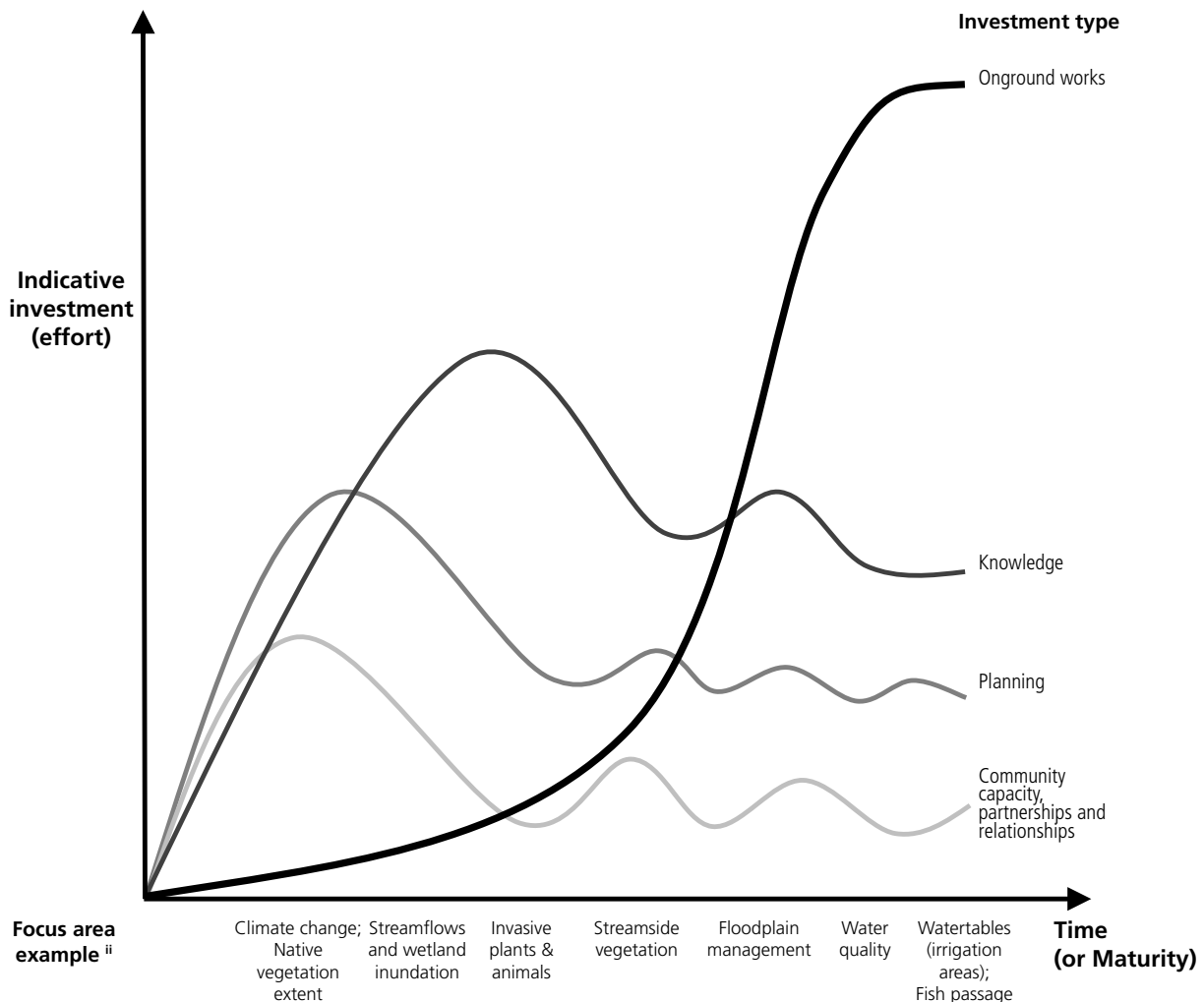
The stylised investment patterns in the graph show the Goulburn Broken CMA is at different stages of maturity of implementing approaches in various focus areas.

For example, more has been done in watertable management (in irrigation areas) than in most other focus areas: it began much earlier, is much better understood, and has had more works completed, so is considered more mature than floodplain management, which in turn is more mature than efforts in responding to climate change.

The time-scale is different for each focus area. For example, investment in native vegetation extent is not likely to result in an exponential uptake of works in the same timeframe as fish passage works.

Currently, government investment dictates the levels of effort in each investment type (onground works; knowledge; planning; and community capacity, partnerships and relationships), although the Goulburn Broken CMA attempts to ensure the balance of investment between the different types is appropriate for the focus area, and efforts are made to broaden investment to further satisfy strategy and community needs.

Relative investment (effort) in each investment type and maturity of investment ⁱ



ⁱ. Adapted from the Goulburn Broken CMA's From the fringe to mainstream – A strategic plan for integrating native biodiversity 2004-07.
ⁱⁱ. Focus areas shown are examples of various Goulburn Broken CMA and partner endeavours; it is not a complete list.

Investment area - Waterways

Compiled by: Mark Turner, Simon Casanelia, Daniel Lovell, Keith Ward, Tim Barlow, Meegan Judd, Jim Castles, Jo Deretic, Christine Glassford, Corey Wilson, Geoff Brennan, Sue Kosch, Kirsten Roszak, Collin Tate, Fiona Lloyd and Caroline Keenan.

Long-term and annual scorecard ⁱ

2018-19 performance	Exceeded target
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Catchment condition ⁱⁱ	1990	2019	Long-term risk
	Very poor	Satisfactory	Medium

Water quality and fish populations have improved significantly from changes such as removal of stock-grazing and key fish-barriers, resnagging of streams, tree planting, and the delivery of water for the environment. Dry periods and climate change are significant challenges.

Despite increasing waterbird habitat in the Goulburn Broken Catchment through environmental flows, populations of many species across the MDB seem to be declining.

The risk from high unseasonal flows to streambank vegetation and critical habitat in the high-value lower Goulburn River and Barmah Forest continues to increase. Managing waterways for regional values becomes challenging because of competing priorities from other parts of the southern-connected MDB.

Waterways are also subject to increasing recreation pressure.

Local and regional agency and broader community partnerships associated with waterway management are strengthening.

Resilience assessment						Long-term strategy maturity ^v	
Critical attribute affecting long-term catchment health	Contribution to system function ⁱⁱⁱ		Risk to system thresholds/tipping point ^{iv}			Start	Stage
	1990	2019	Trend 2016-19	Long-term (10+ years)			
				Current support ^{vi}	No support ^{vi}		
Stream flows and wetland inundation							
- Dammed (regulated) streams	Very poor	Poor	Risk increasing	Medium	Very high	2011	Early
- Undammed (unregulated) streams	Very poor	Poor	Stable	High	Very high	1995	Middle
Streamside (Riparian) vegetation	Very poor	Satisfactory	Risk declining	Low	High	1997	Late
Water quality	Very poor	Satisfactory	Stable	Medium	High	1996	Watch & maintain
Fish passage and habitat	Very poor	Satisfactory	Risk declining	Low	Medium	1997	Late
Community capacity to be involved and act onground ^{vii}	Very poor	Poor	Stable	High	Very high	1997	Middle

- i. Appendix 1 describes the analytical framework. Ratings legend is inside front cover.
- ii. Critical attribute contributions and risks are major considerations in rating catchment condition, along with indicators on higher level outcomes from managing these critical attributes, such as viability of threatened species and gross value of agricultural production. Long-term risk assumes ongoing support at current levels.
- iii. System is Waterways; benchmark for contribution is the desired level, as defined (formally or informally) in 2019.
- iv. Risk that system will not be in desired state of resilience in long term because of level of critical attribute contribution. Risks can be from biophysical threats, such as climate, or other, such as community's adaptive capacity. Desired state might be other than current state.
- v. Long-term strategies vary significantly in formality: 'start' approximates when holistic, integrated approach to influencing critical attribute began.
- vi. Support includes government funding and community (including individual) in-kind and financial investment for onground works and helping communities and individuals adapt.
- vii. Includes regional government agency and stakeholder leadership, partnerships, and tools to change long-term directions and implement short-term onground changes.

Government investment, \$000

2016-17	2017-18	2018-19	2019-20 ⁱ
4,224	4,571	3,997	4,085

i. Forecast based on the Corporate Plan 2019-20.

Strategic references

The Goulburn Broken Waterway Strategy 2014-2022 (GBWS) integrates direction and guidance from legislation, policies, strategies and plans at international, national, state, regional and local levels. Implementation of this

strategy factors in prevailing circumstances, including current priorities identified through local planning (see page 22).

The interim review of this strategy was completed in November 2018. Murray-Darling Basin Authority and Victorian Government water plans and strategies are pertinent references for waterways management. Appendix 6 includes a more complete list. Waterway management in regional Victoria is the responsibility of catchment management authorities (*Water Act 1989*, part 10).

Background

Waterway benefits include water for ecosystems, aquaculture, human consumption, agriculture and irrigation, industry and commerce, recreation, cultural and spiritual values; and mental and physical wellbeing. Waterways are often central to the culture of the Goulburn Broken Catchment's Traditional Owners, the Yorta Yorta and the Taungurung peoples.

Despite covering only two per cent of its area, the Catchment provides 11 per cent of the Murray-Darling Basin's water resources, providing major benefits within and beyond the Goulburn Broken Catchment.

Waterways have been impacted by the construction of weirs for water storage, diversion of flows, native vegetation clearing and removal of snags (woody debris), use of groundwater, invasion by pest plants and animals, stock access, and urban and agricultural development. Key changes in the second generation Goulburn Broken Waterway Strategy 2014-2022 include:

- incorporation of wetlands and lessons learnt, including from the millennium drought and recent fires and floods
- incorporation of a 'resilience approach' to align with the Goulburn Broken Regional Catchment Strategy
- updated stream and wetland condition data
- identification of new roles and responsibilities in NRM, such as establishment of the Victorian and Commonwealth Environmental Water Holders.

Catchment condition – Waterways (since 1990)

The community's long-term vision for waterways is: 'Resilient waterways, vibrant communities. The waterway systems of the Goulburn Broken region are vibrant and resilient so that communities can enjoy the values and benefits they provide and contribute to their maintenance and improvement.'

Catchment condition assessment part 1: Progress in achieving resilient long-term benefits

There has been significant improvement in water quality and fish populations. Overall amenity has also improved due to significant improvements in streamside vegetation, in the face of increased recreational pressure in many locations.

Clean water

Like much of Australia, Goulburn Broken waterways are well within thresholds for most parameters listed under the EPA's State Environment Protection Policy (Waters of Victoria), and a watching brief (mainly for sudden events and negative long-term trends) is mostly appropriate. Salinity contributions from the region comply with targets under MDBA processes.

Fish

The Goulburn Broken Catchment has 21 of 46 native fish species in the Murray-Darling Basin. The preferred location for inland recreational fishing in Victoria is the Goulburn Broken Catchment at 26 per cent, creating threats and opportunities for long-term resilience of native and non-native fish species.

A 2017 Victorian Fisheries Authority survey showed wide distribution of Murray cod and good survival rates from spawning; Trout cod at five sites, with good numbers downstream of Lake Nagambie; and silver perch at seven sites, although in low numbers.

Plants, animals and ecological communities

Social media apps are enabling an increase in citizen science, with data starting to help researchers more accurately determine the status of many species. Goulburn Broken CMA has tailored apps to record frogs, reptiles, fish and birds.

Seasonal herbaceous wetlands are mainly on agricultural land across the riverine plains of the Catchment and are critically endangered. Many have discrete characteristics that are often only visible after significant rainfall.

Alpine bogs and fens are in Taungurung Country, and are the subject of investigation because they remain at significant risk from a warming climate, fire, exotic weeds, grazing by non-native animals, and increasing tourism pressure.

Living Murray Icon Sites (Barmah Forest) and Wetlands in the Directory of Important Wetlands of Australia

Vegetation: In the Barmah forest, River red gum health has recovered after declining significantly during the millennium drought. Moira grass marshlands are significantly depleted, estimated to be at five per cent of pre-river regulation levels. Since 2010, the cover and diversity of wetland plants has improved in response to delivery of water for the environment and natural flooding.

Fish: Stable populations of most native fish species, with silver perch possibly re-establishing in some areas and golden perch spawning. Trout cod have become more prevalent. A trial to re-establish the threatened Southern Pygmy Perch (a six centimetre native fish) in Tahbilk Lagoon commenced. The project is implemented with ARI and Tahbilk Winery. The project aims to reduce the risk of Southern Pygmy Perch extinction by supplementing wild populations and re-establishing them where they have become extinct.

Birds: Delivery of water for the environment has increased opportunities for improving habitat and feeding and breeding for threatened and other waterbirds at several wetlands, including Gaynors and Reedy swamps. Knowledge is emerging of Barmah's importance as stronghold in Victoria for eastern great egret and intermediate egret.

Other: While there are some possible increases in native frogs and turtles, others are declining and becoming locally extinct, and crayfish seem to be impacted by hypoxic blackwater events. Fox impacts on turtles are declining because of improved understanding and management, but will need ongoing management. Frog populations at Moodie Swamp have improved, while populations at Reedy Swamp have been maintained.

Opportunities have increased for Traditional Owners to provide technical, cultural and environmental knowledge, and prioritise use of water for the environment. Significant cultural heritage sites are being protected as they are recorded.

Heritage Rivers

Natural, recreational, scenic, cultural and other values of heritage rivers are likely to have at least been maintained since formal declaration in 1992. They have been supported by being factored into works program priorities. Risks to Big River's values are likely to be low because of its remote location and benign landuse. Over time many risks to Goulburn River values have been reduced because of reduced stock grazing pressure, delivery of water for the environment and improved irrigation and drainage management. However, over the past two seasons unseasonal delivery of Inter Valley Transfers have negatively impacted on the Lower Goulburn River. In 2010, the Victorian Government created the Lower Goulburn National Park, which has reduced grazing and firewood gathering.

Healthy waterways

There has not likely to have been any significant long-term change in overall environmental values.

High community value waterways

There have been significant onground improvements with social benefits in many reaches, although several waterway reaches with high social significance are not priorities under the Waterway Strategy's methodology.

Catchment condition assessment part 2: critical attributes of waterway resilience

The resilience of waterway systems has increased significantly since 1990 because of actions such as:

- creation and use of reserves of water for the environment
- onground works within and along streams and on floodplains
- environmentally sensitive changes in how public and private land is managed
- increased integration to achieve multiple benefits, including cultural heritage
- a step-change increase of community members involved in raising awareness and participating in onground management.

However, risks to waterways from climate change are now very high. Since 2000, waterways have been impacted by prolonged drought, fires and to a lesser extent, floods. The program responded by securing funding and implementing recovery programs and initiatives with the community. Management of critical attributes supports long-term benefits described in part 1 (page 36).

Streamflows and wetland inundation

Dammed (regulated) streams

Water set aside and released for the environment has improved flows in regulated streams.

Long-term objective: Between 2014 and 2022, manage water regimes for ecological outcomes in 13 wetlands and 17 stream reaches.

Since 2008-09, seven wetlands and 25 stream-reaches received 4,884,737 megalitres of water according to seasonal water plans (see table page 45 and bar chart on page 17). Two more wetlands are expected to receive water in 2019-20. The CMA continues to work with partners to identify opportunities for watering more priority wetlands.

During the unprecedented millennium drought, water was provided to major wetlands and waterways, such as Reedy Swamp, Black Swamp, Moodie Swamp, Goulburn River, Broken Creek and Barmah Forest, providing a bridge to the return of wetter times. Several streams experienced record floods since the millennium drought ended. The resulting floodplain-to-river connection has helped the recovery of waterways, floodplains and wetlands and associated plants and animals.

Many of the Goulburn Broken Catchment's rivers and wetlands were modified as the population grew and land use changed. In some rivers, up to half of the water that would have flowed naturally is removed each year for towns, irrigation and industry, and river flows that do occur are unseasonal. As a result, many waterways and wetlands that depend on the right amount of water at the right time are not able to function as they would naturally.

It is therefore necessary to actively release water down waterways and into wetlands to support the plants, animals and functions that depend on them; these flows are called 'water for the environment' and they come from water in storages. Secondary benefits of water for the environment include recreational activities like fishing, boating and birdwatching; sustained healthy Country for Traditional Owners and clean water for householders, farmers and food processors. Where possible, water for agriculture, industry and towns is released in a complementary manner and infrastructure is used to ensure rivers, wetlands and floodplains receive the right amount of water at the right time.

The Murray-Darling Basin Plan, adopted in 2012, aims to balance water needs of the environment and other users through the establishment of new volumes of water-use (known as sustainable diversion limits). Although we are in the early stages of learning how to best use water for the environment, evidence of increased resilience from its use includes improving native vegetation, water bird and frog breeding, and fish migration and spawning. Despite this, various pressures are resulting in unseasonal water being delivered down the Goulburn River for use beyond the Catchment, impacting the River's resilience.

Undammed (unregulated) streams

Establishment of sustainable diversion limits and improved management of licensed water-use extraction for agriculture and towns through local management plans has improved flows in unregulated streams.

Streamside (riparian) vegetation

Long-term objective: Between 2014 and 2022, increase area of streamsidelines (riparian zones) with stock managed to achieve ecological outcomes by 162 kilometres.

The target is relatively low compared with significant progress made in the two decades preceding the 2014 Goulburn Broken Waterway Strategy update. In the four years until 2016-17, 60 of the targeted 162 kilometres in priority waterway reaches has been achieved.

Landholders are contributing significantly more than the originally expected 20 metre width of streamside zones. A total of 573 hectares of streamside in priority reaches had a modified grazing regime in the first four years of implementing the Waterway Strategy (159 per cent of the entire eight-year target of 359 hectares), and 321 hectares of non-priority reaches had stock opportunistically managed.

Since 1997, over 1,686 kilometres of fencing has been erected (protecting 12,109 hectares).

The establishment of the Broken Boosey State Park and other reserve areas associated with the Broken, Boosey and Nine Mile creeks, and the more recent establishment of the Lower Goulburn National Park, resulted in more passive use of these areas, less stock grazing pressure, and an overall improvement in the condition of streamside vegetation.

Engineering works were often used to control erosion and other processes in waterways prior to 2012, but waterways are now managed to achieve appropriate rates of erosion, sedimentation and avulsion over the long term, consistent with natural processes, and as detailed in Policy 11.1 in the 2013 Victorian Waterway Management Strategy. This means that management of the river channel now focuses on maintaining and improving the bed, banks, instream habitat, riparian land and integrated catchment management through riparian management and restoration.

Significant onground works over the last 20 years has improved streamside vegetation on our priority waterways, supported by improved management of water for the environment, community support for waterways and various partnership arrangements as outlined in the community participation chapter.

Water quality

Long-term objective: Continue to meet water quality targets instream reaches.

(CMAs are working with DELWP to develop catchment-scale water quality targets based on 2018 State Environment Protection Policy (SEPP) Waters of Victoria (WoV) review. In the meantime, targets around phosphorus load reduction focus efforts.)

In the 1996 water quality strategy, blue-green algal blooms were a key focus, and they were managed by reducing nutrient loads in waterways. Phosphorus was chosen as the most appropriate indicator of progress.

The Catchment goal of a 65 per cent reduction in total phosphorus exported from the catchment set in the 1996 water quality strategy is close to being realised, although this is probably in part due to low loads associated with low flows as much as nutrient management work within the Catchment.

Since the water quality strategy implementation began in 1996:

- wastewater treatment plants are no longer a major nutrient source in the Catchment
- the irrigation drainage nutrient contribution has reduced substantially
- the ratio of irrigation drain to dryland source nutrients has changed, such that dryland is now the major nutrient source (in 1996 the ratio of irrigation to dryland was 1.5, in 2016 it was 0.5)
- nutrient loads from intensive animal industries and urban stormwater are unlikely to have changed much.

There have been frequent low dissolved-oxygen and/or hypoxic blackwater events in recent years, which can result in the death of a range of aquatic biota and cause other significant environmental, social and economic impacts. Although hypoxic blackwater events can create problems, not all blackwater events are hypoxic.

Although the processes causing these events are reasonably well understood, they are often difficult to predict and mitigate because they are associated with intense and extensive short-term weather events. Responses are coordinated within an emergency management framework. The changing climate is likely to increase the risk of low dissolved-oxygen and hypoxic blackwater events through increasing stream temperatures, low flow, and increasing intense rainfall events during warmer months.

Wildfires occur regularly in south eastern Australia and can instigate short to medium-term water quality issues. Again, as the climate changes, the impact of wildfires on water quality needs to be considered. Vast areas of the Catchment were severely burnt between 2006 and 2009 and most of the canopy along riparian zones were removed.

Cold water pollution from dam releases, such as Lake Eildon, can also be significant and needs to be factored into management for ecological outcomes and to meet community expectations.

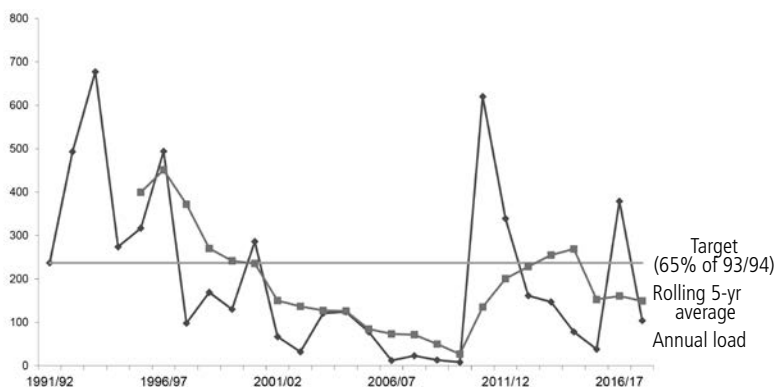
Fish passage and habitat

Long-term objective: Between 2014 and 2022, maintain and increase instream habitat for native fish and other threatened species at 34 sites .

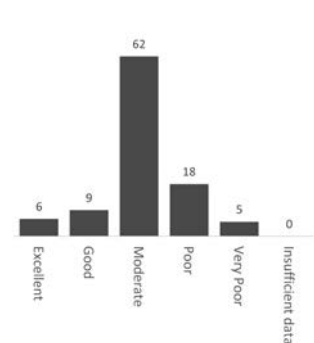
Habitat was established at 47 sites in the four years until 2016-17: the target of 34 was achieved well inside schedule. New knowledge emerged in July 2013 about the large scale of snag depletion and reinstating snags became a priority.

A total of 26 fish barriers have been removed or modified in Goulburn Broken Catchment waterways since 1997.

Total phosphorus loads exported from Goulburn Broken Catchment, tonnes/year



Index of stream condition 2010
Goulburn Broken Basin
Stream condition % length



This has opened 868 kilometres of stream to significantly improve passage. The target set in the Waterway Strategy of 13 fish barriers to remove, has proven to be unrealistic, with only two achieved to date. Remaining barriers are low priority for removal.

Weirs and other instream structures like vehicle crossings, which were built post European settlement, made it impossible for fish to migrate along many of our priority waterways, significantly impacting on their capacity to breed, and reducing their access to available habitat, food and shelter. The removal or modification of barriers (by retrofitting fish ladders or fishways) to allow passage for native fish commenced in the 1990s. Most barriers to fish passage that are feasible to manage in Goulburn Broken Catchment streams have now been removed or modified, and planning is underway to modify or remove the remaining high priority barriers, such as Gowangardie Weir.

Asset owners must now consider and address fish passage when modifications to existing irrigation infrastructure, such as weirs, are planned. Some older fishways might need to have their fish-passage design improved.

Instream habitat, such as snags, are sometimes called the inland equivalent of coastal reefs. They provide habitat for native fish and other animals like turtles and native water rats. Snags have been removed from river systems within the Goulburn Broken Catchment in the past for boating safety and navigation, and in the mistaken belief that it would reduce the risk of flooding. Clearing and inappropriate management of native vegetation along streams has also led to a decrease in large woody material introduced naturally into waterways. The removal and reduction in the number of snags has been identified as a major reason for the decline of native fish populations.

Statewide instream habitat mapping paints a grim picture of the current level of instream habitat in lowland streams (particularly the regulated Goulburn River and Broken Creek) compared to pre-European levels: approximately 50 per cent are classed as severely depleted (a greater than 80 per cent decrease), more than 45 per cent are highly depleted (with a 60 to 80 per cent decrease) and around five per cent are moderately depleted (with a 40 to 59 per cent decrease).

Current resnagging is restoring native fish habitat: native fish populations are responding strongly. However, resnagging on its own is unlikely to be the sole driver of native fish recovery. Better management of water for the environment and streamside zones by restricting stock access will result in a constant natural supply of snags in future.

Several large projects funded through the Recreational Fishing Licence (RFL) Grants Scheme and other recent projects have focused on the introduction of large wood and boulders in the mid and lower Goulburn River, Broken Creek, Hughes Creek, Seven Creeks, Holland Creek, Howqua River, and Tahbilk Lagoon: 2,903 large snags and rock have been placed in these waterways from 2011 until 2018-19.

Managing risks from works and activities on waterways

When people undertake works and activities on or adjacent to waterways, which includes rivers, streams and wetlands, there is a risk they may cause environmental damage. The

potentially significant risks to waterway health of new works or activities in, under or over designated waterways are managed through By-Law No. 3 Waterways Protection 2014. Works require a permit from the Goulburn Broken CMA.

Index of stream condition

In Victoria, the Index of Stream Condition and the Index of Wetland Condition measure long-term changes, including changed hydrology, water quality, form (such as width, depth and meander wavelength), vegetation health, and species diversity. These indices provide part of the information for decisions; they are measured against a pre-European settlement baseline, and not what communities desire now.

In 2010, 15 per cent of stream length in the Goulburn and Broken basins were in good or excellent condition (nine and six per cent respectively; see bar chart page 38). The overall condition had not significantly changed since 2004. Assessments of Goulburn Broken Catchment wetlands undertaken since 2009 indicate that most are in good or moderate condition (38 and 40 per cent respectively), with the remaining in excellent (six per cent), poor (15 per cent) and very poor condition (less than two per cent). The results also indicate that wetlands on public land are generally in better condition than those on private land.

Community capacity to be involved and act onground

Includes regional government agency and stakeholder leadership, partnerships, and tools to change long-term directions and implement short-term onground changes.

While the Goulburn Broken CMA has a leading role in waterway and wetlands health, many critical decisions and most works affecting waterways and wetlands are undertaken by parties other than the Goulburn Broken CMA.

Waterway and wetlands resilience depends on strong government agency and broader community partnerships, underpinned by government investment. The extent and proportion of government investment needed varies for different aspects of waterway and wetland management, including different stages of maturity in capturing opportunities to manage risks. Since the early 1990s, the Goulburn Broken CMA (and its predecessors) has actively promoted participation in agency-community partnerships to achieve better and more integrated management.

The Goulburn Broken Catchment's communities have demonstrated the ability to self-organise and adapt to build resilience. Since 2000, responses to extreme changes that are relevant to waterway and wetlands resilience include innovative drought and fruit-industry employment and fire-recovery programs, the \$1 billion Foodbowl Initiative, and the Farm Water Program. Many community individuals who have been involved in Goulburn Broken CMA partnership forums are now active advocates for integrated management.

A step-change in integrated catchment management was achieved with the advent of Victorian CMAs in 1997, when these regionally-based organisations became responsible for managing land and waterways. Floodplain management responsibilities were also shifted from Melbourne to the CMAs in 1997.

The Goulburn Broken CMA's evolving strategic approaches are listed in various documents, including updates and evaluations of the Regional Catchment Strategy and sub-strategies.

Landholder grants uptake and ongoing participation

Landholders who implemented streamside works between 1993 and 2016 with the Goulburn Broken CMA are generally very satisfied with outcomes achieved and the support provided:

- those who believe 'their' stream frontage is in good or excellent condition increased from 19 to 69 per cent
- 97 per cent would recommend undertaking works to another landholder, and
- the average score on a scale of 1 to 7, where 1 is poor and 7 is excellent, for effectiveness of works was 6.0; advice/technical support, funding, works coordinated by the CMA, and communication throughout the project was 5.9; follow-up contact post-project 5.

Most landholders are voluntarily maintaining sites following initial works through the initial grant funding, such as weed control (85 per cent) and fence repair (65 per cent).

Long-term strategy implementation progress and 2018-19 performance

This section assesses progress in implementing Goulburn Broken Waterway Strategy 2014-2022 (GBWS) actions. While listed individually, in practice these actions are part of an integrated set working together to deliver the long-term goals of the strategy. Progress in implementing the strategy is shown against the critical attributes for long-term resilience that evolved since the strategy was developed. Implementation of many waterway strategy actions have been used to inform progress, with links to critical attributes being formalised over time.

Long-term strategy implementation progress	2018-19 performance
<p>Progress in building resilience via the five critical waterway attributes varies significantly, largely reflecting the maturity of interventions, budget constraints, or uncertain knowledge when setting targets.</p> <p>Actions have been achieved in accordance with funds provided each year.</p> <p>The trend of a move away from hard (and expensive) engineering approaches continues, towards soft engineering, involving working more with the changes, focusing on the long-term benefits desired and the most cost-efficient way of achieving them.</p> <p>Reviews of the GBWS (in 2013 and 2018) indicate that the Goulburn Broken CMA's waterways program has responded well to unprecedented fires, floods and drought by securing funding and implementing recovery actions.</p>	<p>Actions to build resilience via the five critical attributes specific to waterways were undertaken to the level funded, in partnership with the community and agencies.</p> <p>Actions included fencing, revegetation, pest plant and animal control, improving instream woody habitat, water for the environment delivery, monitoring, employment, engagement and education.</p> <p>Funding sources included the Victorian Government's Onground Works Program, Regional Riparian Action Plan, Victorian Environmental Water Holder, Recreational Fishing Grants Program and the The Living Murray Initiative.</p>
Streamflows and wetland inundation	
Dammed (regulated) streams	
<p>Since the early 2000s, with the assistance of partner organisations and input from the regional community, the Goulburn Broken CMA has played a key role in delivering and managing water for the environment to maintain and enhance ecological values of rivers, floodplains and wetlands.</p> <p>Flow in the Goulburn River results from different delivery sources and methods. It can come from releases from Lake Eildon and Goulburn Weir, or from catchment run-off. Releases from Lake Eildon can supply water for human use and environmental needs. Water for the environment is extremely important in very dry periods, such as July to October 2016. The table on page 45 shows the annual volume of environmental water delivered within the Goulburn Broken CMA in the past 11 years.</p> <p>In recent years, the Goulburn Broken CMA has managed the delivery of environmental water to the Goulburn River, Broken River, Broken Creek, Barmah Forest and a number of priority wetlands. This has improved water quality, promoted the growth and establishment of native vegetation, promoted and supported waterbird and fish breeding, provided drought refuge for native fauna, provided habitat for native fish and water bugs, and reduced the growth of nuisance aquatic plants.</p> <p>The Victorian Government, with support from the Goulburn Broken CMA and its partners, has or is increasing water for the environment availability by saving water in supply and delivery for farming through projects such as the Farm Water Program and the GMW Connections Project.</p>	<p>449,506 megalitres of environmental water was delivered to support water quality, fish, macroinvertebrates, water birds, platypus, turtles and native vegetation in the Goulburn River, Broken River, Broken Creek, Barmah Forest, Kinnairds Wetland, Black Swamp, Reedy Swamp and Gaynor Swamp (see tables on page 45).</p> <p>Significant ecological outcomes included:</p> <ul style="list-style-type: none"> — A winter fresh deposited seed-rich sediment on the banks of the lower Goulburn River. This process is important in promoting the growth and establishment of bank stabilising vegetation. Bank vegetation also provides habitat for native fish and macroinvertebrates. — Evidence of good Murray cod and golden perch recruitment in the Broken River. Juvenile silver perch were also recorded in the lower Broken River which are thought to have migrated from the Murray River in response to environmental water deliveries. — The growth and reproduction of wetland and floodplain plants including Moira grass in Barmah Forest. — Thousands of waterbirds utilised habitat at Gaynor and Reedy Swamps. Of note, a flock of 20 Brolga were recorded at Gaynor Swamp.

Long-term strategy implementation progress	2018-19 performance
Streamflows and wetland inundation (continued)	
<p>Dammed (regulated) streams (continued)</p>	<p>Water for the environment was delivered in accordance with VEWH processes, with assistance and cooperation of partners. Most priority watering actions were achieved at all sites.</p> <p>274,892 megalitres of the environmental water delivered down the Goulburn River and lower Broken Creek continued to the Murray River to benefit downstream water quality, recreation, wetlands and rivers.</p> <p>456,375 megalitres of water in transit to the Murray River provided some environmental benefits in the lower Goulburn River and the lower Broken Creek. However, record high and prolonged delivery of water to Murray River down the lower Goulburn River over summer and autumn had a detrimental impact on the cover and growth of lower bank vegetation and bank condition. The Goulburn Broken CMA also have concerns for impact on other aspects of waterway health including macroinvertebrates and native fish populations.</p> <p>Significant technical studies and reports included:</p> <ul style="list-style-type: none"> — Seasonal watering proposals were prepared for lower Broken Creek, upper Broken Creek, Broken River, Goulburn River, Barmah Forest and priority wetlands in consultation with key stakeholders and partners. — With funding provided by the VEWH, an investigation into the impact of high and prolonged water transfers down lower Goulburn River between December and May on bank vegetation and condition commenced. The Goulburn Broken CMA has engaged research partners involved in the implementation of the Goulburn River Long Term Intervention Monitoring Project (LTIM) to deliver the project. The results of the project will be used to adaptively manage future water transfers and inform the Goulburn to Murray water trade rule review. — Environmental water management plans for Horseshoe Lagoon and Loch Garry were completed in consultation with key stakeholders and partners. The plans established ecological and hydrological objectives for the wetlands which are used to inform environmental water planning, delivery and monitoring.
Undammed (unregulated) streams	
<p>The Goulburn Broken CMA has completed a number of technical studies (environmental flow determinations and streamflow management plans) on unregulated streams, including the Yea River, King Parrot Creek and Seven Creeks. They have sought to determine how available water can be sustainably shared between environmental and consumptive demands.</p> <p>In unregulated streams, water for the environment cannot be released to manage risks, such as when Macquarie perch and Trout cod were dying in the Seven Creeks due to low flow in March 2016. The Goulburn Broken CMA is investigating innovative approaches to secure flows through the Integrated Water Management Forum.</p>	<p>The Goulburn Broken CMA has been working with GMW to implement local management plans for groundwater management areas, including Eildon, upper Goulburn and Strathbogie. GMW developed these plans in consultation with the Goulburn Broken CMA and other key stakeholders.</p> <p>The activities below (streamside vegetation) contribute to the protection and enhancement of undammed streams.</p>

Long-term strategy implementation progress	2018-19 performance
Undammed (unregulated) streams (continued)	Prolonged dry conditions reduced available native fish habitat in a number of unregulated streams. In response, flow, water quality and threatened native fish communities along the Hughes, Seven, Holland and King Parrot creeks were monitored by staff, ARI and the community. ARI staff moved some Macquarie perch from the bottom end of the King Parrot Creek further upstream to more suitable habitat in March. No other actions were required to safeguard the native fish in these streams.
Streamside (riparian) vegetation	
<p>Streamside vegetation implementation programs are at a late stage of maturity after two decades of onground works and significant land tenure changes towards more passive uses.</p> <p>Since 1997, over 1,686 kilometres of fences have been erected and approximately 12,109 hectares of riparian land have been protected and/or enhanced.</p> <p>A total of 573 hectares of streamside in priority reaches were fenced in the first four years of implementing the GBWS (159 per cent of the entire eight-year target of 359 hectares), and 321 hectares of nonpriority reaches were opportunistically fenced.</p> <p>The significant over-achievement against target for area is likely to be attributed to bigger than expected acceptance by landholders to fence further back from streambanks, including efficient fencing in straight lines from meander to meander rather than following them around.</p>	<p>Significant onground works were undertaken on streams flowing from the Strathbogie Ranges, including Flagship Waterways at Hughes Creek, Seven Creeks and Honeysuckle Creek (funded through Victorian Government's Regional Riparian Action Plan). Citizen science continues to be used to monitor a number of waterways.</p> <p>Community interest in the Strathbogie Streams project has been encouraging and the project will continue to gather momentum, leading to improvement in the health of target streams in coming years.</p>
Water quality	
<p>The Goulburn Broken Water Quality Strategy 1996-2016 was reviewed with key contributing partner organisations. The review indicated good progress toward targets and that no major change in direction was needed. The strategic focus on water quality for the region is now covered in the Regional Waterway Strategy as one of the key components of waterway health. Institutional arrangements to manage water quality threats continue through several regional participant forums.</p> <p>There has been a change in focus to invest for the public benefits of streamside vegetation works first, rather than instream soil erosion works. In the absence of significant floods, recent trends are expected to continue.</p>	<p>The Water Quality Forum continued monitoring the water quality conditions.</p> <p>The year proved to be particularly stressing to unregulated systems with water quantity issues driving associated water quality issues.</p>
Fish passage and habitat	
<p>The Goulburn Broken CMA has focused on resnagging waterways to improve instream habitat. Approximately 2,903 instream habitat structures, including large wood and rock, have been added to priority waterways since 2011 (until the end of 2018-19), including the Goulburn River, Broken Creek, Hughes Creek, Seven Creeks, Holland Creek, Howqua River and Tahbilk Lagoon.</p>	<p>Further instream habitat improvement works were undertaken this year with increasing interest and support, including financial, from recreation fishing groups.</p>

Community capacity to be involved and act onground – long-term strategy implementation

Although local and regional agency and broader community partnerships are strengthening, the capacity to manage waterways for regional priorities is becoming challenging because of often competing priorities from other parts of the southern-connected MDB.

Specific activities that build community capacity to influence and lead decision-making and act onground are detailed within each annual report, including this one.

Landholder grants uptake and ongoing participation

Landholders who implemented streamside works between 1993 and 2016 through the Goulburn Broken CMA are generally very satisfied with the support provided and outcomes, with most voluntarily maintaining sites (Glassford 2017).

Traditional Owners

Traditional Owner participation in onground works continues to grow strongly. Traditional Owners are also more involved in policy development and setting priorities, although significantly more efforts are needed to build ongoing and consistent involvement, which requires more resources (especially at the TO end). (See also page 33.)

Environmental water advisory groups

The Goulburn Broken CMA has established three community and partner agency stakeholder advisory groups to advise on plans for using water for the environment. The Wetland Management Group was established in 2008 and the Goulburn and the Broken Environmental Water Advisory Groups were established in 2012.

A survey of 38 (18 community and 20 partner agency) current and former members of the groups, as part of a 2017 review, indicated general satisfaction with group input into developing annual water plans (also known as seasonal watering proposals).

General community understanding and participation (waterways)

In the last few years, several individuals and community stakeholder groups have become advocates for waterway and wetlands management activities and have led the way by actively participating. Ninety per cent of Goulburn Broken Catchment residents are aware of Goulburn Broken CMA's role in 'managing waterways', according to a biennial statewide survey. When asked which NRM issues were of the most importance, without prompting with suggestions, 'water quality' and 'drought' were both leading issues, with large increases from 2012, while 'protecting wetlands', 'sustainability', and 'salinity management' also had increased ratings. Other surveys such as 'My Victorian Waterways' and University of Canberra's 'Regional wellbeing survey' also inform decisions.

Goulburn Broken CMA and DELWP (waterways) partnership

Goulburn Broken CMA waterway staff view their partnership with DELWP's waterway staff very favourably. They cite the value of clear understanding by CMA and DELWP waterway staff of their complementary roles and responsibilities, nurtured by ongoing commitment to long-term relationships for a common cause. This is despite often significant and frequent demands on both parties.

Goulburn Broken CMA and regional agency partnerships

Regular CMA survey results indicate that partnerships are meeting or exceeding expectations in all areas. Most of these partnerships have direct applicability to river health outcomes.

Implementation of priority actions

Priority actions listed in the Goulburn Broken Waterway Strategy 2014-2022 are mostly being implemented on schedule.

Community capacity to be involved and act onground in 2018-19

The Broken and Goulburn Environmental Water Advisory Groups and the Goulburn Broken Wetland Management Group continued to meet and guide water for the environment planning, use, monitoring and complementary works. The groups are comprised of agency, stakeholder and community representatives.

Activities to improve the health of Barmah-Millewa Forest included the coordination of an Icon Coordinating Committee, a Technical Advisory Committee, and an Indigenous Partnership Program (funded by The Living Murray program). These groups guide the implementation

of monitoring, research, works, and environmental water management in the Forest. Cross-state water management continued between New South Wales and Victorian agencies and the Murray-Darling Basin Authority.

The ninth Floodplain Ecology Course was successfully held at Barmah during October, managed by the Goulburn Murray Landcare Network and Goulburn Broken CMA, with 25 participants attending the five-day course funded by the Australian Government's Regional Landcare Program.

RiverConnect, which promotes the Goulburn and Broken rivers as the heart and soul of the Shepparton-Mooroopna community, continued to be supported. A total of 4,978 community members and school students were involved in RiverConnect awareness-raising and education programs.

Goulburn Broken CMA staff presented to a variety of forums on waterway management. These included Gone Fishing Day, Go Fish Nagambie, Winton Wetlands Science Forum, U3A, a NAIDOC event in Barmah Forest National park, Goulburn Valley Association of Angling Clubs, Goulburn Broken Indigenous Consultation Groups, Land and Biodiversity Implementation Forum and GMW Water Service Steering Committees. In total, over 8,686 people were engaged through such presentations.

In October, 170 people enjoyed the Gone Fishing Day held at Victoria Park Lake in Shepparton. The event raised awareness of the importance of river health in protecting native fish and other aquatic animals. RiverConnect, Angling Clubs, Arthur Rylah Institute, Waterwatch, Goulburn Valley Water, and Trely's Shepparton assisted with presentations and displays on the day.

As part of the International River Foundation twinning program for Riverprize Alumni the Goulburn Broken CMA has been partnered with the Republic of Moldova and Ukraine Dniester River project. As part of this the Goulburn Broken CMA hosted three delegates in May.

Monitoring, research and development, and adapting management in 2018-19

The Goulburn Broken CMA maintains close relationships with research organisations, government investors, and sister-implementation agencies across the country to ensure onground and other actions are implemented according to the best science and appropriate standards. The CMA participates in various statewide working groups involving policy, implementation and monitoring. Activities in this area included:

- monitoring of threatened species continued and included monitoring of Macquarie Perch in the Holland, King Parrot, Seven and Hughes Creeks and the Broken and Yea Rivers
- Lake Benalla, Broken Creek, Broken River and upper Broken Creek were assessed for the presence of Cabomba, an aquatic 'Weed of National Significance'.

The Living Murray program continued to fund a range of activities to improve the health of Barmah-Millewa Forest including monitoring the ecological response of birds, fish and vegetation to delivery of water for the environment. In addition, a state-funded project assessed the presence of key threatened plant species and Superb Parrot foraging and breeding activity in Barmah Forest.

The five-year Goulburn River Long Term Intervention Monitoring Program, funded by the Australian Government,

continued monitoring in the lower Goulburn River. Monitoring focuses on native fish, macroinvertebrates, vegetation, geomorphology and ecosystem metabolism responses. This information informs future planning and delivery of water for the environment. This was the last year of the existing program. The Australian Government has funded a new three-year monitoring program. The program is called Flow-Monitoring Evaluation and Research and will continue to monitor the same values with updated methods and an increased focus on research to fill knowledge gaps.

Vegetation, water quality, water depth, waterbirds and frogs were monitored at the following sites that receive water for the environment: Reedy Swamp, Moodie Swamp, Black Swamp, Doctors Swamp, Kinnairds Wetland and

Gaynor Swamp. The monitoring was funded by DELWP and complementary monitoring was undertaken at a number of these wetlands as part of a statewide wetland monitoring program (Wetland Monitoring and Assessment Program - WetMAP). At some of these sites, these activities were complemented with time lapse photography and static photographs at pre-determined points.

Ongoing data collection of water quality parameters continued through the North East Water Quality monitoring partnership.

Passive Integrated Transcoder tag readers at seven fishway locations continued to be operated to assist in developing a better undertaking of fish movement within the region and beyond.

Waterways onground actions 2016-17, 2017-18 and 2018-19

Action	From funds received through Corporate Plan					
	Achieved ⁱ			Target	% achieved	
	2016-17	2017-18	2018-19			
Stock grazing action						
Fence riparian land (= wetland + stream/river remnant below)	ha	431	161	169	49	344
Fence wetland remnant	ha	137	0	2	0	
Fence stream/river remnant ⁱⁱ	ha	294	161	166	49	339
Fence stream/river remnant	km	35	26	48	39	124
Off-stream watering	no.	25	17	17	17	100
Nutrient-rich and turbid water and suspended solids action						
Stormwater management projects ⁱⁱⁱ	no.	-	-	-	-	
Instream and near-stream erosion action						
Bank protection actions	km	0.62	0.51	0.30	-	
Instream & tributary erosion controlled	km	0.62	0	-	-	
Changed flow-pattern action						
Environmental water use ^{iv}	ML	479,164	812,240	449,506	-	
Weed invasion action						
Weeds – aquatic weeds controlled (managed)	km	9	10	9	-	
Habitat loss management						
Rock ramp fishway	no.	-	-	-	-	
Fish barrier removal	no.	-	-	-	-	
Instream woody habitat - snags ^v	no.	363	627	581	325	179
Surface water action^{vi}						
Drain - primary built ^{vii}	km	-	3.76	32	10	320
Drain - community built	km	-	-	4.6	-	
Farm reuse systems installed ^{viii}	no.	5	36	36	37	97
High flow drain diversion - high nutrient water removed ^{ix}	ML	-	-	-	-	
Irrigation systems - improved ^x	ha	4,460	5,174	2,538	-	

i. Achievements include those from investment areas: Waterways and complementary investment areas (Sustainable irrigation, Land, and Biodiversity). Outputs delivered through each fund source are available from the Goulburn Broken CMA.

ii. Area figure supplied by River and Wetland Health Program Manager.

iii. Stormwater management projects are undertaken on a one-to-one funding basis with local government.

iv. Target cannot be set with any confidence because achievement is prone to extreme variation, being affected by climatic and seasonal conditions. Volumes used since 2000-01 were reconciled in 2014 and some figures were adjusted. The NSW component of water delivered to Barmah Forest is included in these figures.

v. Output included for the first time in 2015-16 as 'in-stream woody habitat - snags'. Updated to 'in-stream habitat' in 2017-18 to include other habitat structures undertaken in 2017-18 such as groynes and rock seeding.

vi. Surface water management enables the removal of excess rainfall runoff from irrigated lands, alleviating soil salinity. As part of an overall management plan for nutrients, nutrient loads are managed by collecting and reusing water from drains. Nutrient loads are monitored against the Goulburn Broken Water Quality Strategy nutrient target for drains.

vii. Fencing and laneways are relocated along primary drains to control stock. Drains are also hydromulched and seeded to provide vegetative cover on bare batters.

viii. Reuse dams allow for the collection of high nutrient runoff and reirrigation, reducing the water and nutrient loads leaving the farm.

ix. High flow diversion. None completed because of no demand and previous dry conditions.

x. Assumptions: From 2014-15, area improved = laser levelling (which itself includes an assumption based on whole farm plan area - see footnote iv) + pressurised irrigation systems (micro or drip + sprinkler).

