Australian Government

MURRAY–DARLING BASIN AUTHORITY

WORKING TOGETHER TO IMPROVE THE HEALTH OF THE MURRAY-DARLING BASIN

ANNUAL REPORT 2014-15

ACKNOWLEDGEMENT OF THE TRADITIONAL OWNERS OF THE MURRAY–DARLING BASIN

The Murray–Darling Basin Authority acknowledges and pays respect to the Traditional Owners, and their Nations, of the Murray–Darling Basin, who have a deep cultural, social, environmental, spiritual and economic connection to their lands and waters. The MDBA understands the need for recognition of Traditional Owner knowledge and cultural values in natural resource management associated with the Basin.

The approach of Traditional Owners to caring for the natural landscape, including water, can be expressed in the words of Darren Perry (Chair of the Murray Lower Darling Rivers Indigenous Nations)

The environment that Aboriginal people know as Country has not been allowed to have a voice in contemporary Australia. Aboriginal First Nations have been listening to Country for many thousands of years and can speak for Country so that others can know what Country needs. Through the Murray Lower Darling Rivers Indigenous Nations and the Northern Basin Aboriginal Nations the voice of Country can be heard by all.

BARAPA BARAPA
BARKINDJI (PAAKINTJI)
BARUNGGAM
BIDJARA
BIGAMBUL
BUDJITI
DHUDHUROA
DJA DJA WURRUNG
EUAHLAYI
GAMILAROI
GITHABUL
GUNGGARI
GWAMU (KOOMA)
JAROWAIR
KAMBUWAL
KUNJA
KWIAMBUL
LATJI LATJI
MALJANGAPA
MANDANDANJI
MARAURA
MARDIGAN
MURRAWARRI
MUTTI MUTTI
NARI NARI
NGARRINDJERI
NGEMBA
NGINTAIT
NGIYAMPAA
NYERI NYERI
TATTI TATTI
TAUNGURUNG
WADI WADI
WAILWAN
WAMBA WAMBA
WAKKA WAKKA
WAYWURRU
WEGI WEGI
WERGAIA
WIRADJURI
WOLGALU
WOTJOBALUK
YAITMATHANG
YITA YITA
YORTA YORTA

ARA AUSTRALASIAN REPORTING AWARDS
FOR DISTINGUISHED ACHIEVEMENT IN REPORTING SILVER AWARD 2009
FOR DISTINGUISHED ACHIEVEMENT IN REPORTING SILVER AWARD 2010
FOR DISTINGUISHED ACHIEVEMENT IN REPORTING SILVER AWARD 2011
FOR DISTINGUISHED ACHIEVEMENT IN REPORTING SILVER AWARD 2012
FOR DISTINGUISHED ACHIEVEMENT IN REPORTING SILVER AWARD 2013
FOR DISTINGUISHED ACHIEVEMENT IN REPORTING SILVER AWARD 2014

This report may contain photographs or quotes by Aboriginal people who have passed away. Most Aboriginal words can be spelt more than one way in English so spellings may vary in this publication. Aboriginal names for rivers have been added in some places.

FSC ISO CERTIFICATION ECF ELEMENTAL CHLORINE FREE

Designed by Sylvester Chow and printed by New Millennium Print to environmental standards.

Cover image: Fishing near the barrages, South Australia (photo by Brayden Dykes, MDBA)

CONTENTS

CHAPTER 1

About the MDBA

Letter of transmittal 4
About us 5
Performance summary 8
Our year at a glance 10
Chief Executive's review 16
Financial overview 18
The Authority 20
Executive team 22

CHAPTER 2

Our performance

Strategic goal 1: Integrated water management 26
Strategic goal 2: Restoring river and ecosystem health 44
Strategic goal 3: Knowledge into action 62
Strategic goal 4: Managing River Murray assets 74

CHAPTER 3

Management and accountability

Senior management committees 101
Risk management 103
Our people 108
Our workforce 110
Work health and safety 114
Our planning and finances 117
Our information resources 123

CHAPTER 4

Financials

Chief Finance Officer's report 126
Financial statements 128
Independent auditor's report 130

CHAPTER 5

Appendixes and references

Appendix A Governance bodies – meetings and outcomes 186
Appendix B Agency resource statement and resources for outcome 1 192
Appendix C Advertising and market research 194
Appendix D Ecologically sustainable development and environmental performance 195
Appendix E Communication products 197
Abbreviations and acronyms 198
Scientific names of plants and animals 199
Glossary 200
List of requirements 204
Index 207

Features

Listening to communities 38
Staff snapshot: Meet Janet – *why I work where I work* 59
Letter from America 70
Staff snapshot: Meet Tony – *on the trail of Alfred Deakin* 72
A busy year on the River Murray 78

Around 40% of MDBA staff regularly cycle to work (photo by Brayden Dykes, MDBA).

CHAPTER 1

ABOUT THE MDBA

Letter of transmittal	4
About us	5
Our performance summary	8
Our year at a glance	10
Chief Executive's review	16
Financial overview	18
The Authority	20
Executive team	22

Australian Government

MURRAY–DARLING BASIN AUTHORITY

Office of the Chief Executive

TRIM Ref: D15/78552

The Hon. Barnaby Joyce MP
Minister for Agriculture and Water Resources
Parliament House
CANBERRA ACT 2600

Dear Minister

It is my pleasure to present the annual report of the Murray–Darling Basin Authority (MDBA) for the year ended 30 June 2015.

The report has been prepared in accordance with the requirements for annual reports prepared by the Joint Committee of Public Accounts and Audit under s. 63 of the *Public Service Act 1999*.

Under ss. 214(1) of the *Water Act 2007*, the Chief Executive must, as soon as practicable, prepare and give to the Minister and to each other member of the Murray–Darling Ministerial Council, a report on MDBA operations during that year. This annual report must include contents listed under ss. 214(2) of the Water Act that includes the analysis of the effectiveness of the Basin Plan.

In accordance with section 10 of the Public Governance, Performance and Accountability Rule 2014, I certify that the MDBA has prepared fraud risk assessments and fraud control plans, and has in place appropriate fraud prevention, detection, investigation, reporting and data collection procedures and processes that must meet MDBA's specific needs. I certify also that I have taken all reasonable measures to minimise the incidence of fraud in the MDBA.

Under subsection 214(3) of the Water Act you are required to table this annual report in each House of Parliament within 15 sitting days after the day on which you receive it.

I also take this opportunity to acknowledge the dedication of MDBA staff and their continuing commitment to supporting the government's objectives.

Yours sincerely

Rhondda Dickson
Chief Executive

25/9/2015

GPO Box 1801 Canberra ACT 2601 Telephone 02 6279 0470 Facsimile 02 6279 0133
Rhondda.Dickson@mdba.gov.au
www.mdba.gov.au

ABOUT US

The Murray–Darling Basin Authority (MDBA) undertakes activities that support the sustainable and integrated management of the water resources of the Murray–Darling Basin in a way that best meets the social, economic and environmental needs of the Basin and its communities.

Our vision

To achieve a healthy working Basin through the integrated management of water resources for the long-term benefit of the Australian community.

Our mission

We lead the planning and management of Basin water resources in collaboration with partner governments and the community.

Our guiding principles

We approach our work in a way that captures our commitment to our vision. In our everyday work we adhere to the Australian Public Service Values and Code of Conduct, meaning we are apolitical, impartial, professional, accountable, respectful, careful and diligent.

We value and support collaboration and have shown this by working closely with communities, governments and industries. We have continued to work collaboratively with the states, the Commonwealth Environmental Water Holder, and Basin communities to implement the Basin Plan. We have made changes to our strategies and frameworks based on feedback we have received.

Our role

The Murray–Darling Basin Authority was established under the Commonwealth *Water Act 2007*[1] as an independent, expertise-based statutory agency. We advise a six-member Authority, of which our Chief Executive is a member, about Basin-wide strategy, policy and planning.

The primary roles of the MDBA include:

- preparing, implementing and reviewing an integrated plan for the sustainable use of the Murray–Darling Basin's water resources
- operating the River Murray system and efficiently delivering water to users on behalf of our partner governments
- coordinating The Living Murray program activities on behalf of the partner governments
- measuring, monitoring and recording the quality and quantity of the Basin's water resources
- supporting, encouraging and conducting research and investigations about the Basin's water resources
- disseminating information about the Basin's water resources
- engaging and educating the Australian community about the Basin's water resources.

We work in collaboration with other Australian Government agencies, Basin state governments, Traditional Owners and other Aboriginal groups, catchment management authorities, local governments, regional communities, industry groups, landholders, environmental organisations, scientists and research organisations.

1 Unless otherwise indicated, all Acts referred to in this publication are Commonwealth Acts.

Strategic planning and progress

The MDBA's funding is outlined in the Australian Government's Portfolio Budget Statements. We manage our performance against a single outcome:

> equitable and sustainable use of the Murray–Darling Basin by governments and the community including through development and implementation of a Basin Plan, operation of the River Murray system, shared natural resource management programs, research, information and advice.

To provide a more detailed indication of our performance against this outcome, our deliverables and key performance indicators are measured against our four program outcomes:

- integrated water management (pages 28 to 45)
- restoring river and ecosystem health (pages 46 to 63)
- knowledge into action (pages 64 to 75)
- managing River Murray assets (pages 76 to 99).

Our 2014–15 to 2017–18 corporate plan sets out our strategic direction, goals and objectives, see page 117. In establishing this plan, we took into account our annual risk assessment, risk management and fraud control plans. The corporate plan also includes provisions for risk treatments and measures to ensure delivery of environmental water and measures to ensure timely implementation of the Basin Plan.