Environmental water used during 2018-19

System	Quantity, ML	Source
Water used WITHIN the Goulburn Broken Catchment		
Goulburn River	200,181	Commonwealth Environmental Water – Goulburn River System
	25,341	The Living Murray Water – Goulburn River System
	21,746	Victorian Environmental Water – Goulburn River System
Lower Broken Creek	22,518	Commonwealth Environmental Water – Goulburn River System
	0	Goulburn River Water Quality Allowance – Goulburn River System
	5,116	Commonwealth Environmental Water – Murray River System
Barmah-Millewa Forest	0	Victorian Environmental Water – Murray River System
	78,512	Commonwealth Environmental Water – Victoria and NSW
	16,128	The Living Murray allocation – Victoria and NSW
	0	Barmah-Millewa Forest Environmental Water Allocation
	0	Victorian Environmental Water – Murray River System
Black Swamp (Nine Mile Creek)	68,202	River Murray Increased Flows (RMIF) – Victoria and NSW
	9,948	NSW Adaptive Environmental Allowance
Kinnairds Wetland (Lower Broken Creek)	80	Victorian Environmental Water – Goulburn and Murray River Systems
Reedy Swamp (Lower Goulburn River)	386	Victorian Environmental Water – Goulburn and Murray River Systems
Gaynor Swamp (Lower Goulburn River)	500	Victorian Environmental Water – Goulburn River System
600	Victorian Environmental Water – Goulburn River System	
Water used DOWNSTREAM that benefited waterways in the Goulburn Broken Catchment		
Murray River	386,658	Inter-Valley Transfers (Goulburn River) ⁱ
	0	The Living Murray allocation (Goulburn River)
	29,036	Inter-Valley Transfers (lower Broken Creek) ⁱ
	147,235	Goulburn River Unregulated Flows and Operational Releases
	0	Murray Unregulated Flows (lower Broken Creek) ⁱⁱ
	40,681	Murray consumptive water in transit (lower Broken Creek)

i. Intervalley transfers are not considered to be environmental water but can provide environmental benefits. These volumes are not included in total environmental water use figures.

ii. This figure includes operational losses, which only represent a small proportion of the total figure.

Environmental water use

Wetland or stream	Volume, ML										
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Barmah-Millewa Forest (Vic) ⁱ	300	1,850	184,500	184,500	2,959	195,386	0	109,351	95,800	190,091	75,182
Barmah-Millewa Forest (NSW) ⁱ	0	520	243,500	243,500	0	167,700	0	328,044	158,388	223,919	97,607
Black Swamp	40	80	0	0	0	50	0	80	0	0	80
Lower Broken Creek	Goulburn River Water Quality Allowance deployed ⁱⁱ			10,366	41,230	38,593	34,306	30,319	36,192	41,408	27,633
Upper Broken Creek	0	0	0	0	51	0	387	0	0	0	0
Broken River	0	0	24.2	0	0	0	0	0	0	1000	250
Doctors Swamp	0	40 (trial)	0	0	0	0	0	594	0	0	0
Goulburn River	0	0	26,670	195,110	255,427	312,349	304,125	228,252	193,272	354,832	247,268
Kinnairds Wetland	0	400	0	0	0	179	0	696	0	0	386
Moodie Swamp	0	0	0	0	0	121	500	500	0	500	0
Reedy Swamp	500	300	0	0	0	0	0	475	0	0	500
Gaynor Swamp	0	0	0	0	0	0	0	0	0	500	600
TOTALS	840	3,190	454,694	633,476	299,667	714,378	339,318	698,264	479,164	812,240	449,506

i. Final volumes might vary slightly and are reconciled following publication of this annual report.

ii. Environmental water only became available for use in the lower Broken and Nine Mile creeks in 2010-2011. Prior to this flow was managed by: regulated and unregulated flows; redirecting Goulburn River and Murray River flows through the lower Broken and Nine Mile creeks; and deployment of the Goulburn River Water Quality Reserve.

What's next?

Implementation of the Goulburn Broken Waterway Strategy 2014-2022, in partnership with regional agencies and the community, will continue. Actions from the 2018 interim review will drive the remaining years of the strategy towards its renewal in 2022. Strategic priorities that emerged from the review are around:

- 1 Strengthen relations with Traditional Owners to increase their participation at all stages of waterway management for environmental, cultural, economic, and community benefits.
- 2 Make it easier for community members to contribute to Goulburn Broken Waterway Strategy development by framing high-level goals in a way that makes them meaningful when identifying actions.
- 3 Maximise shared benefits from water entitlements, especially for the environment.
- 4 Refine streamside vegetation programs as the need for new fencing nears its endpoint on major streams.

Operational priorities for the final three years of the Strategy's implementation are:

- 1 Develop a frequently updated action plan from the recommendations listed in the interim review and complementary reviews, and from other action checklists.
- 2 Continue to implement stream-frontage works with adjacent landholders, with an emphasis on increased targeting (of waterway values).
- 3 Continue to protect and improve the ecological character of Barmah Forest Ramsar site.
- 4 Consider constructing an implementation program that delineates activities into two types: maintenance and improvement, which relates mainly to vegetation.
- 5 Continue to improve efficiency and effectiveness of delivering water for the environment by applying tight adaptive management and leveraging off opportunities provided by the Basin plan.
- 6 Develop a new FLOWS study and ecological models for the lower Goulburn River to inform environmental water planning, delivery and monitoring. (This emerged as a priority after the interim review).

The Strathbogie streams flagship waterways project will continue to focus on the Seven Creeks and Hughes Creek, and other streams flowing from the Strathbogie Ranges

will be also targeted through the riparian works program. Priority waterways including the Goulburn, Broken, Delatite and Howqua rivers and the King Parrot, Broken and Holland creeks will be targeted in the final year of the onground works program.

Opportunities for multiple uses of environmental water will continue to be explored with neighbouring CMAs, the Victorian and Commonwealth Environmental Water Holders, the Murray-Darling Basin Authority, Traditional Owners and the community.

Seasonal watering proposals for 2019-20 aim to use water for the environment for positive ecological achievement outcomes by:

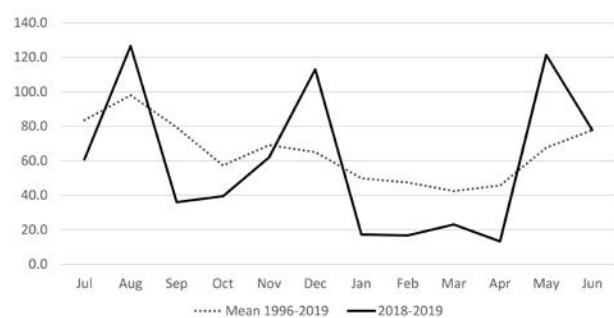
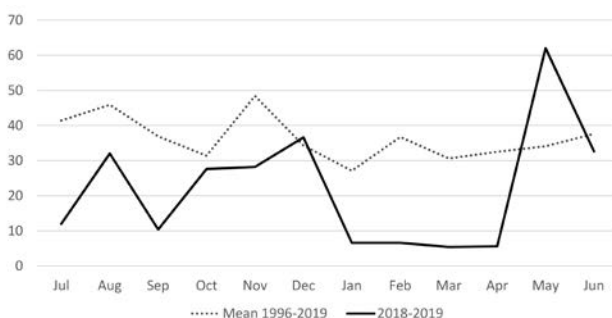
- providing flows in the lower Broken Creek to allow native fish passage, increase native fish habitat during the migration and breeding seasons, and manage threats to native fish from low dissolved oxygen levels or excessive Azolla growth
- providing minimum flows and freshes in the lower Goulburn River to support native fish, macroinvertebrates and native vegetation habitat and recruitment
- trialling variable winter and spring baseflows in the lower Goulburn River to support geomorphic processes, macroinvertebrates, native fish and nutrient cycling
- promoting the growth and establishment of Moira Grass and supporting colonial waterbird breeding in Barmah Forest
- promoting the health of native vegetation communities and supporting waterbird and frog breeding at Black Swamp, Kinnairds Wetland, Moodie Swamp, Reedy Swamp, Gaynor Swamp, Loch Garry and Doctors Swamp.

The Goulburn Broken CMA will continue to support implementation of the Flow-Monitoring Evaluation and Research Program in the Goulburn River and the development and implementation of the Victorian river and wetland monitoring and assessment programs (VEFMAP and WetMAP).

Opportunities to better manage water transfers down the lower Goulburn River will continue to be investigated further with DELWP and partners.

Activities for the years 2020-21 to 2024-25 will be identified and submitted through DELWP as part of bidding for funding from the Environmental Contributions Levy tranche 5.

Monthly rainfall 2018-19 at Shepparton airport (left) and Lake Eildon (right), mm ⁱ



i. Source: Australian Government Bureau of Meteorology.

Investment area – Floodplain management

Compiled by Guy Tierney.

Long-term and annual scorecard ⁱ

2018-19 performance	On target
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Catchment condition ⁱⁱ	1990	2019	Long-term risk
	Very poor	Satisfactory	Medium

There have been significant floodplain management improvements in many geographic areas and others have been scheduled.

As more infrastructure and assets are placed within floodplains, flood impacts potentially increase, but through floodplain management tools, annual average damages and social trauma have significantly decreased.

Resilience assessment					Long-term strategy maturity ^v	
Critical attribute affecting long-term catchment health ⁱⁱⁱ	Contribution to system function ⁱⁱⁱ		Risk to system thresholds/tipping point ^{iv}		Start	Stage
	1990	2018	Trend 2016-19	Long-term (10+ years) Current support ^{vi} / No support ^{vi}		
Flood impact	Very poor	Satisfactory	Risk declining	Medium / Very high	2002	Late

- i. Appendix 1 describes the analytical framework. Ratings legend is inside front cover.
- ii. Critical attribute contributions and risks are major considerations in rating catchment condition, along with indicators on higher level outcomes from managing these critical attributes, such as viability of threatened species and gross value of agricultural production. Long-term risk assumes ongoing support at current levels.
- iii. System is Floodplain; benchmark for contribution is the desired level, as defined (formally or informally) in 2019.
- iv. Risk that system will not be in desired state of resilience in long-term because of level of critical attribute contribution. Risks can be from biophysical threats, such as climate, or other, such as community's adaptive capacity. Desired state might be other than current state.
- v. Long-term strategies vary significantly in formality: 'start' approximates when holistic, integrated approach to influencing critical attribute began.
- vi. Support includes government funding and community (including individual) in-kind and financial investment for onground works and helping communities and individuals adapt.

Government investment, \$000

2016-17	2017-18	2018-19	2019-20 ⁱ
861	1,079	940	806

i. Forecast based on the Corporate Plan 2019-20.

Strategic references

- Victorian Floodplain Management Strategy (2016)
- Goulburn Broken Regional Floodplain Management Strategy 2018-2028
- *Planning and Environment Act 1987*
- *Subdivision Act 1988*
- *Building Regulations 2018*
- *Water Act 1989*
- *Minerals and Resources (Sustainable Development) Act 1990*
- *Environment Protection Act 1970*

Background

The amount of damage a flood causes depends on its size. The annual average damage (AAD) is what would be expected in a flood-prone area, considering fluctuations over many decades. The Goulburn Broken CMA inherited the highest AAD of all Victorian CMAs outside Melbourne Water's area of responsibility for floodplain management (Victoria Floodplain Management Strategy 1998).

Floodplain management functions are delegated to the Goulburn Broken CMA (Water Act 1989 Section 202) and include advising local councils, DELWP's Secretary, and the community about flooding and controls on development. Without floodplain management, flood impacts potentially increase if infrastructure and assets are placed within floodplains.

Engineering techniques such as hydrology (the study of

rainfall and runoff) and hydraulics (the applied science of water movement across floodplains, rivers, streams and stormwater networks) assist understanding of impacts of floods on urban and rural communities. These techniques also help understanding of environmental flow regimes of waterway and wetland systems.

Understanding the nature of flooding (flood extent, depth, velocity and hazard) and flood risk (likelihood and consequences) is paramount in any flood study that investigates mitigation and management options. Such options include structural solutions, e.g. levees, retardation basins, and floodways, and non-structural solutions (flood warning, awareness and education programs, emergency management arrangements and land-use planning controls).

Catchment condition - Floodplain management (since 1990)

Long-term objectives: High-level objectives have been reset and 10-year prioritised actions have been developed with stakeholders following the 2018 release of the regional floodplain management strategy. Goulburn Broken CMA's objectives relate to reducing annual average damages (\$), social trauma and property loss, and improving natural environment flooding patterns.

The vision of the Goulburn Broken Regional Floodplain Management Strategy (RFMS; 2018) is: 'Through partnerships, improve the flood resilience of the catchment's people, infrastructure, land, water and biodiversity'.

Implementation of the RFMS is on schedule, building on significant floodplain management improvements in many geographic areas since 1990. AAD and social trauma have decreased significantly through improved flood-intelligence sharing, flood mitigation and land-use planning.

Long-term strategy implementation

Four cross cutting RFMS programs deliver the vision, aiming to:

- **Build community resilience:** encourage communities to responsibly manage their own risks (as part of the Total Flood Warning System program) by improving dissemination, communication, education and awareness of flood and related information.
- **Reduce legacy flood risk:** minimise flood-hazard exposure and consequences (part of all four programs)
- Flood Mitigation Works, Total Flood Warning Systems (TFWS), Land-use planning, and Municipal Flood Emergency Plans (MFEP).
- **Avoid future flood risk:** do not make things worse (part of the Land-use Planning program).
- **Manage residual flood risk:** by integrated flood-intelligence sharing with emergency services, interpretation at incident control (part of the MFEP and TFWS programs) and flood insurance (part of the Total Flood Warning System program).

Implementation program	Long-term progress
Flood mitigation works	Using local, Victorian and Australian government grants, authorities are implementing recommendations of several flood studies and floodplain management plans, including structural and non-structural works. It is assumed that tasks completed results in reduced flooding impacts on the built environment and its peoples. Implementation is opportunistic through Australian and Victorian Government incentives, such as the Natural Disaster Resilience Grants Scheme that funded flood studies in Euroa, Kyabram and the Boosey and upper Broken Creeks in 2018-19.
Total flood warning systems	Since 2009-10 there have been significant gains with the standard statewide format of Municipal Flood Emergency Plans.
Land-use planning	A total of 53 studies have been completed since 1997 and 7 are underway (Goulburn Broken Rivers, Whiteheads Creek, Acheron Valley (Buxton, Taggerty and Marysville), Sunday Creek Catchment, Kyabram, Boosey and Upper Broken Creeks, and Euroa). New and past studies inform flood mitigation schemes, land-use planning, emergency management, and education and awareness activities. Functional and detailed designs are progressing for flood mitigation works at four urban centres (Numurkah, Cobram, Violet Town, and Seymour).
Municipal flood emergency plans	Since 2009-10, there have been continued gains in land-use planning and the statewide FloodZoom (flood intelligence system). A fit-for-purpose community information sharing (flood intelligence portal) for the Mooroopna, Kialla and Shepparton areas. The Goulburn Broken CMA seeks to expand this portal to other at-risk communities.

Improving the natural flooding patterns of ecosystems via sensitive floodplain protection planning is a task in progress.

2018-19 performance

Community capacity, engagement and involvement

Community engagement is an integral part of floodplain management through flood studies and floodplain management plans and their implementation, assisted by a number of government agencies. The Goulburn Broken CMA currently manages and hosts the Flood Victoria website on behalf of the Victorian Government.

The table below provides a summary of the studies and implementation plans progressed for 2018-19. All studies are carried out under a partnership approach with local government, Victorian and Australian government agencies and local communities. Implementation of the recommendations is a shared responsibility. Civil works such as a town levee system generally rest with local government.

A key initiative is capacity building to implement strategic work and action arising from both the Victorian and Regional Floodplain Management Strategies.

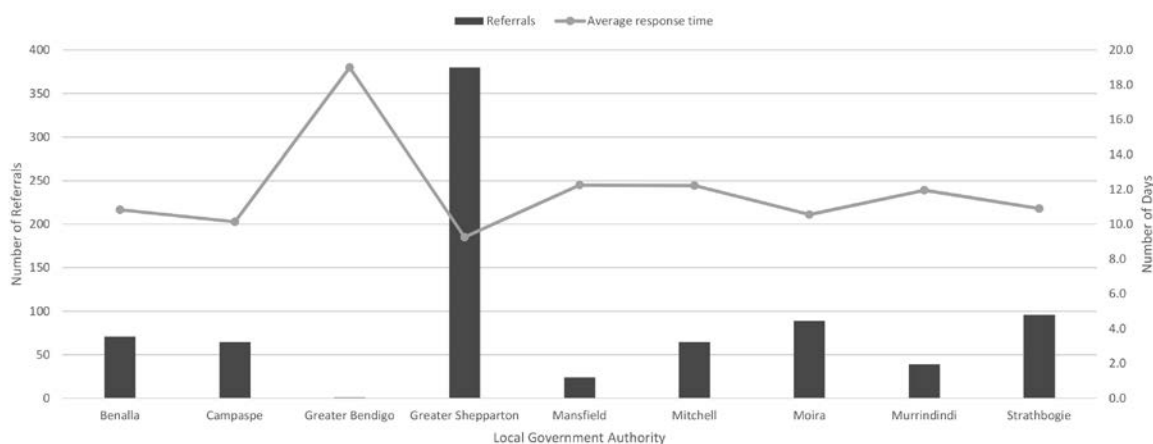
Flood studies and implementation plans for 2018-19

Project name	Lead agency	Status
Flood Mitigation Work Program: Priority actions 22 (9 high, 8 medium, 5 low). Status: 2 completed, 5 ongoing		
Cobram East Flood Mitigation Functional Design	Moira Shire Council	High priority. Price Merritt with Water Technology have prepared several options. A community reference group are guiding this project.
Numurkah Functional Design for Flood Mitigation Works	Moira Shire Council	High priority. Community reference group has been established. Detailed surveys underway.
Seymour Town Levee Implementation Plan	Mitchell Shire Council	High priority. Civil design consultants Wallbridge and Gilbert is progressing the detailed design for the town level. Local cost sharing contribution is being established.
Violet Town Flood Mitigation Detailed Design	Strathbogie Shire Council	High priority. Strathbogie Council has placed the matter on hold pending further analysis on liability. DELWP through the VFMS is working on this liability matter.
Euroa Supplementary Mitigation Works	Strathbogie Shire Council	New Priority. Detailed design yet to commence.

Project name	Lead agency	Status
Total Flood Warning Systems: Priority actions 42 (12 high, 17 medium, 5 low). Status: 1 completed, 8 ongoing		
Numurkah	Moira Shire Council	High priority. Additional suite of rain and stream gauges have been installed. The Bureau of Meteorology is developing its flood prediction services to Numurkah. Water Technology has been engaged to develop rating tables for the new gauge sites.
Granite Creeks Regional Flood Mapping Project (Hume Freeway to the Goulburn River)	DELWP	Low priority. Water Technology has delivered final report and mapping products in 2019.
Shepparton East Overland Flood Study	Goulburn Broken CMA	High priority. Final report and mapping deliverables completed last financial year. Flood Intelligence has been extracted and included in the Greater Shepparton MFEP. VICSES Flood Guide to be prepared.
Shepparton Mooroopna Flood Mapping and Intelligence Study	Greater Shepparton City Council	High priority. Flood Intelligence has been included in the Greater Shepparton MFEP. Also, the community flood intelligence portal (HydroNET) has been finalised. Report delivered and adopted by Council in 2019.
Flood warning improvements for Benalla	Benalla Rural City Council	High priority (completed). Local Flood Guide complete. Site-specific flood-chart information is currently being investigated.
Yea River Flood Intelligence Project Study	Goulburn Broken CMA	Medium priority. Yea Flood Intelligence Project Report was delivered July 2018. VFD2 data has been revised to the new stream gauge. BOM, DELWP and Murrindindi Shire to utilise new information.
Whiteheads Creek Floodplain Management Study	Mitchell Shire Council	High priority. This commenced in September 2018. The need has come about due to community concerns. Mitigation options are being explored.
Flood Study of the Goulburn and Broken Rivers	Goulburn Broken CMA	Low priority. Draft hydrology report delivered in January 2019 by consultant HARC.
Sunday Creek Catchment Flood Intelligence and Mapping Study	Mitchell Shire Council	Medium priority. Venant Solutions were commissioned, and an inception meeting and tour was held in October 2018.
Boosey and Upper Broken Creeks Flood Study	Moira Shire Council	High-Medium priority. Study to be commissioned in 2019.
Land-use Planning: Priority actions 68 (28 high, 18 medium, 21 low, 1 very low). Status: 5 completed, 9 ongoing		
Nagambie Flood Study	Strathbogie Shire Council	High priority (completed). Flood zone and overlays completed. The Council will amend its Planning Scheme together with Euroa and Violet Town.
Euroa Flood Intelligence and Flood Mapping Study	Strathbogie Shire Council	High priority. Data is being analysed and flood zone and overlay controls are in preparation by the GB CMA with LGA.
Violet Town Floodplain Management Study	Strathbogie Shire Council	High priority (completed). Flood zone and overlays completed. The Council will amend its Planning Scheme together with Euroa and Nagambie.
Kilmore Flood Mapping and Intelligence Study	Mitchell Shire Council	High priority (completed). Flood zone and overlays completed.
Kyabram Flood Study	Campaspe Shire Council	High priority (completed). Mapping completed in 2018 with LGA. Put on hold until new flood study is completed.
Flowerdale Flood Zone and Overlays	Murrindindi Shire Council	High priority (completed). Flood overlays completed in late 2017. Murrindindi to consider this as part of an LGA-wide planning scheme amendment including Buxton, Taggerty, Marysville.
Rural flood mapping (Eildon & Nillahcootie catchments)	Goulburn Broken CMA	Low priority. Final report and hydrologic deliverables completed 2015-16. No flood mapping deliverable to date.
Hydrology of the Acheron catchment (Marysville, Buxton and Taggerty)	Goulburn Broken CMA	Medium-High priority. Hydrology and hydraulic modelling completed. Flood overlays to be completed for Planning Scheme Amendment.
Shepparton East Overland Flood Study	Goulburn Broken CMA	High priority. Study Completed early 2018. Flood Zone and overlay controls not yet analysed.
Shepparton Mooroopna Flood Mapping and Intelligence Study	Greater Shepparton City Council	High priority. Final report adopted by Council in 2019. Flood zone and overlay controls not yet analysed.
Whiteheads Creek Floodplain Management Plan	Mitchell Shire Council	High priority. Study is in its early stages.
Flood Study of the Goulburn and Broken Rivers	Goulburn Broken CMA	Medium priority. Draft hydrology report provided and yet to be reviewed. Expect report and flood mapping late 2019.

Project name	Lead agency	Status
Sunday Creek Catchment Flood Intelligence and Mapping Study	Mitchell Shire Council	Medium priority. Early stages of this project. Expect report and flood mapping late 2019.
Municipal Flood Emergency Plans: Priority actions 69 (20 high, 25 medium, 23 low, 1 very low). Status:6 completed, 5 ongoing		
Numurkah	Moira Shire Council	High priority (completed). The MFEP has been updated with relevant flood intelligence.
Granite Creeks Regional Flood Mapping Project (Hume Freeway to the Goulburn River)	DELWP	Medium priority. Water Technology has revised flood mapping and report that will has flood intelligence, which need to be placed into the MFEP.
Shepparton East Overland Flood Study	Goulburn Broken CMA	High priority (completed). Flood Intelligence has been extracted and included in the Greater Shepparton MFEP as part of the Shepparton Mooroopna Flood Mapping and Intelligence Study.
Shepparton Mooroopna Flood Mapping and Intelligence Study	Greater Shepparton City Council	High priority (completed). Flood Intelligence has been included in the Greater Shepparton MFEP.
Flood warning improvements for Benalla	Benalla Rural City Council	High priority (completed). MFEP has been prepared.
Yea River Flood Intelligence Project Study	Goulburn Broken CMA	High priority. MFEP requires a revision based on new gauge.
Whiteheads Creek Floodplain Management Study	Mitchell Shire Council	High priority. See TFWS for commentary. MFEP required an update following completion of the report.
Flood Study of the Goulburn and Broken Rivers	Goulburn Broken CMA	Low priority. This is across five LGAs where each MFEP will require revisions.
Sunday Creek Catchment Flood Intelligence and Mapping Study	Mitchell Shire Council	Medium priority. See TFWS for commentary. MFEP required an update following completion of the report.
Merrigum	Greater Shepparton City Council	Low Priority (completed). MFEP updated as part of Shepparton Mooroopna Flood Mapping and Intelligence Study.
Tatura	Greater Shepparton City Council	Low Priority (completed). MFEP updated as part of Shepparton Mooroopna Flood Mapping and Intelligence Study.
Acheron Valley (Buxton, Marysville and Taggerty)	Murrindindi	Medium priority. Update MFEP required following completion of the report.
Whole of region: Priority actions 10 (6 High, 4 Medium). Status: 0 completed, 2 ongoing		
Update flood information online	Goulburn Broken CMA	High priority. Update 1% Flood Atlas has commenced. Expect completion 2019
Community information portal (HydroNET)	Goulburn Broken CMA	High priority. Seeking options for implementation
Undertake exercising MFEPs	VICSES	High priority. Annually

Statutory Use and Development Planning



A breakdown of the number of floodplain referrals received from each local government area (under a range of Acts see page 47) and the average response time is shown in the graph above and in the table on page 51. In 2018-19, 98 per cent of responses were within the prescribed period with an average response time of 10.2 days.

Significant preparation was carried out for Victorian Civil Administrative Tribunal hearings.

Works and activities on a waterway, including its surrounds, require a permit from the Goulburn Broken CMA to ensure risks to river health and stability are not compromised.

Works and operations

Floodplain management actions 2018-19

Action	From funds received		
	Achieved ⁱ	% of responses	
Integrating knowledge into planning			
Land Use Development Direct Applications (LUD)	no.	214	25.8
Planning Scheme Amendment Direct Application (PSA)	no.	0	0
Flood Information Request Direct Applications (FIR)	no.	29	3.5
Other Direct Applications (DAOTH)	no.	3	0.4
Land Use and Development [Formal] (S 55)	no.	359	43.3
Land Use and Development [Advice only] (S 52)	no.	39	4.7
Certification of Subdivision (S 8)	no.	65	7.8
Subdivision and Certification (S 55 & S 8)	no.	0	0.0
Notice of Planning Scheme Amendment (S 19)	no.	8	1.0
Victorian Building Regulations [VBRs] (R 802)	no.	99	11.9
Other LGA Applications (LGAOTH)	no.	13	1.6
Query & Notification of Unauthorised Work	no.	0	0.0
Statement of Compliance (S 8)	no.	1	0.1
Work Plan [Minerals and Energy] (S 77)	no.	0	0
Total		830	
Victorian Civil Administration Tribunal and Planning Panels Victoria hearings	days	128	
Floodplain implementation			
Gazettal of Flood Amendment	no.	0	
Urban flood studies and management plans	no.	3	
Regional flood studies and management plans	no.	1	
Creating awareness			
Flood education and awareness program	no.	1	

i. Most actions are performed reactively so no targets are set annually, however there are KPIs relating to regulatory waterway/water functions (see page 91).

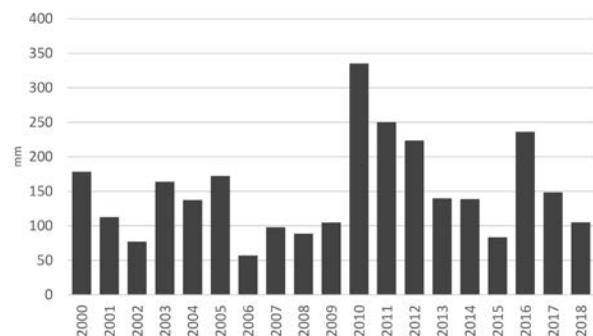
Works on waterways permits

There have been 59 permits issued for works and activities on waterways within an average response time of 11.6 days.

What's next?

- Expand the community flood report tool for those most at-risk communities.
- Local government planning scheme amendments to incorporate new mapping and performance-based assessment criteria will continue.
- Preparation of a four-year work plan and a monitoring, evaluation, reporting and improvement plan to assist with the implementation of the Regional Floodplain Management Strategy.
- Implementation of the Victorian and Regional Floodplain Management Strategies.

Annual river inflow Goulburn Broken Catchment, mm



i. Lower Goulburn River. Source: Australian National University, Fenner School of Environment & Society.

Investment area - Biodiversity

Compiled by Jenny Wilson, Steve Wilson, Janice Mentiplay-Smith, Jim Begley, Gaye Sutherland and Tony Kubeil.

Long-term and annual scorecard ⁱ

2018-19 performance	On target		
Catchment condition ⁱⁱ	1990	2019	Long-term risk
	Very poor	Poor	Very high

Native vegetation improvements, such as revegetation and stock control, have improved 1.6 per cent (24,819 ha) of the Catchment's private land in the past 10 years. This scale of change is not sufficient to ensure long-term survival of all native species.

Current threats, such as clearing, invasive pest plants and animals, and fire management, are exacerbated by climate change and have a compounding effect on past large-scale habitat loss and degradation.

Increased funding required to reduce risk of breaching thresholds.

Resilience assessment						Long-term strategy maturity ^v	
Critical attribute affecting long-term catchment health	Contribution to system function ⁱⁱⁱ		Risk to system thresholds/tipping point ^{iv}			Start	Stage
	1990	2019	Trend 2016-19	Long-term (10+ years)			
				Current support ^{vi}	No support ^{vi}		
Native vegetation extent	Very poor	Poor	Risk increasing	Very high	Very high	1997	Early
Native vegetation quality	Poor	Very poor	Risk increasing	Very high	Very high	2003	Middle

i. Appendix 1 describes the analytical framework. Ratings legend is inside front cover.

ii. Critical attribute contributions and risks are major considerations in rating catchment condition, along with indicators on higher level outcomes from managing these critical attributes, such as viability of threatened species and gross value of agricultural production. Long-term risk assumes ongoing support at current levels.

iii. System is Biodiversity; benchmark for contribution is the desired level, as defined (formally or informally) in 2019.

iv. Risk that system will not be in desired state of resilience in long term because of level of critical attribute contribution. Risks can be from biophysical threats, such as climate, or other, such as community's adaptive capacity. Desired state might be other than current state.

v. Long-term strategies vary significantly in formality: 'start' approximates when holistic, integrated approach to influencing critical attribute began.

vi. Support includes government funding and community (including individual) in-kind and financial investment for onground works and helping communities and individuals adapt.

Government investment, \$000

2016-17	2017-18	2018-19	2019-20 ⁱ
3,358	2,626	2,612	3,086

i. Forecast based on the Corporate Plan 2019-20.

Strategic references

Investment in the Catchment's biodiversity is guided by the Biodiversity Strategy for the Goulburn Broken Catchment 2016-2021 and other regional, state and national policies and strategies (see Appendix 6).

Background

Biodiversity provides habitat for native plants and animals, as well as direct benefits for people, such as; cultural connections to country, ecosystem services (water purification, productive soils, pollination) and aesthetically pleasing landscapes in which to live and recreate.

Biodiversity is integral to all social-ecological systems (SESS) and is therefore considered in all aspects of natural resource management. However, to provide focus and clarity for planning and reporting, such as in this Annual Report, the Goulburn Broken CMA has separated biodiversity from other biophysical features, such as land and waterways.

Since its inception in 1997, the Goulburn Broken CMA has been delivering biodiversity benefits and refining its long-term approach. Biodiversity strategies were evaluated and updated in 2000, 2004, 2010 and 2016.

Catchment condition – Biodiversity (since 1990)

Many ecosystems, plant and animal communities, and species are threatened with extinction, which is reflected in their National and State Conservation Status. The Goulburn Broken CMA aims to achieve more resilient ecosystems and more viable populations of native species, with efforts focused on increasing the extent and quality of habitat.

Long-term objectives: By 2030:

- Increase the extent of native vegetation in fragmented landscapes by 70,000 ha .
- Improve the quality of 90 per cent of existing habitat by 10 per cent .
- Increase the population viability of 20 flagship species.

The change in extent of native vegetation is relatively easy to measure (with assumptions), and it has also been scientifically identified as a critical attribute for system function. Habitat quality and species' population viability is much more difficult to measure. Therefore, extent is currently the major indicator of catchment condition.

The trend in change of native vegetation extent is significantly below target (see graph page 57). The amount of revegetation possible to increase extent on private land is currently restricted by funding and not by the desire of communities or individual landholders to revegetate.

While we can readily measure progress towards a

native vegetation extent target, we continue to work with scientists to try and understand changes in native vegetation quality and species' population viability, as surrogates for resilience. Our understanding of whether we are creating resilient landscapes is not well understood. Climate change effects, such as; the increased likelihood and frequency of fire, intense rainfall events, drought and heat waves, are likely to create losses that are not easily measured or well known. Species are likely to continue to become extinct with little understanding of how we best

intervene, or without enough funding to reverse declines. Other factors to consider given likely near-future extinctions include: the continued decline in threatened species as the 'extinction debt' from past clearing is realised; competition from pest species; habitat loss through, for example, logs used for firewood and 'cleaning up' by landholders, and the fragmentation effect of clearing, which results in the inability of flora and fauna to move through landscapes, increasing the risk of extinction through subsequent loss of sub-populations.

Long-term strategy implementation progress and 2018-19 performance

The Biodiversity Strategy's initiatives and actions, which are aligned with Australian and Victorian government strategies and priorities, provide ways to increase biodiversity conservation and progress towards targets. The Goulburn Broken CMA attracts funds from diverse sources to implement the Biodiversity Strategy by demonstrating links between project proposals and catchment-scale strategies in biodiversity-focused and multiple-themed projects. While the strategy focuses more on terrestrial biodiversity, waterways and wetlands are also critical parts of biodiversity, and these are described in the Waterways section (page 35).

Long-term strategy implementation progress	2018-19 performance
Biodiversity Program	
Strategic direction 1: Adapting to change	
<p>Natural resource management policy and socioeconomic drivers are changing rapidly, providing significant threats and opportunities for biodiversity conservation. The Biodiversity team continues to adapt to changes in a variety of ways by: responding to and influencing strategies of all CMA programs and other NRM agencies; adapting a resilience approach to strategic planning and project delivery; improving understanding of and responding to, relationships between social and economic factors in biodiversity conservation, in particular the interactions and opportunities in agricultural landscapes; looking for opportunities for diversification of funding; supporting community engagement opportunities within a changing social and media environment; and working with researchers to improve practices and understand outcomes of works.</p>	<p>The Goulburn Broken Biodiversity Strategy 2016-2021 is being implemented. DELWP's State Biodiversity Plan 2037 is being delivered through a diversity of Victorian government funded projects and participation in project assessment panels.</p> <p>A Goulburn Broken CMA staff member is on the VicEnvironments Scientific Sub-committee, which was tasked to develop DELWP's Biodiversity Research Plan.</p> <p>Community priorities continue to be addressed for the 'Bogies and Beyond' project, including new and emerging threats such as large-scale tree deaths due to climate change and Indian Mynah'encroachment, by developing relevant projects with working groups.</p> <p>Strategic works were delivered in priority landscapes e.g. Linking Lower Goulburn (funded through OCOC), priority linkages e.g. Ribbons of Blue and Sashes of Green (BRP), landscape elements e.g. waterways as corridors and drought refugia, rocky outcrops (OCOC), and large old paddock trees (Year of the Paddock Tree (RLP)).</p> <p>Strategic works were also delivered through the Mending Mountains for the Pygmy-possum project to align with Mountain Pygmy-possum recovery plan objectives at State and Federal levels.</p> <p>Knowledge of cultural land management improved and was applied to project delivery where applicable. Traditional Owners were engaged as service delivery partners to deliver NRM works on Country. Traditional Owners aspirations were aligned with Traditional Owner Country Plans.</p> <p>'From the Ground Up' and the Nature@Work concept continue to consider social and economic factors in engagement with the farming industry. The community continues to have input into project priorities and delivery e.g. 'Bogies and Beyond'.</p> <p>Goulburn Broken CMA continued to increase knowledge and understanding of adapting to change by attending: a DELWP-led climate species workshop at Cranbourne Botanic Gardens to maximise adaptation potential of species; the Biodiversity Across Borders conference (Federation University) and Landscape Change conference (La Trobe University).</p> <p>A SmartFarms (NLP) project submission for 'Nature@Work' was not successful. It aimed to understand the importance of using and enhancing nature to improve production.</p> <p>The Nature@Work concept is being further developed with Melbourne and La Trobe Universities.</p>

Long-term strategy implementation progress	2018-19 performance
Strategic direction 1: Adapting to change (continued)	
	<p>Several flyers were produced to engage with farmers about the ability to increase profits by working with and improving natural systems.</p> <p>Social media is increasingly used to deliver messages about projects.</p> <p>Several field days promoted the 'Linking Landscapes and Communities; Grey Box Grassy Woodlands Project' (RLP), including at the Euroa Arboretum, where topics included traditional fire management, seed production, and grassland restoration techniques.</p> <p>Year of the Paddock Tree included a successful campaign relying on social media to promote the value of paddock trees through videos, flyers and traditional media.</p> <p>Birds continue to be used as an indicator of condition change (RLP and OCOC), and baseline and ongoing data are collected seasonally, including the first ever systematic bird survey of the Strathbogie Ranges. Results highlighted the value of revegetation.</p> <p>Climate change adaptation: Better revegetation techniques are being developed through understanding and improving seed genetics and viability, particularly at a time of climate change (working with CSIRO and Charles Sturt University).</p> <p>Several universities and many scientists continued to be supported in research projects, such as 'Leaf Litter to disperse soil microbes', FungiMap, monitoring nest boxes, understanding outcomes of revegetation (State and Transition Model) and population monitoring of Mountain Pygmy Possums, which also initiated the first ever survey of Bogong Moths.</p>
Biodiversity strategic direction 2: Nurturing partnerships	
<p>The Biodiversity team continues to have a focus on building on and nurturing partnerships, with agencies, community networks and groups, indigenous groups and individuals.</p> <p>Partnerships are growing, which is reflected in the development and delivery of partnership projects.</p>	<p>The team continues to work with partners to provide opportunities for collaboration (e.g. Year of the Paddock Tree), cross-promotion of projects, and information-sharing through via formal and informal meetings, symposia, joint production and dissemination of media (e.g. Illegal Firewood Collection), and continued community engagement (e.g. Community Networks as service delivery agents).</p> <p>Taungurung Land and Waters Council (TLWC) and Yorta Yorta Nation Aboriginal Corporation (YYNAC): Indigenous partnerships continued to grow through attendance at the Goulburn Broken Indigenous Consultation Group, which ensures both Taungurung and Yorta Yorta people are informed and engaged at all stages of project development.</p> <p>YYNAC and TLWC are preferred suppliers for onground works, providing significant employment, and are actively engaged in training opportunities that build capacity. For example, the Woka Walla crew contributed significantly to Yorta Yorta country in 2018-19. The project crew of five helped deliver the Longwood Plains Reserves (BOA) and the Linking Landscapes and Communities (RLP) projects, carrying out weed control, bird surveys and revegetation across 15 public land reserves. The TLWC NRM team delivered monitoring, weed control and pest animal control for the Mending Mountains for the Pygmy-possum project at Mount Buller.</p> <p>Cultural burning practice partnerships with YYNAC, DELWP and CFA resulted in burning two hectares of a grassland and identified reserves for future burns through the joint fuel management plan (in 2019-20).</p> <p>A highlight was the Firesticks three-day workshop in Barmah, which had over 400 attendees, including Goulburn Broken CMA staff, and Euroa Arboretum and South West Goulburn facilitators currently working with Traditional Owners through Goulburn Broken CMA projects. This builds Traditional Owner capacity to manage country and enables the Goulburn Broken CMA to support and create opportunities for cultural burns on public and private land.</p>

Long-term strategy implementation progress	2018-19 performance
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Biodiversity strategic direction 2: Nurturing partnerships (continued)

Partnerships with DELWP include: developing projects and delivery of biodiversity response planning in areas 1, 8 and 10, resulting in funding of the Ribbons of Blue and Sashes of Green (ROBSOG) project and cross-promotion and support for Year of the Paddock Tree.

The final year of the joint project with North East CMA and North Central CMA was delivered (Victorian Government funded VEPP project Northern Eco Connections).

Four meetings of the Goulburn Broken chaired Local Government Biodiversity Reference Group were held, convened by Goulburn Broken CMA and funded by the Australian Government's National Landcare Program. This initiative builds capacity of local government and other participants (Vic Roads, CFA, Goulburn Broken CMA, DJPR, DELWP, Broken Boosey CMN) to play an active role in NRM by developing skills, knowledge and strong and collaborative partnerships. Guest presenters facilitate knowledge between groups.

Relationships with Parks Victoria continue to grow via project delivery, including: Linking Lower Goulburn (OCOC), where Parks Victoria leveraged resources to increase outputs, such as rubbish removal and weed control, beyond the scope of original project funding.

Parks Victoria is also a partner in the Longwood Plains Reserves project (BOA), and ROBSOG (BRP) where they will control goats in Whroo-Rushworth Reserves.

Parks Victoria is a partner in the Mending Mountains for Pygmy-possum project, which includes protecting Alpine Sphagnum Bogs in the Alpine National park. Survey work at Mount Howitt found no new populations.

Twelve community groups and networks were engaged as service delivery partners, building capacity and delivering incentives and community engagement projects. The groups are: four Conservation Management Networks (Longwood Plains, Broken Boosey, Whroo Goldfields, and Strathbogie Ranges); six Landcare Networks (Up2Us, South West Goulburn, Upper Goulburn, Goulburn Murray, Hughes Creek Catchment Collaborative and Gecko Clan); and two 'friends groups' (Regent Honeyeater Project and Euroa Arboretum). The groups have adapted to reporting requirement changes and continued strong relationships ensure timely delivery of projects.

Euroa Arboretum continues to be an important partner across Goulburn Broken CMA business, providing seed production expertise: seed collection, cleaning and processing; plant propagation, weed and flora surveys.

The Annual Landcare Community Network Report card was completed with a 51 per cent response rate.

All projects: 552 hectares are under 10-year management agreements with 48 landholders. There continues to be more expressions of interest received than funding available. From this and past projects, 340 landholders currently are under agreement who submit Annual Milestone reports on activities achieved.

Opportunities were sought to involve the health sector in understanding benefits of connecting with nature, however building this partnership continues to be a challenge.

Goulburn Broken Seedbank, managed by Goulburn Valley Community Energy and supported by University of Melbourne, Dookie, continues to support revegetation through the targeted supply of genetically diverse seed.

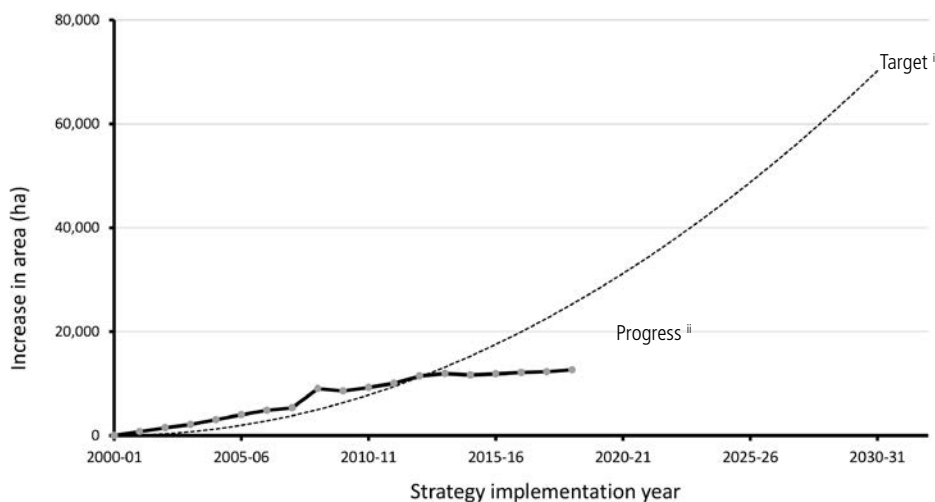
Long-term strategy implementation progress	2018-19 performance
Biodiversity strategic direction 3: Investing more wisely	
<p>Investment in biodiversity conservation in the Catchment is increasingly delivered within a resilience framework, which considers a range of factors and drivers of landscape change that we can respond to. Identifying priority landscapes for onground works and promotion of biodiversity conservation will be a focus of local plan development and implementation.</p> <p>This will result in more targeted funding and increased certainty that works are achieving desired outcomes.</p> <p>Continuous improvement and adaptive management underpin the implementation of the Biodiversity Strategy. Synergies are identified between the Biodiversity Strategy, government funding priorities and the formal Expressions of Interest (EOI) process, which identifies project priorities of community and other partners.</p>	<p>The Biodiversity Monitoring Action Plan continued to guide research priorities and help with understanding progress towards catchment targets. The team worked with a range of scientists to achieve adaptive management and showcase outcomes of environmental works.</p> <p>Biodiversity team staff are working with Melbourne University to understand vegetation condition change.</p> <p>Incentive delivery guidelines were updated to adapt to the new RLP and ROBSON projects.</p> <p>The 'Bogies and Beyond' project (OCOC) was delivered within a resilience framework, considering climate change scenarios. There are three key sub-projects; 1. The Tree Storey, 2. Bore monitoring, and 3. Mansfield's Future Matters, which are: delivering environmental works with farmer, developing and promoting citizen science projects that are measuring tree health and ground water depths and changes related to rainfall.</p> <p>Delivery of the Australian Government's Regional Land Partnerships (RLP) program focuses on achieving priority government outcomes for threatened vegetation communities and species. Collecting baseline data through social, ecological and weed surveys is ensuring strategic delivery of future outputs.</p> <p>Funding continues to be targeted to priority landscapes, regions, sites, vegetation communities and drought refugia.</p> <p>The 20 flagship species target influences which species are used to promote projects (e.g. 'Operation Dunnart' to promote grassland conservation) and information flyers have been produced for five flagship species.</p>
Biodiversity strategic direction 4: Building on our ecological infrastructure	
<p>Significant effort continues to build biodiversity understanding and awareness across the Catchment. While more landholders may be viewing biodiversity conservation as a legitimate land use and integral part of land management, financial, technical and other support for them to actively manage biodiversity needs to be available with support from both investors and the broader community. The importance of the links between biodiversity conservation and agricultural production has been promoted through providing opportunities for landholders to act as stewards of the land.</p> <p>Ongoing efforts are required to promote synergies between biodiversity conservation and land management at the farm and landscapes scales.</p> <p>Conservation Management Networks continue to play a valuable role in promoting the importance of biodiversity conservation across land tenures.</p> <p>Mixed and unclear messages from a range of sources, such as ongoing changes to native vegetation clearing regulations, pose challenges in strengthening community support for biodiversity conservation.</p>	<p>The Linking Landscapes and Communities Enhancing Grey Box Grassy Woodlands and Derived Grasslands project delivered 82 hectares of revegetation and 7 land management agreements on private land; 250 ha of pest animal control, and 429 ha of weed control on public land.</p> <p>The Mending Mountains for Pygmy-possums project increased and improved 33 ha of critical habitat through 6 ha of revegetation, 1,000 ha of cat control, and 30 ha of weed control.</p> <p>Victorian government-funded projects: Two Biodiversity Response Planning projects: 1. Linking Lower Goulburn project delivered 40 ha under management agreements with landowners. 2. Ribbons of Blue and Sashes of Green delivered 81 ha under 10-year management agreements. This focused on ephemeral waterways as critical biodiversity habitats.</p> <p>The Longwood Plains Reserves project (BOA) delivered 109 ha of weed control and 16.5 ha of revegetation.</p> <p>The Swift Parrot Winter Wanderers project (20 Million Trees) delivered 49 ha of revegetation and 52 ha of weed control. The two Turquoise Parrot projects (BOA) resulted in 150 nest boxes.</p> <p>The Building Habitat for Superb Parrot project (20 Million Trees) delivered 52 ha of revegetation and weed control at Numurkah.</p> <p>Victorian Government's Landcare Grants: 18 individual onground projects were funded in 2018-19 and 13 organisations were supported. Outputs included community engagement, pest plant and animal control, and threatened species protection.</p> <p>Silver banksia seed production continues across the catchment with 5,000 trees ordered for the 2019 planting season. Past seed production sites are mature and providing seed for revegetation projects.</p> <p>Goulburn Broken CMA continued support of seed production areas and the Dookie Seedbank to continuously improve seed genetics.</p>

Long-term strategy implementation progress	2018-19 performance
Biodiversity strategic direction 5: Legitimising biodiversity conservation	
<p>Significant effort continues to build biodiversity understanding and awareness across the Catchment. While more landholders may be viewing biodiversity conservation as a legitimate land use and integral part of land management, financial, technical and other support for them to actively manage biodiversity needs to be available with support from both investors and the broader community. The importance of the links between biodiversity conservation and agricultural production has been promoted through providing opportunities for landholders to act as stewards of the land.</p> <p>Ongoing efforts are required to promote synergies between biodiversity conservation and land management at the farm and landscapes scales.</p> <p>Conservation Management Networks continue to play a valuable role in promoting the importance of biodiversity conservation across land tenures.</p> <p>Mixed and unclear messages from a range of sources, such as ongoing changes to native vegetation clearing regulations, pose challenges in strengthening community support for biodiversity conservation.</p>	<p>The Goulburn Broken CMA used a wide variety of means to communicate biodiversity issues, including events, media and flyers, one-on-one discussions and meetings, often delivered by community groups.</p> <p>Biodiversity Spring: coordinated events continued to be carried out by many community groups, with 191 events advertised.</p> <p>Several flyers were developed for Nature@Work, focusing on 'Increasing Profits through Shade and Shelter'.</p> <p>Year of the Paddock Tree: this highly successful initiative resulted in seven videos and various social media activities, making the project widely recognised. Videos included shade for stock, stubble burning management, value of paddock trees, incentives available, regional forum, birds.</p> <p>The Goulburn Broken CMA has a monthly spot on local ABC radio to discuss the Catchment's flora and fauna.</p> <p>Presentations were made to U3A, schools, Dookie College, community groups, Landcare groups, Probus, partner agencies, conferences and workshops on various topics around biodiversity conservation. Native vegetation clearance regulations input.</p> <p>Threatened species have been used to promote biodiversity conservation including bush stone-curlew, fat-tailed dunnart and turquoise parrot.</p> <p>A citizen science project, the Tree Health Survey (OCOC) has 202 trees being monitored by the community through the associated Tree Health App.</p> <p>Native vegetation clearing regulations: the Victorian Native Vegetation Regulations provided some positive changes with greater emphasis on avoid and minimise and recognition of large trees. Goulburn Broken CMA continues to collaborate with DELWP via new compliance officers, and with local government, to provide information on Regulations (e.g. Year of the Paddock Tree 'legislation' forum at Shepparton Council.</p>

Community capacity, engagement and involvement

Long-term strategy implementation and 2018-19 performance related to the community are included throughout the above table.

Progress towards native vegetation extent targetⁱ, increase in area, hectares



- i. Resource condition target (revised 2009): Increase the extent of native vegetation in fragmented landscapes by 70,000 hectares by 2030 to restore threatened Ecological Vegetation Classes and to improve landscape connectivity. Note that native vegetation extent is just one indicator of biodiversity. Other indicators such as native vegetation quality are more difficult to measure.
- ii. Based on assumptions of gains in vegetation (such as revegetation and natural regeneration) and losses of vegetation (such as legal and illegal clearing). Vegetation burnt by major fires in natural areas is not included as a loss of extent, as it is assumed the area burnt will regenerate by 2030. However, direct vegetation removal associated with fires, such as removal of 'high risk' trees on roadsides and private land or death of scattered paddock trees from fire, is assumed as a loss in the net outcome in the year of the fire (for example, the 2009 Black Saturday fires, the 2014 Wunghnu fires and the 2015 Lake Rowan, Stewarton and Strathbogie fires) and includes an ongoing loss due to fire suppression activities. Detailed explanation of these assumptions can be found in the Goulburn Broken CMA's Biodiversity Monitoring Action Plan upon request.

Actions 2016-17, 2017-18 and 2018-19

Action	From funds received			
	Achieved ⁱ		Target	% achieved
	2016-17	2017-18	2018-19	

Stock grazing management action

Fence terrestrial remnant vegetation	ha	696	598	331	222	149
Fence wetland remnant	ha	137	0	2	-	
Fence stream/river remnant ⁱⁱ	ha	294	161	166	49	339
Binding management agreement (licence, Section 173, covenant)	ha	18	104	-	-	
Grazing regime change	ha	-	-	-	-	

Habitat loss management

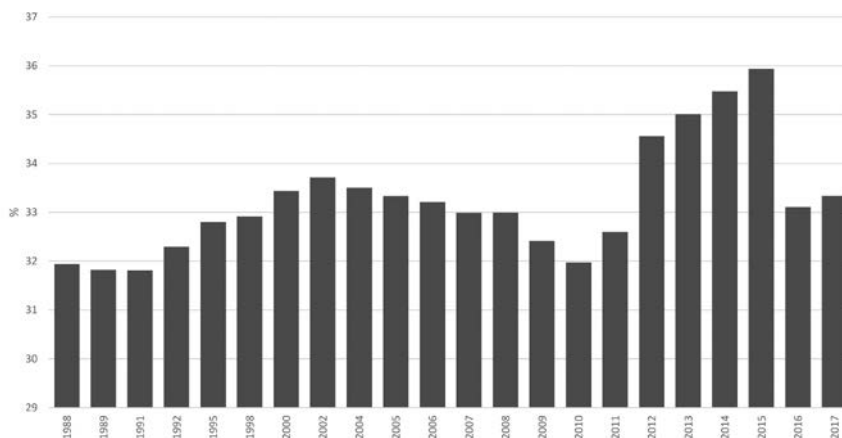
Revegetation – plant natives	ha	487	413	625	450	139
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- i. Achievements include those from complementary investment areas (SIR salinity, Riparian and instream habitat and channel form and Dryland salinity). For a full list of footnotes please see Appendix 4 on page 134.
- ii. Area figure supplied by River and Wetland Health Program Manager.

What's next?

- Continue to support Traditional Owners in their endeavour to build skills, knowledge and capacity to deliver works on country.
- Support Traditional Owners to have a greater influence in natural resource management planning, including use of Traditional Ecological Knowledge in mainstream land management practice, resulting in increased First Nations-led projects on country.
- Continue to strive to deliver projects that align with aspirations and objectives of TLWC and YYNAC Country Plans.
- Review the community NRM Action Plan.
- Review the Goulburn Broken Biosecurity and PPA Plan.
- Implement the Biodiversity Strategy for the Goulburn Broken Catchment 2016-2021.
- Contribute to SES local planning, as SES local plan managers (Upland Slopes and Productive Plains).
- Legitimise biodiversity conservation through community engagement and support to landholders and community groups.
- Improve understanding of outcomes from biodiversity works and communications by continuing to work with research and industry partners.
- Continue to promote systems-based approaches for land management to achieve whole-of-farm and catchment outcomes for both biodiversity and agricultural productivity through Nature@Work project development.
- Continue to integrate climate change adaptation into project design.
- Deliver the range of DELWP and RLP funded projects.
- Continue to work with DELWP, AgVic, PV and other partner agencies to add value to projects.

Goulburn Broken Catchment Tree cover change ⁱ



- i. Source: Australian National University - Fenner School of Environment & Society. Better data analyses may be reflected in changes over time rather than actual increases in extent. While changes look large, the biggest modelled change is only a three per cent increase in extent from 1980 – 2015 (30.5 to 33.5). This change is not sufficient to create resilient landscapes nor to achieve 2030 targets.

Investment area - Land

Compiled by Ashley Rogers, Rhiannon Apted, Tony Kubeil, Karen Brisbane-Bullock, Kerstie Lee, Steve Wilson, Jaye Caldwell (AgVic) and Brad Costin (AgVic).

Long-term and annual scorecard ⁱ

2018-19 performance	On target
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Catchment condition ⁱⁱ	1990	2019	Long-term risk
	Poor	Satisfactory	Medium

The increased awareness of how soils can be improved is being applied on many farms.

Continued dry conditions are also impacting soil health in the region.

The purpose and use of private and public land have generally improved (especially grazing in sensitive areas).

Catchment-wide invasive plant and animal management is now mainly focused on new and emerging species and complementing community activity. Under present arrangements, there are high and increasing long-term risks in hot-spot areas from existing and emerging threats like deer in the alps, foothills and plains, and feral horses in Barmah National Park (especially when extremely dry).

Resilience assessment						Long-term strategy maturity ^v	
Critical attribute affecting long-term catchment health	Contribution to system function ⁱⁱⁱ		Risk to system thresholds/tipping point ^{iv}			Start	Stage
	1990	2019	Trend 2016-19	Long-term (10+ years)			
				Current support ^{vi}	No support ^{vi}		
Soils for agriculture	Very poor	Satisfactory	Stable	Medium	High	2006	Middle
Purpose and use of private land	Poor	Satisfactory	Stable	Medium	High	2006	Watch & maintain
Purpose and use of public land	Poor	Satisfactory	Stable	Medium	High	2006	Watch & maintain
Invasive plants and animals	Satisfactory	Poor	Risk increasing	High	Very high	2001	Middle

- i. Appendix 1 describes the analytical framework. Ratings legend is inside front cover.
- ii. Critical attribute contributions and risks are major considerations in rating catchment condition, along with indicators of higher level outcomes from managing these critical attributes, such as viability of threatened species and gross value of agricultural production. Long-term risk assumes ongoing support at current levels.
- iii. System is Land; benchmark for contribution is the desired level, as defined (formally or informally) in 2019.
- iv. Risk that system will not be in desired state of resilience in long term because of level of critical attribute contribution. Risks can be from biophysical threats, such as climate, or other, such as community's adaptive capacity. Desired state might be other than current state.
- v. Long-term strategies vary significantly in formality: 'start' approximates when holistic, integrated approach to influencing critical attribute began.
- vi. Support includes government funding and community (including individual) in-kind and financial investment for onground works and helping communities and individuals adapt.

Government investment, \$000

2016-17	2017-18	2018-19	2019-20 ⁱ
762	814	435	420

- i. Forecast based on the Corporate Plan 2019-20.

The Australian Government invests in the Goulburn Broken Catchment's 'land' via the From the Ground Up project and Regional Agriculture Landcare Facilitator project, funded through the National Landcare Program. Although there is no dedicated funding for many aspects of land, such as soil conservation works (like gully erosion management) and invasive plant and animal management, the Goulburn Broken CMA is able to influence land outcomes through investment in complementary project activities, such as: through the CMA's role as a referral authority on flood-prone land, community extension and engagement, and participation in multi-stakeholder forums. Where possible, the Goulburn Broken CMA implements works to complement community projects funded through programs like the Australian Government's National Landcare Program and the Victorian Landcare Program.

Strategic references

The Goulburn Broken Land Health Strategy 2017-2020 guides investment of public funds in improving the Catchment's land resources, with a significant focus on soil health. The Goulburn Broken Invasive Plants and Animals Strategy 2010-2015 sets the high-level direction for invasive plants and animals investment in the Catchment and supports the State Invasive Plants and Animals Policy Framework. Priorities for pest management are also guided by community support. The Murray-Darling Basin Authority and Victorian Government's land, salinity and agricultural strategies are also pertinent references for land management. Appendix 6 includes a more complete list.

Background

Although 'land' is a category of the environment that is commonly used in natural resource management, including by government investors, it is not well defined. However, where the purpose of land is well defined, such as soils for specific types of agriculture, interpretations can be shared, which makes for more straightforward decisions.

This section helps to surface the most important land-related social-ecological issues. Four critical attributes for long-term resilience are proposed (see scorecard above).

As part of connected systems of people and nature, land supports ecosystems that provide many services, including habitat for native plants and animals, natural water purification, agriculturally productive soils, and aesthetically pleasing landscapes in which to live and recreate.

Furthermore, many communities depend on resilient and agile agricultural and nature-based tourism sectors to support local employment and businesses.

Two-thirds of the Catchment is private land that is mainly used for agriculture: farmers are the largest custodians of private land, and are therefore responsible for a large part of the Catchment's natural environment.

Farmers have to respond to fast and slow changes affecting their operating environment such as world markets, changing technologies, climate change and variability, and water availability. Supporting farmers to manage their land sustainably benefits farm profitability, ecosystem health, social wellbeing and increases communities' capacity to prepare for, and respond to, change.

Soils for agriculture

Australia's ancient soils need care to have sufficient structure and fertility for agriculture. The capacity of soils to sustainably support agriculture can be compromised by the pressure on farmers to maximise production in the short term. It is in the national, regional and local communities' interest for farmers to build long-term capacity of soils so that existing enterprises can be sustained, or alternatives pursued.

Agricultural soils are in areas cleared and cultivated for dryland and irrigated cropping and pastures, horticulture and viticulture, and cleared for grazing.

In the late 1980s, in non-irrigated parts of the Goulburn Broken Catchment, agricultural soils were in very poor condition across broad areas. Shallow-rooted annual pastures were dominant, and other 'features' of the landscape were sheet and gully erosion, and compacted, waterlogged and salinised soils. Sheep grazing in the hills and cattle grazing in and along much of the Catchment's waterways also contributed significantly to poor soil condition. This also impacted water quality in the Catchment's waterways, with high levels of turbidity, salinity, and nutrient loads.

Working with partners, the Goulburn Broken CMA helps farmers meet long-term goals for the soil's capacity to store carbon, hold water, and support soil biodiversity. These long-term goals for soils are addressed by reducing soil acidity, water erosion, salinity, and by increasing soil organic matter.

Catchment condition (since 1990)

Long-term objectives: Between 2017 and 2020:

- Increase or maintain soil pH at 4.8-5.0 (CaCl₂) on 45,000 ha of farming land, or 150 properties.
- Improve or maintain soil organic carbon equal to or above 2 per cent in annual cropland, and equal to or above 5 per cent in pasture and permanent plantings.
- Maintain greater than 70 per cent groundcover 100 per cent of the time on 150 agricultural properties.

Apart from the Agricultural Floodplains SES, soil pH is mostly in a range where plant nutrient uptake is affected by soil acidity (Costin 2019), which is generally understood and managed by farmers.

Across the Catchment, the median soil organic carbon level is 2.7 per cent, although significant spatial variation has not been related to land use, prompting caution in interpreting this figure.

Wind and water erosion risk is being mapped over broad geographic areas. Methods for setting and communicating groundcover targets and evaluating progress need to be considered carefully. Factors to consider include:

- groundcover is critical in preventing erosion, however the amount of groundcover needed varies considerably with topography, soil type, rainfall and land use;
- seasonal conditions impact dramatically on achievable groundcover.

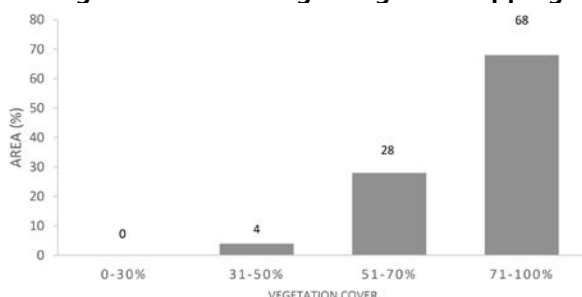
Extremely dry years like 2018-19 place pastures under pressure and lead to increased soil exposure, which can result in small-scale soil loss events, such as hillslope, rill and wind erosion.

Farmers responded to dry conditions in 2018-19 by using sacrifice paddocks, weaning early, destocking, reducing breeding herds and flocks, and buying in feed and water. However, with very high grain and fodder prices, some livestock are in poor condition, and while some farmers continue to fertilise and use lime, others have opted out. Labour costs have increased significantly because livestock need feeding every one-to-three days.

Since 1990, perennial grasses have been returned to steep hills and farmers are aware of the importance of groundcover, revegetation of eroding gullies, and soil acidity and management.

Practice changes include grazing management, minimum or zero tillage and stubble retention, and soil-test interpretation. However, regional-scale soil repair is incomplete because some farmers have not changed practice and there is a lag-time between practice change

Total vegetation cover in grazing and cropping land of Goulburn Broken Catchment, April 2019 ⁱ



Agricultural land is defined as cropping and grazing land and is 66 per cent of the Catchment. As at April 2019, 68 per cent of this agricultural land might be protected from wind and water erosion because it has greater than 70 per cent cover. However, cover can vary quickly. By May 2019, 86 per cent of agricultural land had greater than 70 per cent cover, although large areas were bare in December 2018.

ⁱ GEOGLAM RAPP Map, accessed June 2019

and soil health improvement. Also, some current best practices, such as minimum or zero tillage, are not always complete farming solutions because other issues can arise, like residue and pest management. Other more chronic soil problems, such as compaction, acidification, erosion, and soil carbon loss, are not immediately obvious, prompting the need for soil assessment to determine potential solutions.

Saline discharge sites remain present and active, with most sites able to be managed, confining impact to the local site or farm. It remains an expectation that saline discharge will emerge as a more obvious problem in wet years.

Purpose and use of private land

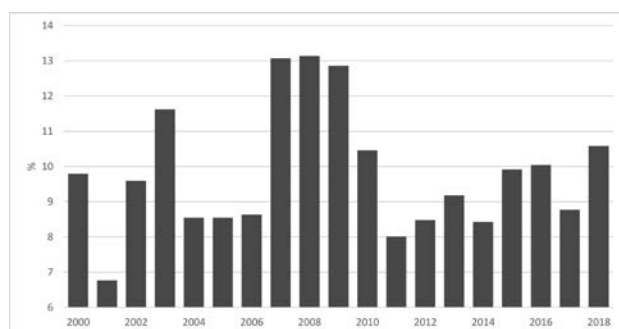
As well as how land is used, the purpose of what land is used for is significant in determining its capacity to meet short and long-term needs. The purpose of what land is used for is closely linked to how it is used, for example, if it is used specifically for cropping or for native biodiversity. It is important to work with local governments through their planning processes to match what land is used for to its capability.

Private land has many uses. As markets, climate, land value, farmer age and other aspects of farming change, some farmers are choosing to retain their existing enterprise and adapt their approach and management practices (the 'how' land is used). Others may have transitioned to a completely different purpose (the 'what' land is used for). For example, dryland cropping has become a significant land use in the plains, having evolved from grazing or mixed farming in response to low stock water availability and good grain prices. Livestock infrastructure like fences and watering points have often been removed to make way for new and more efficient cropping technologies. These transitions can have significant implications for the support required to service farmers' and communities' short-term needs, while ensuring the health of natural resources in the longer term.

Catchment condition (since 1990)

There are opportunities for both biodiversity and agricultural outcomes to be realised within farms and across landscapes. Native vegetation corridors, for example, provide woodland bird habitat, increase beneficial insects, pasture and stock shade and shelter, increasing livestock welfare and production. Some farmers are also working with native grass species in steep areas, or areas with fragile soils. Many farmers are treating large areas of their farms differently and, often with support, have been fencing, protecting vegetation and revegetating, usually in alignment with cross-property area landscape plans.

Goulburn Broken - Percentage of exposed soilⁱ



i. Source: Australian National University - Fenner School of Environment & Society.

Water policy reform and reduced water availability over the last decade is forcing fundamental changes in the 270,000 hectares of the Shepparton Irrigation Region (see Sustainable irrigation section page 67).

Elevated land values continue to drive farm subdivision and land turnover. Commodity prices have also driven significant changes in land use: for example, the shift in dairying to opportunistic irrigation (such as fodder production, livestock trading and cropping) and the expansion of continuous cropping.

Where appropriate, Goulburn Broken CMA and partners encourage farmers to provide broader community benefits by using areas of native vegetation, waterways and wetlands for more passive purposes. These aspects of land-use purpose are reported in the Biodiversity and Waterways sections. The Goulburn Broken CMA also works with industry and Landcare groups to support innovation in farming methods that increase sustainability such as pasture cropping, multi-species cover cropping, and regenerative grazing.

Purpose and use of public land

The primary purpose for the use of 800,000 hectares of the Catchment's public land is largely set: it is primarily reserved for environmental and cultural conservation, nature-based tourism and timber harvesting.

Active management of public land is needed in areas of relatively more passive use because visitor numbers are rapidly increasing and, along with invasive plant and animal pressures, can lead to negative environmental and cultural heritage impacts. For example, illegal rubbish dumping, driving on sandhills, weed spread via vehicles, or firewood collection without a permit, can reduce habitat for native species and impact on Traditional Owners' cultural heritage.

People fish and camp along the Catchment's many waterways, including Victoria's largest and most preferred fishing locations: the Goulburn River, Victoria's most popular lake for fishers, Lake Eildon, and the world's largest red gum forest in Barmah National Park (Victorian Fisheries Authority, accessed 2017). The proximity of the Catchment's Alps to Melbourne make them a prime destination for visitors.

The Goulburn Broken CMA helps partner agencies manage public land and stakeholders identify actions needed to meet short-term community expectations, while aiming for long-term resilience.

Catchment condition (since 1990)

The overwhelming trend in what public land is used for has been towards more passive purposes, such as conservation and recreation, with large areas having undergone a change in reservation status since 1990. National Parks like the 9,310 hectares Lower Goulburn National Park and the 28,500 hectares Barmah National Park have been established. Licences to graze Crown frontages along streams have been revoked as part of establishing these national parks, and significantly tighter restrictions have been placed on other existing Crown frontage licences. The changed reservation status has benefited native vegetation and associated ecosystems, improving water quality and land and water habitat for biodiversity.

Although environmental resilience has improved as a result of these changed purposes of land use, significant challenges remain or have emerged, like climate change, invasive plants and animals, and increased recreation pressure (see www.heartofvictoria.com.au/nature-at-its-best).

Some pockets of tension between personal and broader community purposes, such as those related to logging, deer, or feral horses, require significant whole-of-stakeholder commitment to resolve.

Invasive plants and animals

In the Goulburn Broken Catchment, invasive plant and animal management is built into projects and programs where possible. The 'biosecurity approach' of the Goulburn Broken Invasive Plants and Animals Strategy 2010-2015 emphasises the prevention and eradication of high-risk new or emerging weed species. This approach is considered the most cost-effective use of limited resources.

Where groups demonstrate sustained, coordinated effort over several years to control State priority invasive plants and animals, AgVic endeavours to provide support through targeted compliance programs.

The Goulburn Broken CMA participates in the North-East Deer Round Table forum, introducing the community to commercial control methods and keeping landholders up to date.

Community groups are leading coordination of local weed programs. In Mansfield, the Up2Us Landcare alliance coordinates a biannual agency-community weeds forum to collaboratively make best use of limited resources. On the northern side of the Strathbogie Ranges, the Balmattum Sheans Creek Landcare Group is working with Strathbogie Shire Council to control Blackberry and Briar rose on roadsides and adjoining land.

Other Shires adjacent to these have borrowed the model to more effectively coordinate pest plant and animal management, emphasising the need to be collaborative to tackle these burgeoning issues.

Catchment condition (since 1990)

Many species of invasive plants and animals have become naturalised and invade all areas of the Catchment.

Foxes, wild dogs and feral cats kill millions of native animals each year. Rabbits cause erosion and, together with deer, compete for resources and prevent natural regeneration of native flora. Deer impact on alpine bogs, wetlands, and riparian zones. Adult Sambar deer are 2.5 Dry Sheep Equivalent, pressuring many agricultural industries and enterprises. Kangaroos can also significantly decrease a farm's stock carrying capacity.

Pest plants outcompete native species, reducing diversity, and provide harbour for pest animals.

Long-term strategy implementation progress and 2018-19 performance

The Goulburn Broken CMA continues to work closely with AgVic, Landcare networks and groups, and industry groups for strategic implementation of Land outcomes.

Community capacity, engagement and involvement

See also Community section (page 30).

Integrated delivery via Land and Biodiversity team

The Goulburn Broken CMA's Land and Biodiversity team supports the delivery of integrated actions from often separate funding streams through state and federal programs. This recognises that in order to be resilient, systems within and beyond the farm fence require a focus on connections between all elements, including ecosystems, productive land, and communities.

Land and Biodiversity Team members work closely with relevant agencies like Parks Victoria, DELWP, AgVic, local government, water authorities, the Country Fire Authority, and with community groups and individuals.

Funding to community groups included the Victorian Government's Landcare grants, Communities for Nature projects, and delivery through the CMA of the Australian Government's National Landcare Program Regional Land Partnerships.

Community engagement is critical to successful delivery. Extension and education events are developed and implemented, often through delivery by community networks, to increase awareness of the importance of creating healthy landscapes and conserving biodiversity.

During 2018-19, over 780 community members participated in activities through the Australian Government-funded project, 'From the Ground Up'. Activities were delivered through 13 projects worth \$162,550 by Goulburn Broken CMA staff and project partners, including AgVic, Landcare and producer groups, industry groups including Murray Dairy, Irrigated Cropping Council, Fruit Growers Victoria, Australian Processing Tomato Research Association, Maize Association Australia, Riverine Plains farming systems group, Victorian No-Till Farmers Association and Wild Game Resources Australia. In 2018-19 the Victorian Government's Victorian Landcare Grants funded 37 grants to 28 community groups and networks to the value of \$210,836. (See Appendix 7, page 139)

Invasive plants and animals

Different pest plants and animals are targeted through various fund sources, including Victorian Biodiversity Response Planning, Landcare and Good Neighbour programs, Local Government Roadside Weeds and the Goulburn Broken CMA Waterways programs. Community groups use local connections to encourage high levels of landholder participation in coordinated pest control programs where neighbours work together. All programs foster community support and ensure the best outcomes from the small investment available.

In consultation with community groups, targeted compliance and extension activities were delivered to support large-scale rabbit and weed control programs, ensuring participation of all land managers in project areas. Pooling the resources of Victorian Landcare Grants, Good Neighbour program and the release of the Calicivirus K5 strain in the Gooram and Ruffy areas has supported large investment over 20 years to control rabbit impact.

The treatment of invasive plants and animals on roadsides through the local government Roadside Pest Program again complemented the AgVic and community group invasive plant and animal programs.

There is continued community concern surrounding the rising deer population. Goulburn Broken CMA landholders were informed that the commercial operator Wild Game Resources Australia offers help to manage deer. The proposition of being paid to allow professional shooters harvest deer on private land for meat export was taken up by several landholders in the upper Broken River Catchment. This however has recently collapsed due to the decrease in funding to Wild Game Resources Australia. This has reduced their ability to have maximum impact and once again leaving a gap in management options for wild deer.

Landcare and DELWP have partnered to assist the community to access permits for the control of over-abundant wildlife and to be included in the kangaroo pet meat trial.

Investment in community-driven blackberry control works continued, in parallel with AgVic and existing Blackberry Action Groups. The Victorian Blackberry Taskforce has expanded in our region through support to the newly established groups in the Creightons Creek and Tallarook areas.

Management of all known sites of State Prohibited Weeds and Regionally Prohibited Weeds remained a high priority and a control activity delivered by AgVic.

The Goulburn Broken CMA River Health Program and GMW continue to monitor at risk waterways for aquatic weeds e.g. Cabomba and Arrowhead at Lake Benalla and Broken Creek.

A total of 213 infestations of high-risk invasive plants were monitored and/or treated, including all known infestations of the State Prohibited Weeds: Camel Thorn, Giant Knotweed, Water Hyacinth and Mexican Feather Grass and the Regionally Prohibited Weeds: Artichoke Thistle, Serrated Tussock, Cape Tulip and Ragwort.

As a principal investor in pest plants and animals, the Victorian Landcare Grants provided \$39,898 in funding across four projects to control pest plants and animals. A coordinated community effort with agency compliance action ensured a high level of landholder participation in the control of priority established invasive plants and animals, including Gorse, Blackberry and rabbits.

Regional Agriculture Landcare Facilitator and Landcare

The Regional Agriculture Landcare Facilitator sits within the Land and Biodiversity Team. Funded by the Australian Government's National Landcare Program, the Facilitator works to support farmers and land managers in the Goulburn Broken Catchment to increase their awareness, knowledge and skills in sustainable farm management practices. The facilitator also supports regional community leaders and groups engaged in NRM and agricultural production to increase their capacity, confidence and participation.

The project focuses on private land used for agriculture. Project activities include workshops, short courses, field days, and publications, and are delivered in partnership with community and industry groups and government such as AgVic.

There are over 90 Landcare and community-based natural resource management groups in the Goulburn Broken Catchment, involving more than 5,000 volunteers. Groups include Landcare, Friends of, Sustainable Farming and Environment groups. Some of these local groups have formed alliances and networks. The Facilitator, and more broadly the CMA, works with six Landcare Networks, five Conservation Management Networks and industry-based networks, including the Riverine Plains farming systems group, Victorian No-Till Farmers Association, and Murray Dairy.

Project activities are developed with guidance from an independent advisory group (membership includes farmers and industry representatives), feedback from past participants and results from the annual community group survey.

Land managed for conservation, ha

Protection type	Total	Added 2018-19
National parks ⁱ	345,267	0
State parks ⁱ	41,909	0
Trust for Nature covenants ⁱⁱ	1,427	0
Landholder agreements ⁱⁱⁱ	7,155	524
Other ⁱ	525,601	0

- i. Data from Public Lands Management spatial dataset (PLM25). 'Other' includes Bushland Reserve, Other Reserves And Public Land, Essentially Natural Catchment, Uncategorised Public Land, State Forest, Bushland Reserve, Nature Conservation Reserve, Wildlife Reserve (Hunting), Other (Non Scheduled), Regional Park, Historic Reserve, Streamside Reserve, Natural Features Reserve, Forest Area, Revegetation Area, PV Managed Land, Natural Features And Scenic Reserve, Scenic Reserve, Reserved Forest, Wildlife Reserve (Sgr Classification Pending Reservation), Roadside Conservation, Proposed National Parks Act.
- ii. Trust for Nature total includes 2010-11 to 2018-19. Added 2018-19 refers to Goulburn Broken CMA-funded sites only with no new sites for 2018-19.
- iii. Includes long-term management agreements (Goulburn Broken CMA-funded sites only).

Land Health Strategy strategic implementation

Long-term strategy implementation progress	2018-19 performance
Strategic objective: Practice adaptive management	
<p>Activities have focused on meeting landholder needs, expressed in participant surveys. The surveys provide evidence that landholders do make changes as a result of participating in program activities.</p> <p>Furthermore, the From the Ground Up and Regional Agriculture Landcare Facilitator projects have invested in activities to build the resilience and adaptive capacity of farmers, Landcare volunteers and agricultural advisers such as agronomists and rural bankers. These activities help participants improve their communication, leadership and change management skills. These skills are vital if rural communities and industries are to adapt to changing weather, climate and markets.</p>	<p>The Goulburn Broken CMA ran a series of workshops that came from community interest. Acidic soils workshops were run in Molesworth, Tatura, Yalca and Euroa with partners Upper Goulburn Landcare Network, AgVic, Murray Dairy, and Grassland Society of Southern Australia. Three on farm biodiversity workshops were held, with a focus on paddock trees and the benefits of pollinator insects in a farming system: at Chesney Vale with Greta Valley Landcare, Pyalong with South West Goulburn Landcare, and Limestone with Yea River Catchment Landcare. A workshop was held with South West Goulburn Landcare on erosion control methods. A regenerative grazing demonstration was developed in Nagambie to monitor pasture and livestock performance. It was coupled with a regenerative grazing course, encouraging participants to start practicing the information on-farm.</p>
Strategic objective: Strengthen partnerships	
<p>We continue to foster and grow partnerships with industry groups, community networks and groups, First Nations groups and individuals.</p> <p>Partnerships with industry and community Landcare groups are strengthening as reflected in the development and delivery of partnership projects.</p>	<p>Goulburn Broken CMA continued to work with AgVic to plan and deliver locally relevant soil workshops, including soil erosion and soil acidity management.</p> <p>Two Sustainable Agriculture Advisory Group meetings were facilitated, providing feedback on agriculture projects and emerging issues. The Group has 12 members, comprising 10 community members representing dryland farming and irrigated farming industries and ensuring locality representations across the catchment.</p> <p>18 project grants were awarded to Goulburn Broken Catchment community NRM groups through the Victorian Landcare Grants. Recipients included: Up2Us Landcare Alliance, South West Goulburn Landcare Network, Strathbogie Tableland Landcare Group Inc, Broken River Environment Group trading as Goomalibee Landcare, Upper Goulburn Landcare Network, Sheep Pen Creek Land Management Group, Euroa Arboretum, Goulburn Murray Landcare Network, Dabyminga catchment cooperative, Wyuna Landcare Group, Molyullah and Tatong Tree and Land Protection Group, Strathbogie Ranges Conservation Management Network, and Balmattum Sheans Creek Landcare Group. Maintenance grants of \$500 were also awarded to 21 groups.</p> <p>13 project grants were devolved through the National Landcare Program's From the Ground Up project. Groups included: Irrigated Cropping Council, Riverine Plains, Up2Us Landcare Alliance, Australian Processing Tomato Research Association, Gecko CLaN, Vic No-Till Farmers Association, Murray Dairy, Fruit Growers Victoria, Hughes Creek Catchment Collaborative, Euroa Arboretum, Goulburn Murray Landcare Network, and Maize Association of Australia. Two project partners meetings were facilitated.</p> <p>The Regional Agriculture Landcare Facilitator co-coordinated the Northern Rivers Round Up workshop with North East and North Central CMAs bringing together the Landcare Facilitators and Coordinators from the three regions.</p> <p>The Goulburn Broken CMA participated in the Indigenous Consultation Working Group and the statewide Dryland Managers Forum.</p>

Long-term strategy implementation progress	2018-19 performance
Strategic objective: Adapt to land-use change	
<p>Land-use changes continue across the Catchment in response to short-term pressures such as seasonal variation, drought and fire, and long-term pressures such as ageing farmers and increasing competing demands for land resources between farming, lifestyle and urban land-use. Drivers include ongoing population growth and migration into and within the Catchment. The ongoing challenge is to balance the environmental, social and economic needs as land-use change continues and to manage this change so natural resources, such as soils, can continue to provide services of high value to people and nature.</p>	<p>New landholders: the Goulburn Broken CMA funded the Euroa Arboretum to deliver the Healthy Hectares course which supports new landholders to educate and involve themselves in NRM programs and opportunities.</p> <p>Existing farmers: through direct delivery and investment in partners including AgVic, Vic No-Till, Irrigated Cropping Council, Grasslands Society, Riverine Plains Inc the Goulburn Broken CMA has supported decision making around new and evolving technologies such as organic amendments, variable rate technologies, the pros and cons and management of mixed enterprises, regenerative grazing management, irrigation management, and management of soil structure and non-wetting soils.</p>
Strategic objective: Support the development of resilient farming systems	
<p>We continue to work with Landcare, producer groups, farmers and AgVic to identify and adapt farming enterprises to have the capacity to respond to change, such as climate variability, changing markets, and are integrated with the natural environment.</p> <p>Interest from graziers in developing resilient pastures in the face of variable and drier seasonal conditions remains high. Resilient pastures comprise high ground cover, perennial grasses and good species diversity through good soil condition for water infiltration and water holding capacity, carbon cycling and storage. Practices include pasture cropping, holistic management, grazing management and perennial pasture renovation with annual fodder crops.</p> <p>Interest from cropping farmers remains strong in finding efficiencies through technologies like deep soil testing and soil moisture probes.</p> <p>Other resilience building technologies of interest include cover cropping, integrating livestock, managing large stubble loads through technologies other than burning and cultivation, addressing soil compaction using compost and soil moisture probes in grazing landscapes.</p>	<p>Staff and project partners delivered 38 activities and 8 demonstration sites around resilient farming to more than 780 participants; 15 industry and community partners were involved in delivery. Topics included erosion management, lime decision making, spatial variability in soil acidity, variable rate technologies, regenerative grazing, soil health and soil biodiversity, non-wetting soils, soil structure management, soil constraints, increasing biodiversity in orchards.</p> <p>Key events relating to this strategic objective include:</p> <ul style="list-style-type: none"> — 32 farmers completed the Regenerative Grazing Short Course. All participating farm businesses developed a grazing management plan and on-farm trial paddock. — Establishment of a regenerative grazing trial at a property in Nagambie. — Delivery of a project with Fruit Growers Victoria which assessed the multi benefits of native vegetation for crop protection, spray drift mitigation and provision of habitat for beneficial insects and insect predators, and the establishment of a native biodiversity planting at an orchard. — The identification and assessment of management options for non-wetting soils, a problem raised by a number of croppers in the Shepparton Irrigation Region.

What's next?

- Continue to support community-initiated projects through the Goulburn Broken Sustainable Agriculture Advisory Group, Landcare Facilitators and Coordinators group and the From the Ground Up partners group.
- Continue to coordinate community education opportunities across agencies and build the 'soil health' community network.
- Continue to invest in Landcare and community groups to deliver soil health and sustainable farming projects.
- Link training packages to promotion of improved management practices.
- Work on the identification of improved management practices.
- Showcase and connect farmers implementing improved management practices.
- Coordinate peer-supported learning opportunities, focused on management solutions and building the soil health community network.
- Continue to build the capacity of community groups and individuals to carry out their own assessments of soil health and management practices in a rigorous and logical way through support of demonstration trials.
- All State and Regionally Prohibited weed sites will continue to be surveyed and treated where necessary.
- Funding needs to be sourced to review the pest plant and animal strategy to recognise current issues such as deer. In the interim, AgVic will continue to work with community-based natural resource management groups and the Goulburn Broken CMA to identify priority areas for managing established invasive plants and animals.
- Complete the Goulburn Broken CMA biosecurity, Pest Plant and Animal Strategy.
- Review the Goulburn Broken Land Health Strategy 2017-20.

Works and operations

Soils for agriculture, purpose and use of private land - Actions 2016-17, 2017-18 and 2018-19

Action		From funds received				
		Achieved ⁱ			Target	% achieved
		2016-17	2017-18	2018-19		
Fence remnant vegetation	ha	696	378	298	182	164
Irrigation drainage environment plans	no.	-	-	-	-	
New irrigation referrals dryland zone ^{iv}	no.	5	6	3	15	20
Improved irrigation dryland zone ^{ii, iii}	no.	16	10	6	10	60
Sub-surface water action						
Revegetation – plant natives	ha	396	176	487	343	142
Pasture – plant	ha	-	-	-	-	
New groundwater pumps – public installed	no.	-	-	-	-	
Planning for works action						
Whole farm plans - Level 1 ⁱⁱⁱ	no.	-	-	-	-	
Whole farm plans prepared - Level 2 dryland zone ⁱⁱⁱ	no.	-	-	-	-	

i. Achievements include those by complementary investment areas such as Biodiversity. For a full list of footnotes please see Appendix 4 on page 134.

ii. An aggregate of properties and irrigated areas receiving intensive extension support for irrigation whole farm planning, system checks, soil moisture monitoring equipment, scheduling and major system changes.

iii. Level 2 is comprehensive and is equivalent to SIR's whole farm plan. Level 1 is a short-course that is a precursor to Level 2.

iv. Achievement for 2017-18 included one new irrigation referral in the SIR.

Invasive plants and animals - Actions 2016-17, 2017-18 and 2018-19

Action		From funds received				
		Achieved ⁱ			Target	% achieved
		2016-17	2017-18	2018-19		
Weed invasion						
Weeds – aquatic weeds controlled/eradicated	km	9	10	9	-	
Targeted infestations of weeds in high priority areas covered by control programs ⁱⁱ	ha	8,529	4,441	2,099	2,687	78
AgVic Biosecurity & Agriculture Services works - Targeted infestations of weeds in high priority areas covered by control programs ⁱⁱⁱ	ha	7,781	11,001	20,995	-	
Pest animals						
Pest animal control ^{iv}	ha			1,429	15,490	9
AgVic Biosecurity & Agriculture Services works - Area of high priority rabbit infested land covered by control programs ⁱⁱⁱ	ha	2,911	6,400	3,486	-	
Area of high priority rabbit infested land covered by control programs	ha	10,163	3,510	-	-	
Area of high priority fox infested land covered by control programs	ha	260	509	-	-	

i. Achievements include those by complementary investment areas such as Biodiversity. For a full list of footnotes see Appendix 4 on page 134.

ii. This includes 'Weeds - woody weed management' (Appendix 4).

iii. Works completed by DJPR AgVic Biosecurity & Agriculture Services (outside of the Corporate Plan).

iv. Output included for the first time in 2018-19, superseding the two separate outputs of fox and rabbit control (excluding the DJPR AgVic Biosecurity & Agriculture Services rabbit control), to encompass the broader range of pest animals being controlled.

Investment area – Sustainable irrigation

Compiled by: Carl Walters, Chris Nicholson, Rebecca Caldwell, Rebecca Pike (AgVic), Terry Hunter (GMW), Mark Potter (GMW), Simon Cowan (GMW), Megan McFarlane, Simon Casanelia, Jenny Wilson, Mark Turner, Rod McLennan.

Long-term and annual scorecard ⁱ

2018-19 performance	On target
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Catchment condition ⁱⁱ	1990	2019	Long-term risk
		Poor	Poor

Shepparton Irrigation Region (SIR) social-ecological systems depend on highly productive and efficient irrigated agriculture. They are beyond tipping points and are adapting and transforming, creating significant uncertainty and stress.

While water availability for the environment is improving, high unseasonal flows to meet downstream water demands are creating significant impacts to Goulburn River bank vegetation.

Declining water availability for agriculture is threatening farm and regional viability, making it extremely challenging for the region to adapt to a future with less water.

Water quality has improved significantly, and works and long-term dry conditions have stabilised watertables for now.

Intervention is improving some pockets of native vegetation, however most threatened ecosystems remain at high risk. Native vegetation extent is still poor (less than 3%).

Resilience assessment	Contribution to system function ⁱⁱⁱ		Risk to system thresholds/tipping point ^{iv}			Long-term strategy maturity ^v	
	1990	2019	Trend 2016-19	Long-term (10+ years)		Start	Stage
				Current support ^{vi}	No support ^{vi}		

Water availability for							
- the environment	Poor	Satisfactory	Risk increasing	Medium	High	2011	Early
- agriculture	Good	Poor	Risk increasing	Very high	Very high	2015	Escalated response ^{vii}
Water quality	Very poor	Satisfactory	Stable	Medium	High	1995	Watch & maintain
Watertables	Poor	Satisfactory	Stable	Medium	High	1983	Late
Native vegetation extent	Very poor	Very poor	Risk increasing	High	Very high	1997	Early
Farm and regional viability	Good	Satisfactory	Risk increasing	Very High	Very High	2015	Escalated response ^{vii}

- i. Appendix 1 describes the analytical framework. Ratings legend is inside front cover.
- ii. Critical attribute contributions and risks are major considerations in rating catchment condition, along with indicators on higher level outcomes from managing these critical attributes, such as viability of threatened species and gross value of agricultural production. Long-term risk assumes ongoing support at current levels.
- iii. System is Agricultural Floodplains social-ecological system; benchmark for contribution is the desired level, as defined (formally or informally) in 2019.
- iv. Risk that system will not be in desired state of resilience in long term because of level of critical attribute contribution. Risks can be from biophysical threats, such as climate, or other, such as community's adaptive capacity. Desired state might be other than current state.
- v. Long-term strategies vary significantly in formality. 'Start' approximates when holistic, integrated approach to influencing critical attribute began.
- vi. Support includes government funding and community (including individual) in-kind and financial investment for onground works and helping communities and individuals adapt.
- vii. 'Escalated response' recognises that the situation has shifted so significantly that difficult and sensitive questions about transformation and transitioning must be considered.

Government investment, \$000

2016-17	2017-18	2018-19	2019-20 ⁱ
24,365	21,315	5,509	5,738

- i. Forecast based on the Corporate Plan 2019-20.

Strategic references

Strategies for many themes, such as biodiversity and river management, prepared by the Goulburn Broken CMA and state and national organisations are integrated in the Shepparton Irrigation Region Land and Water Management Plan (SIRLWMP) 1990-2020. Murray-Darling Basin Authority and Victorian Government water and agricultural strategies are also included.

Background

The Victorian Government-endorsed final update of the SIRLWMP was launched in 2017. The Sustainable Irrigation Program delivers on the vision through onground works, supported by the community-based Shepparton Irrigation Region People and Planning Integration Committee (SIRPPIC).

SIRLWMP Vision and Purpose

The Shepparton Irrigation Region community leads Australia in producing food in harmony with the environment.

The purpose of the plan is to support and grow the natural base that is vital for agriculture, biodiversity and people to jointly flourish.

Since 1990, the SIRLWMP has evolved from focusing on salinity to managing five attributes critical to how the region functions as a system of people and nature:

- water availability (for the environment and for agriculture)
- water quality
- watertables
- native vegetation extent and
- farm and regional viability (which evolved in 2018 from ‘farm and food-processor viability’).

The approach reflects the Goulburn Broken CMA’s emphasis on resilience and associated social-ecological systems.

Implementation prioritises sharing of decisions around social-ecosystem risks and opportunities. Integration of eight priorities and associated actions to achieve multiple benefits (in terms of critical attributes) remains a key principle, and a consolidated report against each priority is included in this annual report.

Reporting on regional land salinisation and Murray River salinity is now included under Watertables (page 69). Additional salinity management in the broader Goulburn Broken Catchment is reported under Land (page 59).

Catchment condition - Sustainable irrigation (since 1990)

The SIR’s social-ecological systems are transforming: several key tipping points are at the point of breaching, creating uncertainty and significant human and environmental stress.

The SIR community has a long and strong history of responding to challenges, creating opportunities, and contributing more than its share to the broader MDB over the past three decades. The community has pioneered approaches to salinity, water quality, water-sharing, biodiversity, and stakeholder partnerships.

While it is proving difficult for government to maintain appropriate levels of support, the SIR’s future remains in agriculture. The challenge is to keep building capability to take advantage of strong regional networks, existing natural assets and regional and farm infrastructure, and proximity to markets.

Water availability

Previous generations built dams on the Murray, Goulburn, Broken and Campaspe rivers, turning them into ‘working rivers’ with manageable flows. Today, we aim to sustain the waterways’ environmental values; while meeting economic and social needs.

The Goulburn Broken Catchment generates a lot of water: 11 per cent of the MDB’s volume, despite covering just 2 per cent of its area. Collaboration between water users, developed over decades within Victoria, have

resulted in strong and sophisticated agreements about water-sharing. However, extremely large volumes are now being transferred downstream of the Catchment to meet agricultural, environmental and other consumptive demands. On top of prolonged dry conditions, this is causing the region’s irrigation farm-based social-ecological system to disrupt and transform, with the rapid rate of change resulting in extremely high levels of uncertainty and stress.

a Water availability for the environment

Water for the environment targets focus on long-term outcomes (environmental objectives and associated flow regimes), with management driven by seasonal conditions. Seasonal targets are set through the annual Victorian Environmental Water Holder Seasonal Watering Plan.

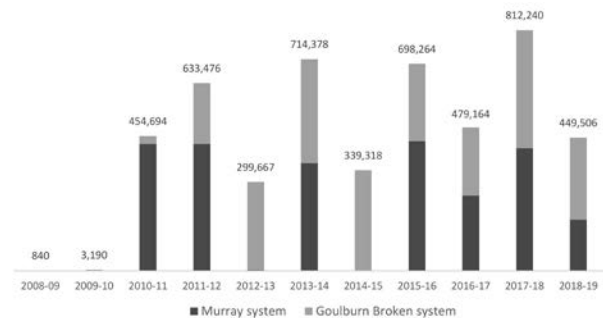
Most environmental features receiving water for the environment in the Goulburn Broken Catchment are within or adjacent to the SIR.

The annual environmental entitlement held within the Goulburn and Broken systems has been increasing in recent years. For 2019-20, the ‘high reliability’ entitlement within the Goulburn and Broken systems is 415 gigalitres. Water is also held within the Murray system for Barmah-Millewa Forest (within NSW and Victoria).

Between 0.8 and 812 gigalitres have been delivered annually to the SIR (and adjacent) environment since 2007-08 from the Goulburn Broken and Murray systems (see table page 45 and bar chart below). Water is delivered to key wetlands and sections (reaches) of rivers and creeks in line with the Victorian Environmental Water Holder’s seasonal watering plan. Much of the water used for the environment in the Goulburn Broken Catchment flows downstream for the benefit of other regions.

Minimum streamflows for water quality and other environmental needs are met as a condition of urban and rural water authorities’ bulk entitlements to water for distribution to irrigators, stock and domestic users, and townships.

Environmental water use, megalitres



b Water availability for agriculture

Long-term objective: Maintain delivery of 880,000 megalitres for agriculture within the SIR (in an average season of 100% allocation).