Bourke on the Darling (Barka) River (photo by Josh Smith)

Our governance and agency structure

The MDBA reports to the Minister for the Environment. The MDBA's governance comprises:

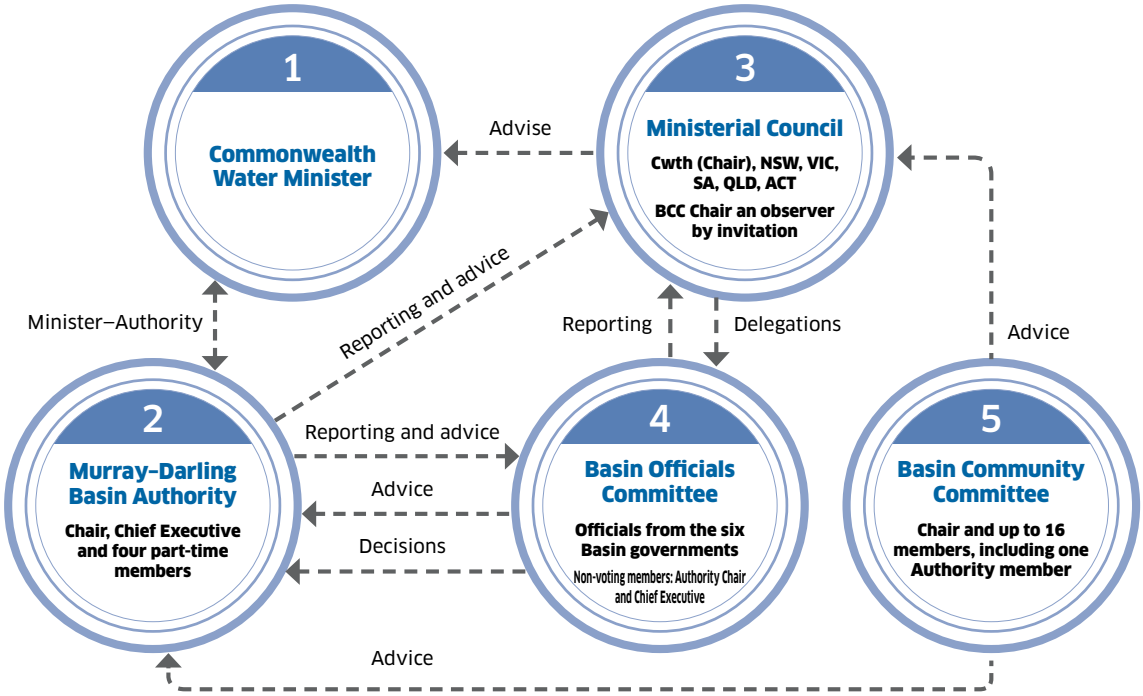
- the Parliamentary Secretary to the Minister for the Environment, the Hon. Bob Baldwin MP
- the six-member Murray–Darling Basin Authority
- the Murray–Darling Basin Ministerial Council
- the Basin Officials Committee
- the Basin Community Committee.

The relationship between these governance bodies is described in Figure 1.1.

The MDBA consists of the six member Authority, including the Chief Executive, and MDBA staff. The Murray–Darling Basin is managed through a partnership of the Australian Government and the governments of New South Wales, Victoria, Queensland, South Australia and the Australian Capital Territory (the Basin states).

During 2014–15, the MDBA structure was based around the following key program areas, see Figure 1.2:

- Policy and Planning Division
- Environmental Management Division
- River Management Division
- Corporate and Business Services Division.



CORE FUNCTIONS

1 The decision maker on the Basin Plan and chairs Ministerial Council

2 Responsible for implementing and monitoring the Basin Plan

Planning and management of Basin water resources in collaboration with partner governments and the community

Manages the River Murray system on behalf of joint governments

3 Policy and decision-making roles on state water shares and funding of joint programs

4 Makes decisions consistent with the delegations from the Ministerial Council

5 Provides advice to the Authority and Ministerial Council on Basin community issues

Figure 1.1 Governance of the Murray–Darling Basin Authority

OUR PERFORMANCE SUMMARY – key achievements

Outcome: equitable and sustainable use of the Murray–Darling Basin by governments and the community including through development and implementation of a Basin Plan, operation of the River Murray system, shared natural resource management programs, research, information and advice

Strategic goal 1
Integrated water management

To implement sustainable water planning and management arrangements that optimise the social, economic and environmental outcomes from the use of the Murray–Darling Basin's water resources

- published the first full Basin Plan annual report which showed early successes in environmental watering at a Basin scale
- developed the sustainable diversion limit adjustment mechanism assessment framework and modelled 10 potential state projects
- an independent review assessed the ecological scoring aspect of the assessment framework and concluded that it was scientifically robust and world-leading
- all northern Basin review projects (hydrologic modelling, scientific, social and economic work) were commissioned and are on track for completion
- published the water trading rules
- completed third and final groundwater review
- community feedback was incorporated into the Basin-wide environmental watering strategy and constraints management work

Strategic goal 2
Restoring river and ecosystem health

To protect, restore or improve the ecological health and resilience of the Murray–Darling Basin's key rivers, wetlands and other ecosystems which depend on water

- published the Basin-wide environmental watering strategy, the annual environmental watering priorities and the Basin outlook
- began Basin-wide environmental surveys which will help determine if the environmental health of the Basin is improving
- recorded good numbers of Murray hardyhead and southern pygmy perch but no Yarra pygmy perch
- completed pre-feasibility assessments of the seven physical constraints areas, Basin water ministers accepted the key findings
- the Southern-Connected Basin Environmental Watering Committee established to help coordinate environmental watering
- delivered significant volumes of environmental water in the River Murray, including 285.5 GL of The Living Murray environmental water. This helped to inundate black box[2] communities which had not received water in over 20 years
- diverted 432,454 tonnes of salt from the River Murray

2 Scientific names of plants and animals are on page 199

Strategic goal 3
Knowledge into action

To develop authoritative information, monitoring and research, in partnership with governments, scientists and communities, to underpin decision making and adaptive management

- agreed to invest $2 million in a research partnership with the National Centre for Groundwater Research and Training
- developed indicators and industry case studies to track the social and economic impacts on communities
- 30% increase in access to our data and information
- launched our new water information source for the River Murray on our website – live river data
- continued to support relationships and partnerships that build our scientific understanding of the Basin
- developed inundation models for the northern Basin and successfully trialled model methodology for the sustainable diversion limit adjustment mechanism

Sustainability

- continued to reduce our energy consumption by power saving measures and buying energy efficient equipment
- around 40% of staff regularly cycle to work
- reduced the number of printed publications
- continued to use teleconferences to reduce travel

Strategic goal 4
River Murray asset management

To equitably, efficiently and effectively manage, operate and sustain the River Murray assets to deliver states' agreed water allocations and environmental outcomes in the River Murray system

- all major water management structures for The Living Murray target sites completed
- first environmental watering of Koondrook–Perricoota Forest using the recently completed water management structures
- all River Murray assets assessed as functioning as required and well maintained
- findings of a review requested by the Basin Officials Committee found that River Murray operations are efficient and effective

Staff and culture

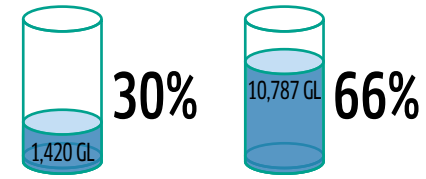
- voted by graduates as one of the top four Australian public service employers
- employee participation in learning and development activities provided in-house increased
- established a reconciliation action plan working group
- workplace incidents and hazards (reported) down by 37%

OUR YEAR AT A GLANCE (VIA TWEETS)

In 2014–15 we sent out more than 460 tweets to over 2,500 followers. Here are just some of them.

JULY 2014

Water storages in July



Major environmental watering underway at Hattah Lakes and Gunbower Forest.

Photo by Vic Hughes, MDBA

AUGUST 2014

Victorian water minister Peter Walsh and Sen Simon Birmingham launch the Hipwell Road Channel, which will help deliver environmental water to Gunbower Forest.

From left to right Hon Peter Walsh, Sen Simon Birmingham and North Central CMA Board Chairman David Clark

Photo courtesy North Central CMA

SEPTEMBER 2014

Better breeding ops for fish along full length of the Murray thanks to Sea to Hume fishway program launched today.

Scan to see how a fishway works.

OCTOBER 2014

MDBA staff attended the Tuppal food and fibre festival.

NOVEMBER 2014

National environmental engineering excellence award for Hattah Lakes project which will help restore the health of the Hattah Lakes system.

Photo courtesy of Engineers Australia

DECEMBER 2014

Walgett trial of a tool for Aboriginal Nations to measure the cultural importance of rivers.

Photo by Jackie Luethi, MDBA

JANUARY 2015

Dredging begins, to maintain connection of River Murray with the sea.

Photo by Brayden Dykes, MDBA

FEBRUARY 2015

Plants and animals respond at Koondrook–Perricoota Forest with more than 28 billion litres of water passing through the forest since late August. The first watering has been 4 years in the making.

Photo by MDBA

MARCH 2015

Applause for the tagged silver perch that travelled 470 kms fr Lock 2 (Waikerie) to 10 (Wentworth) in the last month #MDBasin #basincritters

Photo by Gunther Schmida

APRIL 2015

Lock 7 emptied for maintenance work by SA Water.

MAY 2015

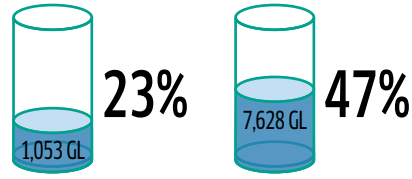
Met with our northern Basin advisory committee in Texas, Queensland.

Photos by MDBA

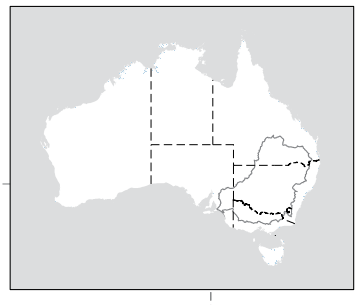
June 2015

PS Marion arrives at Lock 1 for today's event marking 100 years of River Murray lock construction.