Irrigation deliveries in the region reduced from more than 1200 gigalitres seasonally in the 1990s to less than 800 gigalitres now (see graph page 69).

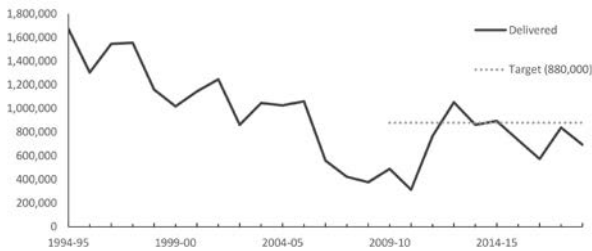
Delivery volumes are likely to decline further due to the changing climate, industry changes, and especially downstream water trade.

The delivery system has been modernised over the last decade, with over \$2 billion invested. However, continued delivery via the new system is becoming less viable because reduced delivery volumes over essentially the same geographic area is causing a large decline in economic efficiencies.

In recent years, programs to maximise production while minimising water use have shifted from physical farm infrastructure change, such as via the Farm Water Program, to more planning and advice on best practice.

Since 2010, the Farm Water Program helped irrigators adapt through more than 600 projects as the social-ecological system transforms, by improving water-use efficiency and productivity over 70,000 hectares.

Water delivered for agriculture in SIR, megalitres



Water quality

The uses and environmental values of surface water and groundwater to be protected define the level of environmental quality required (State Environment Protection Policy (Waters), DELWP 2019).

The Goulburn Broken CMA and partners have focused on reducing both instream phosphorus levels (to reduce overall nutrient loads and blue-green algal blooms) and River Murray salinity.

(Blackwater events in the Goulburn River as a result of rain events further upstream from the irrigated landscape are reported under Water quality on page 38.)

a Salinity

Long-term objective: Manage the salinity impacts on the River Murray at Morgan (in South Australia) from implementation of the Shepparton Irrigation Region Land and Water Management Plan, in accordance with the MDBA's requirements, at or below 8.9 EC.

The SIR is contributing 5.4 EC to River Murray salinity at Morgan, well within the MDBA's compliance target of 8.9 EC that is set as the maximum SIR input under the MDB's Basin Salinity Management 2030 strategy.

Large regional and farm-scale water-use efficiency projects since 1990 have resulted in significantly reduced SIR drainage and channel outfall water flows, and therefore salt loads, into the River Murray. However, the smaller volumes of these relatively fresh outfall flows reduce the dilution effect on salinity levels at Morgan, resulting in higher salt concentrations. Increased water use in higher salt impact areas will conversely also increase salinity effects at Morgan. The increases are not expected to exceed the 2030 strategy's limits.

b Phosphorus

Long-term objectives:

- Reduce potential total phosphorus loads by 65 per cent by 2016 (from the benchmark of 361 tonnes).
- Reduce total phosphorus loads from irrigation drains by 50 per cent by 2016 (from the benchmark of 169 tonnes).

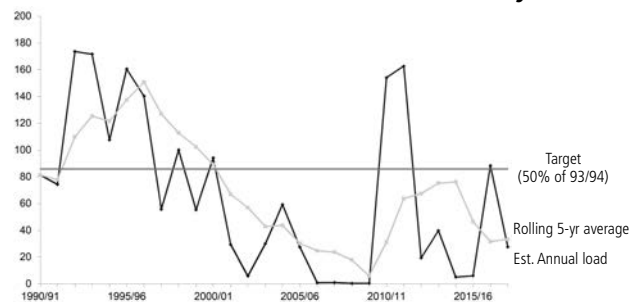
The five-year rolling average total phosphorus loads from both the overall Goulburn Broken Catchment (page 38) and from irrigation drains (below) are below the long-term targets set in 1996.

Implementation of the 20-year Water Quality Strategy was completed in 2016: and is an exceptional example of long-term collaborative effort. Monitoring and responses are supported by well-established inter-agency agreements and shared strategies.

Improved water-use efficiencies in the channel system and on farms have significantly reduced the relatively fresh waterflows from drains (as described under salinity above): this might result in higher concentrations of nutrients in streams (but far less overall total loads).

In 2018-19 a new long-term challenge emerged: the central Goulburn channel system downstream of the Waranga Basin had widespread algal blooms.

Annual phosphorus loads from all Irrigation Drains in the Goulburn Broken Catchment, tonnes/year



Watertables

Long-term objective: By 2020, minimise irrigation-related salinity impacts from shallow watertables on 500,000 hectares.

Shallow watertables are managed so that soil zones are not salinised or waterlogged.

Drainage is tailored to meet varying risks across the landscape, especially for the priority sub-catchments of the 460,000 hectares of irrigable land. The surface water management system alleviates impacts from intense rainfall on an irrigated landscape, which tend to be random events that are often localised and more likely in summer. Against a 2020 target of 103,000 hectares in the SIR's priority sub-catchments needing drainage, 69,741 hectares of farm, community and regional surface and sub-surface drainage networks have been protected.

The area at risk of salinity from high watertables is much less than during the mid-1990s due to program implementation and drier conditions. However, wetter years since 2010 have coincided with increased land areas with rising watertables. Combined with improved understanding of the SIR's salt and water balance, this prompted renewed assessment of, and investment in, drainage in 2015. An adaptive approach for watertable and waterlogging management has emerged, including more flexible and

economic surface drainage (via 'hybrid' drainage, which focuses on natural drainage courses). The 2015 review, in recommending a revised 103,000 hectares target, also found the remaining part of the SIR is at lower risk and priority for formal drainage schemes. Irrigators in these areas will benefit from accessing information, advice and strategies through the farm drainage sub-program.

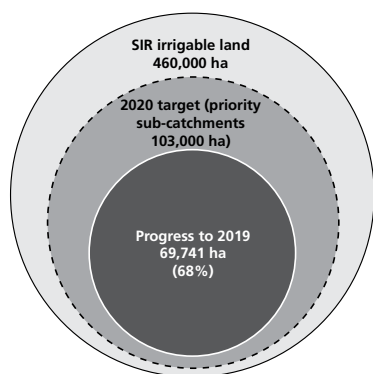
Groundwater pumping is also triggered and co-ordinated in wet conditions. Adaptive management of the public groundwater pumps and monitoring will result in a more responsive and cost-effective system to respond to high watertables and salinity.

The launch of a salinity-risk website in 2018 has enabled farmers to understand salinity risks specific to their properties and manage accordingly.

The main challenges in optimising the system involve minimising and sharing costs and meeting Victorian government and MDB obligations.

The uncertain and changing irrigation footprint, high water-using crops, and the transformation of GMW create significant challenges, prompting the need for partners to respond rapidly and collaboratively.

Progress in managing salinity impacts, Shepparton Irrigation Region

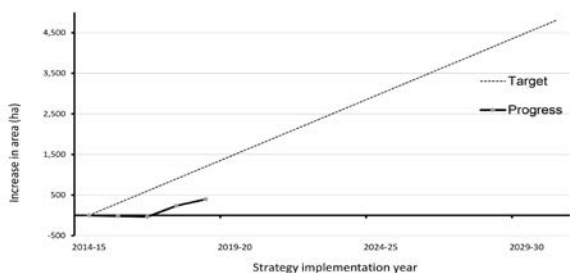


Native vegetation extent

Long-term objective: By 2030, the extent of native vegetation will be increased by 2% across nine focus landscapes.

Native vegetation extent has increased by 188 hectares across the nine focus landscapes of the SIR since 2014-15. This is 16 per cent of the target until 2018-19, placing us well behind schedule.

Native vegetation extent across 9 focus landscapes in Shepparton Irrigation Region, ha



Although native vegetation regulations recently changed (December 2017), remnant native vegetation, particularly paddock trees, continue to be at risk.

Most remaining native vegetation is in public land reserves (such as the River Red Gum-dominated 28,500 hectares of Barmah National Park and Lower Goulburn National Park) and corridors along waterways and roadsides. Areas of native vegetation away from these reserves and corridors can be isolated fragments and can lack the shrubs, ground layer, fallen logs and other habitat elements needed to host a diversity of flora and fauna.

Focus areas have the most potential for significant habitat to be protected, restored and connected. The Year of the Paddock Tree project is also educating the community about the importance of retaining native vegetation.

Farm and regional viability

Long-term objective: Help farm and food-processors to continue to be viable, by supporting the natural base in a way that helps them adapt quickly to changing agricultural markets and demands.

Irrigated agriculture dominates the SIR's social-ecological systems, with food production and processing large contributors to the economy. However, farmers face significant challenges to remain profitable in the face of a changing climate, variable domestic and world markets, and increasing costs of inputs, such as land, water, nutrients, oil and technology. Downstream demand is significantly reducing water availability, making water unaffordable for some agricultural industries in the SIR. The system is transforming, and the associated uncertainty is creating significant levels of stress.

Industry diversification has helped improve the region's resilience to changing domestic and world markets, but this varies depending on enterprise type and size. The number of large-scale farm enterprises is growing. The shift in farm type, size and mix has been accompanied by a change in the region's food processing industries. Several long-established companies have either closed or been amalgamated over the last two decades, although smaller new processors have emerged.

Investment in farm irrigation infrastructure is likely to be reducing across the region due to the above challenges and the end of the Farm Water Program. A modified program with infrastructure upgrades that does not involve any water transfer would show confidence in the future of the region whilst achieving water efficiencies on farms to build resilience to a future with less water.

Exposure to global markets has caused water use changes across the region, with new markets now challenging the commodity-type industry, such as dairying, for water.

Increasing productivity and profitability of water use is the key to outcompeting other regions for water.

Increasingly more expensive inputs, such as water and energy, drive the demand for knowledge and advice on energy-efficiency, soil-moisture monitoring and related topics. Irrigators have been assisted to assess their irrigation systems' energy needs and, where applicable, install soil moisture monitoring equipment to better understand crop water requirements.

Through the Tri-State Alliance, Indigenous businesses that own agricultural land have been assisted to become more productive and sustainable by overcoming low participation rates in agricultural and NRM programs.

Long-term strategy implementation progress and 2018-19 performance

Progress towards long-term strategy implementation is satisfactory in some areas but falling behind in others (see the bar chart on page 76). Whole farm planning is below target. Further details are provided below.

Long-term strategy implementation progress	2018-19 performance
Priority: Update irrigation infrastructure, including the irrigation delivery system and farm design	
<p>Irrigation modernisation, which began through the GMW Connections project in 2008 and the on-farm program in 2009, helps reduce salinity threats and achieve water savings for the environment and irrigators. Until 2017, 21 per cent of 13,230 properties in the Goulburn-Murray Irrigation District (which includes the SIR) had been modernised.</p> <p>Water-use licensing is managed as a Goulburn Broken CMA, GMW, AgVic and DELWP partnerships, ensuring new developments meet requirements.</p>	<p>Whole farm plans were completed on 61 SIR properties (see table p. 75); trial of computer module whole farm concept plan began; updated horticultural whole farm plan incentive process.</p> <p>The Farm Water Program is awaiting final (Australian government) payment, with work being finalised on evaluation and reporting. The priority is to support on-farm adjustments, such as soil moisture monitoring (3 landowners have applied for an incentive to date).</p> <p>Five centre-pivot and lateral-movement irrigation developments were supported, and extension to pressurised horticulture began, including a drip-irrigation workshop for 15 growers.</p> <p>An energy decision calculator was developed to support irrigators in channel system operations.</p> <p>A planning scheme amendment was drafted, which aims to introduce a replacement-earthwork control incorporated document for the SIR and enable exemptions for GMW works to remove or modify obstructions in a declared drainage course.</p>
Priority: Balance water availability for all uses	
<p>Understanding water availability and how it aligns with farm and regional viability and the environment is a key construct and change in emphasis from this review, informing efforts involving MDBA's Basin Plan and water-sharing in Victoria's north.</p> <p>A continued emphasis on understanding and delivering on the regional environment's water needs creates the appropriate balance and integration with irrigation and other needs.</p>	<p>Key SIR wetland achievements include: a draft Kanyapella environmental water delivery pilot plan, which will improve the Yambuna Creek environment, while responding to community concerns around public groundwater pump disposal. Gaynors, Black, Kinnairds, Reedy and Moodies wetlands received environmental water. Intervalley transfer impacts are being monitored and responses pursued. See also Waterways section for details</p> <p>Goulburn Broken CMA provided input to Victorian Irrigation Drainage Program Strategic Directions, and a Goulburn Broken Strategic Directions statement.</p> <p>The 2018 hypoxic blackwater response guideline is being used in planning.</p> <p>Goulburn Broken CMA is influencing processes to manage legacy risks at several operating and abandoned mid-Goulburn floodplain sites. A Victorian Civil and Administrative Tribunal ruling prevented a mining expansion.</p> <p>Goulburn Broken CMA participated in several investigations on water balance and availability with various partners, such as: price implications of 0% allocation in NSW; Lower Goulburn intervalley transfer (IVT; 2018-19 was a record year); delivery challenges downstream; second regional vision forum (around themes of leadership, water, industry and regional development).</p> <p>With GMW, the water availability report was updated in June 2019.</p>
Priority: Reconnect large areas of enhanced nature	
<p>Much of the region's remaining native vegetation is found along waterways, roadsides and in and around wetlands, providing some continuous habitat that act as key thoroughfares for wildlife to move through the landscape.</p> <p>Important objectives of environmental flows include provision of water to protect and enhance riparian vegetation.</p> <p>Delivering outcomes in focus landscapes is a priority to increase extent and connectivity of native vegetation across the region.</p>	<p>Biodiversity Response Planning (BRP) and National Landcare Program2 funding was secured. Linking Lower Goulburn, Ribbons of Blue, Sashes of Green (Ironbark) and Grey Box project incentives deliver native vegetation works in focus landscapes and provide landholder incentives for works. The projects are delivered by the Goulburn Murray Landcare Network and Goulburn Broken CMA staff.</p> <p>New infrastructure returned a natural wetting regime for a wetland near Dhurringile as part of the Mosquito Drain 40 project.</p> <p>A forum to increase understanding of 'avoid/ minimise' (native vegetation removal) principles was conducted by Greater Shepparton City Council, DELWP, Goulburn Broken CMA and AgVic. A native vegetation demonstration shelterbelt trial was established with Fruit Growers Victoria.</p> <p>The strengths and competitive advantage of the region is being explored, with the possibility of building information into local government prospectuses.</p>

Long-term strategy implementation progress	2018-19 performance
Priority: Build natural resource management into the farming system	
<p>Whole farm planning and extension programs, (along with investment in on-farm irrigation efficiency works by the Australian and Victorian governments and irrigators) is resulting in improved land management practices on irrigation properties, which help manage natural resources on-farm.</p> <p>Whole farm plans in the SIR have been completed on 4,425 properties covering 321,610 hectares, including 457 'revised modernised' plans.</p>	<p>The identification of key environmental and cultural heritage features before progressing whole farm plans for development was trialed and is now in place.</p> <p>Dry seasonal conditions increased demand for groundwater extension services, including workshops, discussion groups, AgNote and salinity meters.</p> <p>AgVic presented a dairy navigation tool for intensive industry development to SIRPPIC and the Farm and Environment Working Group. It will be included in whole farm plan extension.</p> <p>Goulburn Broken CMA liaised with biodiversity stakeholders, including universities, AgVic, DELWP, GMW, entomologists, to bid for funds and participate in workshops. Native vegetation regulation is an ongoing priority with an AgVic/Goulburn Broken CMA staff workshop held to better integrate native vegetation.</p>
Priority: Adapt by understanding change and impact	
<p>Various 2014-15 reviews informed the fifth SIRLWMP update. The adaptive process in place since the 1989 SIRLWMP was strengthened by more explicitly adopting resilience principles in the update. SIRPPIC reviews the changing context and critical attribute thresholds and risks when developing annual work plans.</p>	<p>2016 land-use information is being renewed for the 2018-19 irrigation season to capture changes.</p> <p>Goulburn Murray region action working group continues to support actions for a resilient region in four areas: leadership, water policy, industry, and development / investment.</p>
Priority: Match drainage to meet changed needs, aligning it with modernised irrigation delivery	
<p>Regional drainage works through increased investment from the Victorian Government has led to renewal of the Surface Water Management program.</p> <p>The Shepparton Irrigation Region Drainage Strategy identifies drainage needs in intensively irrigated areas with poor natural drainage and are within the region's long-term irrigation footprint.</p>	<p>The AgVic reuse system factsheet is being updated with research results.</p> <p>Declared drainage course/hybrid-based drainage: (Refer also to the case study on Mosquito Drain 40 page 74) Upper Deakin was approved and is moving to the obstruction-removal works phase; Cornella Creek/Ryan's floodway have applied for a declaration; Guilfus-Congupna drainage course extent was determined, obstruction assessed and concept design underway.</p> <p>Declared drainage course design and implementation guidelines are well advanced, which was a priority for investment under 2019-2024 Victorian Irrigation Drainage Program Strategic Directions.</p> <p>Community surface water management systems: Muckatah 2/3P works were completed, and Muckatah 3/8P pre-construction design is underway.</p> <p>Extended Surface Water Management Program (2020-24); Murray Valley Drain 11 catchment; northern Cornella Creek catchment; integrated drainage function development and high water-use crop assessment were undertaken.</p>
<p>Groundwater resources in the Goulburn Broken Catchment are managed by Goulburn-Murray Water, supported by partner agencies.</p> <p>1,000 observation bores in the SIR are monitored annually by Goulburn-Murray Water, resulting in maps of shallow groundwater levels across the Murray Valley, Shepparton, Central Goulburn and Rochester irrigation areas. The maps inform plans for managing salinity.</p>	<p>Public groundwater pump disposal realignment works are underway, with 8 of 15 first stage of pump sites largely completed.</p> <p>Rochester IA public groundwater pumps were deactivated; Murray Valley 1A deactivation is complete; receiving water trigger methodology was refined; cost/benefit analysis of decommissioning for EC credits has started, and a new integrated public groundwater network management system is being scoped.</p> <p>SIR monitoring bore network: 134 standpipe covers have been installed; an efficient web-based dashboard was completed to improve data collection.</p> <p>The riverine plains land and water use change salinity accountability framework was drafted, ready to be completed in 2019-20.</p> <p>The new State Environment Protection Policy (SEPP) Waters of Victoria was assessed, with the focus now on revising local site triggers and associated public groundwater pump network optimisation.</p> <p>Drain water quality monitoring continued. Broken Creek Azolla and dissolved oxygen monitoring and management is ongoing.</p>

Long-term strategy implementation progress	2018-19 performance
Priority: Build stewardship, incorporating local action and ideas	
<p>People and their relationship with the region's natural resources is critical to the success of the SIRLWMP over the next five years. Stewardship of natural resources and the environment is being encouraged. Community leaders are promoting the region within and beyond its boundaries and manage issues of community concern in partnership with agencies and policy makers.</p>	<p>An irrigation system energy calculator was developed and tested with two landowners, including a solar component (see case study below).</p> <p>Goulburn Murray Landcare Network developed a tree identification book for the SIR. The Year of the Paddock Tree campaign is well underway, with great stakeholder response.</p> <p>The NLP From the Ground Up project continued to support farmers in trialling new ways to build soil health.</p>
Priority: Maintain partnerships and good governance	
<p>The community-based SIRPPIC includes skills, geographic and industry-based representatives from the local community, Goulburn Broken CMA, GMW, AgVic, DELWP, GMLN and Murray Dairy.</p> <p>The Local Government Agricultural Floodplains Reference Group is in its 26th year of operation. The group seeks workable and collaborative solutions to improve efficiency and effectiveness of natural resource management delivery in the Shepparton Irrigation Region. Representation includes Moira Shire Council, Campaspe Shire Council, Greater Shepparton City Council and other stakeholders, led by Goulburn Broken CMA.</p>	<p>Goulburn Broken CMA continued supporting SIRPPIC, Farm and Environment and SIR Drainage Working Groups. Engagement work with a wide range of stakeholders has continued across all sectors.</p> <p>The Sustainable Irrigation Region Senior Combined Partners meeting continued to provide a great opportunity for integration and collaboration.</p> <p>The Goulburn Murray region action working group organised a second stakeholder GMID vision workshop with over 80 regional leaders to progress the GMID future masterplan project.</p> <p>Plan2Farm delivery is ongoing, with 30 active cases active in the Shepparton Irrigation Region.</p> <p>Co-funded projects remain a strength, such as: RiverConnect; groundwater management and monitoring; water quality partnerships; GMID land-use project phase 2; Municipal Catchment Coordinator (with Moira, Campaspe and Greater Shepparton municipalities) and the Year of the Paddock Tree.</p>

Balancing power and pressure: developing an irrigation energy calculator

As water becomes scarce and more expensive, Shepparton Irrigation Region irrigators seek ways to use water more efficiently. Landowners are switching from gravity-fed surface irrigation to pressurised irrigation systems, such as centre pivot and linear move irrigators. Pursuit of water-use efficiency has led to more fuel and electricity being consumed because energy is the main operating cost for pressurised irrigation systems.

Many irrigators do not understand:

- whether their system uses an appropriate amount of energy (electricity or diesel) for the water applied;
- improvements that could reduce energy usage.

Tools for irrigators to assess efficiency of their pressurised irrigation system require a detailed understanding of the system's engineering or design specifications. Field assessments showed that most landowners do not readily have access to this information, making these existing tools difficult to use.

To help irrigators become economically resilient in the face of increasing energy costs and assist them in determining their irrigation systems' energy efficiency, an irrigation energy decision support tool (energy calculator) was developed. The energy calculator allows irrigation extension officers to assist irrigators to answer the following questions:

- Is my irrigation system functioning energy efficiently?
- What is the likely cost benefit of improving the energy efficiency of my system?
- What components of my system can be improved to operate more efficiently?

The energy calculator helps irrigators benchmark energy efficiency of their irrigation systems and identify opportunities to economically improve energy efficiency.

Two case study trials found the calculator to be useful for irrigators to understand energy use of their pressurised irrigation systems. Both irrigators mentioned the importance of involving an extension officer to assist with the calculator, which not only helped irrigators understand what data they needed, but also give them confidence in interpreting results to improve their systems. The case studies also highlighted that a system could be energy efficient but not water-use efficient, emphasising that they cannot be looked at in isolation.

Farm Water Program evaluation summary

The Farm Water Program (FWP) developed a monitoring evaluation and reporting (MER) framework at commencement (2011) so that outputs (primary attributes) and outcomes (secondary and tertiary attributes) could be identified, tracked, reported and evaluated. The results from the MER framework review were:

Primary attributes

- \$170 million farmer contributions and government payments.
- 618 projects completed of 622 contracted.
- 69,950 hectares farm works contracted and completed, meeting minimum standards / best practice.
- 82 gigalitres saved (based on the water savings calculator), with 38.5 gigalitres retained on farm and 43.5 gigalitres transferred to each fund source (for environmental water purposes).

Secondary and tertiary attributes (estimates)

- \$18.6 million per year productivity increase from upgrading 40,395 hectares (estimated) of combined technologies, all covered by whole farm plans.
- \$30.8 million per year productivity increase from retained saved water.
- \$49.4 million per year total productivity increase.
- 21 tonnes of phosphorus (at 1 milligram per litre) and 103 tonnes of nitrogen (at 5 milligrams per litre) reduced.
- 20,502 megalitres per year reduced drainage flow.
- 20,502 megalitres per year change in reduced recharge to watertables.
- 123 additional full-time-equivalents in regional employment, excluding jobs created in the construction phase.

Feedback from program participants included:

"One of the best programs we have been part of. Money is being spent in the community."

"I can grow higher value crops and grow more dry matter tonnage per megalitre..."

"project has led to more environmental works on the property."

"Worth it for long term (water) savings."

The program's partnership approach was reviewed using goal attainment scale methodology. Partners assessed the program to be more than meeting their expectations of farm benefits, improved regional outcomes, and improved on-farm and regional environmental benefits. The partnership approach resulted in improved irrigation efficiency to achieve water savings (partly for environmental purposes) as well as a more comprehensive program more aligned to partner organisations' strategies and programs and the needs of the region.

The completion of Mosquito Drain 40 (Stage 2)

The Mosquito Drain 40 completion is historic because it signifies the last section of the Mosquito Depression primary drain system, which has been developed in stages since 1990. The system now extends over 53 kilometres from Dhurringile (south of Tatura) to its outfall into the Mosquito Main Drain just west of Kyabram.

This final 1.9 kilometre section is likely to be the last primary drain system completed because new surface drainage program investment focuses on lower cost 'hybrid' systems which rely on restoring flow paths in natural drainage courses.

A May 2019 community event held at the final stretch of drain, marked 30 years of work on the project, celebrating the partnerships and efforts of many landowners and agency staff. The Mosquito system now services more than 200 landowners directly and hundreds more indirectly.

The final stretch at Dhurringile was also significant because the drain's route was deviated to protect native vegetation such as two 300-year-old Grey Box trees and a River Redgum wetland.

Dairy farmer Phil Lang owns the wetland and was keen to see it preserved, even though it meant that land would be fenced off.

"Farmers are environmental managers as well. It's in our interest to look after the environment because we make our living from it, so it's part of our job to protect it," Mr Lang said.

"We've lost too many paddock trees over the decades so it's incumbent on us to protect those that remain."

Rebecca Caldwell from the Goulburn Broken CMA said the Surface Management Program in the Shepparton Irrigation Region had a strong legacy of positive environmental outcomes.

"The program's policy is to Avoid and Minimise the removal of native vegetation. It's pleasing to see we could protect those ancient Grey Box trees, which were in the path of the original Mosquito Drain 40 route."

Ms Caldwell said the program was a good example of integrated catchment management.

"It was co-delivered by the Goulburn Broken CMA and Goulburn Murray Water and has relied on community (landholder) support to succeed."

Actions 2015-16, 2016-17 and 2017-18 (Shepparton Irrigation Region only, incl. Rochester)

Action ⁱ	From funds received					
	Achieved			Target ⁱⁱ	% achieved	
	2016-17	2017-18	2018-19			
Surface water action ⁱⁱⁱ						
Laser levelling ^{iv}	ha	4,460	3,979	2,538	2,958	86
Drain – primary built ^v	km	-	3.76	32.0	10	320
Drain – community built	km	-	0	4.6	0	
Area protected by surface drains ^{vi}	ha	-	391	4,330	1,040	416
Farm reuse systems installed ^{vii}	no.	5	36	-	-	
Farm reuse systems installed ^{vii}	ha	187	1,584	-	-	
Gravity channel surface irrigation	ha	334	1,345	-	-	
High flow drain diversion - dams built ^{viii}	no.	-	-	-	-	
High flow drain diversion - dams built ^{viii}	ML	-	-	-	-	
High flow drain diversion - high nutrient water removed ^{viii}	ML	-	-	-	-	
Pipe and riser irrigation	ha	191	511	-	-	
Irrigation scheduling systems	ha	-	86	-	-	
Farm delivery channel upgrade ^{ix}	km	-	-	-	-	
Pressurised irrigation systems - micro or drip	ha	-	138	-	-	
Pressurised irrigation systems - sprinkler	ha	-	1,057	-	-	
Irrigation systems - improved ^x	ha	4,460	5,174	2,538	-	

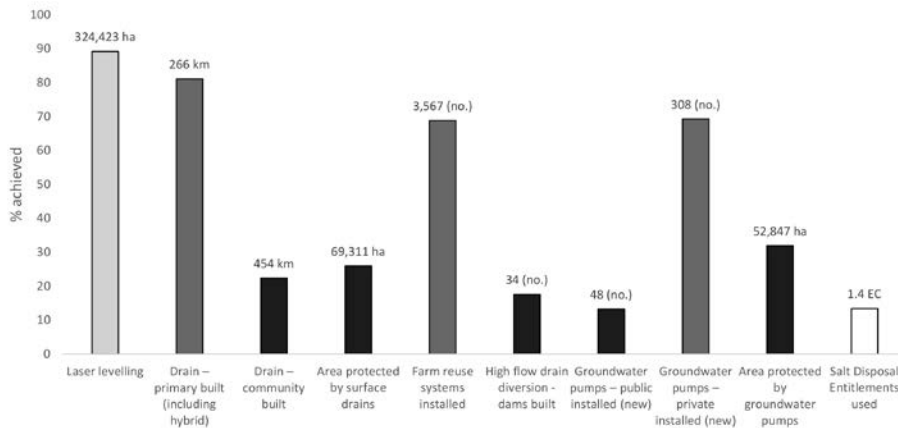
Sub-surface water action						
Groundwater pumps – public installed (new)	no.	-	-	-	-	
Groundwater pumps – public installed (new)	ha	-	-	-	-	
Groundwater pumps – private installed (new)	no.	-	-	-	-	
Groundwater pumps – private installed (new)	ha	-	-	-	-	
Volume of water pumped - increase	ML	-	-	-	-	
Area protected by groundwater pumps	ha	-	-	-	-	
Tile drains - installed	ha	-	-	-	-	
Salt disposal entitlements used (SDE)	EC	1.4	1.4	1	-	

Planning for works action						
Whole farm plans - new	no.	34	30	30	65 ^{xi}	94
Whole farm plans - modernised	no.	40	25	31		
Whole farm plans - new	ha	3,289	2,843	1,718	-	
Whole farm plans - modernised	ha	3,905	2,632	3,357		

- i 'Action' includes actions and outcomes. Several measures were included in this list for the first time from 2014-15, although they were listed elsewhere before. Many actions primarily aimed at achieving salinity targets contribute to other targets, such as those for water quality and biodiversity. Fencing remnant vegetation and revegetation achievements are shown in the table on page 58.
- ii Targets are adjusted as funding is confirmed. Figures do not include the part of the Farm Water Program that is outside the Shepparton Irrigation Region.
- iii Surface water management enables the removal of excess rainfall runoff from irrigated lands, alleviating soil salinity. As part of an overall management plan for nutrients, nutrients loads are managed by collecting and reusing water from drains. Nutrient loads are monitored against the Goulburn Broken Water Quality Strategy nutrient target for drains.
- iv Assumptions: 2016-17 & 2017-18 = Farm Water Program's SIR onground achievements (360 & 1,734) + 60 per cent of area put under Whole Farm Plans [new (3,289 & 2,843) + modernised (3,905 & 2,632) - Farm Water Program's SIR onground achievements (360 & 1,734)]. Assumption change for 2018-19 is 50 per cent of area put under Whole Farm Plans (not 60). Target = 50 per cent of area to be put under Whole Farm Plans [no. (120) x average area of Whole Farm Plans (91)]
- v Fencing and laneways are relocated along primary drains to control stock. Drains are also hydro-mulched and seeded to provide vegetative cover on bare batters.
- vi Assumption: Area protected = Length of drain (km) x 104. For 2018-19 the actual area was measured.
- vii Reuse dams allow for the collection of high nutrient run-off and re-irrigation, reducing the water and nutrient loads leaving the farm.
- viii High flow diversion. None completed because of no demand and previous dry conditions.
- ix Measured directly from whole farm plans. This refers to the on-farm delivery system (to get water to the irrigation bays) rather than the area serviced. Includes earthen channels that have been rock or plastic lined or replaced with pipe, with each means assumed to achieve the same water savings.
- x Assumptions: From 2014-15, area improved = laser levelling (which itself includes an assumption based on whole farm plan area - see footnote iv) + pressurised irrigation systems (micro or drip + sprinkler).
- xi Combined target for the number of new and modernised whole farm plans.

SIR Land and Water Management Plan's 1990-2019 target achieved, %ⁱ

(achievements listed on top of each bar)



i. The method to set the cumulative target was modified in 2012-13 to be: 1990-2020 plan target multiplied by the number of years since 1990 divided by 30.

What's next?

Relationships and partnerships with stakeholders, including local community groups, industry groups and local, state and national government agencies remain critical to Plan implementation.

Water availability

- Respond to major water issues, such as large volumes of water that have already left the GMID and MDB socio-economic indicators.
- Investigate impacts of downstream demands for water on the health of the Goulburn River.
- Develop a 'what does success look like' approach to describe a positive future.
- Investigate the impacts of another low allocation year, especially if NSW allocation is zero.
- Understanding the implications of the water market and climate change on water availability.
- Support work into the review of water trading rules.
- Explore a water volume target for environment.
- Engage the irrigation community in water delivery processes for the environment and irrigation, the transformation underway and how the region can respond.
- Put the case to governments around the need for a water efficiency program on farms that does not transfer water.
- Input into the Northern Region Sustainable Water Strategy.
- Encourage indigenous involvement in water management in the SIR.
- Respond to the Water for Victoria plan actions.

Watertables and water quality

- Complete the community surface water management system in the Muckatah catchment.
- Continue to roll out projects using the hybrid drainage system model, which include restoring natural flow-paths, declaring drainage courses and removing obstructions to restore natural flows. Three priority catchments are under development: Upper Deakin, Cornella Creek and Guilfus-Congupna catchments, with Murray Valley Drain 11 and Muckatah Drain 3 catchments flagged for further investigation (pending funding).
- Undertake a cost benefit analysis of decommissioning public groundwater pumps to gain State EC credits.
- Finalise technical, policy and planning inputs to enable completion of the public groundwater pump rationalisation project.

- Scope an integrated drainage function that considers surface and subsurface drainage network changes.
- Continue to assess and develop measures that bring about improvement to farm drainage.
- Assess level of deliverability between irrigation demand and demand for water quality in natural waterways.
- Contribute to MDBA's Basin Salinity Management Strategy.

Native vegetation extent

- Improve integration of native vegetation into delivery of the whole farm plan incentive scheme.
- Target onground works through the Linking Lower Goulburn project.
- Pilot implementation of the Goulburn Broken Voluntary Biodiversity Investment Fund.
- Year of the Paddock Tree; valuing the invaluable; pursuing protection and enhancement.
- Ensure Goulburn River health is not compromised when water is provided to supply downstream demand.

Farm and regional viability

- Be part of discussions about the future of the region as part of the GMID Vision project.
- Communicate to the region how the SIR has contributed to the MDB Plan to date.
- Secure funding to support irrigation farmers in continuing to improve productivity and adapt to a future with less water (through a water efficiency infrastructure program for farmers).
- With partners, build the skills of regional community leaders to develop a clear and respected regional voice that influences national and state decisions.
- Support the GMW transformation project and improve understanding around system use.
- Pilot a new redevelopment role by investigating land management opportunities.
- Work with indigenous groups on business opportunities.
- Review of the irrigation development guidelines.
- Put the case to government around the need for a drought employment program.
- Incorporate relevant Plan2Farm learnings into the whole farm plan process.
- Renew land and water use mapping data.

Human resources (including occupational health and safety)

Compiled by: Kate Montgomery, Caitlin Baker and Mary Dimit.

Long-term and annual scorecard

2018-19 performance On target

Organisation condition ⁱ	1990	2019	Long-term risk	Long-term strategy maturity
	n.a.	Good	Low	Late

i. Appendix 1 describes the analytical framework. Ratings legend is inside front cover.

Government investment ⁱ, \$000

2016-17	2017-18	2018-19	2019-20 ⁱⁱ
5,840	6,234	5,598	6,443

i. Excludes board and support committees.

ii. Forecast based on the Corporate Plan 2019-20.

Major strategic references

The Goulburn Broken Workforce Strategy 2013-18 integrates direction and guidance from legislation, policies, strategies and plans at national, state, regional and local levels. Appendix 6 includes a more complete list.

Background

The Goulburn Broken CMA through its workforce provides committed leadership, professionalism, industry leading expertise, resilient partnerships and respect for our workplace, community and environment with a continued focus on improvement. Our culture represents these values through the sustained commitment to developing and investing in our people, encouraging innovation and adaptability to respond to opportunities as they present and enabling agility for our employees in the broader workforce and to achieve their own professional development goals.

The Goulburn Broken CMA demonstrates a holistic commitment to providing a healthy workplace and practically supports injury prevention through proactive initiatives and maintaining a focus on both the physical and mental wellbeing of our people. Further the contributions of our workforce are recognised in a learning environment where employees can develop their skills and capability and teach and share these skills with others.

We have continued to align our workforce capabilities to support the achievement of the Regional Catchment Strategy's vision and provide meaningful outcomes for our people, the community and the environment.

Organisation condition

The strong and proactive participation of employees in surveys and internal initiatives has continued this year indicating the workforce is keen to be involved in shaping the workplace. This 2018 People Matter Survey demonstrated a five per cent increase in Job Satisfaction and three per cent increase in the Engagement score. The strong results were achieved despite staff clearly acknowledging concerns regarding job security in a time of organisational change as was occurring in the lead up to the survey period. Further, key employee data including voluntary turnover and absenteeism has continued to remain at a low level, with absenteeism nearly halving in 2018-19 indicating that even in a time of change the workforce has rallied to navigate the change. The

impact of the announcement of the National Landcare Programme unfortunately resulted in the identification of eight redundant positions for the organisation however of these positions, four employees were able to be redeployed within the organisation.

Workforce data for the current and previous financial years is contained in the tables on pages 78 and 79.

Long-term strategy implementation progress

Human Resources

The Goulburn Broken CMA Workforce Strategy 2013-18 directs strategic priority projects and opportunities for enhancing the Goulburn Broken CMA employment value proposition. The current strategy has now reached its planned completion date with the initiatives delivered targeting workforce areas of Capability Building, Participation, Recruitment and Attraction, Labour Supply and Governance. The strategy will be renewed in the coming year.

Occupational Health and Safety

The Goulburn Broken CMA's Occupational Health and Safety (OHS) procedures and practises are based on the model of continuous improvement. The Goulburn Broken CMA has delivered a full review of all Employee OHS procedures to ensure currency and relevance for our operation and has commenced a review of OHS management of Contractors and Volunteers – a key component of the organisations delivery model.

2018-19 Human resources performance

The 2018-19 year has seen a continued focus on effective delivery and updates to existing human resource (HR) processes and operations that are agile and reflective of the funding environment. A major HR project this year was the workforce response to the National Landcare Programme funding.

Other key activities undertaken to deliver against the core strategic Workforce Strategy objectives are described below.

Governance

The 2018-19 focus has been largely on the Occupational Health and Safety governance of the organisation and the review of Contractor Management systems. This work is ongoing. A review was undertaken of the Employment Contract Management practises of the organisation to reduce the risk of fixed term contracts been applied incorrectly, as a result a new process was established to assist in the management of future arrangements.

Attraction and recruitment and labour supply and agility

2018-19 has seen effort invested in understanding the core activities of the organisation and how these are translated into roles and positions. This has resulted in providing clarity around the suite of employment arrangements available and a review of the Position Description framework that is due for implementation in 2019-20.

Capability building

The Goulburn Broken CMA has continued to provide good quality and diverse learning and development experiences for employees. People Matter Survey results indicate the Goulburn Broken CMA has continued to outperform its comparators with staff satisfaction levels with access to learning and development opportunities. In 2018-19 all employees completed Cultural Awareness training and Safe Work Instruction competency training relevant to their position. Four formal knowledge sharing sessions were delivered by employees for their peers.

Participation and motivation

The Goulburn Broken CMA has continued to support workplace flexibility, and this continues to be a highly valued attribute by staff: a total of four flexible arrangements were formalised this year. The organisation continued to support a number of employees' balance work and life demands through planning return to work with staff returning from parental leave, supporting five Leave Without Pay applications to explore personal aspirations,

and a total of seven staff accessing long service leave, unpaid leave and parental leave. One staff also made use of Purchased Leave.

Supporting our community

The Goulburn Broken CMA has continued encouraging and supporting staff to contribute to the community in a variety of ways including via the Greater Shepparton Lighthouse Project and the Learning Club at a local primary school, contributing funds through social club and various fundraising events for a variety of local and national causes.

The organisation again supported a community leader to undertake the Fairley Leadership program via the Ken Sampson Scholarship program.

One work experience placement was provided by the Goulburn Broken CMA this year and a project has commenced to identify how the Goulburn Broken CMA can undertake a more proactive approach to work experience and university placement opportunities.

Diversity and inclusion

2018-19 saw year two of implementation for the Goulburn Broken CMA's Diversity and Inclusion Plan. Initiatives completed this year were aimed at helping us improve our understanding of diversity, diversity in our workplace and enhancing our communication to embrace diversity. See table page 80.

Our staff

A list of all Goulburn Broken CMA staff employed for all or part of 2018-19 is on page 148.

Other workforce data 2016-17, 2017-18 and 2018-19

	2016-17		2017-18		2018-19		Comments
	no.	%	no.	%	no.	%	
Years of serviceⁱ							
12 months or less	5	8	0	0	3	5	This year despite seeing some longer serving staff depart, we also welcomed three new employees as a result of parental leave, a new position and a resignation.
1-3 years	6	10	6	11	5	10	
3-5 years	3	5	6	11	5	10	
5+ years	47	77	43	78	39	75	
Average length of service, years	8.3		9.5		9.8		
Salary distribution^{i & ii}							
<\$40,000	0	0	0	0	0	0	Salary figures have continued to climb driven by the annual EBA and PEERS increments.
\$40,000 - 59,999	1	2	0	0	0	0	
\$60,000 - 79,999	25	41	19	35	17	33	
\$80,000 - 99,999	18	30	20	36	18	35	
\$100,000+	17	27	16	29	17	32	
Average Salary ⁱⁱⁱ	\$81,524		\$83,506		\$87,680		
Qualificationsⁱ							
Year 12 or less	4	7	4	7	3	6	Our employees continue to hold a high level of competency and have continued to develop their skills and qualifications.
Certificate	1	2	1	2	0	0	
Advanced Diploma/Diploma	12	20	11	20	8	15	
Degree	35	57	31	56	33	63	
Postgraduate Degree/Graduate Diploma	9	14	8	15	8	15	
Turnover (total)	5	8	7	13	6	12	This year turnover has remained steady even in the face of a significant funding change.
Turnover (ongoing staff only, % of total turnover)	3	60	3	43	4	67	
Exit interviews completed	2	40	5	71	1	17	The number of exit interviews fell this year as a result of workforce change process and involuntary resignations.
Absenteeism		2.2		3.0		1.7	
Training expenditure (% of employee related expenditure)	\$149,541	2.5	\$121,982	1.9	\$52,415	0.9	This year saw a strong focus on internal knowledge sharing, meeting compliance requirements via the Rapid Induct system.

i. All employees (excluding terminations and Board/committee members).

ii. Based on 1.0 FTE full year salary.

iii. Actual average salary paid including terminations.

Comparative workforce data ^{i, ii}

The following table discloses the headcount and full-time staff equivalent (FTE) of all active employees of the Goulburn Broken CMA employed at the last full pay period in June of the current reporting period and in the last full pay period in June (2019) of the previous reporting period (2018).

	June 2019						June 2018								
	All employees			Fixed term ^{iv} and casual			All employees			Ongoing ⁱⁱⁱ			Fixed term ^{iv} and casual		
	Ongoing ⁱⁱⁱ		FTE	Ongoing ⁱⁱⁱ		FTE	Full time		FTE	Full time		FTE	Part time		FTE
	No. (headcount)	FTE		No. (headcount)	FTE		No. (headcount)	FTE		No. (headcount)	FTE		No. (headcount)	FTE	
Demographic data															
Gender															
Male	22	21.6	14	2	15.6	6	6.0	23	22.6	12	2	13.6	9	9.9	
Female	30	26.6	16	10	23.5	4	3.1	32	27.7	12	11	19.9	9	7.8	
Age															
15-24	0	0.0	0	0	0.0	0	0.0	0	0.0	0	0	0.0	0	0.0	
25-34	3	2.6	2	1	2.6	0	0.0	3	2.6	1	1	1.6	1	1.0	
35-44	18	16.1	9	8	15.1	1	1.0	19	16.7	7	8	12.7	4	4.0	
45-54	19	17.7	12	2	13.6	5	4.1	19	17.8	10	2	11.6	7	6.2	
55-64	12	11.8	7	1	7.8	4	4.0	14	13.2	6	2	7.6	6	5.6	
65+	0	0.0	0	0	0.0	0	0.0	0	0.0	0	0	0.0	0	0.0	
Classification data															
Bands															
Band 5	2	2.0	2	0	2.0	0	0.0	3	2.5	2	1	2.5	0	0.0	
Band 6	6	5.4	4	2	5.4	0	0.0	8	7.0	4	4	7.0	0	0.0	
Band 7	14	12.4	9	3	11.1	2	1.3	12	10.7	5	3	7.1	4	3.6	
Band 8	13	11.7	7	5	10.9	1	0.8	14	12.3	5	4	8.1	5	4.2	
SEO	11	10.7	8	2	9.7	1	1.0	12	11.8	8	1	8.8	3	3.0	
Senior managers	6	6.0	0	0	0.0	6	6.0	6	6.0	0	0	0.0	6	6.0	

i. All figures reflect employment levels during the last full pay period in June of each year.

ii. Excluded are external contractors/consultants, and temporary staff employed by employment agencies.

iii. Ongoing employees includes people engaged on an open-ended contract of employment who were active in the last full pay period of June.

iv. Fixed term employees includes people engaged on a fixed term contract of employment who were active in the last full pay period of June.

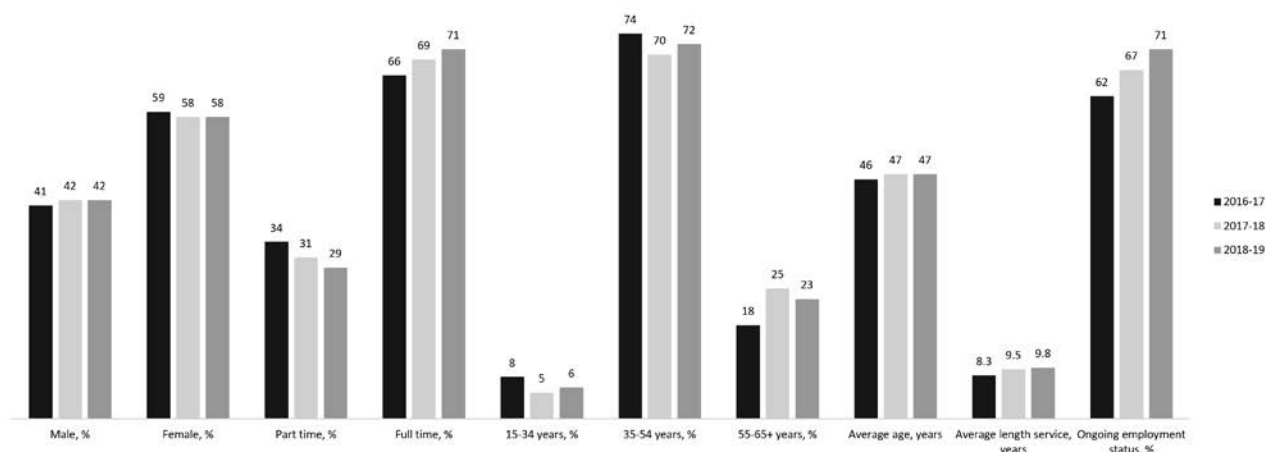
v. Employees are classified as a Band (1 to SEO) under the EBA. Senior managers refers to staff employed under a PEER policy contract.

Annualised salary by \$20,000 bands for executives and other senior non-executive staff

Income band (salary) ⁱ	No. (headcount) ⁱⁱ
< \$160,000	5
\$160,000 - \$179,999	0
\$180,000 - \$199,999	0
\$200,000 - \$219,999	1

- Income bands in this table differ from Note 8.4 in the Financial Statements as \$ values are based on salary only, not total remuneration package.
- No. of staff in this table differs from Note 8.5 in the Financial Statements as this table includes CEO.

Goulburn Broken CMA people profile



Diversity and Inclusion Action Plan 2017-2022

Strategic Priority	# actions	% completed
Use an 'equity lens' in the review of all policy and procedures.	7	43%
Continue to strive to achieve gender equity in our recruitment, succession planning and professional development opportunities.	8	38%
Build our capacity to be inclusive of cultural diversity	3	33%
Maintain, strengthen and support talented Indigenous staff and Indigenous partnerships.	6	83%
Ensure that our workplace is accessible and adaptable to support current and future employees with disabilities	3	33%
Achieve a communication standard that uses inclusive language that is respectful of LGBTI people in the workplace.	2	100%
Provide a workplace that supports people entering, developing, enhancing and exiting their career journey.	11	45%

2018-19 Occupational Health and Safety performance

Occupational Health and Safety has continued to focus on the review of all employee OHS procedures and supporting documentation including the role out of training in the iAuditor technology across the organisation.

Via the iAuditor platform, a 100 per cent success rate was achieved for the submission Safe Work Method Statements (SWMS) within one week of works commencing for activities conducted by the Goulburn Broken CMA. The compliance for Contractor SWMS with this target has been identified as a key issue and will be addressed in the Contractor OHS Review to be completed in 2019-20

This year saw a host of wellbeing initiatives offered including:

- flu immunisations, taken up by 53 per cent of employees
- participated in the Premier's Active April challenge
- social engagement activities such as A Taste of Harmony

- successful trial and implementation of headphones across the organisation for focused time in open plan offices
- trial and commencement across all sites of sit/stand desks to assist with good ergonomic practice.

Work has commenced on reviewing the Key Performance Indicators for OHS to be implemented in 2019-20 along with a review of Contractor and Volunteer management.

Safe Work Instructions (SWi) for key work tasks conducted by the organisation were transferred on to the Rapid Induct platform this year and all staff have commenced completing competency training in the relevant SWi's for their role.

The Goulburn Broken CMA has continued to participate in the Statewide OHS forum and contributed to the development of a statewide incident reporting platform to assist CMAs to better identify risks and hazards in our work.

Refer also to the 2018-19 Occupational Health and Safety performance table on page 81.

Occupational health and safety statistics summary

		2016-17	2017-18	2018-19
Hazards	Hazards reported, no.	4	5	6
	Rate per 100 FTE	7	10	12
Incidents	Total incidents, no.	4	5	11
	Rate per 100 FTE	7	10	23
	Incidents requiring first aid and/or further medical treatment, no.	1	1	4
Claims	No. of Standard claims	0	0	0
	Rate per 100 FTE	0	0	0
	No. of lost time Standard claims	0	0	0
	Rate per 100 FTE	0	0	0
	No. claims exceeding 13 weeks	0	0	0
Fatalities	Fatality claims	0	0	0
	Average cost per Standard claim	0	0	0
Return to work	Percentage of claims with RTW plan <30 days	0	0	0
Management commitment	Evidence of OHS policy statement, OHS objectives, regular reporting to senior management of OHS, and OHS plans (signed by CEO or equivalent)	Completed	Completed	Completed
	Evidence of OHS criteria(s) in purchasing guidelines (including goods, services and personnel)	Completed	Completed	Completed
Consultation and participation	Evidence of agreed structure of designated workgroups (DWGs), health and safety representatives (HSRs), and issue resolution procedures (IRPs)	Completed	Completed	Completed
	Compliance with agreed structure on DWGs, HSRs, and IRPs.	Completed	Completed	Completed
	Number of OHS Committee meetings	5	5	5
Risk management	Percentage of internal audits/inspections conducted as planned.	75	78	79
	Percentage of reported incidents investigated	100	100	100
	Improvement Notices issued across the Authority by WorkSafe Inspector	0	0	0
	Percentage of issues identified actioned arising from: - internal audits - HSR provisional improvement notices (PINs) - WorkSafe notices	77 n.a. n.a.	95 n.a. n.a.	82 n.a. n.a.
Training	Percentage of managers and staff that have received OHS training:			
	- induction	100	n.a.	100
	- management training	67	100	100
	- contractors, temps, and visitors	67	100	100
	Percentage of HSRs trained:			
- acceptance of role	100	100	n.a.	
- re-training (refresher)	33	0	0	
- reporting of incidents and injuries	100	100	100	

What's next?

Human resources

- Implementation of the Position Description Framework.
- Ongoing implementation of the Goulburn Broken CMA Diversity & Inclusion Plan.
- Renewal of the Goulburn Broken CMA Workforce Strategy.

Occupational Health and Safety

- Review of our OHS practices for contractors and volunteers including updating and development of new policy, procedures; training and education for staff; and investigation of platforms and shared resources across the CMA's and partners.

Environmental footprint

Long-term and annual scorecard

2018-19 performance On target

Organisation condition ⁱ	1990	2019	Long-term risk	Long-term strategy maturity
	Very poor	Poor	Medium	Early

i. Appendix 1 describes the analytical framework. Ratings legend is inside front cover.

Government investment, \$000

2015-16	2016-17	2017-18	2018-19 ⁱ
0	0	0	0

i. Forecast is based on the Corporate Plan 2019-20.

Major strategic references

The Goulburn Broken CMA Organisational Environmental Footprint Policy 2011 and Organisational Environmental Footprint Strategy and Action Plan 2012-2014 set principles, priorities and targets for minimising the Goulburn Broken CMA's environmental footprint for business activities. Appendix 6 includes a more complete list of relevant state, national and international strategies.

Background

With support from management and staff, the Goulburn Broken CMA promotes environmentally responsible and sustainable practices.

Data collection for greenhouse gas emissions calculations commenced in 2006-07, our base year for reporting and comparisons.

All Goulburn Broken CMA environmental footprint initiatives and activities are guided by the Organisational Environmental Footprint Policy 2011 and Organisational Environmental Footprint Strategy and Action Plan 2012-14, which were both revised in 2011. Reporting is guided by the Victorian Government's Financial Reporting Directions 24D and in line with current carbon accounting practices.

Implementation of the action plan was guided by a working group that was supported by the sustainability coordinator. This position is currently vacant and the action plan has not yet been reviewed.

Internally, the program is promoted as 'Reducing our Footprint'.

Organisation condition

The table on page 83 summarises our greenhouse gas inventory, including direct emission sources such as vehicle fleet fuel and indirect sources such as purchased electricity, business travel and waste.

Long-term strategy implementation progress

Since the initial data collection in 2006-07, the Authority's overall emissions report shows a downward trend with continued improvements in energy use and vehicle emissions (our biggest greenhouse gas emissions sources), waste management and paper use.

2018-19 performance

Total emissions fell during 2018-19, primarily due to reduced vehicle emissions and air travel. Total greenhouse gas emissions for the year are more than 25 per cent below 2006-07 levels. Emissions per FTE have fallen slightly to 9.3 t CO₂e, and are 27 per cent lower than 2006-07 levels. Overall the Authority continues to meet its target of 20 per cent below 2006-07 levels of total emissions.

Electricity emissions are now almost 30 per cent below 2006-07 levels, with consumption falling slightly during 2018-19. Electricity use at the Shepparton office rose slightly, but was offset through lower power use at the Yea office.

Vehicle fleet emissions continued the downward trend with a further four per cent fall in total kilometres travelled for the year. This, combined with ongoing improvements in the vehicle fleet of fuel efficient, lower emission vehicles, resulted in reduced emissions for the year. Total emissions from vehicles are now 26 per cent below 2006-07 levels.

Paper use fell to just over 7 A4 equivalent reams per FTE, which is now less than half the 2006-07 level of 14.2 reams per FTE.

Flight emissions fell compared to recent years due to reduced air travel.

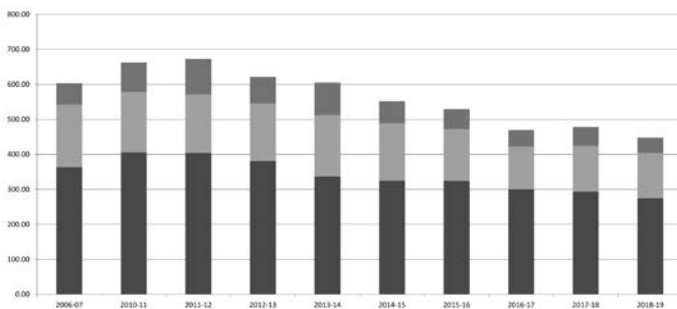
Waste emissions remain a small component of our overall emissions. Waste to landfill fell significantly from 7.6 kg per FTE in 2017-18 to 3.2 kg per FTE, which is well below the target of less than 10 kg per FTE. Recycling rates have risen to 88 per cent of total waste, close to the target rate of 90 per cent. Recycling contamination is at a very low one per cent.

Office-based environmental impacts reporting

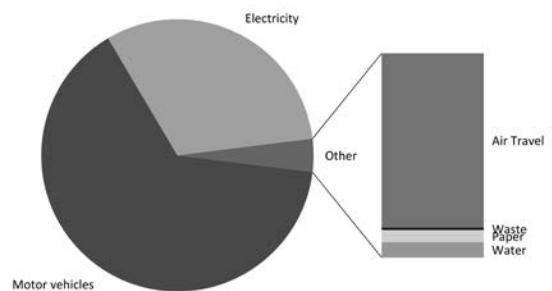
Sustainability report	2006-07 (base year)		2017-18		2018-19	
	Consumption	GHG emissions (t CO2-e)	Consumption	GHG emissions (t CO2-e)	Consumption	GHG emissions (t CO2-e)
Direct emissions (Scope 1)						
Petrol for vehicles (L)	74,711	171	5,402	13	8,715	20
Diesel for vehicles (L)	66,127	178	103,076	280	93,594	255
LPG for vehicles (L)	8,936	14	-	-	-	-
Distance travelled by fleet vehicles (km)	Not avail.		1,398,241		1,346,418	
Total Scope 1		363		293		275
Indirect emissions (Scope 2)						
Electricity (kilowatt hour)	147,930	179	121,374	131	120,776	129
Total Scope 2		179		131		129
Optional emissions (Scope 3) ⁱ						
Electricity (transmission & distribution losses) (kWh)	147,930	22	121,374	12	120,776	12
Flights (km)	Not avail.		96,611	23	61,379	15
Waste - landfill (kg)	8,680	9	338	1	139	0
Water consumption (kL)	Not avail.		433	1	563	1
Paper consumption (reams)	514	2	431	2	318	1
Petrol (extraction, production, etc.) (L)	74,711	14	5402	1	8,715	1
Diesel (extraction, production, etc.) (L)	66,127	13	103,076	14	93,594	13
LPG (extraction, production, etc.) (L)	8,936	1	-	-	-	0
Total Scope 3		61		54		44
Total Scope 1 + 2		542		424		404
Total Scope 1 + 2 + 3		603		478		448
Offsets purchased (% air travel)	-		2			2

i. Scope 3 emissions are indirect emissions, such as extraction and production of fuels, transport related activities in vehicles not owned or controlled by the Goulburn Broken CMA, waste disposal and electricity-related activities (e.g. transmission and distribution losses) not covered in Scope 2. Reporting of Scope 3 emissions is optional under the international Greenhouse Gas Protocol.

Goulburn Broken CMA emissions - t CO2-e



2018-19 Emissions by source activity



Governance

Compiled by Eileen Curtis, Shannon Crawford and Kate Brunt.

Long-term and annual scorecard

2018-19 performance	On target			
Organisation condition ⁱ	1990	2019	Long-term risk	Long-term strategy maturity
	n.a.	Good	Medium	Watch & maintain

i. Appendix 1 describes the analytical framework. Ratings legend is inside front cover.

Government investment, \$000

2016-17	2017-18	2018-19	2019-20 ⁱ
1,564	1,214	1,181	1,127

i. Forecast is based on the Corporate Plan 2019-20.

Major strategic references

The Goulburn Broken Corporate Plan 2018-19 to 2022-23 outlines the business undertakings and objectives for the relevant four years. It provides a summary of activities to be undertaken over the next 12 months to contribute to the achievement of objectives. Appendix 6 includes a more complete list of legislation and policies that apply.

Background

This section includes:

- A description of 'Governance'.
- The legislative and funding context of the Goulburn Broken CMA to establish its Corporate Governance practices.
- A scorecard (above) as a summary of annual and long-term performance (including compliance) and the capacity of the Catchment's people to undertake sound and ethical natural resource management.
- An overview of the Goulburn Broken CMA's Governance practices.
- Goulburn Broken CMA's performance of statutory responsibilities as an employer and a Victorian State Government Authority.
- Performance against key performance indicators listed in the Goulburn Broken CMA's Corporate Plan.
- What's next? (strategic priorities over the next 12 months).

Description of Governance investment area

This 'enabling' program exists to ensure that the Goulburn Broken CMA continues to fulfil its statutory and corporate functions; maintains a high level of governance, transparency and accountability in delivering program commitments agreed with investors and ensures that:

- Areas of finance and reporting, business development, communications and marketing, human resources and information and communication technology requirements are clearly aligned with our business objectives.
- A safe workplace is provided for all employees, contractors and visitors.
- An effective risk management framework is in place which forms an integral part of the strategic planning processes, where risks are identified, assessed and monitored under risk treatment plans to mitigate the risk to an agreed level.
- Comprehensive monitoring and evaluation processes are in place ensuring project reporting on expenditure and outputs is of a high level and in line with requirements of the Board and investors.
- Optimum information management systems are in place to allow Goulburn Broken CMA to undertake, record, communicate and report on its business activities undertaken throughout the catchment.
- The environmental footprint is minimised.
- Goulburn Broken CMA works in partnership and openly shares knowledge and information with a range of agencies and other Victorian CMAs to improve the delivery of integrated natural resource management.
- An optimum corporate structure commensurate to its program funding acceptable to all stakeholders and the community at large.
- Governance standards are communicated to the community to ensure that the Goulburn Broken CMA maintains its social licence to operate.

2018-19 performance

The performance of the Governance investment area is described comprehensively though the Business and Financial Report sections.

What's next?

Key areas of the focus for business improvement in 2019-20 will be:

- Continued development and implementation of shared business systems with other CMAs to support a resilient organisation and sector.
- Ongoing shared knowledge and resources across CMAs and wider water sector to respond efficiently and effectively to increasing governance requirements with limited resources.
- Continued implementation of actions identified in the Diversity Plan 2017.
- Implementation of identified improvements to the project management framework including OHS risk assessment.
- Integration of Social Procurement strategy into procurement framework.
- Continue implementation of actions identified in Protective Data Security Plan.

Goulburn Broken CMA's legislative and funding context

Refer to 'Objectives, functions, powers and duties' below for the legislative context.

The Victorian Government funds the Goulburn Broken CMA to fulfil its statutory obligations as detailed in the two relevant Statements of Obligations.

Costs that enable the Goulburn Broken CMA to fulfil its core corporate obligations are partly funded from a direct corporate allocation and interest earned. Other corporate costs are charged to projects up to a board-approved percentage which recognise the degree of support provided to those projects.

Goulburn Broken CMA's funding of \$31.8 million was sourced from Regional, Victorian and Australian Government sources in 2018-19. It is estimated that the regional community contributes (in-kind and via products and services) about the same that governments contribute.

An increasing amount of government funding received is from initiative funding sources.

All works undertaken are in line with State, Murray-Darling Basin and National strategies.

Objectives, functions, powers and duties of the Goulburn Broken CMA

The Goulburn Broken CMA has responsibilities under two Statements of Obligations, one under the *Catchment and Land Protection Act* (for obligations under that Act) and another under the *Water Act* (for obligations under that Act). The statements are available under About Us on the Goulburn Broken CMA website www.gbcm.vic.gov.au

Catchment and Land Protection (CaLP) Act 1994

The responsibilities of the Goulburn Broken CMA as they relate to the *CaLP Act 1994* are as follows:

- Prepare, coordinate, monitor and review the Regional Catchment Strategy.
- Prepare and submit an annual report on the condition

and management of land and water resources in the region.

- Prepare and submit a corporate plan to the Minister by 30 June each year.
- Comply with the Statement of Obligations.

Water Act 1989

Under the *Water Act 1989*, the Goulburn Broken CMA aims to reduce the impact of flood damage to new buildings, help conserve and preserve flora, fauna and habitat in designated waterways and to reduce water quality decline.

This is done by providing:

- Permits to construct and operate works on a waterway, compliance and community education.
- Resources to planning permit referrals for developments within a flood prone area.
- Responses to applications for flood levels, flood risk reports and flood information before development.
- Flood planning information and advice to councils, state emergency services, developers and others.
- Flood response action plans, including collection of flood information during and after a flood and assistance with emergency planning and flood warning.
- Flood data management.
- Comply with the Statement of Obligations.

Goulburn Broken CMA's corporate governance practices

Sound and ethical corporate governance practices underpin the Goulburn Broken CMA's overall performance including compliance with what is required and expected of it. This is codified in the Goulburn Broken CMA's Financial Code of Practice which all employees are obligated to comply with.

Planning Framework

The Goulburn Broken CMA's planning framework is described within the 'Regional Catchment Strategy, resilience and climate change' section on page 20.

Financial management compliance attestation statement

I, Adrian Weston, on behalf of the Responsible Body, certify that the Goulburn Broken CMA has complied with the applicable Standing Directions 2018 under the *Financial Management Act 1994* and Instructions.



Adrian Weston

Chair

22 August 2019

Goulburn Broken CMA Board

Members of the Goulburn Broken CMA Board of Directors are drawn from within the region and together have extensive experience and knowledge of land management, water resources management and the water industry, waterway management, environment or natural resources management, primary industry, strategic or business planning and financial management.

Under the direction of the board, the Goulburn Broken CMA develops detailed environmental management strategies under the umbrella of the overarching Regional Catchment Strategy.



Adrian Weston, Chair - Adrian, who previously ran a dairy farm, owns and operates an irrigated prime lamb and cropping farm enterprise at Rushworth. He is also Mayor of Campaspe Shire, representing the Waranga Ward. Adrian has a long-standing interest in natural resource management and believes the greatest challenge facing the Catchment community is balancing the demand for increased productive use of land (soil) and water resources with protecting and improving the condition of the region's unique natural environment. He says the key to building the Catchment's environmental and social resilience relies on the willingness of business, industry and communities to embrace and adapt to change.



Helen Reynolds, Deputy Chair - For the past 17 years Helen has owned and managed a farming business at Congupna with her partner Craig. The business produces a wide range of irrigated fodder, grains and small seeds and does contracting work and grain drying for other farms. Helen has an interest in sustainable and profitable private land-use and effective management of public land. Helen believes the greatest challenge facing the Catchment is the disconnection of people's lives from nature and food production while the greatest opportunity is the chance to use water specifically for environmental benefits. She also believes one of our biggest advantages is our location and the innovative and committed people in the community and involved in agriculture that enrich our catchment.



Kate Stothers - Kate lives in Uportipotpon and has many years' experience in sustainable land management, private land conservation and community development. She also has a strong interest in community-based democracies and advocating for climate change action. Kate's farming background, extensive contacts and networks, environmental restoration skills and professional experience provide her with a good understanding of the Catchment community's natural resource management priorities. Kate believes that using the natural ecological processes of our land and water scapes as the basis to determine community-driven local pathways towards sustainable land management practices is the key to addressing challenges such as climate change.



Kate Hawkins - Kate has owned a consulting business in scientific and corporate writing and editing, process improvement and community environmental education with her partner Ron for 13 years. She serves on the Upper Goulburn Landcare Network executive and is a member of the CFA, local Landcare and community arts organisations. Kate has interests and experience in science communication (particularly about natural resources), small business, community engagement and governance. Kate lives in Yea.



Jenny Ford - Jenny has held senior executive roles in corporate affairs, economic development, tourism and strategic planning in the public and private sectors. She is currently employed in the not-for-profit sector. Jenny has extensive experience in external and internal stakeholder management, community engagement, public policy and media and issues management. Jenny sees changes in population, land use and water policy as the greatest challenges facing the catchment. She believes working in collaboration with a well-informed community is the best way to understand and plan for the social and economic effects of current and future governments' natural resource management policy decisions.



Ron Harris - Ron is a beef producer at Nagambie and has a strong understanding and interest in sustainable agriculture, operations and policy after working for Victorian Government agriculture departments over many years. Ron is currently Chair of the Wild Dog Management Advisory Committee and the Cattle Council Advisory Committee and is a member of the Victorian Agricultural Advisory Committee. He is also a Victorian Farmers Federation member.



Sam Lolicato - Sam has a Master of Agricultural Science degree from the University of Melbourne and formal teaching qualifications. He has worked in agricultural research, development and education, promoting sustainable management practices in dryland grazing and irrigated cropping, dairy farming and apple growing in northern Victoria and southern New South Wales. Throughout his career, Sam has owned agricultural land and had continuous experience in hands-on farm management. Currently he is modernising his irrigation infrastructure for sustainable intensive production, while also being actively involved with the local community in Tatura. Sam believes our main challenges centre on achieving the optimum balance between the natural environment, economic wealth and general social wellbeing, while accepting our responsibilities for future generations.

Board members and meeting attendance 2018-19

Name	Position	Term	Attended	Eligible to attend
Adrian Weston	Chair	1 July 2018 to 30 June 2019	11	11
Kate Hawkins		1 July 2018 to 30 June 2019	7	11
Kate Stothers		1 July 2018 to 30 June 2019	10	11
Helen Reynolds	Deputy chair	1 July 2018 to 30 June 2019	10	11
Jenny Ford		1 July 2018 to 30 June 2019	10	11
Ron Harris		1 July 2018 to 30 June 2019	10	11
Sam Lolicato		1 July 2018 to 30 June 2019	10	11

Board Committees

The Goulburn Broken CMA has established an Audit Risk and Compliance Committee and a Remuneration Committee. Both committees operate under the terms of their respective Charter.

Audit, Risk and Compliance Committee

The members of the Audit, Risk and Compliance Committee in 2018-19 are detailed in the table below.

The responsibilities of the Audit, Risk and Compliance Committee are set out in Standing Direction 3.2.1.1.

Key responsibilities of the Audit, Risk and Compliance Committee are to:

- Review and report independently to the board on the annual report and all other financial information published by the Goulburn Broken CMA.
- Assist the board in reviewing the effectiveness of Goulburn Broken CMA's internal control environment covering:
 - effectiveness and efficiency of operations
 - reliability of financial reporting
 - compliance with applicable laws and regulations.
- Determine the scope of the internal audit function and ensure its resources are adequate and used effectively, including coordination with the external auditors.
- Maintain effective communication with external auditors, consider recommendations made by internal and external auditors and review the implementation of actions to resolve issues raised.
- Oversee the effective operation of the risk management framework.

Members are appointed by the board, usually for a three year term, and are subject to the committee's Terms of Reference.

Meetings are held quarterly and at any other time on request of a committee member or the internal or external auditor. In 2018-19, the committee met five times. Attendance of committee members is detailed in the table below.

Audit, Risk and Compliance Committee membership and meeting attendance 2018-19

Name	Position	Term	Attended	Eligible to attend
Kate Stothers	Chair, independent	1 July 2018 to 30 June 2019	4	5
Adrian Weston (ex officio)	Independent	1 July 2018 to 30 June 2019	3	5
Kate Hawkins	Independent	1 July 2018 to 30 June 2019	4	5
Ron Harris	Independent	1 July 2018 to 30 June 2019	5	5
Craig Marshall	CPA external appointee	1 July 2018 to 30 June 2019	4	5

Remuneration Committee

To assist the Board, the Remuneration Committee oversees the implementation of the Victorian Government's Remuneration Policy as it applies to the Goulburn Broken CMA CEO and any roles with a significant management responsibility.

The members of the Remuneration committee in 2018-19 are listed in the table below.

Remuneration Committee membership

Name	Position	Term
Helen Reynolds	Chair	1 July 2018 to 30 June 2019
Jenny Ford		1 July 2018 to 30 June 2019
Sam Lolicato		1 July 2018 to 30 June 2019
Adrian Weston (ex officio)		1 July 2018 to 30 June 2019

Compliance

The following table includes several summaries of Goulburn Broken CMA's compliance that are discussed in more detail elsewhere in this Annual Report.

Goulburn Broken CMA's performance of statutory responsibilities as a Victorian State Authority and Employer

Act or policy	Board's major tasks	2018-19 issues and status
<i>Catchment and Land Protection Act 1994</i>	Prepare, coordinate, monitor and review of Regional Catchment Strategy.	Regional Catchment Strategy for 2013-2019 was approved on 16 May 2013. Renewal of the 2021-27 RCS is underway.
	Submit to Minister and Council by the prescribed date: 'A report on the condition and management of land and water resources in the region and carrying out of its functions.'	2017-18 Annual Report submitted on time and 2018-19 on schedule.
	Corporate Plan to be submitted to the Minister under the Catchment and Land Protection Act 1994 by 30 June annually.	Submitted to Minister on 27 June 2019.
	Members declare new interests at each (monthly) board meeting and document it in Pecuniary Interests Register. New members must submit a primary return and other members an annual ordinary return.	Declarations of Pecuniary Interests have been duly completed by relevant directors and officers of the Goulburn Broken CMA and are available for inspection.
<i>Water Act 1989</i>	Corporate Plan available for inspection.	Copy is available for inspection during business hours at 168 Welsford Street, Shepparton.
	Review funds at each (monthly) board meeting.	Goulburn Broken CMA transferred all funds to the Central Banking System with Westpac Pty Ltd in February 2019 in line with the Standing Directions 2016.
	Policy for investment as per the Standing Directions 2016.	
	Submit statement of borrowings.	
	Review borrowings at each (monthly) board meeting.	Included as part of Corporate Plan. Finance Leases are classified as borrowings due to the accounting treatment. Board reviews monthly.
	Finance leases are borrowings and subject to Treasurer's approval.	
	Meeting Procedures of Authorities.	Minutes are available through application under Freedom of Information. Goulburn Broken CMA has adopted Governance Guidelines for Statutory Authority Board Members, DELWP. Code of conduct for public sector employees adopted.
Waterway management responsibilities.	Goulburn Broken CMA was established as a body corporate under the <i>Catchment and Land Protection Act 1994</i> and then established as an Authority under the <i>Water Act</i> with delegated waterway management, floodplain management and drainage functions under Part 10 of the <i>Water Act 1989</i> .	
<i>Environmental Protection and Biodiversity Conservation Act 1999</i>	Provide for the protection of the environment and promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources and promote the conservation of biodiversity.	All works have a process which assesses the works against this Act. The Goulburn Broken CMA and its partners have complied with all requirements.
<i>Financial Management Act 1994</i>	Undertake review of its annual operations and advise the Minister regarding compliance with Financial Management Compliance Framework.	Information listed under FRD 22H is available under the Freedom of Information Act 1982. See page 85 for Statement regarding level of compliance with Standing Direction.

Act or policy	Board's major tasks	2018-19 issues and status
<p><i>Freedom of Information Act 1982</i></p>	<p>Report requests for access to documents in Annual Report. Report requests at each (monthly) board meeting.</p> <p><i>The Freedom of Information Act 1982</i> (the Act) allows the public a right of access to documents held by the Goulburn Broken CMA (the Authority). The purpose of the Act is to extend as far as possible the right of the community to access information held by government departments, local councils, Ministers and other bodies subject to the Act.</p> <p>An applicant has a right to apply for access to documents held by the Authority. This comprises documents both created by the Authority or supplied to the Authority by an external organisation or individual, and may also include maps, films, microfiche, photographs, computer printouts, computer discs, tape recordings and videotapes. Information about the type of material produced by the Authority is available on the Authority's website under its Part II Information Statement.</p> <p>The Act allows the Authority to refuse access, either fully or partially, to certain documents or information. Examples of documents that may not be accessed include: cabinet documents; some internal working documents; law enforcement documents; documents covered by legal professional privilege, such as legal advice; personal information about other people; and information provided to the Authority in-confidence.</p> <p>From 1 September 2017, the Act has been amended to reduce the Freedom of Information (Fol) processing time for requests received from 45 to 30 days. However, when external consultation is required the processing time automatically reverts to 45 days. Processing time may also be extended by periods of 30 days, in consultation with the applicant. With the applicant's agreement this may occur any number of times.</p> <p>If an applicant is not satisfied by a decision made by the Authority, under section 49A of the Act, they have the right to seek a review by the Office of the Victorian Information Commissioner (OVIC) within 28 days of receiving a decision letter.</p>	<p>Making a request:</p> <p>Fol requests can be lodged online at www.foi.vic.gov.au. An application fee of \$29.60 applies. Access charges may also be payable if the document pool is large, and the search for material, time consuming.</p> <p>Access to documents can also be obtained through a written request to the Goulburn Broken CMA's Freedom of Information officer, as detailed in s17 of the Freedom of Information Act 1982.</p> <p>When making an Fol request, applicants should ensure requests are in writing, and clearly identify what types of material/documents are being sought.</p> <p>Requests for documents in the possession of the Goulburn Broken CMA should be addressed to:</p> <p>Freedom of Information Officer PO Box 1752, Shepparton, Vic 3632.</p> <hr/> <p>Fol statistics/timeliness:</p> <p>During 2018-19, the Authority received 3 applications.</p> <p>Of these requests:</p> <ul style="list-style-type: none"> — 0 were from Members of Parliament; — 0 from the media; and — the remainder from the general public. <p>The Authority made 2 Fol decisions during the 12 months ended 30 June 2019.</p> <ul style="list-style-type: none"> — 1 decision was made within the statutory 30 day time period; — 0 decisions within an extended statutory 30-45 day time period; — 0 decisions within 46 to 90 days; and — 1 decision in greater than 90 days. <p>The average time taken to finalise requests in 2018-19 was 90 days.</p> <p>During 2018-19, 1 request was subject to a complaint/internal review by OVIC with 0 progressing to VCAT.</p>
<p><i>Protected Disclosure Act 2012</i></p>	<p>Report actions in Annual Report. Report actions at each (monthly) Board meeting.</p>	<p>Disclosures of improper conduct by the Goulburn Broken CMA or its employees may be made to IBAC. (See page 93 for policy).</p>

Act or policy	Board's major tasks	2018-19 issues and status
<i>Public Administration Act 2004</i>	Ensure operations of Board comply with Part 5.	<p>Policy and Procedures ensure that obligations and best practice approaches are built into current operations and practices.</p> <p>The Goulburn Broken CMA is committed to applying merit and equity principles when appointing staff.</p> <p>The selection processes ensure that applicants are assessed and evaluated fairly and equitably on the basis of the key selection criteria and other accountabilities without discrimination.</p>
<i>Environmental Protection Act 1970</i>	<p>Protection agencies need to report in their annual reporting processes, actions taken to implement the Policy (as per their responsibilities in State Environment Protection Policy (Waters), so that Environment Protection Authority can then report to the community.</p> <p>Outlines CMAs roles with respect to set goals, priorities and targets.</p> <p>Refers to water allocations and environmental flows.</p> <p>Relates to responsibilities of various agencies for ensuring sustainable agricultural activities with the catchment.</p> <p>Relates to the management of irrigation channels and drains.</p> <p>Refers to vegetation protection and rehabilitation.</p>	<p>The Goulburn Broken CMA continues to undertake activities against the Regional Waterway Strategy, Regional Floodplain Management Strategy, Shepparton irrigation Land and Water Management Plan and the Biodiversity Strategy.</p>
<i>Flora and Fauna Guarantee Act 1988</i>	Conserve the Catchment's communities of flora and fauna and manage potentially threatening processes and educate the community in the conservation of flora and fauna.	The Goulburn Broken CMA continues to support the implementation of action statements and recovery plans for threatened flora and fauna by DELWP.
<i>Privacy and Data Protection Act 2014</i>	Ensure details of individuals are protected.	Goulburn Broken CMA has reviewed the Privacy Procedure (in accordance with the Act) on how personal information is stored and under what circumstances it can be accessed or released to third parties.
<i>Forest Act 1958</i>	Liaise with the Department of Environment, Land, Water and Planning as required.	For waterways in areas managed by DELWP under the Act, the Goulburn Broken CMA complied with elements of the code.
<i>Building Act 1993</i>	Comply with standards for the construction and maintenance of buildings.	Goulburn Broken CMA does not own or control any government buildings and consequently is exempt from notifying its compliance with the building and maintenance provisions of the <i>Building Act 1993</i> .
<i>Aboriginal Heritage Act 2006</i>	Ensure the use of cultural heritage management plans for certain development plans or activities and interact with registered Aboriginal parties to evaluate management plans, advise on permit applications and enter into cultural heritage agreements.	<p>The Goulburn Broken CMA applies diligence with regard to the requirements of the Act and encourages best practice in partner organisations through its cultural heritage support program.</p> <p>The Goulburn Broken CMA is committed to policies, programs and strategies aimed at delivering culturally appropriate services to all Victorians. Current practices of inclusive and thorough public consultation ensure that all persons who have an interest in investigations are kept informed and have the opportunity to provide input into Goulburn Broken CMA deliberations.</p>

Act or policy	Board's major tasks	2018-19 issues and status
<p><i>Equal Opportunity Act 2010</i></p>	<p>Annual data return reporting gender, diversity and complaints lodged and investigated.</p>	<p>The Goulburn Broken CMA is an equal opportunity employer.</p> <p>In 2017 the first Diversity & Inclusion Action Plan was developed for the Goulburn Broken CMA.</p> <p>People, Safety and Wellbeing Manager is the contact for any complaints. Nil complaints were received in the reporting period.</p> <p>Of the Goulburn Broken CMA staff, 58 per cent are female and 42 per cent male (see page 79).</p> <p>Of the Goulburn Broken CMA Board members, as at 30 June 2019, 57 per cent are female and 43 per cent male (see page 86).</p>
<p><i>Statutory Referral and Advice (Planning and Environment) Act 1987, Subdivision Act 1988, Building Regulations 2018, Water Act 1989, Mineral Resources (Sustainable Development) Act 1990</i></p>	<p>Goulburn Broken CMA has delegated floodplain management functions and is the floodplain management authority under the <i>Planning and Environment Act 1987, Subdivision Act 1988</i> and Building Regulations where various types of application for use and development are referred. Furthermore, functions require direct advice to be provided to any body or person under the <i>Water Act 1989</i>.</p> <p>Goulburn Broken CMA is a referral authority for applications from Department of Jobs, Precincts and Regions (<i>Mineral Resource Act, 1990</i>) for work plans on floodplain areas.</p> <p>Goulburn Broken CMA is referral authority from regional water authorities under section 67 licences for dams on waterways and for permits/licences to landowners to carry out works or activities on waterways.</p>	<p>The Goulburn Broken CMA processed 830 referral and advice applications relating to floodplain management and 59 applications for works on waterways for 2018-19.</p> <p>Statutory functions under Part 10 of the Water Act: Target: Ninety per cent of statutory requirements (permits, referrals, advice and licences) associated with waterway and floodplain management are responded to within the prescribed period.)</p> <p>In 2018-19, 98 per cent of responses were within the prescribed period.</p> <p>Statutory functions under Part 11 of the Water Act: Target: Ninety per cent of statutory requirements (permits, referrals, advice and licences) associated with irrigation management are responded to within the prescribed period.</p> <p>In 2018-19, 100 per cent of responses were within the prescribed period .</p>
	<p>Board is advised of application refusals at each (monthly) meeting.</p>	<p>Decisions are made in accordance with the Victorian Floodplain Management Strategy, the Goulburn Broken Regional Floodplain Management Strategy, the Victoria Planning Provisions Practice Notes and Authority Policy, all of which have largely been incorporated into respective municipal planning schemes as performance based criteria.</p>
<p>Competitive Neutrality Policy</p>	<p>Local government can request advice but are not required to implement it.</p> <p>Competitive neutrality requires government businesses to ensure where services compete, or potentially compete with the private sector, any advantage arising solely from their government ownership be removed if it is not in the public interest. Government businesses are required to cost and price these services as if they were privately owned. Competitive neutrality policy supports fair completion between public and private businesses and provides government businesses with a tool to enhance decisions on resource allocation. This policy does not override other policy objectives of government and focuses on efficiency in the provision of service.</p>	<p>Advice has been provided where appropriate.</p> <p>Goulburn Broken CMA continues to comply with the requirements of the Competitive Neutrality Policy.</p>

Act or policy	Board's major tasks	2018-19 issues and status
<i>Country Fire Authority Act 1958</i>	Work with other related organisations to assist in the control, prevention and suppression of fires within the Catchment.	Goulburn Broken CMA has policies relating to waterway operations that comply with the Act and reduce fire risk.
<i>Local Jobs First Act 2003</i>	Local Jobs First aims to foster industry development by encouraging Victorian government departments and public bodies to genuinely consider Victorian, Australian and New Zealand supply. In regional Victoria, the policy applies to all procurement and project activities valued at \$1 million or more.	During 2018-19, Goulburn Broken CMA did not commence any contracts valued at over \$1m for which a VIPP Plan or LIDP was required.
<i>Occupational Health and Safety Act 2004</i>	Report Occupational Health and Safety (OHS) issues at each (monthly) board meeting and in Annual Report. Quarterly Report of measurable OHS targets to the Audit Risk and Compliance Committee.	Goulburn Broken CMA continues to review and update its OHS Policy Statement and supporting OHS procedures to provide and maintain a safe work environment for employees as per section 21 of the <i>OHS Act 2004</i> . All staff and contractors are inducted in the procedures that reflect their work function. Employee Health and Safety Representatives and Designated Work Groups are part of the consultative processes under sections 35 and 36 of the <i>OHS Act 2004</i> . Policies and procedures are available to staff on the portal (intranet). An OHS Report against agreed KPIs is provided to Audit, Risk and Compliance Committee quarterly.
<i>Fair Work (Registered Organisations) Act 2009</i>	Comply with the Award system which provides a minimum set of terms and conditions for Goulburn Broken CMA employees.	Goulburn Broken CMA's policies have been evaluated for alignment against the Act and are available to staff on its portal (intranet). The enterprise agreement was renewed in 2017.
Government Advertising Expenditure	Relates to the disclosure of government advertising expenditure under FRD 22H	Nil issues to report.
<i>Victorian Government Risk Management Framework</i>	The Victorian Government Risk Management Framework provides for a minimum risk management standard across Public Sector entities.	See page 85 for Statement regarding Goulburn Broken CMA compliance with Standing Directions 2018.
<i>Victorian Managed Insurance Authority Act 1996</i>	Attestation by accountable officer in annual report which ensures that requirement is built into corporate planning and reporting processes.	
DataVic Access Policy (2012)	The DataVic Access Policy provides direction on the release, licensing and management of Victorian Government data so that it can be used and reused by the community and businesses.	Goulburn Broken CMA did not supply any data sets to DataVic during 2018-19.
Gifts, benefits and hospitality policy framework	The Victorian Government Framework requiring employees to record gifts, benefits and hospitalities offered to them in their capacity with Goulburn Broken CMA.	The Goulburn Broken CMA has a comprehensive policy in relation to this issue and all staff are required to comply and record any benefits on the Register.
<i>Charter of Human Rights and Responsibilities Act 2006</i>	Requires public authorities to act consistently with charter rights when making decisions, developing policies and providing services.	Goulburn Broken CMA continues to provide information regarding rights and responsibilities to all new staff as part of the induction process. The 2018 People Matters survey showed a significant improvement in staff knowledge around how the charter relates to the Goulburn Broken CMA.

Statement of availability of other information

The Goulburn Broken CMA 2018-19 Annual Report is available on the website www.gbcma.vic.gov.au

Additional information available on request

In compliance with the requirements of the Standing Directions of the Minister for Finance, details in respect of the items listed below have been retained by the Authority and are available on request, subject to the provisions of the *Freedom of Information Act 1982*:

- details of publications produced by the entity about itself and how these can be obtained
- details of changes in prices, fees, charges, rates and levies charged by the entity
- details of any major external reviews carried out on the entity
- details of major research and development activities undertaken by the entity
- details of overseas visits undertaken including a summary of the objectives and outcomes of each visit
- details of major promotional, public relations and marketing activities undertaken by the entity to develop community awareness of the entity and its services.

The information is available on request from:

Eileen Curtis, Corporate Program Manager, Goulburn Broken CMA, PO Box 1752, Shepparton VIC 3630
Phone (03) 5822 7700.

Additional information included in annual report

Details in respect of the following items have been included in Goulburn Broken CMA's annual report, on the pages indicated below:

- assessments and measures undertaken to improve the occupational health and safety of employees (on page 81)
- a list of Goulburn Broken CMA's major committees; the purposes of each committee; and the extent to which the purposes have been achieved (on page 87)
- a statement of completion of declarations of pecuniary interests by relevant officers (on page 88).

Information that is not applicable to Goulburn Broken CMA

The following information is not relevant to Goulburn Broken CMA for the reasons set out below:

- a declaration of shares held by senior officers (no shares have ever been issued in Goulburn Broken CMA)
- a statement on industrial relations within Goulburn Broken CMA and details of time lost through industrial accidents and disputes (no industrial relations issues occurred during 2018-19).

Compliance with *Protected Disclosure Act 2012*

The *Protected Disclosure Act 2012* enables people to make disclosures about improper conduct by public officers and public bodies. The Act aims to ensure openness and accountability by encouraging people to make disclosures and protecting them when they do.

What is a 'protected disclosure'?

A protected disclosure is a complaint of corrupt or improper conduct by a public officer or a public body. The Goulburn Broken Catchment Management Authority is a 'public body' for the purposes of the Act.

What is 'improper or corrupt conduct'?

Improper or corrupt conduct involves substantial:

- mismanagement of public resources
- risk to public health or safety or the environment
- corruption.

The conduct must be criminal in nature or a matter for which an officer could be dismissed.

How do I make a 'Protected Disclosure'?

You can make a protected disclosure about the Goulburn Broken Catchment Management Authority or its board members, officers or employees by contacting the Independent Broad-Based Anti-Corruption Commission on the contact details provided below.

Please note that the Goulburn Broken Catchment Management Authority is not able to receive protected disclosures.

How can I access the Goulburn Broken Catchment Management Authority's procedures for the protection of persons from detrimental action?

Goulburn Broken Catchment Management Authority has established procedures for the protection of persons from detrimental action in reprisal for making a protected disclosure about Goulburn Broken Catchment Management Authority or its employees. You can access Goulburn Broken Catchment Management Authority's procedures on its website at: www.gbcma.vic.gov.au

Contacts

Independent Broad-Based Anti-Corruption Commission (IBAC) Victoria
Address: Level 1, North Tower, 459 Collins Street, Melbourne Victoria 3000.
Mail: IBAC, GPO Box 24234, Melbourne Victoria 3001.
Internet: www.ibac.vic.gov.au
Phone: 1300 735 135

Email: see the website above for the secure email disclosure process, which also provides for anonymous disclosures.

Performance indicators

Performance area	Performance target	Progress 2018-19
Business management and governance	Submit annually, a board performance assessment report according to any guidelines issues.	Report submitted and complied with guidelines issued.
	A risk management framework in place and approved by the board.	Risk Register is reviewed by the Board at each Board meeting. Risk Management Framework is reviewed and approved by the Board annually.
	One hundred per cent of the CMA's policies and procedures reviewed every three financial years. Full compliance with all applicable Standing Directions under the Financial Management Compliance Framework Checklist.	81 per cent of policies and procedures updated within the 3 year target. No material non-compliance with Standing Directions.
	Submit annually, a board performance assessment report according to any guidelines issues.	Full compliance was achieved
Regional planning and coordination	A Regional Catchment Strategy (RCS) approved by the Minister.	Goulburn Broken Regional Catchment Strategy was approved by the Minister in 2013 and is now being implemented.
	A stakeholder and community engagement framework / plan approved by the board.	Goulburn Broken Community Engagement and Action Plan 2018-20 was approved by the board and is being implemented.
	A regional Landcare support plan approved by the board.	Draft Goulburn Broken Community NRM Action Plan 2019-2024 out for community comment before being finalised and endorsed by the Board in 2019-20.
	A regional waterways strategy approved by the minister.	Goulburn Broken Waterway Strategy 2014-2022 was completed and endorsed by the Minister in November 2014 and is being implemented.
	A regional floodplain strategy approved by the board.	Goulburn Broken Regional Floodplain Management Strategy 2018 was completed and endorsed by the board in December 2017 and is being implemented.
	Land and water management plans (LWMP) in designated irrigation areas (or equivalent) approved by the board.	The SIR LWMP 2016 Review was completed and approved by the board in August 2016.
	The regional contribution to the annual report on salinity management activities and the allocation and update of salt disposal entitlements is submitted to the department by 31 July or as otherwise directed by the department.	The annual contribution to the State report to meet the requirements of the Murray-Darling Basin Salinity Management 2030 was submitted on 10th September 2018. The State's last biennial report was submitted as requested and subsequently presented to the Independent Audit Group of the MDBA in November 2017.
Regional delivery	Progress with implementation of the RCS (and its major sub-strategies) is reviewed by the board annually.	Progress with the Goulburn Broken Regional Catchment Strategy was reviewed by the board in February 2016.
	Projects / activities to implement the RCS are delivered and reported according to associated funding agreements.	Planned projects for 2018-19 were delivered and reported according to associated funding agreements.
	Project activities to implement the regional waterways strategy and the regional floodplain management strategy delivered and reported according to associated funding agreements.	Planned projects for 2018-19 were delivered and reported according to associated funding agreements.
	Projects / activities to implement the LWMP are delivered and reported according to associated funding agreements.	Planned projects for 2018-19 were delivered and reported according to associated funding agreements.

Strategic organisational measures

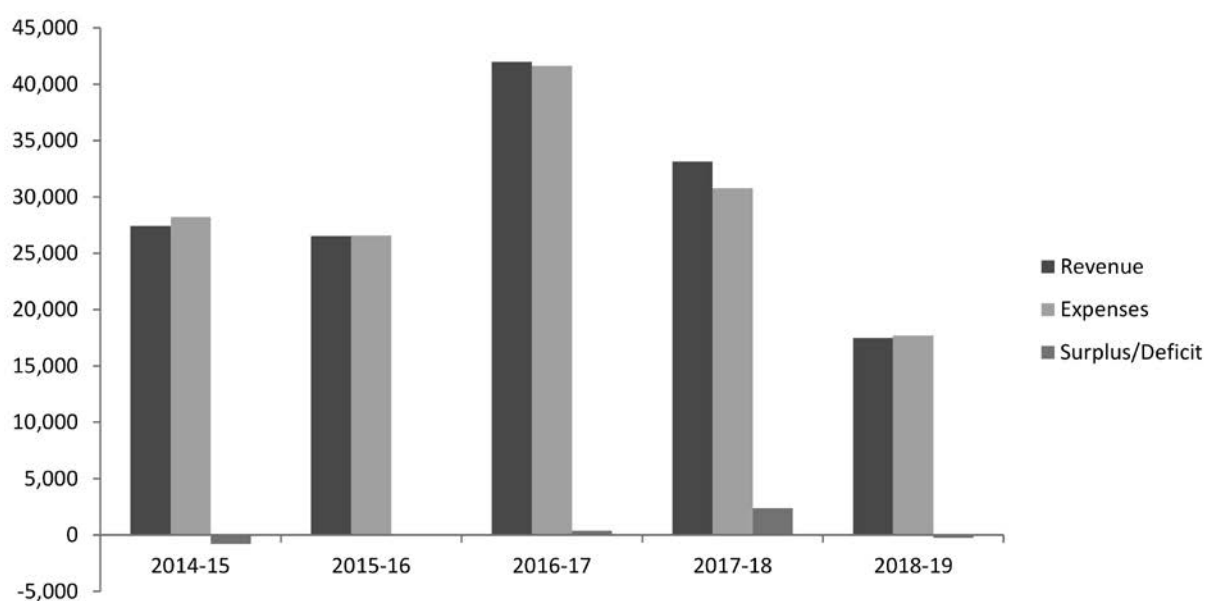
Performance area	Performance indicators	Targets	Progress 2018-19
NRM Results	Catchment objectives are achieved or evidence demonstrates movement towards meeting the objectives.	20-30 year objectives for Catchment condition.	On target. See pages 12 to 15 and 20 to 28 for further detail.
Client Focused	Clients and stakeholders value the services received from the Goulburn Broken CMA and see the services making a positive contribution to catchment condition.	<p>Satisfaction rating as rated by people having contact with the CMA.</p> <p>Awareness of the Goulburn Broken CMA as a land, water and biodiversity management body.</p>	<p>The 2017 Wallis Community Awareness survey found:</p> <ul style="list-style-type: none"> Those who had been in contact with the CMA gave an average satisfaction rating of 6.6 out of 10 for their experience dealing with them. This was not significantly different to 2012 (6.1). Total awareness of the Goulburn Broken CMA was at a historical high of 86 per cent - an increase of 4 per cent on 2012 levels. <p>Subject to funding availability, the next community awareness survey will be held in 2021.</p>
Operational Effectiveness	Projects delivered as planned, aligned to Goulburn Broken CMA strategy, on time, on budget, and to an agreed quality.	Progress against agreed RCS Implementation Plan.	On track.
Performance against Annual Internal Audit Plan.		On track.	
% projects finished on time and on budget (trend over time, and by service provider).		In 2018-19, standard output targets for program areas have been met for 76 per cent of funding lines during the financial year (32 from 42 funding lines). This compares to 76 per cent in 2017-18.	
Financial	The Goulburn Broken CMA optimises investment to onground works by minimising (as much as possible) the costs incurred by the CMA in facilitating the delivery of NRM activities within the Catchment.	Ratio of CMA staff : \$ works on the ground (as a measure of leverage).	Ratio of 2.8 FTE staff for every \$1 million of onground works.
		Growth in income (incl. proportion of Govt. to Non-Govt.).	The total government funded revenue decreased by 54 per cent from prior year at \$14.6 million and accounts for 84 per cent of total revenue. The majority of the decrease due to the Australian Government funded Farm Water Program ending.
People	The Goulburn Broken CMA has capable and motivated people to enable it to deliver on the RCS and who are able to support the achievement of the Authority's vision and purpose.	Organisational Leadership (in the Organisational Performance Excellence Review).	7.5/10 recognised at best practice level from Organisational Performance Excellence Review 2015.
		Overall job satisfaction (% of staff).	As at 2018, 93% of staff were satisfied with their job. An increase of 5% on the 2016 survey results
Governance and Social Responsibility	Governance structures and processes enable the board to professionally and competently discharge their responsibilities to the Catchment community.	Strategy and purpose (Aggregated results from Board Assessment).	On track.
		Compliance and Reporting (Aggregated results from Board Performance Assessment).	