Water storages in June



THE MURRAY-DARLING BASIN BOUNDARY



BASIN STATISTICS

The Murray–Darling Basin has a **population of over 2 million people** – and provides **water to more than 3 million people**

The total **catchment area** of the Basin is around **1,060,000 km²**

There are **46 species of native fish**

There are **16 wetlands listed as internationally significant** (Ramsar sites)

About **$19 billion** is generated each year in **agricultural commodities**

There is a total of **22,000 GL of publicly managed water storages** in the Basin

Within the Basin, there are over **40 Aboriginal Nations,** see inside front cover

There are **98 species of waterbird**

40% of all farms in Australia are located in the Basin – that's over 50,900 farms

The Murray–Darling Basin produces:

50% of Australia's irrigated produce

nearly **100% of Australia's rice**

96% of Australia's cotton

74% of Australia's grapes

46% of Australia's fruit

30% of Australia's dairy

OUR HISTORY

1914 the River Murray Waters Agreement sets out the shares of water available to each state; and establishes a commission to administer the agreement

1917 the River Murray Commission is established

1992 the Murray–Darling Basin Agreement establishes the Murray–Darling Basin Commission, to replace the River Murray Commission, and expands the resource-sharing arrangements between the states to cover the whole Murray–Darling Basin

1997 the longest drought in Australia's recorded history begins (c. 1997–2010)

2003 The Living Murray program is announced, which aims to use 500 GL of water and associated works (engineering projects) to improve the health of six icon sites along the River Murray

2004 the National Water Initiative achieves a more cohesive national approach to the way Australia manages, measures, plans for, prices and trades water

2007 the Water Act implements key reforms for water management in Australia. It sets out the requirements for a Basin Plan that will set sustainable limits on the amount of surface and groundwater that can be taken from the Basin

1914

2015

2008 the Murray–Darling Basin Authority takes over the functions of the Murray–Darling Basin Commission

2012 the Basin Plan becomes law, providing for the first time a coordinated sustainable approach to water use across the Basin's four states and the Australian Capital Territory

2015 celebrated 100 years since the beginning of construction of Lock 1 at Blanchetown, South Australia. This marked the start of joint construction work on the River Murray by South Australia, New South Wales, Victoria and the Commonwealth

Daybreak on the Great Darling Anabranch by Sean Kelly – winner by popular vote of the annual report photographic competition for MDBA staff.

CHIEF EXECUTIVE REVIEW

This past year marked a century of cooperation between the Basin state governments to manage the water resources of the River Murray. In that spirit of cooperative endeavour it is rewarding to reflect that over 2014–15 we have seen important parts of the long-term Murray–Darling Basin planning process coming together.

In 2015 we released the first full-year report on the plan's effectiveness. This highlighted the great degree of cooperation and collaboration between state and Australian Government agencies, and Basin communities as we work together on implementing the Basin Plan.

One of the highlights of the year was developing the first ever Basin-wide environmental watering strategy, which established the long-term quantitative outcomes for the Basin as a whole. Good progress was also made on many of the constraints projects which have progressed to the business case stage.

The collaborative social and economic work is proceeding well and we are gaining a better understanding of the changes that are occurring in Basin communities.

Engaging and responding

Sustaining a healthy working Basin cannot be done in isolation and the MDBA relies on coordinated and effective engagement with the community to identify common interests, support reforms, formulate policy, enforce governance and manage the rivers and its assets. In 2014–15 we had 90+ staff members (that's about one third of our organisation) regularly out visiting places in the Basin and facilitating 250 meetings about the Basin Plan.

Our work program responds to the input and feedback from Basin governments, communities and industries. A key example is where MDBA staff have been collaborating closely with the local communities about potential changes to river flow limits. The river reach reports detail our investigation of different flows to support state government decision making, and record how feedback on the drafts has been addressed.

Guidance from community members about how to build robustness into social and economic analysis of the plan's water reforms has also meant our staff are out and about collecting information on general changes in economic and social circumstances of rural communities. In particular we visited the Murrumbidgee, Lachlan, New South Wales Murray, St George, Dirranbandi and Lower Lakes regions. We are publishing what we hear on our website <www.mdba.gov.au>.

This collaboration is helping us complete another important part of our work – evaluating the Basin Plan's effects and effectiveness over the longer term.

In the online space we grew our social media engagement to interact with more than 3,000 followers. We have refreshed our website and included more opportunities for people to join in the conversation there. New online information also gives Murray–Darling Basin water traders better access to information about different water products. This was launched to coincide with the new Basin Plan water trade rules – another important part of the water reform completed in July 2014.

With fewer restrictions on trade and better transparency of information there can be improved market confidence; and water traders can take advantage of market opportunities.

In a more formal sense we continue to work with our many community advisory committees as a way of gathering local views and linking us to experienced local people. We held regular sessions with peak farming, irrigator, conservation and Aboriginal groups to discuss where we're up to and hear their ideas and concerns.

Environmental watering achievements

We continued to work closely with the state governments to align their water resource plans with the Basin Plan; and in November 2014 we released the Basin-wide environmental watering strategy. This sets out approaches to help plan and manage effective environmental watering so as to achieve outcomes at a Basin-scale and over the longer term.

The strategy was open to public consultation and feedback during development, and it received generally positive endorsement. It is supported by our annual environmental watering priorities which draw on local knowledge and experience and our yearly 'outlook' publication.

Environmental watering is producing some important and measurable benefits. Much of the water was re-used many times as it travelled throughout the system – bringing benefits for macroinvertebrate and fish habitats, riparian vegetation and water quality. After one such watering activity in the Goulburn River, golden perch bred for only the second time in the past ten years.

Water delivered to the Murrumbidgee refreshed Ramsar-listed wetlands used by brolgas and the very rare Australasian bittern, and saw breeding of great egrets at Tarwillie Swamp and endangered southern bell frogs in the Nimmie–Caira – great signs. The joint Living Murray and Victorian Environmental Water Holder water project (supported by the North Central Catchment Management Authority and Goulburn–Murray Water) to restore Gunbower Forest is another example of the great success we are having.

Significant progress on the Basin Plan – adjustment and review

Work continues on getting the best possible outcomes for Basin communities, industries and the environment.

The sustainable diversion limit adjustment mechanism is an opportunity to adopt smarter ways of managing rivers and use innovative methods to reduce how much water needs to be recovered for the environment.

This year the MDBA, with CSIRO and the Basin states, made significant progress on developing a framework for assessing how these solutions can help achieve equivalent ecological outcomes with less environmental water. An independent review panel found the methodology scientifically-rigorous and fit-for-purpose.

We have successfully trialled the framework using an initial seven 'supply' projects proposed by the states, and learned that they can potentially deliver at least 200 gigalitres of offsets. Achieving this was critical for assuring water ministers, as well as communities, that we can succeed in making more water available for the environment, without affecting reliability of supply for water users.

Much work remains to be done – a recent independent 'stocktake' of 36 prospective projects showed that 500 gigalitres of offsets was plausible. We will continue to build on the past year's successful work and effort by Basin state governments to ensure the final package of proposals is the best it can be.

Better knowledge of the northern Basin

The review of some of the Basin Plan's settings for the northern Basin is well underway. Hydrologic modelling, scientific, social and economic work is giving us better information about the north's environmental watering needs. In just one of our projects, we commissioned a New South Wales team to map a huge stretch of the Barwon–Darling rivers between Walgett and Wilcannia – that's over 1,100 kilometres.

We are learning more about the native fish of the Barwon–Darling and Condamine–Balonne and what they need to maintain viable populations. Two major social and economic projects have also begun, to provide additional information about the potential effects of recovering water.

The MDBA will also be assessing whether changes can be made to the extraction limits in the Barwon–Darling and Condamine–Balonne and how to reduce impacts to northern communities and industries more generally.

A welcome and a farewell

We welcomed a new Chair in January 2015. Neil Andrew brings to this role a strong background in agriculture and politics, which will be essential as we continue to build on the good work of implementing the Basin Plan in the coming years. In particular, Neil has valuable experience in working with industry and an understanding of the importance of implementing change to help maintain sustainable Basin industries.

And finally, it is with some regret that I say farewell as this will be my last annual report as Chief Executive of the MDBA. In November 2015 I leave to take up a position in the Department of the Environment. Looking back over my past four years with the MDBA, I am thankful for the privilege of leading an organisation engaged in so much pioneering and worthwhile work. A highlight of my role has been the opportunity to work with so many people from across the Basin who are passionate about their rivers and their communities. I would like to thank them, as well as our staff and our government partners, for their commitment and efforts in working towards a sustainable Murray–Darling Basin.

FINANCIAL OVERVIEW

During 2014–15 the MDBA reported a much reduced operating deficit of $11.2 million, which compared favourably with its approved operating deficit of $27.53 million. This result was achieved despite continuing uncertainty surrounding the level of future funding from contributions from Basin state governments.

Programs were delivered costing $137.9 million, despite a reduction in revenue from contributions of $20.2 million – down from $84.3 million. The MDBA also continued to manage over $4 billion in assets, including River Murray Operations infrastructure and water entitlements under The Living Murray program.

Key financial challenges included:

- sustainably managing fund programs in the face of continuing reductions in contributions from the Basin states
- maintaining the condition of River Murray Operations infrastructure assets without creating a funding burden for future generations
- managing the outcomes of key strategic funding reviews
- effectively implementing productivity improvements and planning for other structural changes.

The new *Public Governance, Performance and Accountability Act 2013,* which took effect from 1 July 2014, brought about significant changes. The MDBA is working on implementing the necessary changes to realise the benefits of these reforms.

The Chief Finance Officer's report on page 126 provides more detailed information on our financial performance for 2014–15.