Financial results summary: current plus past four years

	2014-15	2015-16	2016-17	2017-18	2018-19
Income and expenditure					
State Government	9,921	10,808	12,033	14,802	12,117
Australian Government	14,371	13,962	28,516	17,065	2,499
Government contributions	24,292	24,770	40,549	31,867	14,616
Revenue from government entities	1,213	728	781	863	1,739
Other revenues	1,911	1,041	654	432	1,109
Total income	27,416	26,539	41,984	33,162	17,464
Expense					
Interest	54	5	2	-	-
Total expenses	28,226	26,561	41,629	30,779	17,698
NET RESULT	(810)	(22)	355	2,383	(234)
Balance sheet items					
Current assets					
Cash	12,489	13,708	23,733	14,692	13,808
Receivables	1,100	673	555	898	2,042
Prepayments	70	209	158	216	187
Total current assets	13,659	14,590	24,446	15,806	16,037
Fixed assets	1,257	1,247	1,120	970	1,154
Total assets	14,916	15,837	25,566	16,776	17,191
Current liabilities					
Trade creditors	849	804	1,340	1,084	1,390
Unearned revenue	3,003	3,771	12,269	1,173	1,176
Borrowings	35	26	14	-	103
Accruals	304	450	720	590	663
Provisions	1,582	1,735	1,904	2,256	2,000
Total current liabilities	5,773	6,786	16,247	5,103	5,332
Non-current liabilities					
Borrowings	43	15	-	-	418
Other	154	112	40	11	13
Total non-current liabilities	197	127	40	11	431
NET ASSETS	8,946	8,924	9,279	11,662	11,428
Equity items					
Contributed capital	4,209	4,209	4,209	4,209	4,209
Reserves	4,737	4,715	5,070	7,453	7,219
TOTAL EQUITY	8,946	8,924	9,279	11,662	11,428
Cash flow items					
Net operating activities	(608)	1,635	10,269	(8,821)	(949)
Net investing activities	(132)	(380)	(218)	(206)	98
Net financing activities	(37)	(36)	(27)	(14)	(33)
Net cash movement	(777)	1,219	10,024	(9,014)	(884)

Financial results summary: current plus past four years (Cont'd)

Financial summary 2014-15 to 2018-19, \$000



Significant changes in financial results for 2018-19

	Corporate Plan 2018-19 \$000	Actual 2018-19 \$000	Actual Variance to Corporate Plan \$000
Comprehensive Operating Statement			
Total revenue	16,726	17,464	738
Total expenditure	(17,494)	(17,698)	(204)
Net result	(768)	(234)	534
Statement of financial position			
Cash and receivables	13,336	15,850	2,514
Other	160	187	27
Non-current assets	1,046	1,154	108
Total assets	14,542	17,191	2,649
Liabilities			
Payables	2,000	2,574	(574)
Employee provisions	2,112	2,013	99
Other	500	1,176	(676)
Total liabilities	4,612	5,763	(1,151)
Net assets	9,930	11,428	1,498

The variance in the actual result to end June 2019 of 0.2 million deficit compared to the Corporate Plan of 0.8 million deficit related to unbudgeted funding received in June 2019 which was not accounted for in the Corporate Plan and expenditure will not be incurred until the 2019-20 fiscal year.

Significant changes or factors affecting performance

Other than as detailed above, there were no significant changes or factors which affected our performance.

Consultancy expenditure

	2014-15		2015-16		2016-17		2017-18		2018-19	
	No.	\$ (excl. GST)	No.	\$ (excl. GST)	No.	\$ (excl. GST)	No.	\$ (excl. GST)	No.	\$ (excl. GST)
Consultancies valued at \$10,000 or greater	42	1,034,105	44	1,045,043	43	1,185,788	40	890,530	27	665,437
Consultancies valued at less than \$10,000	32	101,822	51	131,139	32	111,794	22	66,491	29	112,412

Details of individual consultancies valued at \$10,000 or greater are outlined on the Goulburn Broken Catchment Management Authority website, at www.gbcma.vic.gov.au.

Information and Communication Technology expenditure

For the 2018-19 reporting period, Goulburn Broken CMA had a total ICT expenditure of \$991,621 with the details shown below.

All operational ICT expenditure	ICT Expenditure related to projects to create or enhance ICT capabilities			
	Business as usual ICT expenditure	Non-Business as usual ICT expenditure	Operational expenditure (OPEX)	Capital expenditure (CAPEX)
Total \$	Total \$ = OPEX + CAPEX		\$	\$
759,679	231,942		93,760	138,182

- ICT expenditure refers to the Goulburn Broken CMA's costs in providing business enabling ICT services within the current reporting period. It comprises Business as usual ICT expenditure and Non-business as usual ICT expenditure.
- Non-business as usual expenditure relates to extending or enhancing the Goulburn Broken CMA's current ICT capabilities.
- Business as usual ICT expenditure is all remaining ICT expenditure which primarily relates to ongoing activities to operate and maintain the current ICT capability
- Operational Business as usual ICT expenditure now includes Communications expenditure of \$129,315. (2018: \$174,123)
- Excludes expenditure on shared systems and security services including Dynamics 365 implementation that has been recharged to CMA's.

Other financial disclosures

Local Jobs First - Victorian Industry Participation Policy

During 2018-19, Goulburn Broken CMA did not commence any contracts valued at over \$1m which a VIPP Plan or LIDP was required.

Government advertising expenditure

Nil advertising campaigns with a media spend of \$100,000 or greater were entered into during the year.

Disclosure of major contracts

Goulburn Broken CMA did not award any major contracts (valued at \$10 million or more) during 2018-19.

Capital projects

Goulburn Broken CMA did not manage any capital projects.

Subsequent events

There were no events occurring after balance date which may significantly affect the Goulburn Broken CMA's operations in subsequent reporting periods.

Financial Statements

Goulburn Broken Catchment Management Authority

Australian Business Number (ABN): 89 184 039 725

Accountable Officers' and Chief Finance Officer's declaration

The attached financial statements for the Goulburn Broken Catchment Management Authority (Goulburn Broken CMA) have been prepared in accordance with Direction 5.2 of the Standing Directions of the Minister for Finance under the *Financial Management Act 1994*, applicable Financial Reporting Directions, Australian Accounting Standards including Interpretations, and other mandatory professional reporting requirements.

We further state that, in our opinion, the information set out in the comprehensive operating statement, balance sheet, statement of changes in equity, cash flow statement and accompanying notes, presents fairly the financial transactions during the year ended 30 June 2019 and financial position of the Goulburn Broken CMA at 30 June 2019.

At the time of signing, we are not aware of any circumstance which would render any particulars included in the financial statements to be misleading or inaccurate.

We authorise the attached financial statements for issue on 22 August 2019.



A Weston

Chair



C P Norman

Chief Executive Officer



E Curtis

Chief Finance Officer

22 August 2019

Independent Auditor's Report

To the Board of the Goulburn Broken Catchment Management Authority

Opinion	<p>I have audited the financial report of the Goulburn Broken Catchment Management Authority (the authority) which comprises the:</p> <ul style="list-style-type: none"> • balance sheet as at 30 June 2019 • comprehensive operating statement for the year then ended • statement of changes in equity for the year then ended • cash flow statement for the year then ended • notes to the financial statements, including significant accounting policies • accountable officers' and chief finance officer's declaration. <p>In my opinion, the financial report presents fairly, in all material respects, the financial position of the authority as at 30 June 2019 and its financial performance and cash flows for the year then ended in accordance with the financial reporting requirements of Part 7 of the <i>Financial Management Act 1994</i> and applicable Australian Accounting Standards.</p>
Basis for Opinion	<p>I have conducted my audit in accordance with the <i>Audit Act 1994</i> which incorporates the Australian Auditing Standards. I further describe my responsibilities under that Act and those standards in the <i>Auditor's Responsibilities for the Audit of the Financial Report</i> section of my report.</p> <p>My independence is established by the <i>Constitution Act 1975</i>. My staff and I are independent of the authority in accordance with the ethical requirements of the Accounting Professional and Ethical Standards Board's APES 110 <i>Code of Ethics for Professional Accountants</i> (the Code) that are relevant to my audit of the financial report in Victoria. My staff and I have also fulfilled our other ethical responsibilities in accordance with the Code.</p> <p>I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.</p>
Board's responsibilities for the financial report	<p>The Board of the authority is responsible for the preparation and fair presentation of the financial report in accordance with Australian Accounting Standards and the <i>Financial Management Act 1994</i>, and for such internal control as the Board determines is necessary to enable the preparation and fair presentation of a financial report that is free from material misstatement, whether due to fraud or error.</p> <p>In preparing the financial report, the Board is responsible for assessing the authority's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless it is inappropriate to do so.</p>

Auditor's responsibilities for the audit of the financial report

As required by the *Audit Act 1994*, my responsibility is to express an opinion on the financial report based on the audit. My objectives for the audit are to obtain reasonable assurance about whether the financial report as a whole is free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with the Australian Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of this financial report.

As part of an audit in accordance with the Australian Auditing Standards, I exercise professional judgement and maintain professional scepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the authority's internal control
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Board
- conclude on the appropriateness of the Board's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the authority's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial report or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the authority to cease to continue as a going concern.
- evaluate the overall presentation, structure and content of the financial report, including the disclosures, and whether the financial report represents the underlying transactions and events in a manner that achieves fair presentation.

I communicate with the Board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

MELBOURNE
27 August 2019



Paul Martin
as delegate for the Auditor-General of Victoria

Comprehensive Operating Statement for the financial year ended 30 June 2019

	Note	2019 \$000	2018 \$000
Income from transactions			
Government contributions	2.2.1	14,616	31,867
Interest	2.2.2	228	306
Other revenue	2.2.3	2,550	995
TOTAL INCOME FROM TRANSACTIONS		17,394	33,168
Expenses from transactions			
Employee Expenses	3.2.1	(5,598)	(6,464)
Depreciation & Amortisation	4.1.1	(342)	(350)
Materials, grants, contracts and consultancies	3.3	(10,063)	(22,370)
Operating lease expenses	3.4	(330)	(340)
Other Operating expenses	3.5	(1,365)	(1,255)
TOTAL EXPENSES FROM TRANSACTIONS		(17,698)	(30,779)
NET RESULT FROM TRANSACTIONS (net operating balance)		(304)	2,389
Other economic flows included in net result			
Net gain/(loss) on non-financial assets ⁱ	8.2	70	(6)
NET RESULT FOR THE PERIOD		(234)	2,383
Comprehensive result		(234)	2,383

The accompanying notes form part of these financial statements.

- i. Net gain/(loss) on non-financial assets includes unrealised and realised gains/(losses) from impairments and disposals of all physical assets and intangible assets.

Balance Sheet as at 30 June 2019

	Note	2019 \$'000	2018 \$'000
Assets			
Financial assets			
Cash and deposits	6.1	13,808	14,692
Receivables	5.1	2,042	898
Total financial assets		15,850	15,590
Non-Financial assets			
Property, plant and equipment	4.1	1,119	967
Intangible assets	4.2	35	3
Other non-financial assets	5.3	187	216
Total non-financial assets		1,341	1,186
Total assets		17,191	16,776
Liabilities			
Payables	5.2	2,053	1,674
Unearned revenue	5.4	1,176	1,173
Interest bearing liabilities	6.2.2	521	-
Employee benefits	3.2.2	2,013	2,267
Total liabilities		5,763	5,114
Net assets		11,428	11,662
Equity			
Contributed equity		4,209	4,209
Accumulated funds		-	-
Reserve	8.3	7,219	7,453
Total equity		11,428	11,662

The above Balance Sheet should be read in conjunction with the accompanying notes.

Statement of Changes in Equity for the financial year ended 30 June 2019

	Contribution by owners \$000	Reserves \$000	Accumulated funds \$000	Total \$000
Balance at 1 July 2017	4,209	5,070	-	9,279
Net result for the period	-	-	2,383	2,383
Transfer to / (from) Reserves	-	2,383	(2,383)	-
Balance at 30 June 2018	4,209	7,453	-	11,662
Net result for the period	-	-	(234)	(234)
Transfer to / (from) Reserves	-	(234)	234	-
Balance at 30 June 2019	4,209	7,219	-	11,428

The above Statement of Changes in Equity should be read in conjunction with the accompanying notes.

Cash Flow Statement for the financial year ended 30 June 2019

	Note	2019 \$000	2018 \$000
Cash flow from operating activities			
Receipts			
Government contributions		13,342	20,391
Revenue from other Government Entities		1,913	949
GST (remitted to) received from Australian Tax Office		931	1,898
Interest received		252	312
Other revenue		833	231
Total Receipts		17,271	23,781
Payments			
Payments to suppliers and employees		(18,215)	(32,602)
Interest paid		(5)	0
Total Payments		(18,220)	(32,602)
Net cash from/(used in) operating activities	6.1.1	(949)	(8,821)
Cash flow from investing activities			
Proceeds from sale of property, plant and equipment		257	135
Payment for property, plant and equipment		(159)	(341)
Net cash flows from/(used in) investing activities		98	(206)
Cash flow from financing activities			
Repayment of finance lease liabilities		(33)	(14)
Net cash from/(used in) financing activities		(33)	(14)
Net (decrease) / increase in cash held		(884)	(9,041)
Cash and cash equivalents at beginning of year		14,692	23,733
Cash and cash equivalents at end of year	6.1	13,808	14,692

The above Cash Flow Statement should be read in conjunction with the accompanying notes.

Notes to the financial statements for the year ended 30 June 2019

1. About this report

The Goulburn Broken Catchment Management Authority is a government authority of the State of Victoria, established on 1 July 1997 by the state government.

Its principal address is:

Goulburn Broken Catchment Management Authority

168 Welsford St

Shepparton VIC 3630

The Goulburn Broken CMA is responsible for coordinating land, water and biodiversity management of the Goulburn Broken Catchment. Further description of the nature of its operations and its principal activities is included in the Report of Operations, which does not form part of these financial statements.

Basis of preparation

These financial statements are in Australian dollars and the historical cost convention is used unless a different measurement basis is specifically disclosed in the note associated with the item measured on a different basis.

The accrual basis of accounting has been applied in preparing these financial statements, whereby assets, liabilities, equity, revenue and expenses are recognised in the reporting period to which they relate, regardless of when cash is received or paid. Unless otherwise stated, all accounting policies applied are consistent with those of the prior year, with the exception of the first time application of AASB 9.

AASB 9 replaces the former AASB 139 and introduces new requirements for recognition, classification and measurement, and new impairment model for financial assets based on expected credit losses. There has been no change to the Authority's classification of financial assets and liabilities, and the AASB 9 simplified approach is now taken to measure the expected credit losses using a lifetime expected credit loss allowance (Note 7.1.1).

Judgements, estimates and assumptions are required to be made about financial information being presented. The significant judgements made in the preparation of these financial statements are disclosed in the notes where amounts affected by those judgements are disclosed. Estimates and associated assumptions are based on professional judgements derived from historical experience and various other factors that are believed to be reasonable under the circumstances. Actual results may differ from these estimates.

Revisions to accounting estimates are recognised in the period in which the estimate is revised and also in future periods that are affected by the revision. Judgements and assumptions made by management in the application of Australian Accounting Standards (AASs) that have significant effects on the financial statements and estimates are disclosed in the notes under the heading: 'Significant judgement or estimates', and relate to:

- fair value measurements of assets and liabilities (7.3);
- employee benefit provisions (3.2);
- accrued expenses (5.2);
- unearned revenue (5.4); and
- estimation of useful lives (4.1.1).

All amounts in the financial statements have been rounded to the nearest \$1,000 unless otherwise stated.

Compliance Information

These general purpose financial statements have been prepared in accordance with the *Financial Management Act 1994* (FMA) and applicable AASs which include Interpretations, issued by the Australian Accounting Standards Board (AASB). In particular, they are presented in a manner consistent with the requirements of *AASB 101 Presentation of Financial Statements*.

Where appropriate, those AASs paragraphs applicable to not-for-profit entities have been applied. Accounting policies selected and applied in these financial statements ensure that the resulting financial information satisfies the concepts of relevance and reliability, thereby ensuring that the substance of the underlying transactions or other events is reported.

Notes to the financial statements for the year ended 30 June 2019

2. Funding delivery of our services

Introduction

The Authority's overall objective is for the coordinated control of natural resource management within the broader catchments of Goulburn Broken. The role of the Authority is to ensure effective implementation of the Regional Catchment Strategy. Associated with this role the Authority carries out strategic planning and advises Government.

To enable the Authority to deliver on its objectives, it receives revenue predominantly through State and Commonwealth Government Contributions.

Structure

- 2.1 Summary of revenue that funds the delivery of our services
- 2.2 Revenue from transactions

2.1 Summary of revenue that funds the delivery of our services

	Note	2019 \$000	2018 \$000
Government contributions	2.2.1	14,616	31,867
Interest	2.2.2	228	306
Other revenue	2.2.3	2,550	995
Total revenue from transactions		17,394	33,168

Revenue is recognised to the extent that it is probable that the economic benefits will flow to the entity and the revenue can be reliably measured at fair value.

2.2 Income from transactions

2.2.1 Government contributions

	2019 \$000	2018 \$000
State Government		
Corporate and Statewide	930	1,214
Sustainable Irrigation	5,509	7,426
River Health	3,524	3,840
Floodplain Management	940	1,079
Land and Biodiversity	1,214	1,243
	12,117	14,802
Commonwealth Government		
National Landcare Programme	2,410	3,127
Other Commonwealth Funding	89	49
	2,499	3,176
Farm Water Programⁱ		
	-	13,889
	-	13,889
Total Government contributions	14,616	31,867

- i. Further funding for the Victorian Farm Modernisation Program – Tranche 2 ceased at the end of June 2018. As the 'delivery partner' in this program, Goulburn Broken CMA received funding via the State Government to make payments to approved irrigators under an Infrastructure Works Deed whereby irrigators undertake works on their land to generate permanent water savings half of which are transferred to the Australian Government. Funding which have outstanding performance or return conditions are recognised in accordance with AASB 118 Revenue with reference to the percentage of completion method. The stage of completion is measured by assessing the total expenditure incurred to date compared with the funding provided. Goulburn Broken CMA regards the receipt of such revenue as a reciprocal transfer as Goulburn Broken CMA is required to provide the necessary services in return for funding. A liability is recognised in the Balance Sheet in respect of grant revenue which is unearned at balance date. AASB 118 requires revenue to be recognised in the reporting period in which the services are rendered.

Government grants and contributions are recognised as revenue from transactions on receipt or when the Authority obtains control of the contribution and meets certain other criteria as outlined in AASB 1004 Contributions, whichever is the sooner, and disclosed in the comprehensive operating statement as government contributions.

Notes to the financial statements for the year ended 30 June 2019

2.2.2 Interest

	2019 \$000	2018 \$000
Interest on bank deposits	228	306
	228	306

Interest revenue includes interest received on bank term deposits. Interest revenue is recognised using the effective interest method which allocates the interest over the relevant period.

2.2.3 Other revenue

	2019 \$000	2018 \$000
Partnership Contributions - Government entities	1,739	863
Partnership Contributions – non-Government entities	88	7
Recoverable costs	687	92
Application fees	36	33
Total other revenue	2,550	995

Partnership contributions consists of funds received from organisations as partners in projects and are recognised as revenue from transactions when an entitlement is established or on receipt, whichever is the sooner, and disclosed in the comprehensive operating statement as other revenue.

All other revenue is recognised when the right to receive payment is established.

3. The cost of delivering services

Introduction

This section provides an account of the expenses incurred by the Authority in delivering services. In Section 2, the funds that enable the provision of services were disclosed and in this note the cost associated with the provision of services are recorded.

Significant judgement: Employee benefit provisions

In measuring employee benefits, consideration is given to expected future wage and salary levels, experience of employee departures and periods of service. Expected future payments are discounted using a single weighted average discount rate based on market yields of national government bonds in Australia that reflects the estimated timing and amount of benefit payment.

Structure

- 3.1 Expenses incurred in delivery of services
- 3.2 Employee expenses
- 3.3 Materials, grants, contracts and consultancies
- 3.4 Operating lease expenses
- 3.5 Other operating expenses

3.1 Expenses incurred in delivery of services:

	Note	2019 \$000	2018 \$000
Employee expenses	3.2	5,598	6,464
Materials, maintenance, grants, contracts and consultancies	3.3	10,063	22,370
Operating lease expenses	3.4	330	340
Other operating expenses	3.5	1,365	1,254
Total expenses from delivery of services		17,356	30,428

Notes to the financial statements for the year ended 30 June 2019

3.2 Employee expenses

3.2.1 Employee expenses in the comprehensive operating statement

	2019 \$000	2018 \$000
Salaries & wages	4,302	5,012
Annual leave	368	390
Long service leave	153	144
Superannuation	440	474
FBT	184	206
Termination payment ⁱ	-	190
Other	151	48
Total employee expenses	5,598	6,464

- i. Termination benefits are payable when employment is terminated before normal retirement date, or when an employee accepts an offer of benefits in exchange for the termination of employment. Termination benefits are recognised when the Authority is demonstrably committed to terminating the employment of current employees according to a detailed formal plan without possibility of withdrawal or providing termination benefits as a result of an offer made to encourage voluntary redundancy.

Employee expenses include all costs related to employment including wages and salaries, payroll tax, fringe benefits tax, leave entitlements, termination payments and WorkCover premiums.

The amount recognised in comprehensive operating statement in relation to superannuation is the 9.5% employer contributions for members of both defined benefit and defined contribution superannuation plans.

3.2.2 Employee related provisions in the balance sheet

Provision is made for benefits accruing to employees in respect of wages and salaries, annual leave and long service leave (LSL) for services rendered to the reporting date and recorded as an expense during the period the services are delivered.

	2019 \$000	2018 \$000
Current provisions for employee benefits		
Time in lieu / Restructure provision for redundancies		
Unconditional and expected to be settled within 12 months	27	230
Annual leave		
Unconditional and expected to settle within 12 months	311	322
Unconditional and expected to settle after 12 months	40	42
Long service leave		
Unconditional and expected to settle within 12 months	112	172
Unconditional and expected to settle after 12 months	1,286	1,256
On-costsⁱ		
Unconditional and expected to settle within 12 months	54	67
Unconditional and expected to settle after 12 months	170	167
Total current provisions	2,000	2,255
i. On-costs include payroll tax, superannuation and worker's Compensation Insurance		
Non-current provisions for employee benefits		
Long service leave		
Conditional and expected to be settled after 12 months	12	10
On-costs		
Conditional and expected to be settled after 12 months	1	1
Total non-current provisions	13	11
Total provisions for employee benefits and on-costs	2,013	2,267

Notes to the financial statements for the year ended 30 June 2019

Reconciliation of movement in on-cost provision

	2019 \$000	2018 \$000
Opening balance	236	252
Additional provisions recognised	62	85
Reductions arising from payments/other sacrifices of future economic benefits	(73)	(61)
Unwind of discount and effect of changes in the discount rate/Reductions arising from re measurement of payroll tax	-	(40)
Closing balance	225	236

Wages and salaries and annual leave:

Liabilities for wages and salaries (including non-monetary benefits, time in lieu, annual leave and on-costs) are recognised as part of the employee benefit provision as current liabilities, and are measured at their undiscounted amounts expected to be paid, because the Authority does not have an unconditional right to defer settlements of these liabilities.

Depending on the expectation of the timing of settlement, liabilities for wages and salaries, and annual leave are measured at:

- undiscounted value - if the Authority expects to wholly settle within 12 months;
- present value - if the Authority does not expect to wholly settle within 12 months.

Long service leave (LSL):

Regardless of the expected timing of settlement, unconditional LSL is classified as a current liability because the Authority does not have an unconditional right to defer the settlement of these liabilities.

Unconditional LSL liability amounts expected to be wholly settled within 12 months are measured at the nominal value.

Unconditional LSL liability amount that are not expected to be wholly settled within 12 months are measured as the present value of the estimated future cash outflows to be made by the entity.

Unconditional LSL represents long service leave entitlements accrued for employees with more than 7 years of continuous service.

Conditional LSL is classified as a non-current liability and measured as the present value of the estimated future cash outflows to be made by the entity.

3.2.3 Superannuation contributions

Employees of the Authority are entitled to receive superannuation benefits and the Authority contributes to both defined benefit and defined contribution plans. The defined benefit plans provide benefits based on year of service and final average salary. Obligations for superannuation contributions are recognised as an expense in Comprehensive Operating Statement when they are made or due.

The Authority does not recognise any defined benefit liability for contributions to the ESS because it has no legal or constructive obligation to pay future benefits relating to its employees. The Department of Treasury and Finance discloses in its annual financial statements the States net defined benefits cost related to the members of these plans as an administered liability. For contributions to the defined benefit fund with Vision Super(the Fund) the Authority does not use defined benefit accounting for its defined benefit obligations because the Fund's Defined Benefit plan is a pooled multi-employer sponsored plan.

The amount recognised in the comprehensive operating statement in relation to Superannuation is employer contributions for members of both defined benefit and defined contribution superannuation plans that are paid or payable during the reporting period.

	2019 Rate %	2019 \$000	2018 \$000
Defined benefit plans: ⁱ			
Vision super defined benefits scheme	9.5	6	6
Emergency Services Superannuation Scheme	various	53	52
Defined contribution plans			
Vision super defined contribution scheme	9.5	118	118
Vic super	9.5	118	138
Other private schemes	9.5	145	160
		440	474

i. The bases for determining the level of contributions is determined by the various actuaries of the defined benefit superannuation plans.

There was \$16,633 in contributions outstanding to the above schemes as at 30 June 2019 (2018: \$17,847)

The expected contributions to be paid to the Defined Benefit category of Vision Super for the year ending 30 June 2020 is \$6,245.

Notes to the financial statements for the year ended 30 June 2019

3.3 Materials, grants, contracts and consultancies

	2019 \$000	2018 \$000
Grants paid	1,784	14,716
Consultants	1,101	1,130
Contractors	6,931	6,373
Materials	247	151
Total materials, maintenance, grants, contracts and consultancies	10,063	22,370

Materials, grants, contracts and consultancies are recognised as an expense in the reporting period in which they are payable.

3.4 Operating lease expenses

	2019 \$000	2018 \$000
Operating property lease rental expenses	330	340
Operating lease expenses	330	340

Operating lease payments are recognised as an expense in the comprehensive operating statement on a straight-line basis over the lease term. Leased property is not recognised in the balance sheet.

3.5 Other operating expenses

	2019 \$000	2018 \$000
Victorian Auditor-General's Office for audit of financial statements	23	23
Internal audit expenses	12	32
Information Technology and Communication expenses	664	418
Events and Publicity	136	167
Other expenses	530	615
	1,365	1,255

Other operating expenses generally represent the day-to-day running costs incurred in normal operations and are recognised as an expense in the reporting period in which they are paid or payable.

4. Key assets available to support output delivery

Introduction

The Authority controls property and other investments that are utilised in fulfilling its objectives and conducting its activities. They represent the key resources that have been entrusted to the Authority to be utilised for delivery of those outputs.

Significant judgement: Fair value measurement

Where the assets included in this section are carried at fair value, additional information is disclosed in Note 7.3 about how those fair values were determined.

Structure

- 4.1 Total property, plant and equipment
- 4.2 Intangible assets

Notes to the financial statements for the year ended 30 June 2019

4.1 Total property, plant and equipment

	Gross carrying amount		Accumulated Depreciation		Net carrying amount	
	2019 \$000	2018 \$000	2019 \$000	2018 \$000	2019 \$000	2018 \$000
Buildings at fair value	38	38	(38)	(38)	-	-
Plant and equipment at fair value	1,251	1,181	(1,133)	(1,067)	118	114
Computer equipment	62	62	(62)	(62)	-	-
Computer equipment purchased at cost	55	-	-	-	55	-
Motor vehicles at fair value	831	1,388	(406)	(535)	425	853
Motor vehicles under finance lease	555	-	(34)	-	521	-
	2,792	2,669	(1,673)	(1,702)	1,119	967

Initial recognition:

Items of property, plant and equipment, are measured initially at cost and subsequently revalued at fair value less accumulated depreciation and impairment. Where an asset is acquired for no or nominal cost, the cost is its fair value at the date of acquisition.

The cost of constructed non-financial physical assets includes the cost of all materials used in construction, direct labour on the project and an appropriate proportion of variable and fixed overheads.

Computer equipment purchased at cost are non-financial physical assets purchased at year end and not yet in use. These items are measured at cost.

The initial cost for non-financial physical assets under a finance lease is measured at amounts equal to the fair value of the leased asset or, if lower, the present value of the minimum lease payments, each determined at the inception of the lease.

Subsequent measurement:

Property, plant and equipment are subsequently measured at fair value less accumulated depreciation and impairment.

Buildings relate to specialised portable structures and are valued based on depreciated replacement cost.

Vehicles are valued using the depreciated replacement cost method. Goulburn Broken CMA acquires new vehicles and at times disposes of them before the end of their economic life. The process of acquisition, use and disposal in the market is managed by experienced external fleet managers who set relevant depreciation rates during use to reflect the utilisation of the vehicles.

Fair value for plant and equipment that are specialised in use (such that it is rarely sold other than as part of a going concern) is determined using the depreciated replacement cost method.

Note 7.3 includes additional information in connection with fair value determination of property, plant and equipment.

4.1.1 Depreciation and amortisation

Charge for the period	2019 \$000	2018 \$000
Buildings	-	-
Plant & equipment	65	66
Motor vehicles	241	269
Motor vehicles under finance lease	34	-
Computer equipment leases	-	7
Intangible assets	2	8
Total depreciation and amortisation	342	350

All non-financial physical assets that have finite useful lives are depreciated.

Depreciation is calculated on a straight-line basis, at rates that allocate the asset's value, less any estimated residual value, over its estimated useful life. Typical estimated useful lives for the different asset classes for current and prior years are included in the table below:

Notes to the financial statements for the year ended 30 June 2019

Asset	Useful life
Buildings	40 years
Plant and equipment	2.5 - 10 years
Motor vehicles	5-8 years
Intangible assets	5 years

The estimated useful lives, residual values and depreciation method are reviewed at the end of each annual reporting period, and adjustments made where appropriate.

Impairment

Non-financial assets, including items of Property, Plant and Equipment, are tested for impairment whenever there is an indication that the assets may be impaired.

The assets concerned are tested as to whether their carrying value exceeds their recoverable amount. Where an asset's carrying value exceeds its recoverable amount, the difference is written off as an 'other economic flow', except to the extent that it can be debited to an asset revaluation surplus amount applicable to that class of asset.

If there is an indication that there has been a reversal in impairment, the carrying amount shall be increased to its recoverable amount. However this reversal should not increase the asset's carrying amount above what would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised in prior years.

The recoverable amount for most assets is measured at the higher of depreciated replacement cost and fair value less costs to sell. Recoverable amount for assets held primarily to generate net cash inflows is measured at the higher of the present value of future cash flows expected to be obtained from the asset and fair value less costs to sell.

4.1.2 Reconciliation of movements in carrying values of property, plant and equipment

	Buildings at fair value \$'000	Plant and equipment at fair value \$'000	Motor vehicles at fair value \$'000	Motor vehicles under finance lease \$'000	Equipment under finance lease \$'000	Computer Equipment purchased at cost \$'000	Total \$'000
2019							
Opening balance	-	114	853	-	-	-	967
Additions	-	69	-	555	-	55	679
Disposals	-	-	(187)	-	-	-	(187)
Depreciation expense	-	(65)	(241)	(34)	-	-	(340)
Amortisation	-	-	-	-	-	-	-
Closing balance	-	118	425	521	-	55	1,119
2018							
Opening balance	-	118	984	-	7	-	1,109
Additions	-	62	279	-	-	-	341
Disposals	-	-	(141)	-	-	-	(141)
Depreciation expense	-	(66)	(269)	-	-	-	(335)
Amortisation	-	-	-	-	(7)	-	(7)
Closing balance	-	114	853	-	-	-	967

Purchased assets not in use is computer hardware at year end and were not yet in use at the end of the financial period. These items are measured at cost.

Notes to the financial statements for the year ended 30 June 2019

4.2 Intangible assets

Computer software	2019 \$000	2018 \$000
Gross carrying amount		
Opening Balance	36	36
Computer software in development and not in use	35	-
Additions	-	-
Disposals	-	-
Closing balance	71	36
Accumulated Amortisation		
Opening Balance	(33)	(25)
Amortisation	(3)	(8)
Closing balance	(36)	(33)
Net book value at end of financial year	35	3

Intangible assets are initially recognised at cost. Subsequently, intangible assets with finite useful lives are carried at cost less accumulated amortisation and accumulated impairment losses.

Intangible amortisation assets with finite useful lives are amortised as an 'expense from transactions' on a straight line basis over their useful lives. The amortisation period is 5 years.

Computer software in development and not in use relates to the implementation of a new finance, payroll and human resource system that is a two year project. At the end of the financial period the project was in the application development stage. This project is scheduled to be finished during the 2019-20 financial period.

5. Other assets and liabilities

Introduction

This section sets out those assets and liabilities that arose from the Authority's operations.

Significant judgement: Accrued revenue and accrued expenses

Accrued revenue and accrued expenses represent goods or services that have been received or supplied but have not been invoiced by the supplier.

In estimating the amount of an accrued revenue or accrued expense, consideration is given to the stage of completion of the services being performed.

Structure

- 5.1 Receivables
- 5.2 Payables
- 5.3 Other non-financial assets
- 5.4 Unearned revenue

Notes to the financial statements for the year ended 30 June 2019

5.1 Receivables

	2019 \$000	2018 \$000
Contractual		
Government grants receivables	1,765	453
Trade receivables	88	29
Less allowance for expected credit losses	-	-
Accrued interest	2	26
Total contractual	1,855	508
Statutory		
GST input tax credits recoverable	187	390
Total current receivables	2,042	898

Contractual receivables are classified as financial instruments and categorised as 'financial assets at amortised cost'. They are initially recognised at fair value plus any directly attributable transaction costs. Subsequent to initial measurement they are measured at amortised cost less any impairment.

Statutory receivables do not arise from contracts and are recognised and measured similarly to contractual receivables (except for impairment), but are not classified as financial instruments.

The Authority applies AASB 9 simplified approach to measuring expected credit losses, which uses a lifetime expected credit loss allowance for contracted receivables. Contracted receivables are written off when there is no reasonable expectation of recovery.

Trade and other receivables are due for settlement 30 days from the from the end of the month that they were invoiced. There are no material financial assets that are individually determined to be impaired.

Details about the Authority's impairment policies, the Authority's exposure to credit risk, and the calculation of the loss allowance are set out in note 7.1.

5.2 Payables

	2019 \$000	2018 \$000
Contractual		
Trade payables	1,333	1,018
Accrued expenses	663	590
	1,996	1,608
Statutory		
FBT payable	47	52
Payroll tax	10	14
	57	66
Total current payables	2,053	1,674

Contractual payables and are classified as financial instruments and categorised as 'financial liabilities at amortised cost'. They are initially recognised at fair value plus any directly attributable transaction costs. Subsequent to initial measurement, they are measured at amortised cost.

Statutory payables are recognised and measured similarly to contractual payables, but are not classified as financial instruments and not included in the category of financial liabilities at amortised cost, because they do not arise from contracts.

Notes to the financial statements for the year ended 30 June 2019

5.2.1 Maturity analysis of contractual payables

	Carrying amount \$000	Maturity dates		
		Less than 1 \$000	1-3 months \$000	3-6 months \$000
2019 Payables				
Trade payables	1,333	1,333	-	-
Accrued expenses	663	663	-	-
	1,996	1,996		
2018 Payables				
Trade payables	1,018	1,018	-	-
Accrued expenses	590	590	-	-
Other payables	-	-	-	-
	1,608	1,608	-	-

Payables for supplies and services have an average credit period is 30 days.

5.3 Other non-financial assets

	2019 \$000	2018 \$000
Current other assets		
Prepayments	187	216
Total other assets	187	216

Total current other assets include prepayments which represent payments in advance of receipt of goods or services or that part of expenditure made in one accounting period covering a term extending beyond that period.

5.4 Unearned Revenue

	2019 \$000	2018 \$000
Victorian On-Farm State Project	178	178
Victorian On-Farm State Project - Interest	-	-
Victorian Farm Modernisation Project	92	92
Victorian Farm Modernisation Project Interest	111	108
Temporary Water Allocation Funds	795	795
Total	1,176	1,173

Funding received by Goulburn Broken CMA to pay Farm Water Program proponents is taken to unearned revenue and released to the revenue and expenditure account to match Goulburn Broken CMA expenditure under the Program. For further detail on recognition of revenue for Farm Water Program refer to 2.2.1(i).

Funding which have outstanding performance or return conditions are recognised in accordance with AASB 118 Revenue with reference to the percentage of completion method. The stage of completion is measured by assessing the total expenditure incurred to date compared with the funding provided. Goulburn Broken CMA regards the receipt of such revenue as a reciprocal transfer as Goulburn Broken CMA is required to provide the necessary services in return for funding. A liability is recognised in the Balance Sheet in respect of grant revenue which is unearned at balance date. AASB 118 requires revenue to be recognised in the reporting period in which the services are rendered.

Notes to the financial statements for the year ended 30 June 2019

6. How we financed our operations

This section provides information on the sources of finance utilised by the Authority during its operations, other information related to financing activities of the Authority.

This section includes disclosures of balances that are financial instruments, such as cash balances. Note 7.1 provides additional, specific financial instrument disclosures.

Structure

- 6.1 Cash flow information and balances
- 6.2 Commitments for expenditure
- 6.3 Carry forward project funding

6.1 Cash flow information and balances

Cash and deposits, including cash equivalents, comprise cash on hand and cash at bank, deposits at call and those highly liquid investments with an original maturity of three months or less, which are held for the purpose of meeting short-term cash commitments rather than for investment purposes, and which are readily convertible to known amounts of cash and are subject to an insignificant risk of changes in value.

Cash and deposits disclosed in the balance sheet	2019 \$000	2018 \$000
Cash on hand	1	1
Cash at bank	3,024	1,991
Deposits at call	10,783	10,700
Term deposits (less than 3 months)	-	2,000
Balance as per cash flow statement	13,808	14,692

6.1.1 Reconciliation of net result to cash flow from operating activities

	2019 \$000	2018 \$000
Net result for the period	(234)	2,383
Non-cash movements		
(Gain) / loss on disposal of non-current assets	(70)	6
Depreciation and amortisation of non-current assets	342	350
Movements in assets and liabilities		
Decrease/(increase) in receivables	(1,144)	(343)
Decrease/(increase) in prepayments	29	(58)
(Decrease)/increase in unearned revenue	3	(11,096)
(Decrease)/increase in payables	379	(386)
(Decrease)/increase in employee benefits	(254)	323
Net cash flows from/(used in) operating activities	(949)	(8,821)

6.2 Commitments for expenditure

Commitments for future expenditure include operating and external program commitments arising from contracts. These commitments are recorded below at their nominal value and inclusive of GST. These future expenditures cease to be disclosed as commitments once the related liabilities are recognised in the balance sheet.

Notes to the financial statements for the year ended 30 June 2019

6.2.1 Total Operating lease commitments

Operating lease commitments payable	2019 \$000	2018 \$000
Less than 1 year	310	332
1 to 5 years	185	382
Total commitments (inclusive of GST)	495	714

Operating lease commitments relate to office, depot, car parking facilities and vehicles with lease terms between one and five years. These contracts do not allow the Authority to purchase the facilities after the lease ends, but the Authority has the option to renew each of the leases at the end of the lease term.

As at 30 June 2019 the Authority had \$Nil in capital commitments (2018: \$Nil).

6.2.2 Total finance lease liabilities payable

Other finance lease liabilities payable	Minimum future lease payments ⁱ	
	2019 \$000	2018 \$000
Not longer than 1 year	117	-
Longer than 1 year but not longer than 5 years	427	-
Minimum future lease payments	544	-
Less future finance charges	(23)	-
Present value of minimum lease payments	521	-
Included in the financial statements as:		
Current interest bearing liabilities	103	-
Non-current interest bearing liabilities	418	-
Total	521	-

i. Minimum future lease payments include the aggregate of all base payments and any guaranteed residual.

Finance lease liabilities relate to motor vehicles. During the current reporting period the Authority commenced transitioning the procurement of motor vehicles through VicFleet as has been mandated under the State Motor Vehicle Policy. The motor vehicles are leased from VicFleet as a Finance lease for two to three years.

6.3 Carry forward project funding

Catchment Management Authorities are responsible for the facilitation and coordination of catchments in an integrated and sustainable manner. This is achieved by undertaking projects funded by Victorian and Australian Government programs. The Authority received funding for specific projects which are guided by the Regional Catchment Strategy and delivered in line with the Authority's Corporate Plan approved by the Minister for Water.

The projects funded by the State and Commonwealth Governments can be undertaken over multiple financial years and funding is received at various stages of the project life based on contractual agreements. At the end of the financial year there are some projects that have not reached completion but will be completed within the contractual terms in future financial periods. Refer Note 8.3 for Committed funds reserve. At balance date the Authority has cash and cash equivalents that will be utilised to complete these projects in future financial years.

7. Risks, contingencies and valuation judgements

Introduction

The Authority is exposed to risk from its activities and outside factors. In addition, it is often necessary to make judgements and estimates associated with recognition and measurement of items in the financial statements. This section sets out financial instrument specific information, (including exposures to financial risks) as well as those items that are contingent in nature or require a higher level of judgement to be applied, which for the Authority relate mainly to fair value determination.

Structure

- 7.1 Financial instruments specific disclosures
- 7.2 Contingent assets and contingent liabilities
- 7.3 Fair value determination

Notes to the financial statements for the year ended 30 June 2019

7.1 Financial instruments specific disclosures

Introduction

Financial instruments arise out of contractual agreements that give rise to a financial asset of one entity and a financial liability or equity instrument of another entity. Due to the nature of the Authority's activities, certain financial assets and financial liabilities arise under statute rather than a contract, and as such, do not meet the definition of financial instruments.

Categories of financial instruments

Financial Assets at amortised cost are measured at amortised cost if they are held by the Authority to collect contractual cash flows, the contractual terms give rise to cash flows that are solely payments of principal and interest, and if they not designated as fair value through net result. These assets are initially recognised at fair value plus any directly attributable transaction costs. Subsequent to initial measurement, these financial assets are measured at amortised cost using the effective interest method less any impairment. The financial assets at amortised cost category includes cash and deposits, and trade and other receivables (excluding statutory receivables).

Collectability of trade receivables is reviewed on an ongoing basis. Bad debts which are known to be uncollectible are written off and classified as a transaction expense. A provision for impaired receivables is established when there is objective evidence that the Authority will not be able to collect all amounts due according to the original terms of receivables.

Financial liabilities at amortised cost are initially recognised on the date they originated. They are initially measured at fair value plus any directly attributable transaction costs. Subsequent to initial recognition, these financial instruments are measured at amortised cost with any difference between the initial recognised amount and the redemption value being recognised in profit and loss over the period of the interest bearing liability, using the effective interest rate method. Financial instrument liabilities measured at amortised cost include all of the Authority's contractual payables(excluding statutory payables), and lease liabilities.

A financial liability is derecognised when the obligation under the liability is discharged, cancelled or expires.

7.1.1 Financial instruments: Impairment of Financial Assets

From 1 July 2018, the authority has been recording the allowance for expected credit loss for the relevant financial instruments, replacing AASB 139's incurred loss approach with AASB 9's Expected Credit Loss Approach. Subject to AASB 9 impairment assessment include the Authority's contractual receivables and statutory receivables.

Contractual receivables at amortised cost

The Authority applies AASB 9 simplified approach for all contractual receivables to measure the expected credit losses using a lifetime expected loss allowance based on the assumptions about the risk of default and the expected loss rates. The Authority has grouped contractual receivables on shared credit risk characteristics and days past due, and the credit loss rate based on the Authority's past history, existing market conditions, as well as forward-looking estimates at the end of the financial year.

Statutory receivables at amortised cost

The Authority's non-contractual receivables arising from statutory requirements are not financial instruments. However, they are nevertheless recognised and measured in accordance with AASB 9 requirements as if those receivables are financial instruments.

Statutory receivables are considered to have low credit risk, taking into account the counterparty's credit rating, risk of default and capacity to meet contractual cash flow obligations in the near term. As a result, the loss allowance recognised for these financial assets during the period was limited to 12 months expected losses. There was no loss allowance recognised at 30 June 2018 under AASB 139, and no additional loss allowance was required upon transaction into AASB 9 on 1 July 2019.

While this represents a change in accounting policy from the former AASB 139 approach, there has been no impact on the Authority's opening and closing credit loss allowance. The expected credit loss rate is 0% (2018: 0%) and the credit loss allowance is Nil (2018: Nil).

Notes to the financial statements for the year ended 30 June 2019

7.1.2 Financial instruments: Categorisation

2019	Contractual financial assets at amortised cost \$'000	Contractual financial liabilities at amortised cost \$'000	Total \$'000
Contractual financial assets			
Cash and deposits	13,808		13,808
Receivables ⁱ			
Trade and government grant receivables	1,853		1,853
Accrued interest	2		2
Total contractual financial assets	15,663		15,663
Contractual financial liabilities			
Payables			
Trade payables		1,333	1,333
Accrued expenses		663	663
Finance leases		521	521
Unearned Revenue		1,176	1,176
Total contractual financial liabilities		3,693	3,693

i. The total amounts disclosed here exclude statutory amounts.

2018	Contractual financial assets at amortised cost \$'000	Contractual financial liabilities at amortised cost \$'000	Total \$'000
Contractual financial assets			
Cash and deposits	14,692		14,692
Receivables ⁱ			
Trade and government grant receivables	482		482
Accrued interest	26		26
Total contractual financial assets	15,200		15,200
Contractual financial liabilities			
Payables ⁱ			
Trade payables		1,018	1,018
Accrued expenses		590	590
Finance leases		-	-
Unearned Revenue		1,173	1,173
Total contractual financial liabilities		2,781	2,781

i. The total amounts disclosed here exclude statutory amounts.

Notes to the financial statements for the year ended 30 June 2019

7.1.3 Financial risk management objectives and policies

The Authority's main financial risks include credit risk, liquidity risk and interest rate risk. The Authority manages these financial risks in accordance with its financial risk management policy.