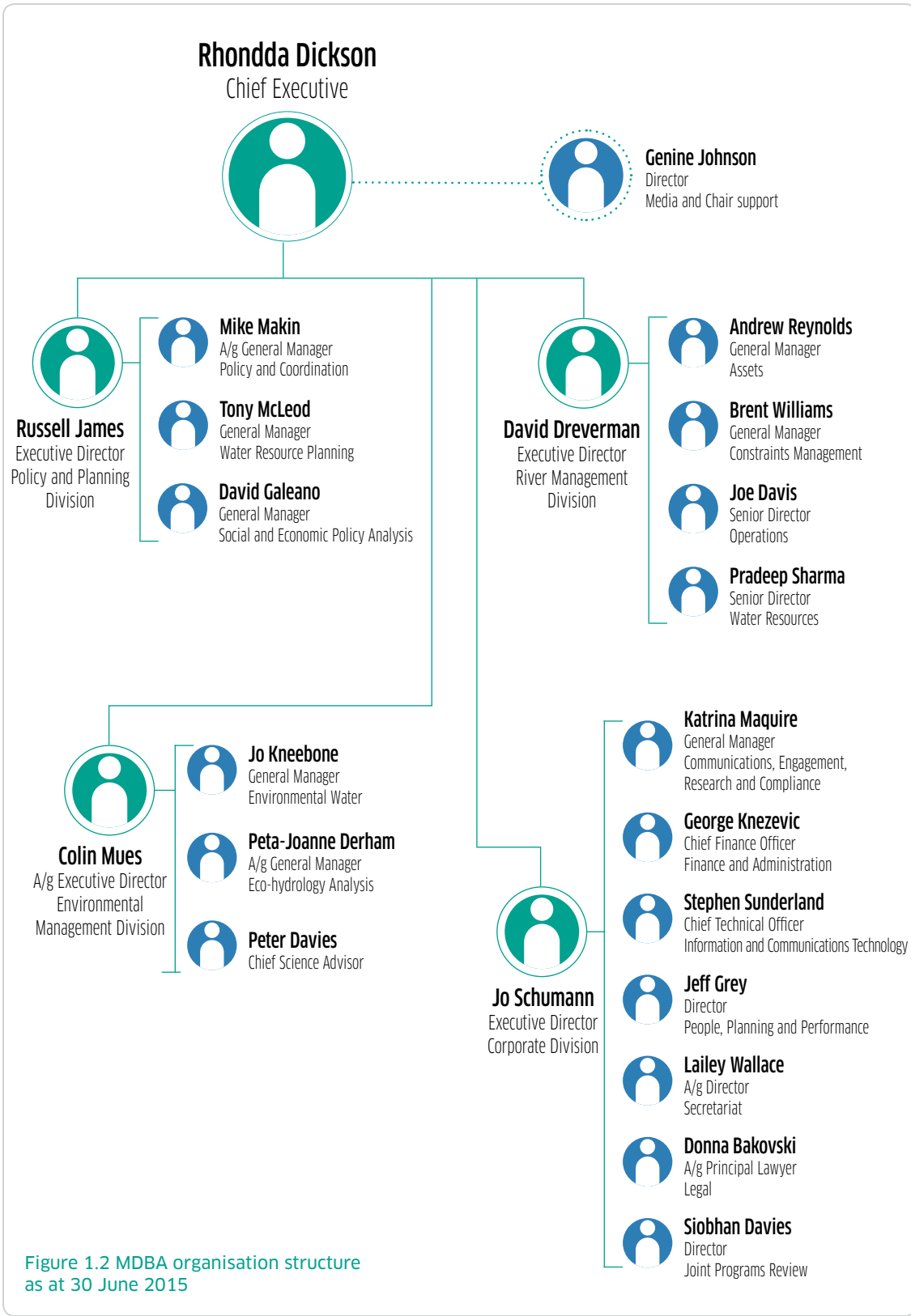


Figure 1.2 MDBA organisation structure as at 30 June 2015

THE AUTHORITY

The Murray–Darling Basin Authority (the Authority) consists of the Chief Executive, a part-time Chair and four part-time members. Authority members are appointed by the Governor-General and each must have substantial expertise in one or more fields relevant to the activities of the agency – for example, water resource management, hydrology, freshwater ecology, resource economics, irrigated agriculture, public sector management and financial management.

At 30 June 2015 Authority members were:

Neil Andrew (Chair) AO

The Hon. Neil Andrew was welcomed as the new Chair of the MDBA in January 2015, replacing the Hon. Craig Knowles. Neil's achievements include election to the House of Representatives for South Australia in 1983 and appointments as Government Whip (1997) and Speaker of the House of Representatives (1998). He served the Australian Parliament until 2004.

Since retiring from Parliament Neil has continued a lifelong association with the irrigation industry – particularly horticulture and viticulture. He chaired a review of the South Australian citrus industry and was also chairman of the Crawford Fund in Australia, which provides agricultural research and training to farmers in developing countries. He was appointed an Officer of the Order of Australia in 2008.

Rhondda Dickson PSM

Dr Rhondda Dickson has been Chief Executive of the MDBA since June 2011. She led the development of a significant piece of national water reform – the Basin Plan – forging strong relationships with MDBA's partner governments and Basin communities. She received a Public Service Medal (PSM) for this work.

Before joining the MDBA Rhondda was closely involved in the development of the National Action Plan for Water Quality and Salinity, national forest policy and national approaches to vegetation management. She has worked across the full scope of practical natural resource management, including as Deputy Secretary of the Department of Agriculture, Fisheries and Forestry and a senior executive at the Department of the Prime Minister and Cabinet, and the Department of the Environment.

Dianne Davidson AM

Dianne Davidson is an agricultural scientist and horticulturist, and has a strong management background in natural resources, particularly water and irrigated agriculture. She is a fourth generation farmer in the Lower Lakes region of the Basin and manages her own mixed agricultural business there, as well as carrying out consulting work throughout Australia and internationally.

In the 2015 Queen's Birthday Honours, Dianne was made a Member of the Order of Australia for services to the wine-making industry, to horticultural management science, and to higher education administration.

Diana Gibbs

Diana Gibbs is a resource economist with post-graduate qualifications in environmental studies. She has been involved in resource development planning in Australia, Africa, the Middle East and South-East Asia, and has worked with communities throughout the Basin, particularly in New South Wales.

Diana sits on the New South Wales Climate Change Council and is also a partner in a sheep and wheat farming operation in the Basin.

Barry Hart AM

Professor Barry Hart is an Emeritus Professor at Monash University and has established an international reputation in the fields of ecological risk assessment, environmental flow decision making, water quality, environmental chemistry and catchment management.

Barry chairs a number of government scientific and strategic advisory committees, and is director of an environmental consulting company.

In the 2012 Queen's Birthday Honours, Barry was made a Member of the Order of Australia for services to conservation and the environment.

George Warne

George is a recognised leader in the rural sector, with a strong understanding of rural communities. He has extensive experience in water reform and has worked in the water industry for more than 25 years, including being CEO of Murray Irrigation Limited and State Water NSW.

Between 2011 and 2013 he was appointed interim CEO of the Northern Victorian Irrigation Renewal Program and facilitated its transition to form part of Goulburn–Murray Water.

Farewelling Craig

Craig Knowles AM retired at the end of his four-year term as Chair in January 2015. Craig came into the role with the challenge of delivering a Basin Plan to the Australian Parliament.

He took a 'no surprises' approach to drafting the Basin Plan, sharing its progress at each step of the way and encouraging governments, communities and industries to help build it.

At his departure Craig expressed great appreciation to the many thousands of Australians who attended meetings, wrote submissions, came up with solutions and helped to educate us along the way.

EXECUTIVE TEAM

Executive leadership of the Murray–Darling Basin Authority comprises:

Rhondda Dickson PSM
Chief Executive

Dr Rhondda Dickson has been Chief Executive of the MDBA since June 2011. She led the development of a significant piece of national water reform – the Basin Plan – forging strong relationships with MDBA's partner governments and Basin communities. She received a Public Service Medal (PSM) for this work.

Before joining the MDBA Rhondda was closely involved in the development of the National Action Plan for Water Quality and Salinity, national forest policy and national approaches to vegetation management. She has worked across the full scope of practical natural resource management, including as Deputy Secretary of the Department of Agriculture, Fisheries and Forestry and a senior executive at the Department of the Prime Minister and Cabinet, and the Department of the Environment.

David Dreverman
Executive Director
River Management

David Dreverman joined the Murray–Darling Basin Commission in 2000 as Manager Assets and was appointed General Manager River Murray Water in 2003. David transferred to MDBA in late 2008, when it subsumed the functions of the Commission.

David has worked in the consulting engineering industry with SMEC; the Hydro-Electric Commission of Tasmania; and Australian Power & Water. For more than 35 years he has been involved with large dam and hydropower projects, both in Australia and overseas, and more recently in the management of the River Murray system.

Russell James
Executive Director
Policy and Planning

Russell James joined the MDBA in 2011 and his division is focused on implementing the Basin Plan. Before joining the MDBA Russell was a major contributor to the design of the Australian Government's water reforms, including the $10 billion National Plan for Water Security, and the *Water Act 2007*.

Russell has worked on a range of natural resource reforms through his career including the National Water Initiative, the National Action Plan on Salinity and Water Quality, reform of the Commonwealth fishing industry and native vegetation management. He began his career in the private forestry sector, working in both Tasmania and New South Wales.

Colin Mues

Executive Director
Environmental Management

Colin Mues joined the MDBA in 2014 and his division is responsible for environmental water planning and management, as well as providing scientific and model-based advice to support the implementation of the Basin Plan.

Before joining the MDBA he was responsible for managing the Murray–Darling Basin water buyback program in the Department of the Environment (Australian Government). That program has provided more than half the water which has been recovered for the environment in the Murray–Darling Basin.

Colin also has considerable experience in economic analysis of natural resource management issues from his time with the Australian Bureau of Agricultural and Resource Economics.

Jo Schumann

Executive Director
Corporate Services

Jo Schumann joined the MDBA in 2015 to lead the Corporate Division.

Before joining the MDBA Jo was responsible for the Australian Competition and Consumer Commission's corporate services division. She is a very experienced corporate manager, working in similar roles previously in the Department of Veterans Affairs and the ACT Government.

Throughout her career, Jo has been closely involved in managing organisational change. She has led the integration of strategic business approaches and been responsible for substantial improvements in business processes in these agencies.

Waterbird surveys provide important information on how birds are responding to environmental water flows, see page 48 (photo by Anna Chatfield, North Central CMA).

CHAPTER 2

OUR PERFORMANCE

Integrated water management 26

Restoring river and ecosystem health 44

Knowledge into action 62

Managing River Murray assets 74

STRATEGIC GOAL 1

INTEGRATED WATER MANAGEMENT

To implement sustainable water planning and management arrangements that optimise the social, economic and environmental outcomes from the use of the Murray–Darling Basin's water resources

Overview	p. 27
Implementing the Basin Plan	p. 27
Accrediting state water resource plans	p. 30
The SDL adjustment mechanism	p. 32
Social and economic analysis	p. 33
Work in the northern Basin	p. 34
Engaging communities, governments and interest groups	p. 34
Monitoring and evaluation	p. 41
Summary of our performance	p. 42

Highlights

- Published the first full-year Basin Plan annual effectiveness report – major milestones have been met and progress has been made on important components of water reform.
- Trialled the method to assess the states' proposals for implementing the sustainable diversion limit adjustment mechanism.
- New water trade rules began on 1 July 2014.
- Held over 250 community meetings across the Basin to inform our work.
- Trialled the Aboriginal waterways assessment tool.
- Completed the third and final groundwater review.

Overview

– significant progress in implementing the Basin Plan

Significant progress has been made in implementing the Basin Plan since it commenced in November 2012. This year saw the completion of a number of key foundation activities and good progress across all aspects of Basin Plan implementation.

The new water trade rules came into effect on 1 July 2014. They will help to improve confidence in the operation of the market by reducing barriers to trade and improving access to information. We have worked closely with all the Basin states during the year to ensure they are taking action to be compliant with these rules.

During 2014–15 we successfully trialled the assessment framework that will be used to calculate the adjustment to the sustainable diversion limits that will be achieved by the projects put forward by the Basin states. The method was also independently reviewed and found to be scientifically robust and world-leading.

Progress was also made on reviewing the basis for the sustainable diversion limits in the northern Basin, and the third and final groundwater review was completed.

We have continued to work in partnership with governments and communities across the Basin to gain further insights into the effectiveness of the Basin Plan. The Aboriginal waterways assessment tool was trialled as a way for Aboriginal people to participate in water planning and management across the Basin.

We also held our second annual water planner's forum. This year the forum focused on risk assessment for water resource planning.

Challenges and the year ahead

In mid-2016 we will use the sustainable diversion limit adjustment mechanism assessment framework to assess the package of projects, submitted by Basin state governments, to determine how much the sustainable diversion limits can be adjusted. The northern Basin review will also be completed and will inform any changes to the sustainable diversion limits in the northern Basin.

We will then consult with communities on amending the Basin Plan to take into account the sustainable diversion limit adjustments, the outcomes of the northern Basin review and the reviews of three groundwater sustainable diversion limit resource units.

Three state water resource plans will be accredited in 2016 leaving 33 to be accredited by 2019. This is a significant amount of work.

Implementing the Basin Plan

At the heart of the Basin Plan is the need to balance the water available for industries, farmers and communities while leaving enough water in the Basin's river systems to ensure a healthy environment. To do this the Plan put a limit on the amount of water that can be taken from the Murray–Darling Basin for consumptive use – the sustainable diversion limit (SDL).

The Basin Plan takes a whole-of-Basin approach to achieving sustainable water resource management. It is being implemented over seven years, from 2012 to 2019, to allow time for the Basin states, communities and the Australian Government to work together to manage the changes required for achieving a healthy, working Basin. Key implementation steps and achievements are outlined in Figure 2.1 and Figure 2.2.

Progress towards rebalancing consumptive use and environmental water use is monitored by regular reporting of how much surface water has been recovered for the environment. As at 30 June 2015 1,950.5 gigalitres, about 71%, of the target figure of 2,750 gigalitres, has been recovered. The recovery target could change, however, due to the sustainable diversion limit adjustment process and the northern Basin review.

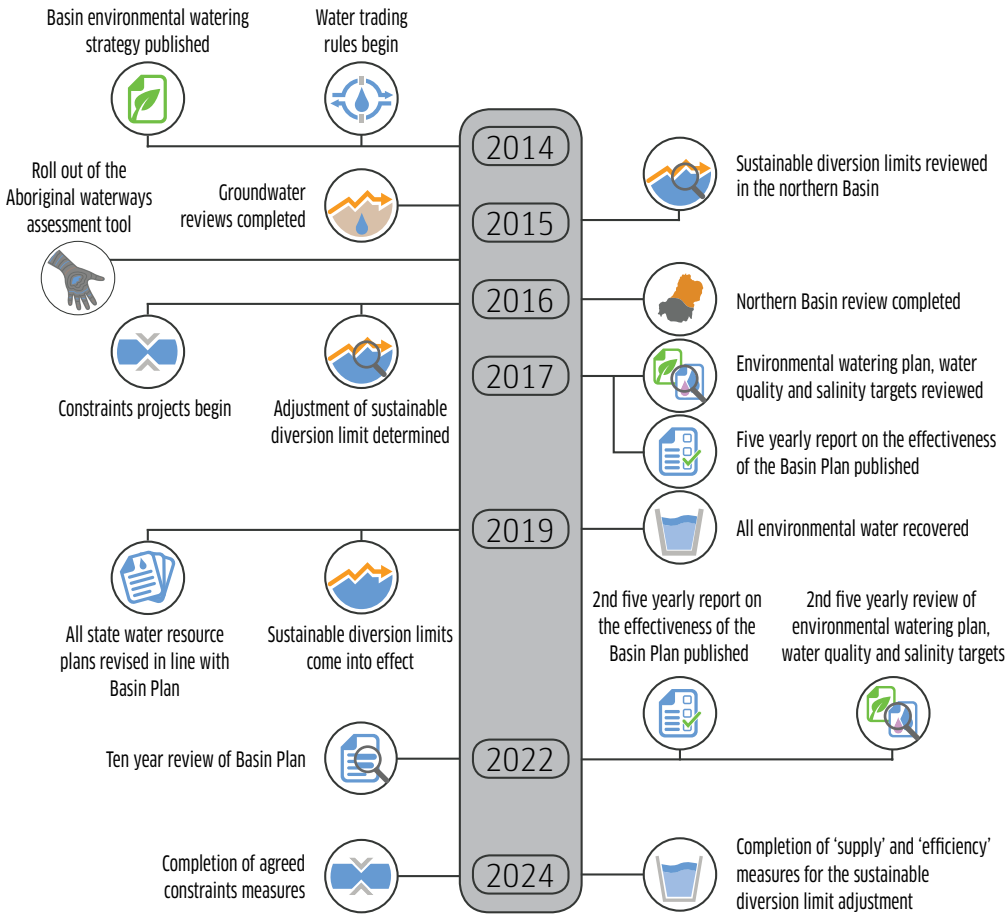


Figure 2.1 Basin Plan timeline

IMPLEMENTING THE BASIN PLAN 2012–24

The Basin Plan represents a fundamental shift in managing environmental water in the Murray–Darling Basin, by increasing emphasis on managing the Basin as one system.

Sustainable diversion limits (SDLs)

The Basin Plan sets out the SDLs – how much water can be sustainably taken from the Basin's waterways (including groundwater).

TO DO

> review three groundwater SDLs	✓
> develop the SDL adjustment method and get it independently reviewed	✓
> northern Basin review	**mid-2016**
> determine if there will be any changes to the SDLs (SDL adjustment)	**mid-2016**
> SDLs come into effect	**2019**

Better ways of managing water

TO DO

> work with the states to revise the Basin salinity management strategy	**late 2015**
> report on the implementation of the constraints management strategy 2013–2024	**ongoing**
> state ministers determine which constraints projects will go ahead	**2016 onwards**
> complete agreed constraints measures	**2024**

Plan for the use of environmental water across the Basin

TO DO

> publish Basin-wide environmental watering strategy	✓
> publish environmental watering outlook	**2014** ✓ **2015** ✓
> work with states and the community to determine environmental water priorities each year	**2013** ✓ **2014** ✓ **2015** ✓

Figure 2.2 Implementing the Basin Plan

State water resource plans

TO DO

- publish handbook for practitioners ✓
- publish position statements on accreditation requirements for state water resource plans **2016**
- accredit 36 state water resource plans **by 2019**

Water trade

Improve the operation of the water market by increasing transparency, reducing restrictions on trade and improving confidence.

TO DO

- publish water trade rules ✓
- review existing trade rules for consistency with the new rules **ongoing**

Monitor and evaluate the effects of the Basin Plan on the environment, communities and industries

TO DO

- report each year on the effectiveness of the Basin Plan **2013** ✓ **2014** ✓
- develop a monitoring and evaluation framework ✓
- collect information and carry out modelling to better understand the potential social and economic costs and benefits of the Basin water reforms **ongoing**
- work with Aboriginal people to understand what Basin water reform means for them and Country **ongoing**
- publish 5-yearly evaluations of Basin Plan implementation **2017, 2022**

Listening to communities

We will continue to work with community groups, local government, industry groups and farmers to help Basin governments understand the effects of water reforms and to adjust settings based on new information.

Held over 250 community meetings in 2014–15

At the heart of the Basin Plan is the need to ensure that water is shared between all users, including the environment, in a sustainable way.

Recover water for the environment

The Australian Government is investing in more efficient water use and purchasing water.

TO DO

- recover 2,750 GL of water **1,950.5 GL (71%) recovered**

Accrediting the state water resource plans

A key role for the Murray–Darling Basin Authority is to ensure that by 2019 there are water resource plans across the Basin which are consistent with the Basin Plan, see Figure 2.3 for the timeline for accrediting the water resource plans.

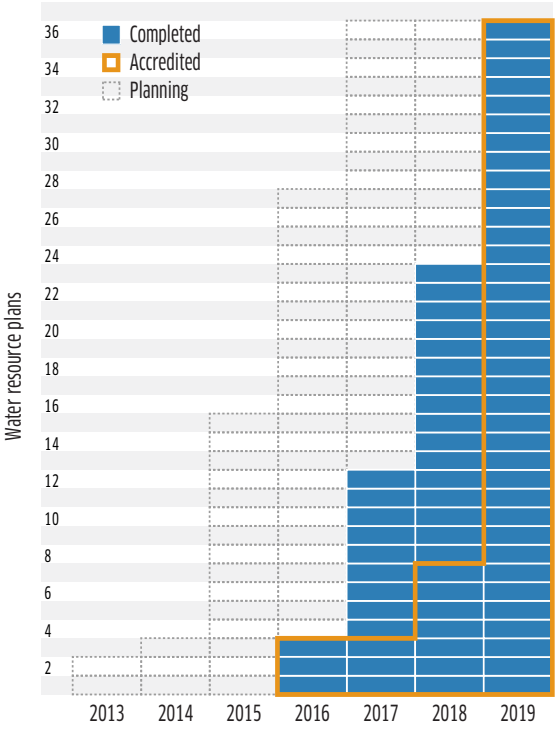


Figure 2.3 Timeframe for assessing state water resource plans. All plans need to be accredited by 2019.

To achieve this we continue to work with the Basin states to develop water resource plans that will meet Basin Plan requirements. To assist with this process we have ensured that each Basin state has a dedicated point of contact within the MDBA, and a team that will work on each water resource plan until it is accredited.

We have continued to build a water planning community of practice. In March we held the second annual water planners' forum to share knowledge and improve our approach to planning. The forum was attended by water planners from all Basin states and the Australian Government. The Handbook for practitioners – water resource plan requirements will be updated based on learnings from the forum as well as from implementing water resource plans.