The Authority uses different methods to measure and manage the different risks to which it is exposed. Primary responsibility for the identification and management of financial risks rests with the Audit, Risk and Compliance committee of the Authority.

Financial instruments: Credit risk

Credit risk refers to the possibility that a borrower will default on its financial obligations as and when they fall due. The Authority's exposure to credit risk arises from the potential default of a counter party on their contractual obligations resulting in financial loss to the Authority. Credit risk is measured at fair value and is monitored on a regular basis.

Credit risk associated with the Authority's contractual financial assets is minimal because the main debtor is the Victorian Government. For debtors other than the Government, the Authority has adopted a policy of only dealing with creditworthy counterparties and obtaining sufficient collateral where appropriate. For cash assets, the Authority's policy is to only deal with banks with high credit-ratings assigned by international credit-rating agencies. All cash and deposits are held with Authorised Deposit Taking Institute's (ADI's) with a minimum credit rating of AAA.

Financial instruments: Liquidity risk

Liquidity risk arises from being unable to meet financial obligations as they fall due. The Authority operates under the Government fair payments policy of settling financial obligations within 30 days and in the event of a dispute, making payments within 30 days from the date of resolution.

The Authority's exposure to liquidity risk is deemed insignificant based on prior periods' data and current assessment of risk. The Authority does not have any borrowings and maintains high levels of cash and deposits readily available to meet its financial obligations. The Authority manages its liquidity risk by maintaining adequate cash reserves and continually monitoring the Authority's expenditure commitments and cash flow needs.

Financial instruments: Market risk

The Authority's exposure to market risk is primarily through interest rate risk with significant surplus funds held in deposits at call in the Central Banking System. The Authority has no exposure to foreign exchange risk or other price risk.

Cash flow interest rate risk is the risk that the future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Authority is required to invest surplus funds with the State Government Central Banking System (CBS) in compliance with the Standing Directions 2018 under the Financial Management Act 1994 (2018 Directions). Management monitors movements in interest rates on as required basis.

The carrying amounts of financial assets and financial liabilities that are exposed to interest rates and the Authority's sensitivity to interest rate risk are set out in the table that follows.

Interest rate exposure of financial instruments

2019	Weighted average interest rate %	Carrying amount \$000	Interest rate exposure		
			Fixed interest rate \$000	Variable interest rate \$000	Non-interest bearing \$000
Financial assets					
Cash and deposits	1.5	13,808	-	13,807	1
Contractual receivables		1,855	-	-	1,855
Total financial assets		15,662	-	13,807	1,856
Financial liabilities					
Lease liabilities	3.0	(521)	(521)	-	-
Contractual payables		(1,996)	-	-	(1,996)
Unearned revenue		(1,176)	-	-	(1,176)
Total financial liabilities		(3,693)	(521)	-	(3,172)

Notes to the financial statements for the year ended 30 June 2019

Interest rate exposure of financial instruments (continued)

2018	Weighted average interest rate %	Carrying amount \$000	Interest rate exposure		
			Fixed interest rate \$000	Variable interest rate \$000	Non-interest bearing \$000
Financial assets					
Cash and deposits	1.6	14,692	2,000	12,691	1
Contractual receivables		508	-	-	508
Total financial assets		15,200	2,000	12,691	509
Financial liabilities					
Lease Liabilities		-	-	-	-
Contractual payables		(1,608)	-	-	(1,608)
Unearned revenue		(1,173)	-	-	(1,173)
Total financial liabilities		(2,781)	-	-	(2,781)

Interest rate risk sensitivity

The sensitivity analysis below shows the impact on the Authority's net result and equity for a movement of 100 basis points up and down in market interest rates. The Authority believes a movement of 1% over the next year is reasonable given consideration of past performances and recent movements in interest rates.

	Carrying amount \$000	Interest rate			
		-1 per cent		+1 per cent	
		Net result \$000	Equity \$000	Net result \$000	Equity \$000
2019					
Cash and deposits ⁱ	13,808	(138)	(138)	138	138
2018					
Cash and deposits ⁱ	14,692	(147)	(147)	147	147

i. Cash and deposits includes \$13,807K (2018: \$12,691K) that is exposed to floating rates movements. Sensitivities to these movements are calculated as follows:
 2019: \$13,807,000 x 0.01 = \$138,070
 2018: \$14,692,000 x 0.01 = \$146,920

7.2 Contingent assets and contingent liabilities

Contingent assets and contingent liabilities are not recognised in the balance sheet but are disclosed and, if quantifiable, are measured at nominal value.

	2019 \$000	2018 \$000
Contingent assets		
As at 30 June 2019, the Authority has no known contingent assets.	-	-
Contingent liabilities		
As at 30 June 2019, the Authority has no known contingent liabilities.	-	-

7.3 Fair value determination

Significant judgement: Fair value measurements of assets and liabilities

Fair value determination requires judgement and the use of assumptions. This section discloses the most significant assumptions used in determining fair values. Changes to assumptions could have a material impact on the results and financial position of the Authority.

The Authority's Property, plant and equipment are carried at fair value.

In addition, the fair values of other financial assets and liabilities which are carried at amortised cost, also need to be determined for disclosure purposes.

The Authority determines the policies and procedures for determining fair values for both financial and non-financial assets and liabilities as required.

Notes to the financial statements for the year ended 30 June 2019

Fair value hierarchy

In determining fair values, a number of inputs are used. To increase consistency and comparability in the financial statements, these inputs are categorised into three levels, also known as the fair value hierarchy. The levels are as follows:

- Level 1 – Quoted (unadjusted) market prices in active markets for identical assets or liabilities;
- Level 2 – Valuation techniques for which the lowest level input that is significant to the fair value measurement is directly or indirectly observable; and
- Level 3 – Valuation techniques for which the lowest level input that is significant to the fair value measurement is unobservable.

The Authority determines whether transfers have occurred between levels in the hierarchy by reassessing categorisation (based on the lowest level input that is significant to the fair value measurement as a whole) at the end of each reporting period.

7.3.1 Fair value determination of financial assets and liabilities

The Authority currently holds a range of financial instruments that are recorded in the financial statements where the carrying amounts are a reasonable approximation of fair value, either due to their short-term nature or with the expectation that they will be paid in full by the end of the 2018-19 reporting period.

These financial instruments include:

Financial assets	Financial liabilities
Cash and deposits	
Receivables:	Payables:
• Trade receivables	• Trade payables
• Accrued revenue	• Accrued expenses
	• Finance leases

7.3.1 Fair value determination: non-financial physical assets

Fair value measurement hierarchy

2019	Carrying amount as at 30 June \$000	Fair Value measurement at end of reporting period using:		
		Level 1 ⁱ \$000	Level 2 ⁱ \$000	Level 3 ⁱ \$000
Plant and Equipment at fair value				
Plant and Equipment	118	-	-	118
Total Plant and Equipment at fair value	118	-	-	118
Equipment under finance lease at fair value				
Motor Vehicles Leased	521	-	-	521
Total equipment under finance lease at fair value	521	-	-	521
Motor vehicles at fair value				
Motor vehicles	425	-	-	425
Total motor vehicles at fair value	425	-	-	425

i. Classified in accordance with the fair value hierarchy, see Note 7.3.

2018	Carrying amount as at 30 June \$000	Fair Value measurement at end of reporting period using:		
		Level 1 ⁱ \$000	Level 2 ⁱ \$000	Level 3 ⁱ \$000
Plant and Equipment at fair value				
Plant and Equipment	114	-	-	114
Total Plant and Equipment at fair value	114	-	-	114
Motor vehicles at fair value				
Motor vehicles	853	-	-	853
Total motor vehicles at fair value	853	-	-	853

i. Classified in accordance with the fair value hierarchy, see Note 7.3.

Notes to the financial statements for the year ended 30 June 2019

Fair value measurement hierarchy (continued)

There have been no transfers between levels during the period.

The fair value of the financial assets and liabilities is included at the amount at which the instrument could be exchanged in a current transaction between willing parties, other than in a forced or liquidation sale. The following methods and assumptions were used to estimate fair value:

Motor vehicles

Motor vehicles are valued using the depreciated replacement cost method. The Authority acquires new vehicles and disposes of them before the end of their economic life. The process of acquisition, use and disposal in the market is managed by experienced fleet managers within VicFleet and the Authority who set the relevant depreciation rates during use to reflect the utilisation of the motor vehicles.

Plant and equipment and computer equipment

Plant and equipment and computer equipment is held at fair value. When plant and equipment or computer equipment is specialised in use, such that it is rarely sold other than as part of a going concern, fair value is determined using the depreciated replacement cost method.

There were no changes in valuation techniques throughout the period to 30 June 2019.

For all assets measured at fair value, the current use is considered the highest and best use.

Reconciliation of Level 3 fair value movements

	Motor vehicles \$000	Plant and equipment \$000	Office furniture and equipment \$000	Total \$000
2018-19				
Opening Balance	853	114	-	967
Purchases (sales)	555	69	55	679
Transfers in (out) of Level 3	-	-	-	-
Depreciation	(275)	(65)	-	(340)
Gains or losses recognised in net result	(187)	-	-	(187)
Closing balance	946	118	55	1,119

	Motor vehicles \$000	Plant and equipment \$000	Office furniture and equipment \$000	Total \$000
2017-18				
Opening Balance	984	118	7	1,109
Purchases (sales)	279	62	-	341
Transfers in (out) of Level 3	-	-	-	-
Depreciation	(269)	(66)	(7)	(342)
Gains or losses recognised in net result	(141)	-	-	(141)
Closing balance	853	114	-	967

Description of unobservable inputs to level 3 valuations

	Valuation technique	Significant unobservable inputs
Plant and equipment – Specialised	Depreciated replacement cost	Cost per unit Useful life of plant and equipment
Computer equipment	Depreciated replacement cost	Cost per unit Useful life of plant and equipment
Motor vehicles	Depreciated replacement cost	Cost per unit Useful life of motor vehicles

Notes to the financial statements for the year ended 30 June 2019

8. Other disclosures

This section provides additional material disclosures required by accounting standards or otherwise, for the understanding of this financial report.

Structure

- 8.1 Ex-gratia expenses
- 8.2 Other economic flows included in net result
- 8.3 Reserves
- 8.4 Responsible persons
- 8.5 Remuneration of executive officers
- 8.6 Related parties
- 8.7 Remuneration of auditors
- 8.8 Subsequent events
- 8.9 Australian Accounting Standards issued that are not yet effective

8.1 Ex-gratia expenses

Ex gratia expenses are the voluntary payments of money or other non-monetary benefit (e.g. a write-off) that is not made either to acquire goods, services or other benefits for the entity to meet a legal liability, or to settle or resolve a possible legal liability of or claim against the entity.

The Authority had no Ex-gratia expenses for the year ending 30 June 2019 (2018 \$0).

8.2 Other economic flows included in net result

Other economic flows measure the change in volume or value of assets or liabilities that do not result from transactions.

	2019 \$000	2018 \$000
Net gain/(loss) on non-financial assets		
Net gain/(loss) on disposal of property, plant and equipment		
Proceeds from sale of non-financial assets	257	135
Less written down value	(187)	(141)
Net gain/(loss) on non-financial assets	70	(6)

8.3 Reserves

	2019 \$000	2018 \$000
Committed funds reserve ⁱ		
Balance at the beginning of the reporting period	7,453	5,070
Net transfers (to) / from accumulated funds	(234)	2,383
Balance at the end of the reporting period	7,219	7,453

- i. The Committed funds reserve has been established to recognise that the Authority receives funding for programs in advance of the program works taking place. The Authority is committed to expending these funds in accordance with its Corporate Plan in succeeding years. At the end of the financial year any Accumulated Funds which represents unexpended program funding, has been transferred to the reserve, while any losses which represent program expenditure in excess of current year funding is transferred from the reserve.

8.4 Responsible persons

In accordance with the Ministerial Directions issued by the Minister for Finance under the Financial Management Act 1994, the following disclosures are made regarding responsible persons for the reporting period.

The names of the persons who were responsible persons of the Authority at any time during the financial year were:

Minister for Water	Lisa Neville MP	1 July 2018 to 30 June 2019
Minister for Energy, Environment and Climate Change	Lily D'Ambrosio MP	1 July 2018 to 30 June 2019

Notes to the financial statements for the year ended 30 June 2019

8.4 Responsible persons (continued)

Position		Period
Acting Chair	A Weston	1 July 2018 to 19 August 2018
Chair	A Weston	20 August 2018 to 30 June 2019
Board Member	K Stothers	1 July 2018 to 30 June 2019
Board Member	H Reynolds	1 July 2018 to 30 June 2019
Board Member	K Hawkins	1 July 2018 to 30 June 2019
Board Member	J Ford	1 July 2018 to 30 June 2019
Board Member	R Harris	1 July 2018 to 30 June 2019
Board Member	S Lolicato	1 July 2018 to 30 June 2019
CEO	C P Norman	1 July 2018 to 30 June 2019
Acting CEO	C Walters	Various dates ⁱ

i. Acting CEO in place while CEO on leave:
3 July 2018 to 6 July 2018, 2 January 2019 to 30 January 2019, 10 April 2019 to 18 April 2019

Remuneration

Remuneration received or receivable from the Authority in connection with the management of the Authority during the reporting period was:

Income bands	2019	2018
\$1-\$9,999	-	5
\$10,000-\$19,999	6	7
\$20,000-\$29,999	1	-
\$250,000-\$259,999	-	1
\$260,000-\$269,999	1	-
Total number of responsible persons	8	13
Total remuneration \$	\$365,382	\$387,078

The compensation detailed above excludes the salaries and benefits the Portfolio Ministers receive. The Ministers' remuneration and allowances is set by the *Parliamentary Salaries and Superannuation Act 1968* and is reported within the Department of Parliamentary Services' Financial Report.

8.5 Remuneration of executive officers

The number of executive officers, other than ministers and accountable officers, and their total remuneration during the reporting period are shown in the table below. Total annualised employee equivalents provides a measure of full time equivalent executive officers over the reporting period.

Remuneration comprises employee benefits in all forms of consideration paid, payable or provided by the entity, or on behalf of the entity, in exchange for services rendered, and is disclosed in the following categories.

Short-term employee benefits include amounts such as wages, salaries, annual leave or sick leave that are usually paid or payable on a regular basis, as well as non-monetary benefits such as allowances and free or subsidised goods or services.

Post-employment benefits include pensions and other retirement benefits paid or payable on a discrete basis when employment has ceased.

Other long-term benefits include long service leave, other long-service benefit or deferred compensation.

Income bands ⁱⁱⁱ	2019	2018
Short-term employee benefits	\$862,300	\$850,527
Post-employment benefits	\$67,711	\$68,384
Other long-term benefits	\$29,463	\$28,957
Total remuneration	\$959,474	\$947,869
Total number of executives ⁱ	6	6
Total annualised employee equivalents ⁱⁱ	5.9	5.9

i. The total number of executive officers excludes persons who meet the definition of Key Management Personnel (KMP) of the entity under AASB 124 *Related Party Disclosures* and are reported within the related parties note disclosure (Note 8.6)

ii. Annualised employee equivalent is based on the time fraction worked over the reporting period.

Notes to the financial statements for the year ended 30 June 2019

8.6 Related parties

The Authority is a wholly owned and controlled entity of the State of Victoria. Related parties of the Authority include:

- all key management personnel and their close family members;
- all cabinet ministers and their close family members; and
- all departments and public sector entities that are controlled and consolidated into the whole of state consolidated financial statements.

All related party transactions have been entered into on an arm's length basis.

Significant transactions with government-related entities

During the year, revenue received from government-related entities for grants to fund programs that enable the Goulburn Broken CMA to deliver on the Regional Catchment Strategy, statutory obligations and the Victorian Farm Modernisation Program. The Authority received funding from the following government-related entities under normal commercial terms and conditions:

Entity	2019 Funding received (\$000)	2018 Funding received (\$000)
Department of Environment, Land, Water and Planning	12,268	20,436
Goulburn Valley Water	947	124
West Gippsland Catchment Management Authority	168	-
Victorian Environmental Water Holder	165	108
Glenelg Hopkins Catchment Management Authority	116	-
Victorian Fisheries Authority	96	84
Port Phillip Catchment Management Authority	88	121
Goulburn Murray Water	88	-
Wimmera Catchment Management Authority	82	-
North Central Catchment Management Authority	74	73
Department of Jobs, Precincts & Regions (formerly DEDJTR)	55	50
Corangamite Catchment Management Authority	44	-
Mallee Catchment Management Authority	40	-
East Gippsland Catchment Management Authority	33	-
North East Catchment Management Authority	32	57

Receivables outstanding at 30 June 2019: \$714,802. (2018: \$451,650).

During the year, payments to government-related entities were made for contract services relating to the delivery of Goulburn Broken CMA's programs. The Authority made significant payments to the following government-related entities under normal commercial terms and conditions:

Entity	2019 Payments made (\$000)	2018 Payments made (\$000)
Goulburn Murray Water	3,992	4,260
Department of Environment, Land, Water and Planning	792	699
Department of Jobs, Precincts & Regions (formerly DEDJTR)	584	663
West Gippsland Catchment Management Authority	165	53
North Central Catchment Management Authority	70	208
Trust for Nature (Victoria)	63	152
Goulburn Valley Water	50	156
Department of Treasury & Finance	40	-
North East Catchment Management Authority	36	-

Payables outstanding at 30 June 2019: \$732,221. (2018: \$675,034).

Notes to the financial statements for the year ended 30 June 2019

Key management personnel

Key management personnel are those persons having authority and responsibility for planning, directing and controlling activities of the Authority, directly or indirectly this comprises Directors and the CEO. Key management personnel includes all Responsible persons as listed in Note 8.4.

The compensation detailed below excludes the salaries and benefits the Portfolio Minister receives. The Minister's remuneration and allowances is set by the *Parliamentary Salaries and Superannuation Act 1968* and is reported within the Department of Parliamentary Services' Financial Report.

Compensation of KMPs	2019	2018
Short-term employee benefits	333,277	345,041
Post-employment benefits	24,749	25,405
Other long-term benefits	7,356	16,632
Total	365,382	387,078

Transactions with key management personnel and other related parties

Given the breadth and depth of Authority activities, related parties transact with the Victorian public sector in a manner consistent with other members of the public e.g. stamp duty and other government fees and charges. Further employment of processes within the Victorian public sector occur on terms and conditions consistent with the *Public Administration Act 2004* and Codes of Conduct and Standards issued by the Victorian Public Sector Commission. Procurement processes occur on terms and conditions consistent with the Victorian Government Procurement Board requirements. Outside of normal citizen type transactions with the department, there were no related party transactions that involved key management personnel and their close family members. No provision has been required, nor any expense recognised, for impairment of receivables from related parties.

Not all transactions that occurred with KMP and their related parties have been considered material for disclosure. In this context, transactions are only disclosed when they are considered necessary to draw attention to the possibility that Goulburn Broken CMA's financial position may have been affected by the existence of related parties, and by transactions and outstanding balances, including commitments, with such parties.

During the year \$126,683 of grant payments were made for environmental projects to a not for profit Natural Resource Management community group of which Director K Stothers holds an office. The grant selection process is through a competitive arms length process.

8.7 Remuneration of auditors

	2019 \$000	2018 \$000
Victorian Auditor-General's Office for audit of financial statements	23	23
Internal audit costs	12	32
Total auditors' remuneration	35	55

8.8 Subsequent events

No matters or circumstances have arisen since the end of the reporting period which significantly affected or may significantly affect the operations of the authority, the results of those operations, or the state of affairs of the authority in future financial years.

8.9 Australian Accounting Standards issued that are not yet effective

Certain new Australian Accounting Standards (AAS) have been published that are not mandatory for the 30 June 2019 reporting period. DTF assesses the impact of all these new standards and advises the Authority of their applicability and early adoption where applicable. The following is a list of the AASs issued but are not yet effective for the 2018-19 reporting period.

Notes to the financial statements for the year ended 30 June 2019

Topic	Key requirements	Applicable for annual reporting periods beginning on or after	Estimated impact on Financial Statements
AASB 15 Revenue from Contracts with Customers	<p>The core principle of AASB 15 requires an entity to recognise revenue when the entity satisfies a performance obligation by transferring a promised good or service to a customer.</p> <p>AASB 2015-8 Amendments to Australian Accounting Standards – Effective Date of AASB 15 has deferred the effective date of AASB 15 to annual reporting periods beginning on or after 1 January 2018, instead of 1 January 2017.</p> <p>ASB 2016-7 Amendments to Australian Accounting Standards – Deferral of AASB 15 for Not-for-Profit Entities. This Standard defers the mandatory effective date of AASB 15 for not-for-profit entities from 1 January 2018 to 1 January 2019.</p>	1 Jan 2019	<p>The changes in revenue recognition requirements in AASB 15 may result in changes to the timing and amount of revenue recorded in the financial statements commencing in the 2019-20 financial period. Revenue from grants that are provided under an enforceable agreement that have sufficiently specific obligations, will now be deferred and recognised as the performance obligations attached to the grant are satisfied.</p> <p>The assessment indicates the impact on revenue is estimated to be an additional \$7.4M revenue from funds prior years funds received in advance and a reduction of \$3.2M of revenue for funds received in advance and deferred. Thus overall net \$4.2M estimated increase in Revenue within the 2019-20 financial period.</p> <p>Estimated impact on Equity will be a reduction in Reserves and increase in Liability of \$7.4M to reflect the prior years funds received in advance.</p> <p>The Standard will also require additional disclosures on service revenue and contract modifications.</p> <p>Estimate impact assessments is subject to approval of DELWP.</p>
AASB 2016-8 Amendments to Australian Accounting Standards – Australian Implementation Guidance for Not-for-Profit Entities	<p>AASB 2016-8 inserts Australian requirements and authoritative implementation guidance for not-for-profit entities into AASB 9 and AASB 15.</p> <p>This Standard amends AASB 9 and AASB 15 to include requirements to assist not-for-profit entities in applying the respective standards to particular transactions and events.</p>	1 Jan 2019	<p>This standard clarifies the application of AASB 15 and AASB 9 in a not-for-profit context. The areas within these standards that are amended for not-for-profit application include:</p> <p>AASB 9</p> <ul style="list-style-type: none"> Statutory receivables are recognised and measured similarly to financial assets <p>AASB 15</p> <ul style="list-style-type: none"> The 'customer' does not need to be the recipient of goods and/or services; The 'contract' could include an arrangement entered into under the direction of another party; Contracts are enforceable if they are enforceable by legal or 'equivalent means'; Contracts do not have to have commercial substance, only economic substance; and Performance obligations need to be 'sufficiently specific' to be able to apply AASB 15 to these transactions.

Notes to the financial statements for the year ended 30 June 2019

Topic	Key requirements	Applicable for annual reporting periods beginning on or after	Estimated impact on Financial Statements
AASB 16 Leases	The key changes introduced by AASB 16 include the recognition of most operating leases (which are currently not recognised) on balance sheet.	1 Jan 2019	<p>The assessment has indicated that most operating leases, with the exception of short term and low value leases will come on to the balance sheet and will be recognised as right of use assets with a corresponding lease liability.</p> <p>In the operating statement, operating lease expense of approximately \$179K will be replaced by depreciation expense of the asset and an interest charge, thus minimal impact to the overall net result within the Operating Statement.</p> <p>Recognition of Right of use Asset and a corresponding lease liability of \$1,206K.</p> <p>There will be no change for lessors as the classification of operating and finance leases remains unchanged.</p>
AASB 1058 Income of Not-for-Profit Entities	AASB 1058 standard will replace the majority of income recognition in relation to government grants and other types of contributions requirements relating to public sector not-for-profit entities, previously in AASB 1004 Contributions.	1 Jan 2019	The assessment has indicated that revenue from capital grants that are provided under an enforceable agreement that have sufficiently specific obligations, will now be deferred and recognised as performance obligations are satisfied. As a result, the timing recognition of revenue will change. As the Authority does not receive revenue for Capital grants no impact is expected within the financial statements.
AASB 1059 Service Concession Arrangements: Grantors	This standard addresses the accounting for a service concession arrangement by a grantor that is a public sector entity by prescribing the accounting for the arrangement from the grantor's perspective.	1 Jan 2020	The assessment has indicated that there will be no significant impact on the Authority's financial statements.
AASB 2018-5 Amendments to Australian Accounting Standards - Deferral of AASB 1059	This standard defers the mandatory effective date of AASB 1059 from 1 January 2019 to 1 January 2020	1 Jan 2019	The assessment has indicated that there will be no significant impact on the Authority's financial statements.
AASB 2018-8 Amendments to Accounting Standards - Right of use asset	This standard amends the various AASB standards to provide an option for not-for-profit entities to not apply the fair value initial measurement requirements to a class or classes of right of use assets arising under leases with significantly below-market terms and conditions.	1 Jan 2019	The assessment has indicated that there will be no significant impact on the Authority's financial statements.

Appendix 1: Understanding progress and ratings

Compiled by Rod McLennan.

NRM decision-makers have major challenges in evaluating progress and making and responding to change, caused by the complex system of people and nature (with its countless relationships), a highly integrated and changing operating environment, and uncertainties in measuring natural resources and progress. Well-constructed scorecards with summary narratives are distilled evaluations that help many stakeholders make better shared choices, while promoting transparency and accountability.

Shared mental models of progress and a desired future

Resilience model

Problem: While in everyday life individuals use their own ways of viewing the state of a complex world and possible future states, sharing views (based on solid evidence) can be extremely challenging.

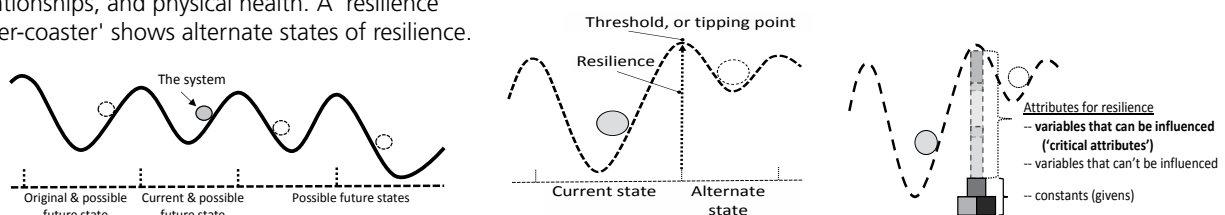
Solution: The Goulburn Broken CMA uses a resilience model to describe the current state, identify desired long-term future states, and determine required actions.

Many of the most important elements underpinning a resilience model, such as stakeholder relationships, consideration of system tipping points, and integration across NRM themes, have been emphasised by Goulburn Broken Catchment communities since salinity management plans were founded on joint action in the late 1980s (Northage 2014). Although it was not explicitly stated and there was no roadmap to follow, resilience was pursued by these pioneers of holistic catchment management. A culture of interagency and community-government collaboration was fostered through strong and insightful leadership at all levels within Victorian government and across regional and local communities.

The trend towards further integrated and holistic management continues, with stakeholder communication links and relationships increasing in number, but often diluted in strength because of technology, societal, and organisational business-management changes. The Goulburn Broken CMA has formalised use of the resilience model: it is central to the Regional Catchment Strategy 2013-2019. The approach emerged from the Goulburn Broken CMA's sustainability and ecosystem services thinking.

Resilience is **'the ability of the Catchment's people and environment to absorb a shock or setback and to flourish in spite of it, maybe even because of it'** (R.M. Williams Outback, Apr/May 2017). **It does not mean 'ploughing through and doing what you have always done'** (Corocher in Outback Apr/May 2017).

The resilience model can be easily shared: people can relate the model to phases and other aspects of their personal lives, such as alternate states for emotions, finances, relationships, and physical health. A 'resilience roller-coaster' shows alternate states of resilience.



The resilience model lends itself neatly to a small number of high-level choices for managing systems in the face of unforeseen and shifting circumstances: restore, prevent, maintain, drive transformation, or accept change and adapt.

In NRM, **system examples** include biodiversity (page 48), community (page 26), and social-ecological (page 7). High-level choices for these interconnected systems have been described as visions and long-term goals, such as 'increase the population viability of 20 flagship species' and '65 per cent reduction in total phosphorus exported from the catchment'.

Resilience, tipping points, risks and opportunities

Problem: While visions and long-term goals have been described for NRM systems for 20 years or more, it has been challenging to build the bridge (a simply understood model) between high-level intent and required short and long-term actions: the links between cause and effect are often obscure.

Solution: A **risk mitigation model** that considers the risk of the system being in an undesirable state in the long term (more than 10 years) focuses on problems, opportunities and evidence that are material (high consequence), helping to eliminate 'noise'. The risk mitigation model is also familiar, making the step between risk and action (and progress) easy to communicate.

Determining the **risk of the system being in an undesirable state** in the long term requires consideration of **thresholds (tipping points)**, likelihood and consequences, uncertainties with data and what desirable futures are, and risk and opportunities given both current investment (from government and other sources, including in-kind) and no investment.

Some attributes that define a system's resilience are constants that cannot be changed, such as location downstream or upstream of a significant tributary. Other attributes vary, with some that cannot be readily influenced, such as rainfall or market conditions, and others that can be influenced, such as native vegetation extent and wetland inundation.

A critical attribute for long-term resilience is:

- critical to how the system functions
- at a level and trajectory that places the delivery of highly valued services at risk in the long term (because the system is at long-term risk of tipping into an undesirable state)
- influenced by actions that can be easily defined
- 'concrete' enough to readily convey an image or concept that is readily understood and not prone to misinterpretation
- measurable over the medium term (about 5 years), or at least enables a sense of progress to be conveyed.

Evaluation, planning levels and decision-making cycles

Catchment management decisions have vastly different timeframes, from daily operational decisions by extension officers to once-in-six-year strategic decisions by the Goulburn Broken CMA Board. The Goulburn Broken CMA arranges data to inform three critical and connected levels of evaluation for strategic planning and implementation, as shown in the table below. While different NRM funders have different ways of operating and different and

changing data requirements, the Goulburn Broken CMA orders information according to the equation: $\text{Outputs} \times \text{Assumptions} = \text{Outcomes}$, to document progress in implementing actions and to update understanding of progress in achieving desired long-term states of system resilience, including contributions by various partners to outcomes (including overall condition).

Evidence for three levels of evaluation (and decision-making)

Evaluation level	Typical key evaluation questions used to focus evaluation	Examples of evidence to inform evaluation
1 Annual performance	How did we go this year against what we said we would do?	Outputs (onground works and capacity building actions or tasks) achieved and funds spent against targets set.
2 Long-term strategy implementation progress	How have we gone against what we said we would do when we wrote the (various) strategies? How effective were the implemented measures?	Outputs and assumptions of their impact (especially on critical attributes) listed in strategies.
3 Catchment condition	What state is the system we are influencing in? What is the risk that the system will not be in the desired state in the long term? Was the original strategy appropriate? Have circumstances (such as new knowledge or different weather patterns) changed sufficiently to warrant a revised strategy? Does the investment mix need to be modified?	System state; risk trends; tipping points; indicators of resilience such as critical attribute contribution levels; responses such as restoration, prevention, maintenance, driving transformation, acceptance of change and adaptation.

Rating progress and performance

Details on each of the investment areas within sections of this annual report justify ratings provided. Further details are on the Goulburn Broken CMA's website www.gbcma.vic.gov.au and in relevant RCS sub-strategies.

Rating annual performance

Annual performance is rated by measuring outputs achieved against annual targets. Targets are determined by funds available and are derived from the relevant long-term strategy. It is usually not known what funds are available beyond one year. There is usually a high degree of certainty in rating annual performance within a single investment area when funding is known, outputs and other indicators are well documented, and accounting mechanisms are sound.

Annual targets and achievements in this report do not include outputs delivered beyond Goulburn Broken CMA's direct control, especially by landholders who voluntarily undertake works. Data on these external outputs is also critical to inform long-term decisions and is increasingly captured. A complete list of detailed outputs is in Appendix 4 on page 134 and detailed outputs are listed in sections devoted to each investment area throughout this report.

Rating long-term progress

Long-term progress ratings are needed for three separate areas of focus for Goulburn Broken CMA decision-making.

1 Long-term strategy implementation stage.

Strategies vary in formality, comprehensiveness, and funds to implement them. Implementation stage considers aspects such as degree of integration with other NRM themes, involvement of stakeholders, and quantities of outputs achieved compared to desired levels. See the graph that

indicates the relative maturity or stages of implementation within investment areas on page 34.

2 Catchment condition. The Goulburn Broken CMA chooses **investment areas** to frame ratings of catchment condition because they align well with how the CMA and many funders 'think' (compartmentalise NRM) and invest. From 2016-17, ratings of critical attributes' contribution level and the associated long-term risk to the desired state of resilience are explicitly listed as indicators of catchment condition (see long-term scorecards throughout this report). Other high-level indicators of condition, such as viability of threatened species and gross value of agricultural production, are also factored into ratings.

The **benchmark system state is the desired state**: this varies from many NRM assessments that use 'natural' or 'pre-European settlement' as the benchmark. To get a sense of long-term progress over a timeframe meaningful for NRM, critical attributes' contribution to system function are rated for 1990 as well as the current year.

No explicit quantitative weightings have been applied when 'rolling-up' critical attributes to arrive at the overall catchment condition for an investment area. Assessment by individual social-ecological system areas (see page 7) and subsequent rolling-up has also not been done yet.

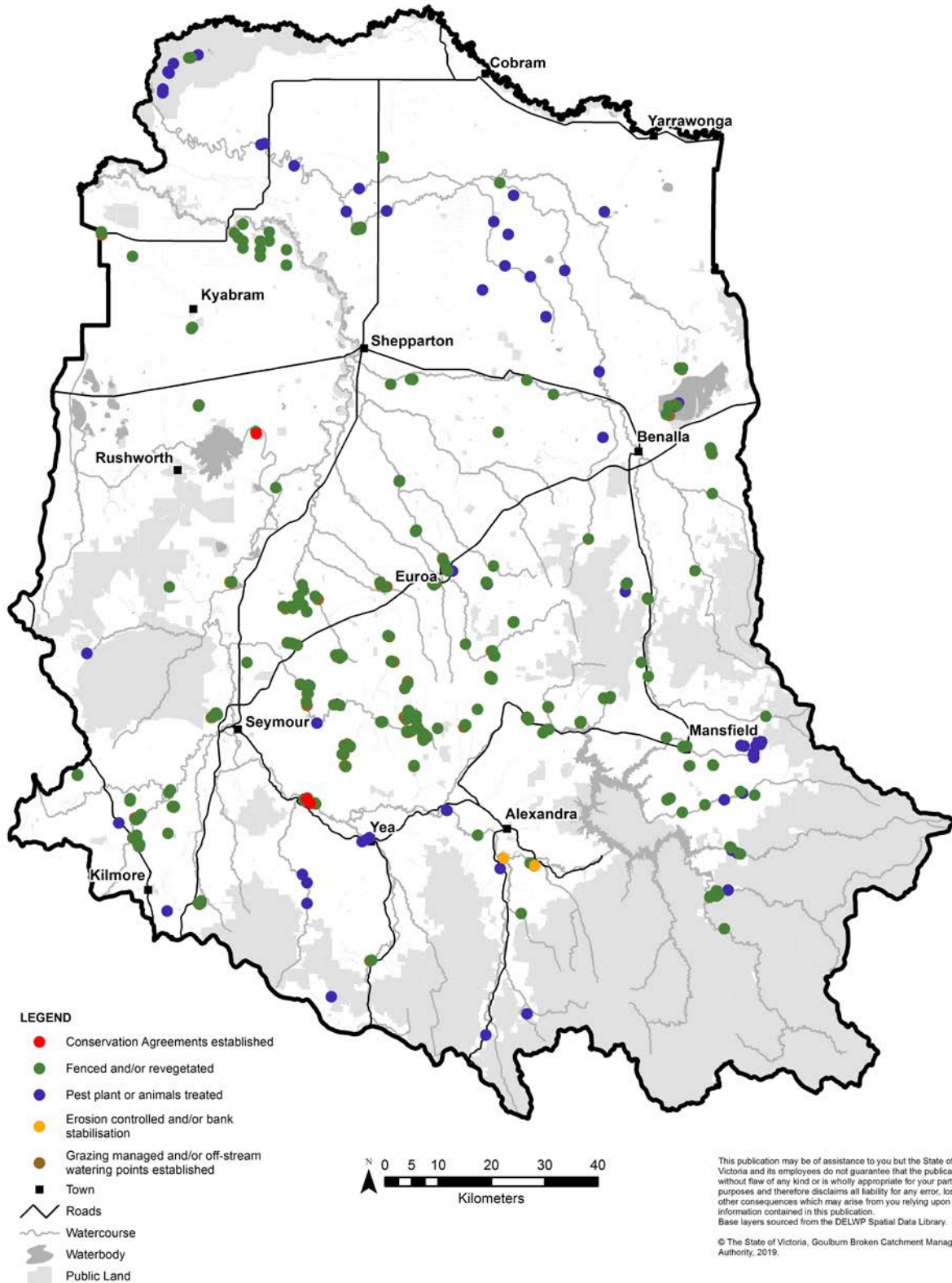
Structuring and communicating long-term progress are works-in-progress that try to retain the integrity of Goulburn Broken CMA's evaluation efforts over two decades while aligning with emerging national and state approaches.

3 Organisational business condition. The Goulburn Broken CMA is an important contributor to catchment condition, and several indicators are similarly rolled-up to rate condition in terms of human resources and governance (and annual performance; see pages 77 and 84).

Appendix 2: Works

1 July 2018 to 30 June 2019

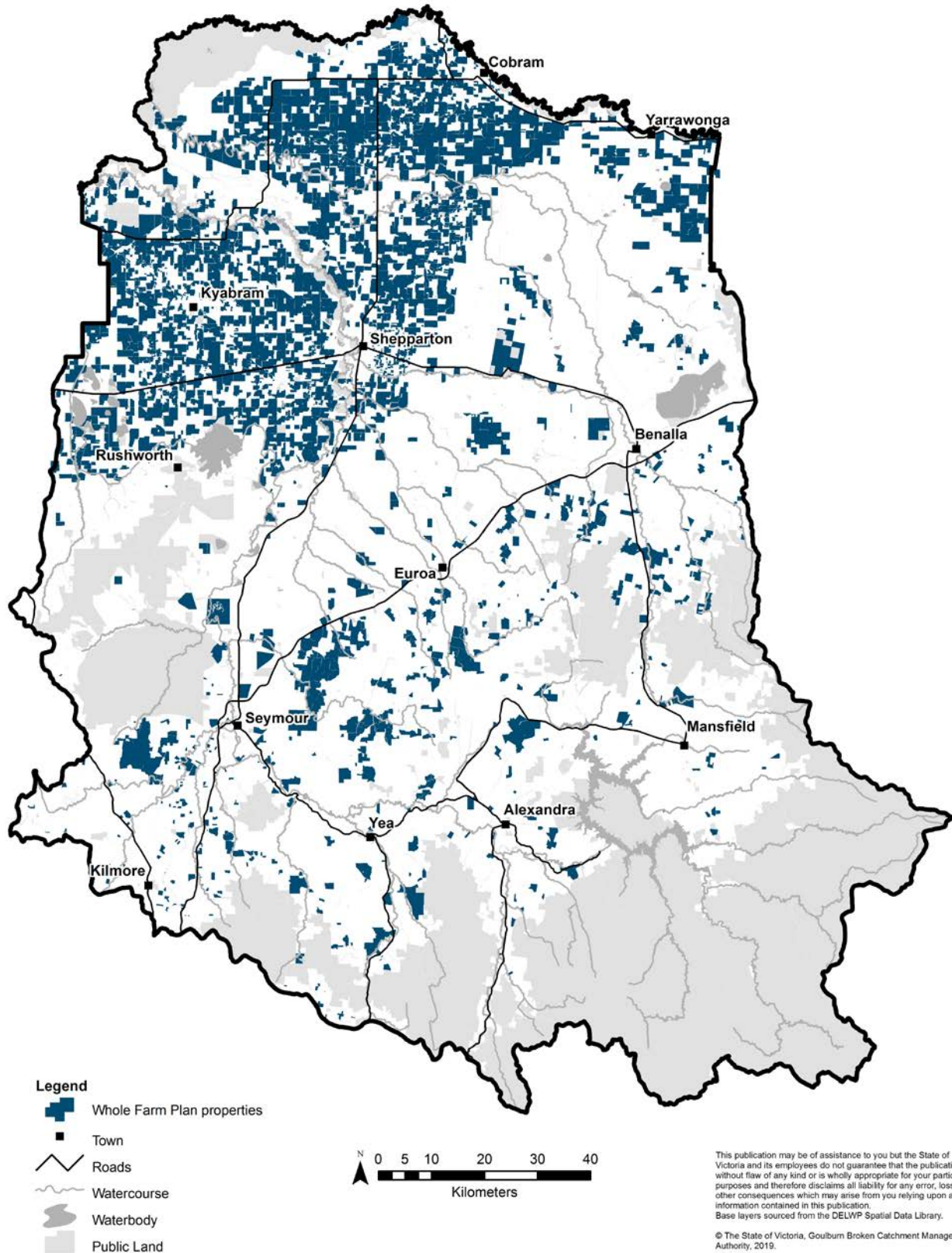
This map shows onground works completed in 2018-19 through Goulburn Broken CMA programs. These works relate to outputs listed in tables throughout this Annual Report. Some major works under Waterways, Floodplain Management and Sustainable Irrigation Programs are not shown. Ongoing works that landowners fully fund themselves are not shown. The Goulburn Broken CMA is investigating ways to capture such important contributions. The points indicated on this map are an approximate location of where the works occurred only.



Appendix 3: Properties covered by a whole farm plan

to 30 June 2019

This map shows the properties covered by a whole farm plan or modernised whole farm plan completed since the start of the Program.



Appendix 4: Outputs - detailed list of achievements

Standard GB Threat or Impact Managed	Output	Land & Biodiversity		
		Target ⁱ	Achieved	% Achieved
		Threat		
Land and water use practices				
Stock grazing (ha = terrestrial; km = riparian)	Fence terrestrial remnant vegetation (ha)	182	298	164
	Fence wetland remnant (ha)			
	Fence stream/river remnant (ha)			
	Fence stream/river remnant (km)			
	Off-stream watering (no.)			
	Binding Management Agreement (licence, Section 173, covenant) (ha)			
Induced Threat				
Saline water & high watertables				
Surface water ⁱⁱⁱ	Laser levelling (ha) ⁱⁱ			
	Drain – primary built (including hybrid; km) ^{iv}			
	Drain – community built (km)			
	Weir – replace (no.)			
	Farm reuse systems installed (no.) ^v			
	Drain – additional water diverted from regional drains (ML)			
	Irrigation systems – improved (ha) ^{vi}			
Sub-surface water	Pasture – plant (ha)			
	Groundwater pumps - public installed (new; no.)			
	Groundwater pumps - private installed (new; no.)			
	Volume water pumped - increase (ML)			
	Tile drains – install (ha)			
Nutrient-rich & turbid water & suspended solids	Revegetation - plantation / farm forestry (ha)			
	Waste water treatment plants - install (no.)			
Instream and near-stream erosion	Stormwater management projects (no.) ^{vii}			
	Bed and bank protection actions (km) ^{viii}			
Changed flow pattern	In-stream & tributary erosion controlled (km)			
	Environmental water use (ML) ^{ix}			
Weed invasion	Weeds – woody weed management (ha)	2,144	1,365	64
	Weeds – aquatic weeds controlled/eradicated (km)			
	Targeted infestations of weeds in high priority areas covered by control programs (ha) ^x	2,575	1,896	74
Pest animals	Pest animal control (ha) ^{xi}	15,450	1,396	9
Impact				
Habitat loss - terrestrial	Revegetation - plant natives within or next to remnants (ha) ^{xii}	343	487	142
	Revegetation - plant natives away from remnants (ha)			
Habitat loss – instream	Fish release (no.)			
	Vertical slot fishway (no.)			
	Rock ramp fishway (no.)			
	Fish barrier removal (no.)			
Habitat loss – wetlands	In-stream habitat (no.) ^{xiii}			
	Reinstate flood regime (ML) ^{xiv}			
Habitat loss – threatened species	Construct new wetland (ha)			
	Threatened Species Recovery Plan and Action Statements (no. projects)			
Planning	Whole farm plans (no.) ^{xv}			

i Targets are determined by considering levels of government funding as listed in the Corporate Plan and any subsequent adjustments over the financial year.

ii Assumptions: 2010-11 = area put under Whole Farm Plans, including modernised + Farm Water Program onground achievements (226 hectares); 2011-12 = 90 per cent of area under Whole Farm Plans (25,841) + 70 per cent of Farm Water Program onground achievements (965; 1,783 was used to calculate figures in 2011-12 report); 2012-13 = Farm Water Program onground achievements (2,163) + 60 per cent of area put under Whole Farm Plans [new (8,424) + modernised (9,075)]; 2013-14 = Farm Water Program SIR onground achievements (3,736) + 60 per cent of area put under Whole Farm Plans [new (4,224) + modernised (4,403) – Farm Water Program's SIR onground achievements (3,736)]; 2014-15, 2015-16, 2016-17 & 2017-18 = Farm Water Program's SIR onground achievements (478, 1,963, 360 & 1,734) + 60 per cent of area put under Whole Farm Plans [new (4,143, 2,576, 3,289 & 2,843) + modernised (2,572, 2,037, 3,905 & 2,632)] - Farm Water Program's SIR onground achievements (478, 1,963, 360 & 1,734). Assumption change for 2018-19 is 50 per cent of area put under Whole Farm Plans (not 60). Target = 50 per cent of area to be put under Whole Farm Plans [no. (120) x average area of Whole Farm Plans (91)] Target = 50 per cent of area to be put under Whole Farm Plans [no. (120) x average area of Whole Farm Plans (91)]

iii Surface water management enables the removal of excess rainfall runoff from irrigated lands, alleviating soil salinity. As part of an overall management plan for nutrients, nutrients loads are managed by collecting and reusing water from drains. Nutrient loads are monitored against the Goulburn Broken Water Quality Strategy nutrient target for drains.

iv Fencing and laneways are relocated along primary drains to control stock. Drains are also hydro-mulched and seeded to provide vegetative cover on bare batters. 6 kilometres were constructed during 2009-10 and 3 kilometres were prepared for handover to Goulburn-Murray Water for it to manage.

v Reuse dams allow for the collection of high nutrient runoff and re-irrigation, reducing the water and nutrient loads leaving the farm. Figures include Farm Water Program installations. In 2014-15 the number of new farm reuse systems installed is assumed to be: 67 per cent of projects install a new system and 33 per cent reconnect the project area to an existing system. In 2012-13 and 2013-14 the number of new systems was assumed to be: 100 per cent of projects install a new system i.e. new systems and extensions of existing systems were both counted as 'new systems'.

vi Assumptions: From 2014-15, area improved = laser levelling (which itself includes an assumption based on whole farm plan area see footnote iii) + pressurised irrigation systems (micro or drip + irrigation); 2013-14 = Farm Water Program's SIR onground achievements (laser grading + overhead spray + drip; 3,736 + 567 + 0) + 70 per cent of area put under Whole Farm Plans [new (4,224) + modernised (4,403) less Farm Water Program's SIR onground achievements].

vii Stormwater management projects are undertaken on a one-to-one funding basis with local government.

viii From 2013-14, the actions for erosion control have been bundled with this to make the tally.