The water resource plan working group, which has representatives from the Basin states and the Australian Government, continued to meet regularly this year. The working group provided advice on water resource planning, and held workshops on water planning issues that affected all states or needed a coordinated approach.

We have also been working with Basin states to settle water resource plan accreditation arrangements. To support this we are developing a set of position statements on water resource plan issues to ensure agreed policy settings are clearly understood and consistently applied.

Throughout the year we continued to work with the Murray Lower Darling Rivers Indigenous Nations and the Northern Basin Aboriginal Nations to prepare for consultation on water resource planning, particularly in relation to roles and responsibilities.

We assisted Basin states and the Department of the Environment (Australian Government) in extending the coverage of some existing state plans (transitional and interim plans) under the *Water Act 2007*. This gives the states more time to prepare plans that are consistent with the Basin Plan.

Surface water – *more water recovered for the environment*

Progress towards implementing the sustainable diversion limits continued this year with more water recovered for the environment. We provided technical and policy support to the Australian Government in relation to their recovery strategy and published quarterly progress reports which show how much environmental water has been recovered.

Although sustainable diversion limits will not come into effect until 1 July 2019, some reporting obligations commenced when the Basin Plan was adopted in 2012. This includes water use which is reported to us by the Basin states under the *Water Act 2007* section 71 provisions. In 2013–14 Basin states reported on their held environmental water, and how it was used, for the first time (Basin Plan Schedule 12 Matter 9). This was a significant achievement. Basin states also met their surface water reporting obligations for the 2013–14 water year

Held environmental water is water that is available under a water access right, a water delivery right, or an irrigation right for the purpose of achieving environmental outcomes.

The Basin states also reported on their actual take (removal of water) from regulated rivers and watercourses – by sustainable diversion limit resource unit. This information will be published in late 2015 in the water diversion report for 2013–14 (replacing the water audit monitoring report).

A framework for developing a register of take was prepared in 2015. The register will be developed and trialled in the transition period to 2019. This will help determine whether there has been compliance with the long-term annual diversion limit for each sustainable diversion limit resource unit.

One of our challenges will be improving our knowledge of all forms of take under the Basin Plan. Reporting will be expanded to include: floodplain harvesting, run-off into dams, commercial plantations and basic rights. It will also include estimating annual permitted take, obtaining an accurate picture of held environmental water at a Basin scale, and improving the timely collection and reporting of data.

The MDBA, along with the Basin states, established a surface water advisory panel in late 2014. The panel has met twice in the last year and provided advice on calculating permitted take, the 'Cap' on water diversions, and improving data collection.

The Ministerial Council initiated a process for the coming year to increase confidence around the key planning assumptions that the Basin states will use to develop their water resource plans. The council agreed that each Basin state would work with us to settle planning assumptions for each valley by mid-2016, ahead of the sustainable diversion limits taking effect in July 2019. Completion of this work will help define the Australian Government's remaining water recovery task.

Groundwater

– completing the groundwater reviews

The final groundwater review was completed in 2014–15. Under the Basin Plan the sustainable diversion limits for three groundwater areas had to be reviewed by the end of 2014. These three reviews are now complete, see <www.mdba.gov.au>.

The MDBA established expert groundwater review panels to review the sustainable diversion limits. The panels considered all relevant information about the sustainable diversion limit resource unit, including hydro-geological modelling, state planning and policy arrangements and an evaluation of the appropriateness of any precautionary factors associated with setting the sustainable diversion limits. The panels advised that it would be acceptable to increase the sustainable diversion limits, provided there are more stringent planning requirements in place. The reviews also recommended improving the compliance methodology for groundwater.

Black-winged stilts flying over Burrinjuck Dam, New South Wales (photo by Brayden Dykes, MDBA).

We are working with the Basin states, and other stakeholders, before proposing any amendments of the groundwater sustainable diversion limits, based on the recommendations of the reviews. Any proposed amendments to the Basin Plan will follow the amendment process in the Water Act (sections 45–48), which includes an eight week public consultation phase.

Reporting on the actual take of groundwater, required by the Water Act (section 71), was successfully completed with the Basin states. This will be published in late 2015 in our water diversion report for 2013–14.

To assist in implementing the Basin Plan we established a groundwater advisory panel with the Basin states in late 2014. The panel has met twice in the last year and has provided advice to the Basin Plan Implementation Committee on the implementation work plan and the transition to the sustainable diversion limit work plan.

Another significant achievement was investing two million dollars in a strategic research partnership with the National Centre for Groundwater Research and Training, see page 73. The funding will be used to continue investigations into how groundwater and surface water interact, the way groundwater is replenished, and the impact of social and economic factors on groundwater management.

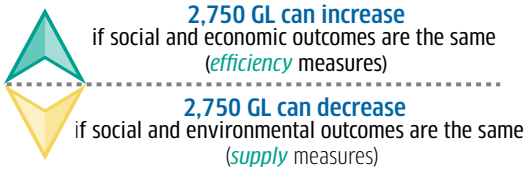
The sustainable diversion limit adjustment mechanism

– a world-leading project

To optimise the outcomes achieved by the Basin Plan, the state and Australian governments included a sustainable diversion limit adjustment mechanism to make sure all water is used efficiently and to its full effect. The Basin Plan provides an opportunity in 2016 to adjust the sustainable diversion limits up or down by up to 5%, as long as environmental, social and economic outcomes are maintained or improved.

Adjustments can be achieved in two ways, through:

- supply measures – which are new ways to manage the Basin's rivers to more efficiently achieve outcomes for the environment. These can include: new river operating rules that make environmental water delivery more effective; smarter ways to use dams, locks and weirs to reduce evaporation losses; and building innovative water management structures that deliver water more efficiently
- efficiency measures – which provide more water for the environment by making water delivery systems for irrigation even more efficient. This can include replacing or upgrading on-farm irrigation, or lining channels to reduce water losses within an irrigation network.



Basin states are working together to develop proposals for adjusting the sustainable diversion limits. The Intergovernmental Agreement on Implementing Water Reform in the Murray–Darling Basin (2013) sets out how Basin governments will work together to achieve the best outcomes for the Basin's communities, environment and economy from the adjustment mechanism. We have assisted by providing technical and modelling advice on the proposals.

As of 30 June 2015, 27 supply measure business cases have been submitted by Basin governments for the southern Basin. Both Queensland and New South Wales governments have investigated the potential for supply measures in the northern Basin, however no prospective projects were identified. The northern Basin review is likely to result in refinements to the sustainable diversion limits in the northern Basin.

The Basin Officials Committee is responsible for selecting a package of adjustment measures to submit to the MDBA by 30 June 2016. We will assess the package as soon as possible and recommend to the minister by how much the sustainable diversion limit should be adjusted. While the states identify and develop projects it is our responsibility to fully develop and trial the sustainable diversion limit adjustment assessment framework.

In 2014–15 we trialled the method developed to assess whether any proposed sustainable

diversion limit adjustment would deliver equivalent environmental outcomes, to those modelled under the Basin Plan, with less water. The trial also tested the suitability of the overall approach to determining sustainable diversion limit adjustment. The CSIRO-led team who developed the ecological scoring method, an independent review panel and the Basin states were also closely involved in this testing phase.

The independent review panel congratulated all agencies involved, especially the CSIRO-led development team for:

> *…completing an extremely difficult and world-leading project with such a high degree of scientific rigour and diligence. The trial implementation has further strengthened our confidence in the SDL adjustment environmental equivalence method's robustness and applicability…*

In June 2015 we carried out further analysis of the adjustment proposals and provided interim advice to the Basin states. The analysis considered the impact of 10 potential projects on changes to the sustainable diversion limits and provided a qualified analysis of dependencies between measures and environmental outcomes for a further 19 projects. This interim advice provides evidence-based support for the Basin governments to make informed decisions as proposals are further developed and assessed.

Further work and advice was also provided to inform an independent 'stocktake' of sustainable diversion limit adjustment proposals which is scheduled to report to the Ministerial Council later in 2015. We will also provide further modelled and qualitative advice to the Basin states in November 2015 and again in April 2016.

Social and economic analysis

During 2014–15, we continued to meet with local governments, irrigation water providers, industry organisations, farmers, community groups, and state and Australian governments across the Basin to help us understand how communities are adapting and responding to the Basin Plan water reforms.

The social and economic assessments are building an understanding of what is driving change in the Basin. This analysis will help us examine the social and economic conditions of individual communities before trying to distinguish the effects of the Basin Plan. Wider government water reforms include investing in water-efficient infrastructure to help offset some of the possible impacts.

The MDBA is also:

- interviewing farmers to gather direct evidence of changes they have made in response to the Basin Plan. So far we have interviewed farmers from the Murrumbidgee and Lachlan catchments, and dairy farmers in the southern part of the Basin
- supporting the second year of the regional wellbeing survey conducted by the University of Canberra, with particular reference to how people think the Basin Plan might affect them or their community. Responses to the wellbeing survey will be combined with information on changes in social and economic conditions to help understand how Basin communities are changing

REGIONAL AND INDUSTRY CASE STUDIES

We are looking in detail at areas and industries within the Basin that are most likely to be affected by water reforms.

Locations

- Griffith/Leeton/Hay/Carrathool/Murrumbidgee/Narrandera
- Deniliquin/Wakool/Conargo/Murray/Berrigan/Jerilderie
- Lower Lachlan around Hillston
- Shepparton/Moira/Loddon/Campaspe/Gannawarra
- Berri/Barmera/Loxton/Waikerie
- Lower Lakes area in South Australia
- Mildura
- Moree
- St George/Dirranbandi
- Warren/Narromine

Industries

- cotton, dairy, viticulture, rice, horticulture and vegetables

- supporting the Australian Bureau of Agricultural and Resource Economics and Sciences to continue their irrigation farm survey, and to analyse changes in the irrigation industry using the data they have compiled since 2006–07
- utilising information from irrigation water providers and state water trade registries to develop an understanding of changes in the temporary water market.

Northern Basin review

In finalising the Basin Plan, the MDBA decided to carry out further research and investigations on the settings in the northern Basin to see if there was a case for changing them. This is because the information base used for the settings in the north wasn't as well developed as that used for the southern Basin.

This particularly applies to our understanding of the environmental needs of the Barwon–Darling and Condamine–Balonne river systems and the challenges of providing additional environmental water in these unregulated systems.

The northern Basin review is being supported by the Northern Basin Advisory Committee and an intergovernmental working group. It is expected to be finalised by mid-2016. Based on the results we will provide advice to the Australian Government to assist with a review of their water recovery strategy.

If the MDBA determines that a change to the northern Basin sustainable diversion limits is called for, then recommendations would be prepared for an amendment to the Basin Plan.

Social and economic research

The social and economic work in the northern Basin is about improving our understanding of the likely impacts of the sustainable diversion limits.

We have started two major social and economic projects to provide additional information about the potential effects of recovering water for the environment.

The projects involve working with farmers, non-farm businesses, community groups and local governments from 21 communities in the northern Basin as well as floodplain graziers in the lower Balonne.

Hydrologic modelling

In 2014–15 we carried out studies to examine how environmental outcomes vary depending on where water is recovered and whether it is recovered during high or low flows. Findings from this phase will be carried forward into a detailed assessment in 2015–16 which will consider the relationship between the environmental outcomes and water recovery volume.

Environmental research

To address knowledge gaps in the Condamine–Balonne and Barwon–Darling river systems we have begun a program of environmental research projects, in collaboration with state agencies. The projects were identified following an independent science review and advice from the community. The research projects will help to increase our understanding of the relationship between flows and the response of native fish, waterbirds, and vegetation.

The work will be published in late 2015, and will be used to increase our understanding of environmental water requirements, particularly in the Condamine–Balonne and Barwon–Darling systems.

Engaging communities, governments and interest groups

Support from Basin communities, interest groups and our government partners is essential for the successful implementation of the Basin Plan.

Photo by Irene Dowdy

Throughout the year our technical teams, which work on topics such as environmental watering, social and economic research constraints, water trade, groundwater and water resource planning, were involved in 250 Basin Plan implementation meetings with communities throughout the Basin.

In September 2014, along with our government partners, we held community update meetings across the southern Basin. Representatives from other Australian Government, state and local agencies also participated. Over 300 people attended the meetings in nine towns around the Basin. The meetings provided an opportunity to talk with communities and get their feedback on a range of issues including the draft Basin-wide environmental watering strategy.

In the northern Basin we met with Aboriginal Nations, farming and irrigation groups, and conservation groups to discuss the draft Basin-wide environmental watering strategy. The final strategy was published in November 2014 along with a companion document – *Summary of feedback on the Basin-wide environmental watering strategy* – which sets out the main changes we made to the strategy based on the feedback we received, see page 46.

In late 2014 we published seven draft regional reach reports for constraints on our website. The reports aimed to capture what communities have said about flows in their region. This local knowledge is helping us understand the potential impacts of managing constraints in those areas.

Our advisory committees – the Basin Community Committee, the Northern Basin Advisory Committee and the Advisory Committee on Social, Economic and Environmental Sciences – continued to provide valuable advice on our activities throughout the year.

The Basin Community Committee provides a regional perspective for us and the Basin Ministerial Council. The committee acts as an important link between the MDBA and communities by reporting on community issues or concerns and providing advice on how we engage with communities across the Basin. In 2014–15 the committee helped guide the public consultation on the Basin-wide environmental watering strategy.

OUT AND ABOUT IN THE BASIN

The Northern Basin Advisory Committee focussed on projects being carried out as part of the northern Basin review and other water reform related matters. The committee provided valuable information and ideas on matters that concern communities in the northern Basin. This included advice around strategically-targeted buyback of small sleeper licences in the Barwon–Darling, which will help to meet the shared water recovery target.

Advice from the committee also helped to shape the scope of our hydrological modelling work and our communication with other key stakeholders in the northern Basin.

The Advisory Committee on Social, Economic and Environmental Sciences considered a broad range of matters this year, including suggestions on improving the Basin Plan annual reporting and the use of citizen science to source information about the Basin. The committee's advice was particularly appreciated as we rolled out the social and economic work program.

Working with Aboriginal Nations

Our Aboriginal Partnerships team developed the Aboriginal Partnerships Action Plan to ensure focused and targeted input to Aboriginal matters in relation to water management and improving the condition of Country in the Basin.

We want Traditional Owners in the Basin to be involved in water research, planning and management through equitable, inclusive and respectful partnerships. Partnerships will promote improvements in the wellbeing of Aboriginal people throughout the Basin, break down barriers, promote cross-cultural collaborations in science and social settings, and respond to the Basin Plan's requirements to consider social, economic and environmental issues.

The partnerships will be mutually beneficial to Aboriginal and non-Aboriginal people, improve management of the Basin's natural resources and help meet the Australian Government's obligations under the *Water Act 2007* and *Basin Plan 2012*.

Our objectives are to:

- empower Aboriginal voices through building effective partnerships
- build capacity of Aboriginal people to participate in water management
- recognise Aboriginal values and interests
- support research in cultural flows.

Implementing the Basin Plan provides opportunities to encourage Aboriginal perspectives to be heard, assist with Aboriginal values becoming more widely understood, and for Traditional Owners to be valued participants in water planning processes.

Learning from Aboriginal people across the Basin. Bradley Hardy at the Brewarrina Museum (photo by Irene Dowdy).

The Basin Plan requires the Basin states to consider the views of Aboriginal people with respect to cultural flows and for us to consider Traditional Owner advice in assessing state water plans.

We will use a number of research programs as tools to support and achieve our objectives. The research programs will not only build the capacity and knowledge of everyone involved in water planning but will highlight knowledge gaps.

The research tools and programs that we have developed or introduced include: use-and-occupancy mapping, Aboriginal cultural flows health indicator, National Cultural Flows Research Project, Strengthening connections, and the Aboriginal submissions database.

Aboriginal waterways assessment – measuring river and wetland health

The Aboriginal Waterways Assessment Program tested and adapted a Maori-originated water

assessment tool to suit Traditional Owners' preferences in the Murray–Darling Basin. The purpose of the project was to develop a tool that consistently measures and prioritises river and wetland health so that Traditional Owners can more effectively participate in water planning and management in the Basin.

Along with the Murray Lower Darling Rivers Indigenous Nations and the Northern Basin Aboriginal Nations, we worked with Dr Gail Tipa to develop the Aboriginal waterways assessment, based on her work on the cultural health indicator with Māori people in New Zealand (Aotearoa).

Three pilots were completed with the following Nations: Wemba Wemba and Barapa Barapa; Dhudhuroa and Waywurru; and Gamilaraay. Each Nation group agreed that the assessment tool and process is a culturally appropriate, safe and strengthening way to assess the health of river and wetland places.

The Aboriginal Waterways Assessment Program also:

- produced accurate, accessible and useful information
- was good for people's health and wellbeing by helping to strengthen cultural knowledge, social relationships and connection to Country
- increased Aboriginal peoples' confidence in using their knowledge in water planning and management environments
- enabled members of Nations with limited knowledge of Country to contribute to river and wetland health assessment
- provided local knowledge of biodiversity and flow conditions; extended timeframes of flow characteristics; and current observations of the local impacts of water policy and regulation
- prevented further loss of Traditional Owners' knowledge of Country by: providing an analysis of river and wetland health relative to cultural uses; recording the current state of cultural values and uses of Country; contributing to cultural transmission including historical stories; and providing valid and locally owned information for caring for Country.

Aboriginal people in Australia have not previously used the Aboriginal waterways assessment tool. The intention of the pilot was to look at what adaptations are required for the Australian context and to determine its value as a way of helping Aboriginal people articulate their cultural values for input to water planning processes.

The Aboriginal waterways assessment consists of three linked components:

Place status – a statement of whether or not the place is an area of traditional significance and whether local Traditional Owners would return to the place in the future

Current use of the place – a measure of the value of a river or wetland to Aboriginal people based on whether food and other resources are available and suitable for cultural use

Cultural stream health – a measure made up of eight individual stream health indicators, such as vegetation, riverbed condition and water quality.

It is anticipated that using the Aboriginal waterways assessment will help Aboriginal people to incorporate cultural values into environmental water management by contributing to the Basin watering strategy and developing the Basin watering priorities each year. It will also assist state governments in meeting their obligations to consider Aboriginal views in developing their water resource plans, and the Commonwealth Environmental Water Office to take account of Aboriginal cultural values and uses when evaluating priorities.

Working with the states – The Basin Plan Implementation Agreement

We work closely with the Basin states and the Commonwealth Environmental Water Office to implement the Basin Plan. This work is guided by the Basin Plan Implementation Agreement and overseen by the Basin Plan Implementation Committee, a high-level inter-governmental forum to monitor, review and make decisions about implementing the agreement. The implementation committee met four times during 2014–15, supported by four working groups: monitoring and evaluation; water resource plans; environmental watering; and the water market.

FEATURE

Listening to communities

Our work program is largely driven by input and feedback from Basin governments, communities and industries.

This year we worked with state governments to investigate how we might get better environmental outcomes with different types of river flows. We also made clear recommendations in response to community feedback and analysis that the higher flows of 77,000 megalitres in the Edward–Wakool reach be taken off the table, and they were.

We also made changes to our long-term environmental watering strategy, see page 45, based on feedback from communities across the Basin. This included describing in more detail the basis for the expected environmental outcomes and providing more information on how annual priorities will be set, especially in dry periods.

In the northern Basin the Northern Basin Advisory Committee provides valuable information and ideas on matters that concern communities. This included advice around strategically-targeted buyback of small 'sleeper' water licences in the Barwon–Darling which will help meet the shared water recovery target.

Photos by MDBA staff

Implementation work in 2014–15 included:

- publishing the Basin-wide environmental watering strategy, and expected environmental outcomes, in November 2014
- publishing the 2015–16 Basin annual environmental watering priorities
- publishing the first Statements of assurance (which outline implementation activities) from the Commonwealth Environmental Water Holder, the Basin states and the MDBA
- reviewing the Basin Plan annual report 2013–14 process and amending reporting guidelines and templates based on feedback
- agreeing with the Basin governments upon interpretations of key terms associated with implementing the Basin Plan water trading rules
- providing advice on accrediting water resource plans to ensure that the Basin states have a clear understanding of the requirements under the Water Act
- holding the annual water planners' forum to share knowledge and experience.