2018-19									Total achieved							
Sustainable Irrigation			Waterways & Floodplain			Total Catchment			2017-18	2016-17	2015-16	2014-15	2013-14	2012-13	2011-12	2010-11
Target ⁱ	Achieved	% Achieved	Target ⁱ	Achieved	% Achieved	Target ⁱ	Achieved	% Achieved								
40	33	81				222	331	149	589	696	468	385	1,004	1,783	728	1,112
				2			2		0	137	3	168	128	73	160	78
			49	166	339	49	166	339	161	294	244	141	87	126	337	354
			39	48	124	39	48	124	26	35	38	70	42	6.8	26	93
			17	17	100	17	17	100	17	25	19	15	3	1	17	21
									104	18	70	112	0	329	360	434
2,958	2,538	86				2,958	2,538	86	3,979	4,460	3,553	4,220	6,671	12,662	24,505	19,546
10	32.0	320				10	32.0	320	3.76					1	0	1.1
	4.6						4.6		0						1	1.4
									36	5	51	9	64	25	25	7
	2,538					2,538			5,174	4,460	3,553	4,745	7,330		24,145	20,050
															1	0
															75	0
																2
			0.30			0.30			0.51	0.62	0.91	0.40	0.20	0.65	19	16
										0.62	0.91	0.60	1.00			131
			449,506			449,506			812,240	479,164	698,264	339,318	714,378	299,667	633,476	454,694
40	33	81	54	157	293	2,238	1,555	69	4,060	7,481	698,264	339,318	714,378	299,667	633,476	454,694
				9			9		10	9	14	97	3	77	76	418
40	33	81	73	171	236	2,687	2,099	78	4,441	8,529	2,894	3,359	3,643	953	1,372	424
40	33	81				15,490	1,429	9	4,019	10,423	7,321	22,880	31,201	29,749	60,882	58,628
40	72.0	180	67	66	98	450	625	139	413	487	750	549	1,211	2,957	1,995	1,383
														517		
													2			
															2	
			325	581	179	325	581	179	627	363	334	357	337			
				174,355			174,355		415,010	254,188	439,740	500	363,436	2,959	428,000	428,000
																36
65	61	94				65	61	94	55	74	51	71	79	186	263	331

ix Target cannot be set with any confidence because achievement is prone to extreme variation, being affected by climatic and seasonal conditions. Volumes used since 2000-01 were reconciled in 2014 and some figures were adjusted. The NSW component of water delivered to Barmah Forest is included in these figures.

x This includes 'Weeds woody weed management'. Department of Primary Industries Biosecurity Victoria works were completed outside of the Corporate Plan from 2009-10. From 2010-11 achievements include Department of Primary Industries Farm Services Victoria, River health investment area and Fire Recovery Program works only. 2010-11 figures do not include achievement of 55,000 hectares for weeds in high priority areas and achievement of 12,200 hectares for high priority rabbit control. 2011-12 figures do not include an achievement of 14,300 hectares for weeds in high priority areas and an achievement of 15,800 hectares for high priority rabbit control. 2012-13 figures do not include 9,315 hectares for weeds and 10,500 hectares for rabbit control. 2013-14 figures do not include 12,880 hectares for weeds and 6,175 hectares for rabbit control. 2014-15 achievements do not include 10,060 hectares for weeds and 6,850 hectares for rabbit control completed by DEDJTR Biosecurity Victoria. 2015-16 achievements do not include 11,820 hectares for weeds and 7,480 hectares for rabbit control completed by DEDJTR Biosecurity Victoria. 2016-17 achievements do not include 7,781 hectares for weeds and 2,911 hectares for rabbit control completed by DEDJTR Biosecurity Victoria. 2017-18 achievements do not include 11,001 hectares for weeds and 6,400 hectares for rabbit control completed by DEDJTR Biosecurity Victoria. 2018-19 achievements do not include 20,995 hectares for weeds and 3,486 hectares for rabbit control completed by DJPR AgVic Biosecurity & Agriculture Services (see page 66).

xi Output included for the first time in 2018-19, superseding the two separate outputs of fox and rabbit control, to encompass the broader range of pest animals being controlled.

xii Natural regeneration from the Caring for Our Country Woodlands project and the E=M3C3 project are also included: 705 hectares and 10 hectares respectively for 2009-10. Natural regeneration from the Caring for Our Country, Sustainable Farming Practices project are also included: 386 hectares for 2010-11, and 515.8 hectares for 2011-12. Natural regeneration from the Caring for Our Country, Targeting Landscape Scale Biodiversity project are included: 712 hectares for 2011-12 and 1,676.38 hectares for 2012-13. 2013-14, 2014-15, 2015-16 & 2016-17 achievements do not include 1,080, 175, 186.8 & 624.6 hectares of revegetation achieved outside the Catchment through the Sand Ridge Woodlands project that Goulburn Broken CMA delivered in partnership with Murray Local Land Services and NSW National Parks and Wildlife Service.

xiii Output included for the first time in 2015-16 as 'in-stream woody habitat - snags'. Updated to 'in-stream habitat' in 2017-18 to include other habitat structures undertaken in 2017-18 such as groyne and rock seeding.

xiv Figures for years prior to 2018-19 entered retrospectively in 2018-19.

xv Figures for total catchment historically include those outside of Sustainable Irrigation Program also, which were for comprehensive Level 2 whole farm plans, equivalent to Shepparton Irrigation Region's whole farm plan. Level 1 is a short course that is a precursor to Level 2 and not included in these figures. In 2012-13 whole farm plans under the Land and Biodiversity Program were achieved by Department of Environment and Primary Industries, using funding received outside of the Corporate Plan.

Appendix 5: Roles of Catchment Partners

Agency / Authority / Organisation / Individual	Role relative to the development and implementation of the RCS
Alpine Resorts Coordinating Council and Alpine Resort Management Boards	The Alpine Resorts Coordinating Council is a statutory body established under the Victorian <i>Alpine Resorts Management Act 1997</i> . The Alpine Resort Management Boards are responsible for the development, promotion, management and use of each Alpine Resort.
Australian Government - Department of Agriculture	The Australian Government Department of Agriculture develops and implements policies and programs to ensure Australia's agricultural, fisheries, food and forestry industries remain competitive, profitable and sustainable, and supports the sustainable and productive management and use of rivers and water resources.
Australian Government - Department of the Environment and Energy	The Department designs and implements Australian Government policy and programs to protect and conserve the environment, water and heritage, promote climate action, and provide adequate, reliable and affordable energy. The Department administers the <i>Environment Protection and Biodiversity Conservation Act 1999</i> . Regionally, the Department plays an important role in the implementation of the RCS by funding projects across the Catchment.
Community groups (e.g. CMNs, Landcare and environmental groups)	The Goulburn Broken Catchment's natural resource management groups, networks and sustainable farming groups mobilise community involvement, attract corporate, philanthropic and corporate funding and influence and implement significant parts of the RCS in local areas, usually with an emphasis on onground works. They are represented on many of the CMA's advisory groups and steering committees.
Department of Jobs, Precincts and Regions	The Department of Jobs, Precincts and Regions (DJPR) was established to ensure Victoria's strong economic performance by growing industries and regions - to make sure Victoria's economy benefits all Victorians by creating more jobs for more people, building thriving places and regions and nurturing inclusive communities.
Department of Environment, Land, Water & Planning	The Department of Environment, Land, Water and Planning (DELWP) aims to protect and manage Victoria's natural and built environments supporting economic growth and building communities while responding to increased population and climate change.
Environment Protection Authority	The Environment Protection Authority's sole role is to regulate pollution and has independent authority to make regulatory decisions under the <i>Environment Protection Act 1970</i> .
Goulburn Valley Water	Goulburn Valley Water's delivery of water and waste water services to its customers has a considerable impact on non-renewable natural resources. Primary objectives of the organisation include a commitment to improve environmental performance by minimising resource demand and preventing pollution.
Goulburn-Murray Water	Goulburn-Murray Water is Australia's largest rural water corporation managing around 70 per cent of Victoria's stored water resources, around 50 per cent of Victoria's underground water supplies and Australia's largest irrigation delivery network.
Individuals / land Managers	Under the <i>Catchment and Land Protection Act 1994</i> land managers have a number of responsibilities. Land managers must also seek authority to interfere, obstruct or carry out works in relation to a waterway, bore or drainage course, or (in some cases) a private dam. Regionally, landholders across the Catchment invest significant resources (time, money and land) into activities that contribute to meeting the objectives of the RCS.
Industry groups	Peak industry groups such as Murray Dairy, and the Victorian Farmers Federation, Southern Australia Meat Research Council, Fruit Growers Victoria and the Irrigated Cropping Council can strongly influence catchment management through their networks with regional land managers.
Local government	Services provided by councils are diverse. They include property, economic, human, recreational and cultural services. Councils also enforce State and local laws relating to such matters as land-use planning and environment protection. Local government plays a significant role in land-use planning, which is administered under the <i>Planning and Environment Act 1987</i> .
Other groups	The Goulburn Broken CMA and community and advisory groups develop close relationships with many organisations as needs arise during research, planning and implementation, including the Goulburn Broken Greenhouse Alliance, Committees of Management (Crown land reserves) and the various environment and climate action groups across the Catchment.
Parks Victoria	Under the <i>Parks Victoria Act 1998</i> , Parks Victoria's (PV) responsibilities are to provide services to the State and its agencies for the management of parks, reserves and other public land.
Traditional Owners	The role of Traditional Owners is outlined in the Community Engagement section of this document. Registered Aboriginal Partners have responsibilities relating to the management of Aboriginal cultural heritage under the <i>Aboriginal Heritage Act 2006</i> . These include evaluating Cultural Heritage Management Plans, providing advice on applications for Cultural Heritage Permits, decisions about Cultural Heritage Agreements and advice or application for interim or ongoing Protection Declarations.
Trust for Nature	Trust for Nature (TfN) is Victoria's specialist private-land conservation statutory entity whose statewide services include covenanting, land purchase, ongoing post-protection landowner support, short-term management agreements and environmental market agreements.
Victorian Catchment Management Council	The Victorian Catchment Management Council (VCMC) is appointed under the <i>Catchment and Land Protection Act 1994</i> .

Appendix 6: Major Strategic References

Legislation

Federal legislation

Aboriginal and Torres Strait Islander Heritage Protection Act 1984

Australian Heritage Commission Act 1975 (Register of the National Estate)

Environment Protection and Biodiversity Conservation Act 1999

Native Title Act 1993

Water Act 2007

Water Amendment Act 2008

State legislation

Aboriginal Heritage Act, 2006

Aboriginal Heritage Regulations 2007

Alpine Resorts (Management) Act 1997

Building Regulations 2018

Catchment and Land Protection Act 1994

Charter of Human Rights and Responsibilities Act 2006

Climate Change Act 2010

Conservation, Forests and Lands Act 1987

Crown Land (Reserves) Act 1978

Environment Protection Act 1970

Equal Opportunity Act 2010

Financial Management Act 1994

Fisheries Act 1995

Flora and Fauna Guarantee Act 1988

Forests Act 1958

Heritage Rivers Act 1992

Land Act 1958

Mineral Resources (Sustainable Development) Act 1990

Murray-Darling Basin Act 1993

National Parks Act 1975

Occupational Health and Safety Act 2004

Parks Victoria Act 1998

Privacy and Data Protection Act 2014

Planning and Environment Act 1987

Public Administration Act 2004

Reference Areas Act 1978

State Environment Protection Policy (Waters)

Subdivision Act 1988

Sustainable Forests (Timber) Act 2004

Traditional Owner Settlement Act 2010

Victorian Conservation Trust Act 1972

Victorian Environment Assessment Council Act 2001

Water Act 1989

Wildlife Act 1975

Yorta Yorta Cooperative Management Agreement 2004

Relevant Policies, Strategies and Agreements

International

China Australia Migratory Bird Agreement 1986

Convention of Migratory Species (Bomm Convention) 1979

Greenhouse Gas Protocol (www.ghgprotocol.org)

Japan Australia Migratory Bird Agreement 1974

Ramsar Convention on Wetlands 1971

Republic of Korea Australia Migratory Bird Agreement 2009

UN Declaration on the rights of Indigenous Peoples 2007

Federal

A Directory of Important Wetlands in Australia (EA 2001)

A Framework for Determining Commonwealth Environmental Watering Actions 2009

Agricultural Competitiveness White Paper (2015)

Australia's Biodiversity Conservation Strategy 2010–2030

Australian Government Indigenous Advancement Strategy 2014

Australian Pest Animal Strategy 2007

Barmah-Millewa Environmental Management Plan (MDBA) 2005

Basin Salinity Management Strategy 2030 (MDBA 2001-2015)

COAG Closing the Gap initiative 2008

Empowered Communities: Empowered Peoples – Design report (2015)

Living Murray First Step Decision (MDBC 2003)

Murray-Darling Basin Plan 2012

Murray-Darling Native Fish Management Strategy 2004

National Framework for the Management and Monitoring of Australia's Native Vegetation (2001)

National Greenhouse Accounts Factors – Department of Climate Change and Energy Efficiency

National Indigenous Reform Agreement (Closing the Gap)

National Water Quality Management Strategy (ARMCANZ and ANZECC 1992)

Public Entity Executive Remuneration Policy

Reconciliation Australia – Economic Benefits of closing the gap in Indigenous employment outcomes (2014)

Strategy for Australia's National Reserve System 2009–2030

The Australian Weeds Strategy (revised 2007)

The Clean Energy Future Initiative (2012)

Threatened Species Strategy and Action Plan (2015)

Wetlands Policy of the Commonwealth Government of Australia 1997

www.thelivingmurray.gov.au

State

Aboriginal Participation Guidelines for Victorian Catchment Management Authorities 2015 and Implementation Plan 2016

Advisory lists of rare and threatened species in Victoria (DELWP)

Agriculture Victoria Strategy: Supporting Victoria's Agriculture 2017 (DEDJTR)

Alpine Resorts Strategic Plan 2012

Biosecurity Victoria Strategic Plan for Victoria 2009

Community Engagement and Partnerships Framework for Victoria's Catchment Management Authorities 2013 and Toolkit 2017

DELWP Guide to Good Governance – board members

Food & Fibre Strategy 2016

Indigenous Partnership Framework 2007-10 (reviewed 2010)

Invasive Plants and Animal Policy Framework 2010

Native Vegetation Net gain accounting first approximation report 2008 (DSE)

Our Catchments, Our Communities – Integrated Catchment Management in Victoria 2016-19

Permitted Clearing of Native Vegetation – Biodiversity Assessment Guidelines 2013

Regional

Climate Change Adaptation Plan for Natural Resource Management in the Goulburn Broken Catchment 2016

Dryland Landscape Strategy 2009-2011

Goulburn Broken Biodiversity Strategy 2016-2021

Goulburn Broken Climate Change Integration Strategy 2012

Goulburn Broken CMA Capability Framework 2013-2018

Goulburn Broken CMA Climate Change position paper 2007

Goulburn Broken CMA Organisational Environmental Footprint Policy 2011

Goulburn Broken CMA Organisational Environmental Footprint Strategy and Action Plan 2012-2014

Goulburn Broken Communications and Marketing Strategy and Action Plan 2016-2018

Goulburn Broken Community Engagement Strategy and Action Plan 2016-2018

Goulburn Broken Community NRM Action Plan 2013-2018

Goulburn Broken Corporate Plan 2018-19 to 2022-23

Goulburn Broken Dryland Salinity Management Plan 1990 (and reviews 1995, 2001, 2008)

Goulburn Broken Regional Floodplain Management Strategy 2018-2028

Goulburn Broken Invasive Plants and Animals Strategy 2010

Goulburn Broken Hand Health Statement 2014

Goulburn Broken Land Health Strategy 2017-2020

Policy for Sustainable Recreation and Tourism on Victoria's Public Land 2002

Protecting Victoria's Environment – Biodiversity 2037 (2017 DELWP)

Regional Riparian Action Plan (DELWP 2015)

Soil Health Strategy 2012 (DEPI)

Sustainability Charter for Victoria's State Forests 2006

Threatened Species Recovery Plans (DELWP)

Victoria's Nature based Tourism Strategy 2008–2012

Victoria's Salinity Management Framework 2000

Victorian Bushfire Strategy 2008

Victorian Bushfires Royal Commission 2009

Victorian Climate Change Adaptation Plan 2017-2020

Victorian Climate Change Framework 2016

Victorian Floodplain Management Strategy 2016

Victorian Landcare Program Strategic Plan 2012 (DEPI)

Victorian Planning Provisions 1998-1999

Victorian Protective Data Security Standards 2018

Victorian Waterway Management Strategy 2013 (DEPI)

Water for Victoria – Water Plan (2016 DELWP)

Goulburn Broken Native Vegetation Plan 2003

Goulburn Broken Regional Catchment Strategy 2013-2019

Goulburn Broken Water Quality Strategy 1996-2016

Review of Goulburn Broken Water Quality Strategy 1996-2016 (Brian Garrett and Associates 2001)

Goulburn Broken Waterway Strategy 2014-2022 (GB CMA 2014)

Goulburn Broken Workforce Strategy 2013-2018

Hume Regional Growth Plan (2014)

Hume Strategy for Sustainable Communities (Hume Strategy 2010-2020)

Monitoring Evaluation and Reporting Strategy for the Goulburn Broken Catchment 2004

Municipal Planning Schemes

Northern Region Sustainable Water Strategy 2009

Shepparton Irrigation Region Catchment Implementation Strategy 1990-2020

Shepparton Irrigation Region Land and Water Management Plan Update 2016-2020

Taungurung Country Plan 2016

Various Memoranda of Understanding

Yorta Yorta Cooperative Management Agreement 2004

Yorta Yorta Nation Whole of Country Plan 2012-2017

Yorta Yorta Traditional Land Management Agreement 2010

Victoria's CMAs Diversity and Inclusion Plan 2018

Appendix 7: Community grants

Below is a list of grants paid to community groups and organisations for projects during the 2018-19 financial year. Payments made to First Nations groups are done on a works basis and may be across more than one funding source.

Total grants paid to community groups and other organisations 2018-19	Amount paid \$ (ex GST)
Australian Government - National Landcare Program	
The National Landcare Program is part of the Australian Government's Plan for a Cleaner Environment. The Program brings together previous programs to create a single national program that will invest to protect and improve our nationally and internationally important natural assets and values through action at the local level.	
Beyond Soilcare	
Victorian No Till Farmers Association	\$6,000
Provision of land management and conservation services on Country	
Yorta Yorta National Aboriginal Corporation	\$58,663
Australian Government - Regional Land Partnerships Program	
The Regional Land Partnerships component of the Australian Government's National Landcare Program Phase Two will deliver \$450 million dollars over five years Australia-wide to deliver national priorities at a regional and local level, supporting vital on-ground environment and agricultural projects across the country that offer benefits to our environment, our farms, and our communities.	
From the Ground Up	
Victorian No Till Farmers Association	\$4,500
Healthy hectares course	
Euroa Arboretum Inc.	\$12,000
Hillslope Erosion Management Workshop	
South West Goulburn Landcare Inc	\$3,000
Improving the uptake of sustainable farming practices across the Shepparton Irrigation Region	
Goulburn Murray Landcare Network Inc.	\$5,000
Increasing soil carbon to ameliorate compaction in irrigated soils through a demonstration site and field day	
Irrigated Cropping Council Inc.	\$8,000
Increasing soil testing on irrigated dairy farms	
Murray Dairy	\$5,000
Investigating the impact of goat manure compost on soil acidity	
UP2US Landcare Alliance	\$5,000
Linking Landscapes and Communities	
Goulburn Murray Landcare Network Inc.	\$8,800
Goulburn Valley Community Energy - Seed Bank	\$30,000
Longwood Plains Conservation Management Network Inc	\$24,300
South West Goulburn Landcare Inc	\$11,300
Trust for Nature	\$15,000
Yorta Yorta National Aboriginal Corporation	\$22,315
Native grass identification and management workshops	
Hughes Creek Catchment Collaborative Inc.	\$800
Provision of land management and conservation services on Country	
Taungurung Land and Waters Council (Aboriginal Corporation)	\$48,211
Regenerative grazing management course	
Stipa Native Grasses Association Inc	\$13,500
Resilient sustainable agriculture enhancing farmers' skills and knowledge	
Gecko Clan	\$675
Ribbons of Blue and Sashes of Green	
South West Goulburn Landcare Inc	\$10,000
Small acreage erosion control	
UP2US Landcare Alliance	\$11,000
Soil moisture information for greater seasonal confidence in cropping	
Riverine Plains Inc.	\$8,000
Victorian Government - Biodiversity Response Planning	
Biodiversity Response Planning (BRP) is a new area-based planning approach to biodiversity conservation in Victoria; designed to strengthen alignment, collaboration and participation between government agencies, Traditional Owners, non-government agencies and the community. BRP aims to progressively deliver a collective area-based response to the state-wide targets in Biodiversity 2037.	
Linking Lower Goulburn to Barmah Private Land Works	
Trust for Nature	\$5,000
Ribbons of Blue and Sashes of Green	
Longwood Plains Conservation Management Network Inc	\$26,000
Regent Honeyeater Project Inc.	\$38,000
Vegetation incentive delivery to landholders across the Shepparton Irrigation Region	
Goulburn Murray Landcare Network Inc.	\$25,000
Linking Lower Goulburn to Barmah Private Land Works	\$5,000

Total grants paid to community groups and other organisations 2018-19	Amount paid \$ (ex GST)
Victorian Government - Our Catchments, Our Communities	
The Victorian Government provided \$22 million over four years to implement Our Catchments, Our Communities, ensuring our approach to catchment management is ready for future environmental and economic challenges and opportunities.	
Landcare revegetation in the Linking Lower Goulburn Landscape	
Goulburn Murray Landcare Network Inc.	\$14,950
Linking Lower Goulburn – Connecting nature and agriculture	
Goulburn Murray Landcare Network Inc.	\$30,000
Mansfield's Future Matters	
UP2US Landcare Alliance	\$15,000
Our Catchments, Our Communities	
Trust for Nature	\$37,000
Provision of cultural heritage training	
Taungurung Land and Waters Council (Aboriginal Corporation)	\$3,000
Provision of land management and conservation services on Country	
Yorta Yorta National Aboriginal Corporation	\$63,698
Strathbogie Shire Indian Myna control and observation program	
Strathbogie Ranges Conservation Management Network	\$5,096
Supporting Local Social Ecological Planning in the Commuting Hills	
Mitchell Shire Council	\$5,000
Supporting Local Social Ecological Planning in the Productive Plains	
Gecko Clan	\$5,000
Linking Lower Goulburn	
Euroa Arboretum Inc.	\$25,000
Bogies and Beyond	
Euroa Arboretum Inc.	\$21,973
Victorian Government - Regional Riparian Action Plan	
The Regional Riparian Action Plan is a five-year plan to accelerate onground riparian management works to improve the health of riparian land along Victoria's regional rivers, estuaries and wetlands. Works include fencing to manage stock, revegetation programs, weed management and construction of off-stream watering systems.	
Faithfuls Creek Restoration Project	
Gecko Clan	\$1,250
Shades of Grey on Upland Streams 2	
UP2US Landcare Alliance	\$24,500
Triple R (Right Riparian Revegetation)	
UP2US Landcare Alliance	\$19,500
Regional Riparian Action Plan	
Euroa Arboretum Inc.	\$7,443
Victorian Government - Victorian Landcare Grants	
The Victorian Government through Victorian Landcare Grants provides funding to the Goulburn Broken CMA to support Landcare and other community-based natural resource management groups to protect and restore the Victorian landscape.	
Biodiversity, Environment, Aquatic Discovery Program (BEAD)	
Goulburn Murray Landcare Network Inc.	\$19,554
Building a nature play space for kids at Euroa Arboretum	
Euroa Arboretum Inc.	\$10,000
Building farmer resilience from the Ground Up	
Goulburn Murray Landcare Network Inc.	\$14,700
Dabyminga Blackberry Action Group, ongoing blackberry control	
Dabyminga Catchment Cooperative	\$8,800
FarmBlitz	
South West Goulburn Landcare Inc	\$14,210
Kids experiencing learning through nature	
South West Goulburn Landcare Inc	\$6,165
Living the Good Life	
Wyuna Landcare Group Inc	\$12,200
Lorax Project	
Upper Goulburn Landcare Network	\$15,000
Maintenance Grants	
Congupna Tallygaroopna Landcare Group	\$500
Dabyminga Catchment Cooperative	\$500
Gooram Valley Landcare Group	\$500
Goulburn Murray Landcare Network Inc.	\$500
Harston Community Landcare Group Inc.	\$500

Total grants paid to community groups and other organisations 2018-19	Amount paid \$ (ex GST)
Home Creek Spring Creek Landcare Group	\$240
Koyuga Kanyapella Landcare Group	\$1,000
Kyabram Urban Landcare Group	\$500
Merton Landcare Group Inc.	\$500
Muckatah Landcare Group	\$740
Nulla Vale Pyalong West Landcare Group	\$500
Rubicon Forest Protection Group Inc	\$500
Strath Creek Landcare Group	\$500
Sunday Creek Dry Creek Landcare Group	\$500
Upper Goulburn Landcare Network	\$500
UT Creek Maintongoon Landcare Group	\$500
Willowmavin Landcare Group	\$500
Yea River Catchment Landcare Group	\$500
Mansfield's War on Weeds	
UP2US Landcare Alliance	\$18,350
New and Absentee Landholder Engagement	
Strathbogie Ranges Conservation Management Network	\$10,000
Pest weed including blackberry awareness and ongoing control	
Molyullah Tatong Land Protection Group	\$5,000
Protecting groups of paddock trees on farms	
Upper Goulburn Landcare Network	\$14,000
Re-establishing Yam daisies, (Murnong) into grasslands with Traditional Owners	
Euroa Arboretum Inc.	\$17,000
Revegetating the Rail Trail	
UP2US Landcare Alliance	\$11,075
Spray n Wipe	
Balmattum Sheans Creek Landcare Group	\$10,000
Support of attendance 2019 Landcare Conference	
South West Goulburn Landcare Inc	\$910
Tackling tunnel erosion in the Sheep Pen Hills with old ways and new	
Sheep Pen Creek Land Management Group Inc.	\$4,000
The Magilton Project - Trail markers for extending the Bridge to Bridge Trail	
Strathbogie Tableland Landcare group	\$1,892
Understanding and Management of tunnel erosion	
Broken River Environment Group T/a Goomalibee Landcare	\$8,500
Victorian Government - Victorian Water Programs Investment Framework The VWPIF supports an integrated approach to water investment in Victorian catchment regions to improve the health of Victoria's catchments and waterways through effective and efficient integrated catchment management.	
Goulburn Broken Waterwatch	
Goulburn Valley Regional Water Authority	\$40,000
Provision of land management and conservation services on Country	
Taungurung Land and Waters Council (Aboriginal Corporation)	\$910
Yorta Yorta National Aboriginal Corporation	\$13,857
RiverConnect Project	
Greater Shepparton City Council	\$100,000
On-ground Works Program	
Euroa Arboretum Inc.	\$4,014
Victorian Government - Other The Victorian Government provides opportunities for investment in activities that help protect, enhance and strengthen the resilience of our quality built and natural environments, assets and resources.	
Biodiversity Spring Events Calendar	
Euroa Arboretum Inc.	\$9,100
Support of attendance at 2019 Our Catchments, Our Communities summit	
Yorta Yorta National Aboriginal Corporation	\$51,860
Northern Eco-Connections	
Euroa Arboretum Inc.	\$7,000
Managing threats in the Longwood Plains	
Euroa Arboretum Inc.	\$1,636
Grand Total	\$1,122,687

Appendix 8: RCS sub strategies progress

Plan or strategy Overview of plan purpose and status in 2018-19	Further details
Community and Environment sub-strategies	
<p>Biodiversity Strategy for the Goulburn Broken Catchment 2016-2021</p> <p>The Biodiversity Strategy for the Goulburn Broken Catchment 2016-2021 builds on three previous versions prepared over the past 20 years. This 2016 version factors in reviews of previous strategies, current regional drivers of change, and regional, state and national government policies and strategies.</p> <p>The strategy identifies initiatives under five-year strategic directions for achieving a 15-year vision.</p>	See Biodiversity page 52.
<p>Land Health Strategy 2017-2020</p> <p>The Land Health Strategy 2017-2020 defines land health and outlines strategic priorities and associated actions to guide land health activities that contribute to selected strategic priorities of the RCS.</p>	See Land page 59.
<p>Goulburn Broken Invasive Plants and Animals Strategy 2010-2015</p> <p>Developed under guidelines provided by (then) Department of Primary Industries. Since the Goulburn Broken Invasive Plants and Animals (IPA) Strategy was released in April 2011. Prevention and eradication of new incursions remains the highest priority and additional effort is being invested into coordinating community projects that target established species ensuring high levels of stakeholder participation.</p>	See Land page 59.
<p>Shepparton Irrigation Region (Agricultural Floodplains) Land and Water Management Plan 2016-2020</p> <p>The Shepparton Irrigation Region community leads Australia in producing food in harmony with the environment. The purpose of the plan is to support and grow the natural base that is vital for agriculture, biodiversity and people to jointly flourish. The purpose will be achieved by realising long-term goals for five critical regional attributes: water availability, water quality, watertables, native vegetation extent, and farm and food processor viability.</p>	See Sustainable irrigation page 67.
<p>Goulburn Broken Waterway Strategy 2014-2022</p> <p>This Strategy presents an integrated catchment planning framework for waterways (including wetlands) in the Goulburn Broken region and is the primary guide for priority setting, maintenance and improvements in our waterways.</p>	See Waterways page 35.
<p>Goulburn Broken Regional Floodplain Management Strategy 2018-2028</p> <p>The new Strategy built on the previous strategies and provides a single, regional planning document for floodplain management and a high level regional work plan to guide future investment priorities. The Regional Floodplain Strategy aligns with the vision and priorities of the Regional Catchment Strategy and the Regional Waterway Strategy.</p>	See Floodplain page 47.
<p>Climate Change Adaptation Planning for Natural Resource Management in the Goulburn Broken Catchment</p> <p>Funded through the Australian Government, the Climate Change Planning sub-strategy better integrates climate change adaptation and support the implementation of the Goulburn Broken Regional Catchment Strategy 2013-2019 (RCS).</p>	See Climate change page 28.
Organisation's business sub-strategies	
<p>Corporate plan</p> <p>Communicate a clear picture of success to investors (the government) and hence the value to the Victorian community requires:</p> <ul style="list-style-type: none"> • an unbroken line of sight between the regional vision for the plan period and output delivery; • clearly articulating the plan with a compelling and simple narrative; and • transparent performance measures. <p>In accordance with section 19D of the CaLP Act, a CMA's corporate plan should cover a five-year period, which is intended to ensure an integrated and strategic approach over an extended period. However, the financial statements are required to cover a three-year period.</p>	See progress report page 24.
<p>Community NRM Action Plan 2013-2018</p> <p>Aligned to the Community articulated Visions and Goals, the Plan outlines the actions that the Goulburn Broken CMA will undertake and support to deliver on two of the strategic priorities of the GBRCS, that is "strengthen Partnerships" and "embedding resilience". Embedding resilience is a significant step in helping individuals, communities and organisations achieve their goals in the face of on-going change.</p>	See Community page 30.

Plan or strategy Overview of plan purpose and status in 2018-19	Further details
<p>Communication and Marketing Strategy 2018-20</p> <p>Communication and Marketing Strategy aims to have coordinated, innovative marketing and communication effectively informing stakeholders on how the Goulburn Broken CMA will achieve and deliver its vision.</p>	See Community page 30.
<p>Community Engagement Strategy and Action Plan 2018-20</p> <p>The Community Engagement Strategy and Action Plan are designed to be flexible, dynamic and responsive documents that reflect the constantly evolving environment the Goulburn Broken CMA and its stakeholders operate in.</p>	See Community page 30.
<p>Ready for Change – Evaluation Strategy for the Goulburn Broken Catchment 2017-2022.</p> <p>The aim of evaluation process for the Catchment's people to continue to be quick in adapting to change circumstances while retaining a strong sense of the RCSs long-term vision.</p> <p>The purpose of the ready for change strategy is to support evaluation processes that make the RCS response to unforeseen and shifting circumstances.</p>	See Research and development page 27.
<p>Goulburn Broken CMA Climate Change Integration Strategy 2012-2015</p> <p>The Climate Change Integration Strategy consolidates a framework for implementing the Goulburn Broken CMA climate change policy statement: "In dealing with climate change and likely impacts, the Goulburn Broken CMA will focus on adaptation strategies to increase catchment resilience; greenhouse gas sequestration activity such as carbon brokering will be engaged for the purpose of assisting adaptation responses; and mitigation initiatives led by local government will be actively supported."</p>	See Climate change page 28.
<p>Goulburn Broken Information and Communication Technology Strategy 2015-2017</p> <p>Internal strategy to guide development and delivery of information and communication technology services. Development of the Information and Communication Technology Strategy was postponed due to unexpected staff resource losses and budget uncertainty. Focus of available resources was to maintain existing capability and continue to meet defined service levels agreements.</p>	See Governance page 84.
<p>Workforce Strategy and Action Plan 2013-2018 (including capability)</p> <p>Part of the annual business cycle to forecast workforce needs to ensure appropriate staffing mix with the necessary capability to ensure current and future delivery of business objectives.</p>	See Human resources page 77.
<p>Goulburn Broken CMA Diversity & Inclusion Plan 2017-2022</p> <p>The Goulburn Broken CMA provides a workplace and work practices that embrace, reflect, respect and promote the inclusion and participation for all regardless of difference.</p>	See Human resources page 77.
<p>Goulburn Broken Indigenous Participation Plan</p> <p>This participation plan defines the cooperative relationship between Traditional Owners, represented by Yorta Yorta Nation Aboriginal Corporation (YYNAC) and Taungurung Land and Waters Council (TLWC), and the Goulburn Broken Catchment Management Authority (Goulburn Broken CMA), with respect to participation activities, programs and partnerships within the Goulburn Broken Catchment.</p>	See Community page 30.
<p>Reconciliation Action Plan 2019- 2021 (under development)</p> <p>The RAP acknowledges our intent and desire as an organisation to expresses our continuing commitment to reconciliation including as leaders for increased cultural respect, engagement, equity and opportunity for employment and business on Country for Traditional Owners, and other Aboriginal and Torres Strait Islander people. The Innovate (Reconciliation Australia concept) in the title reflects where we are as an organisation in this space, which is quite advanced.</p>	See Community page 34.
<p>Integrated Local Plans</p>	
<p>SES Local Plans (Agricultural Floodplains, Commuting Hills, Upland Slopes, Southern Forests and Productive Plains)</p> <p>Local Plans have been developed to communicate the priorities – and actions - for supporting the local community as it responds to changes in land use, water policy reform, and climate and farm production.</p> <p>Local Plans have been developed for each SES as we recognise the people living and working in each SES are best placed to priorities the activities needed to build the resilience of the region's critical ecosystem services (such as productive soils, clean air, high quality water). These local actions contribute to the success of Catchment-wide efforts to respond to issues such as fire, flood, drought and changes in land use.</p> <p>These plans are available on WeConnect (http://weconnect.gbcma.vic.gov.au).</p>	These plans will be updated annually.

Appendix 9: Disclosure index

The Annual Report of the Goulburn Broken CMA is prepared in accordance with all relevant Victorian legislations and pronouncements. This index has been prepared to facilitate identification of the Authority's compliance with statutory disclosure requirements.

Information relevant to the headings listed in Financial Reporting Direction 22H of the *Financial Management Act 1994* is held at the Authority's office and is available on request, subject to the *Freedom of Information Act 1982*.

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Glossary of terms

Biolink: Areas identified for targeted action to increase ecological function and connectivity, improving the potential of plants and animals to disperse, recolonise, evolve and adapt naturally.

Bioregions: Large, geographically distinct areas of land with common biophysical characteristics such as geology, landform patterns, climate and ecological features.

Carryover was introduced in northern Victoria in early 2007 as an emergency drought measure to allow entitlement holders to carry over some unused water allocation to use in the following season.

Critical attributes: see Appendix 1, page 130.

Dammed (regulated) streams: A river system where major dams or weir structures have been built to regulate the supply or extraction of water. Prior to the establishment of sustainable diversion limits and material volumes of water were set aside for the environment, flow in regulated streams relied solely on water from rainfall and flow remaining after water was extracted for consumptive uses (urban, irrigation and industry).

Ecosystem: A diverse and changing set of living organisms within a community, interacting with each other and the physical elements of the environment in which they are found.

End-of-valley targets have been proposed for major rivers contributing salt to the Murray River under the (Murray-Darling) Basin Salinity Management Strategy. The purpose of these targets is to maintain salinity levels at the benchmark site, Morgan in South Australia, at or under 800 EC for 95 per cent of the time. These enable within-valley targets to be set. The proposed end-of-valley targets are being investigated to align them with expectations and obligations of different parties at regional, State and Federal levels.

FLOWS: A method for determining environmental water requirements in Victoria

GMW Connections is a \$2 billion project funded by the Victorian Government, Australian Government and Melbourne Water to develop a water delivery network to match changing needs and support opportunities for irrigated agriculture across Northern Victoria.

Investment area: see Appendix 1, page 130.

Long-term objectives: Long-term (20-30 year) goals for the system components of the Catchment - people, land, water and biodiversity. These objectives are found in the sub-strategies of the Goulburn Broken CMA. Achieving these objectives will contribute to the Vision being realised. In some instances these objectives may be related to known (or assumed) thresholds and tipping points.

Minimum (river) flow: A minimum level of flow that the water authority needs to maintain in the river at a particular location, or a trigger below which water cannot be harvested from the river. Minimum flows are usually specified in water authority bulk entitlements or in environmental entitlements. (See also 'qualification of rights' below.)

Modernised Whole Farm Plan is a plan revised to take account of the changed regional channel delivery infrastructure as a result of modernisation.

Qualification of rights: If on a seasonal basis there is insufficient water in a water supply system to meet critical water needs, a water shortage may be declared by the Minister for Water and rights to water may be qualified temporarily. A qualification of rights changes a legal entitlement. Rights that may be qualified include licenses, water shares, bulk and environmental entitlements. Private rights may be suspended, reduced, increased or otherwise altered after a water shortage has been declared.

Regional Catchment Strategy is a blueprint for integrated natural resource management across a geographic area.

Registered Aboriginal Parties are the voice of Aboriginal people in managing and protecting Aboriginal cultural heritage under the *Victorian Aboriginal Heritage Act 2006*. The Act recognises Aboriginal people as the primary guardians, keepers and knowledge holders of Aboriginal cultural heritage.

Resilience is the ability of the Catchment's people and environment 'to absorb a shock or setback and to flourish in spite of it, maybe even because of it'. It does not mean 'ploughing through' and doing what we have always done. See pages 20 and 130.

Resource Condition Target relates to the condition of the resource and can be measured over the short term or the long term depending on ease of measurement.

Risk: see Appendix 1, page 130.

Salt registers of salt debits and credits are required to be maintained by the State under the *Federal Water Act 2007*. The delayed impacts of dryland salinity are accounted for in the B Registers. The Goulburn Broken CMA has set up the framework for the B Register and is establishing a process with DELWP and the Murray-Darling Basin Authority for entering data to complement data already in the A Register under the salinity and drainage strategy.

Social-ecological systems (SES): Linked and generally similar systems of people and nature, taking into account cultural, political, social, economic, ecological and technological components.

System state: see Appendix 1, page 130.

Thresholds: A breakpoint between two states of a system that must be exceeded to begin to produce some sort of effect or response.

Tipping points: A point where a small change can have a large effect on the state of a system.

Undammed (unregulated) streams: A river system where no major dams or weir structures have been built to regulate the supply or extraction of water. Prior to the establishment of sustainable diversion limits and improved management of licensed water use extraction, through local management plans, many unregulated streams were flow-stressed.

Abbreviations

AASB	Australian Accounting Standards Board	MDB	Murray-Darling Basin
AgVic	Agriculture Victoria	MDBA	Murray-Darling Basin Authority
ARI	Arthur Rylah Institute	MFEP	Municipal Flood Emergency Plan
BRP	Biodiversity Response Planning is a area-based planning approach to biodiversity conservation in Victoria.	ML	Megalitre
BOA	Biodiversity On-Ground action - on-ground initiatives and funding through the Victorian Government	MLA	Member of the Legislative Assembly
BOM	Bureau of Meteorology	MLC	Member of the Legislative Council
BSMS	Basin Salinity Management Strategy (MDBA)	MP	Member of Parliament
CaLP	<i>Catchment and Land Protection Act 1994</i>	MoU	Memorandum of Understanding
CEO	Chief Executive Officer	no.	Number
CEWH	Commonwealth Environmental Water Holder	NLP	Australian Government's National Landcare Program
CFA	Country Fire Authority (Victoria)	NRM	Natural Resource Management
CMA	Catchment Management Authority	NRIP	Natural Resources Investment Program
CMN	Conservation Management Network	OCOC	Our Catchments Our Communities - Integrated Catchment Management in Victoria 2016-19
CSIRO	Commonwealth Scientific and Industrial Research Organisation	OHS	Occupational Health and Safety
DELWP	Department of Environment, Land, Water and Planning	PEER	Public Entity Executive Remuneration Policy
DJPR	Department of Jobs, Precincts and Regions.	PV	Parks Victoria
DTF	Department of Treasury and Finance	RCS	(Goulburn Broken) Regional Catchment Strategy
DWG	Designated Work Group	RLP	Australian Government's Regional Land Partnerships
EBA	Enterprise Agreement	ROBSOG	Ribbons of Blue and Sashes of Green (Biodiversity project)
EC	Electrical Conductivity unit	RSMP	Regional Salinity Management Plan
EPBC	<i>Environment Protection and Biodiversity Conservation Act 1999</i>	RTW	Return to Work
EVC	Ecological Vegetation Class	SES	Social-Ecological System
EWAG	Environmental Water Advisory Group	SIR	Shepparton Irrigation Region
FoI	Freedom of Information	SIRCIS	Shepparton Irrigation Region Catchment Implementation Strategy
FTE	Full-time Equivalent	SIRLWMP	Shepparton Irrigation Region Land and Water Management Plan
FWP	Farm Water Program	SIRPPIC	Shepparton Irrigation Region People and Planning Integration Committee
GB CMA	Goulburn Broken Catchment Management Authority	SoO	Statement of Obligations
GHG	Greenhouse Gas	t CO ₂ e	Tonnes of carbon dioxide (CO ₂) emitted
GL	Gigalitre	TCV	Treasury Corporation of Victoria
GMID	Goulburn-Murray Irrigation District	TfN	Trust for Nature
GMLN	Goulburn Murray Landcare Network	TFWS	Total Flood Warning System
GMW	Goulburn-Murray Water	TLWC	Taungurung Land and Waters Council
GST	Goods and Services Tax	VCAT	Victorian Civil Administrative Tribunal
ha	Hectare	VEPP	Victorian Environmental Partnerships Program
HSR	Health and Safety Representative	VEWH	Victorian Environmental Water Holder
IRP	Issue Resolution Procedures	VFMP	Victorian Farm Modernisation Program
IT / ICT	Information Technology / Information and Communications Technology	VIPP	Victorian Industry Participation Policy
IVT	Inter-Valley Trade transfers	YYNAC	Yorta Yorta Nation Aboriginal Corporation
km	Kilometre		
KPI	Key Performance Indicator		
L	Litre		
LaBIF	Land and Biodiversity Implementation Forum		
LiDAR	Light Detection and Ranging remote sensing technology		
LIDP	Local Industry Development Plans (under (VIPP))		
LGA	Local Government Authority		
LWMP	Land and Water Management Plan		

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Staff list 2018-19

Aaron Findlay	Chris Nicholson	Fiona Lloyd	Jo Deretic	Mark Turner	Samantha Moreno
Andrea Muskee	Chris Norman	Gaye Sutherland	Karan Balfour	Mary Dimit	Shannon Crawford
Annette Neessen	Christine Glassford	Geoff Brennan	Karen Brisbane-	Meegan Judd	Simon Casanelia
Annie Squires	Collin Tate	Guy Tierney	Bullock	Megan McFarlane	Steve Wilson
Ashley Rogers	Corey Wilson	Helen Murdoch	Kate Brunt	Neville Atkinson	Sue Kosch
Belinda Senini	Daniel Lovell	Janice Mentiplay-	Kate Montgomery	Peter Geddes	Tim Barlow
Caitlin Baker	Darelle Siekman	Smith	Keith Ward	Rachael Spokes	Tom O'Dwyer
Carl Walters	Dean Judd	Jenny Wilson	Kerry McFarlane	Rebecca Caldwell	Tony Kubeil
Caroline Keenan	Eamon Reeves	Jim Begley	Kerstie Lee	Rhiannon Apted	Vicki Mackenzie
Chris Burnett	Eileen Curtis	Jim Castles	Kirsten Roszak	Russel Haque	Zuzanna Lelito

RECOGNISING MAJOR NRM CONTRIBUTIONS

UNCLE COL WALKER



Uncle Col Walker knew a move into town would be followed by loud and persistent complaints from the neighbours.

"Imagine what they'd say when they saw the kangaroos hanging from the clothesline or the backyard covered in emu feathers," Uncle Col laughed.

"I always wanted to live in the bush. I didn't want to move into Barmah township."

Such is the deep connection the oldest surviving Cumberagunja Elder has to country.

For this interview, we decided to meet not far from where a baby Colin Walker was delivered by his grandmother, beside the banks of the mighty Murray River.

"This country's been kind to me. Why would I want to leave? This is where I was born and where I raised my family."

The 85-year-old is at the same time quick to laugh and lament—especially when he recounts the horrors suffered by his people in the lead-up to and after the Cumberagunja Walk-Off in 1939.

"I remember we pushed our billy carts up to the manager's quarters every fortnight for our rations. They'd give us our jars of jam and sugar and tea."

The Walk-Off was in protest to the mistreatment of Yorta Yorta people at the hands of mission bosses at Cumberagunja Station.

On this cool but sunny winter morning, Uncle Col waved his soft, black hand out over the river.

"This was our supermarket. It's where we got all our food."

He said the river also served as a trusted protector.

"We'd be running home from school and the welfare would be chasing us. We'd follow the river along and when they tried to grab us, we'd just jump in the river."

Not that a young Col bothered too often about making it to school – he was expelled at 13 for truancy.

"I didn't like going to school. All I wanted to do was hang around the river, fishing.

"I think they did me a favour by expelling me because it meant I went deeper into my culture. And I still remember what my Elders told me about survival and nature. It's still all true.

"I wouldn't swap what I learned from my Elders for any university degree.

After a 25 year back-breaking career as a shearer, Uncle Col was invited to sit on the Koori Court (a court for Aboriginal people who have pleaded guilty where elders, such as Uncle Col, can contribute to the court process.)

"It was an opportunity to tell the young ones about the great men who fought so they could have a future – men like Uncle William Cooper and Uncle Jack Patten."

That positive narrative to young Aboriginal offenders became his mantra while serving 12 years on the Koori Court.

"They came through Koori Court because they felt safe. They knew we didn't want to throw them to the gutter.

"We didn't want to kick them out of the community because they'd done the wrong thing. We wanted them to go and get healed then come back."

Yorta Yorta's oldest man is the proud patriarch of five generations of Walkers but the happy years alongside his beloved river were not without tragedy.

His eyes took on a far away look as he explained he and wife Faye lost two sons. One as a toddler and one aged in his 30s.

"I am a spiritual man and I come from a spiritual family. It's sad and you never forget them but that's life and we're not the only ones to suffer."

He's been married to his keen golfing wife Faye for more than 63 years.

"She was my rock when in the early days. She knew my way of life and accepted it.

"She wouldn't complain if I wanted to go hunting for a couple days. She'd help pack my tucker box."

And while the river remains his favourite place, Uncle Col grieves for the powerful waterway of his childhood memories – recalling a time when his community drank straight from the river.

"The water quality was beautiful. You couldn't drink it now. All the pesticides – you don't know what goes into the river system. The Murray River is only used as a drainage channel at times.

"We want to know why the turtles aren't in the river any more.

"If you got up one morning and there was no bread or milk for breakfast, you'd go crook. That's how we feel. What's happened to our food?"

He said land managers had a lot to learn from Traditional Owners about how to look after the environment.

"They knew when to burn. They were masters at managing their land. We never burnt the forest down.

"Our people used to say 'fire is a good servant but a bad master. It will serve you well but it's a bad master if it gets away on you.' I never forgot that."



PARTNERS IN CATCHMENT MANAGEMENT

The health of the Catchment relies on many partner organisations and individuals. In fact, there are so many partner organisations of the Goulburn Broken Catchment Management Authority that we have found it challenging to capture them all. Any partner logo not appearing above does not undervalue their contribution to the Catchment.

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