We also worked with the Basin governments – through the Sustainable Diversion Limit Adjustment Assessment Committee – on supply measure feasibility studies and business cases being developed by states, as well as on other policy and technical matters to do with the sustainable diversion limit adjustment mechanism.

Water trade

The Basin Plan water trading rules came into effect on 1 July 2014. The rules set out a consistent framework for water trading across the states, without duplicating existing state rules. They are designed to reduce barriers to trade, improve access to information and improve confidence in the operation of the market.

In 2014–15 we examined a number of areas where compliance with the rules may not have been occurring. The interpretation of terms and their application to administrative decision making was clarified through the trading rules working group. Where non-compliance was identified, we worked together to develop acceptable timeframes to achieve full compliance with the rules.

The MDBA complied with our own obligations under the water trading rules to publish information about state trading rules and the characteristics of different water access rights. We are planning to make further improvements as part of our website refresh in 2015–16.

We also provided a coordination role to ensure consistency in managing interstate water trade in the southern-connected Basin. This was carried out under Schedule D of the Murray–Darling Basin Agreement – *Transferring water entitlements and allocations.* In May 2015, the Ministerial Council agreed to amendments to Schedule D to ensure consistency between Schedule D and the Basin Plan water trading rules.

Since October 2014 we have worked with Basin states to manage trade capacity through the Barmah Choke. The Choke presents a challenge for river management because it limits the delivery of irrigation water during periods of peak demand. For much of the year trade through the Barmah Choke was restricted. To assist river managers and water users we have developed an online tool so that they can track available capacity in real time.

The Barmah Choke is a narrow stretch of the River Murray that begins downstream of Cobram and ends upstream of Echuca, running through the Barmah–Millewa Forest. The Choke restricts the flow of the Murray to just over 10,000 megalitres a day, which is the lowest flow in any stretch of the River Murray (some parts can carry up to 60,000 megalitres a day).

Compliance and assurance

In 2014–15 we continued to implement our compliance strategy which outlines our approach to compliance and assurance in administering and enforcing relevant parts of the Water Act and Basin Plan. We also continued to develop the Compliance Risk Management Framework which outlines a cooperative approach to implementing the strategy. The framework sets out the likelihood of non-compliance occurring and the potential consequences and options for reducing the main risks.

The framework was applied to the water trade rules to ensure it is relevant and useful. We discussed the results of the Water Trade

Compliance Risk Assessment, as well as steps to reduce risks, with the Basin states and the Commonwealth Environmental Water Office. The Compliance Risk Management Framework will be published in late 2015. A five year audit plan and a supporting audit manual will be finalised in late 2015.

Internal processes and procedures for managing allegations of non-compliance were developed in line with our compliance strategy. The internal Compliance Governance Committee met four times to oversee implementation of the compliance strategy and consider any issues of potential non-compliance.

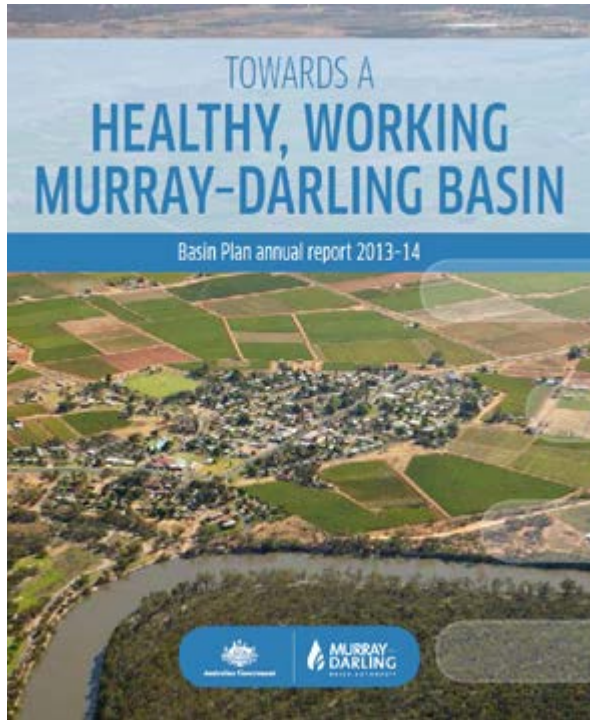
Statements of assurance

Along with the Basin states, and the Commonwealth Environmental Water Office, we agreed to publish voluntary statements of assurance. This makes it easier for the community to see how we are meeting our obligations to implement the Basin Plan. We published the first set on our website in late 2014 and they showed that all parties are making good progress in meeting their obligations <www.mdba.gov.au/what-we-do/managing-rivers/compliance/statements-of-assurance>.

Monitoring and evaluating the effectiveness of the Basin Plan – early successes

The Basin Plan sets out the objectives against which its effectiveness should be evaluated and reported. We coordinate monitoring, evaluation and reporting with Basin governments and the Commonwealth Environmental Water Holder through the Basin Plan Implementation Committee's monitoring and evaluation working group.

In 2014–15, we published the first full-year Basin Plan annual effectiveness report with information provided by the Basin states and Commonwealth Environmental Water Office. The report showed how governments are working together in consultation with Basin communities to progressively implement different elements of the Basin Plan. It also outlined the social and economic indicators that have been developed with communities.



The Basin Plan annual report identified early successes in environmental watering at a Basin scale, with environmental water reaching all priority sites.

Short-term environmental outcomes included golden perch spawning during environmental watering in the lower Goulburn River. This was only the second breeding event recorded in the last 10 years.

At this early stage the main function of the Basin Plan annual report is to track progress. It will take time to observe some of the longer-term improvements in the health of the Basin's rivers, wetlands and floodplains, and how water reforms may have affected Basin communities and industries. This will be the focus of five-yearly reports.

Along with the Basin states and the Commonwealth Environmental Water Holder we also report each year on progress in implementing different provisions of the Basin Plan. This reporting (under Schedule 12 of the Plan) is being rolled out over several years. Water trade rules were included in the 2014–15 reports.

Summary of our performance

Program performance is measured against deliverables and key performance indicators in the *Portfolio Budget Statements 2014–15* of the Environment portfolio. Some deliverables and key performance indicators go across goals so results will also be found in other sections.

A summary of our performance against the deliverables and indicators related to strategic goal 1 – integrated water management – is provided in Table 2.1.

Table 2.1 Deliverables from the portfolio budget statements for strategic goal 1 – integrated water management

Deliverables	Key performance indicators	Results
Work with jurisdictions to build up a community of best practice in water resource planning		**ONGOING** Held the second annual water planners' forum in March 2015 Held a workshop to consider the transition from the 'Cap' to SDLs, and will continue to hold workshops to consider other water planning issues that need a coordinated approach
Finalise clear transitional arrangements for the Basin Plan	Progressive accreditation of state water resource plans that meet the Basin Plan requirements for sustainable and adaptive water management	**ONGOING** Coverage of transitional and interim water resource plans extended to enable a smooth transition to water resource plans which are consistent with the Basin Plan p. 30 We continued to work with states to settle accreditation arrangements
Implement the method to calculate environmental equivalence in the sustainable diversion limit adjustment process	The sustainable diversion limit (SDL) adjustment mechanism operates to allow surface water SDLs to be adjusted to reflect the operation of robust supply and efficiency measures developed by the states	**ACHIEVED** Developed the SDL adjustment method which has been independently assessed as 'fit for purpose' p. 32 Modelled 10 projects through the SDL adjustment assessment framework. Assessed the adjustment potential of 19 projects p. 33
Progress assessment of sustainable diversion limit adjustment measures as agreed by the Basin Officials Committee		**ACHIEVED** Provided advice to jurisdictions on supply measure proposals including options for improving the proposals to increase the potential size of the adjustment The Basin Official Committee agreed that 27 projects would progress to business case p. 32
Progress research and investigation into scientific, social and economic aspects of the Basin Plan in the northern Basin	The northern Basin review will determine whether there is a robust case to amend relevant settings of the Basin Plan	**COMPLETION BY MID-2016** All northern Basin review environmental, socio-economic and modelling projects are on track for completion by mid-2016. They will inform whether the Basin Plan should be amended p. 34
Progress any adjustments of groundwater sustainable diversion limits in light of the New South Wales and Victorian reviews	The review of three groundwater sustainable diversion limit resource units determine whether there is a robust case to amend relevant settings of the Basin Plan	**ONGOING** Proposing to amend the Basin Plan in 2015–16 to give effect to the three groundwater reviews p. 31–32
Conduct Victorian groundwater sustainable diversion limit reviews as required in the Basin Plan	Completion of groundwater reviews by November 2014	**ACHIEVED** Completed the last review – the Victorian groundwater sustainable diversion limit – in October 2014 p. 31
Publish a report on all surface water and groundwater use	Reporting on water use is based on the provisional sustainable diversion limits	**COMPLETION BY LATE 2015** The 2013–14 water resources report will be published in late 2015 p. 30–31

Deliverables	Key performance indicators	Results
Collaborate with states and Commonwealth Environmental Water Office to implement the Basin Plan through the Basin Plan Implementation Committee and its working groups	Basin Plan implementation activities give effect to the principle of adaptive management Effective arrangements in place for working with Basin governments in Basin Plan implementation, with a rolling implementation work program updated annually	**ONGOING** The Basin Plan Implementation Committee, supported by its four working groups, met four times to progress the rollout of the Basin Plan p. 37, 40
Implement arrangements to ensure Basin governments and the community are involved in implementation of the Basin Plan	Local knowledge and solutions inform the implementation of the Basin Plan	**ONGOING** Community feedback informed the Basin-wide environmental watering strategy, released in November 2014 p. 38–39, 46 Local input continues to inform constraints management work Local knowledge is integral to northern Basin review projects including the social and economic work program p. 38–39
Implement water trading rules including release of guidelines and development of systems for ensuring compliance	Compliance with water trading rules	**ACHIEVED** Water trade rules published on 1 July 2014 p. 40
Implement the MDBA's compliance strategy for the Basin Plan	The compliance approach is risk based and minimises red tape	**ONGOING** Continued to implement the compliance strategy and developed an internal practice statement for managing allegations of non-compliance p. 40–41
Implement reporting arrangements for provisional sustainable diversion limit compliance		**ONGOING** The MDBA has worked with the Basin states to develop the Register of Take Framework for Implementation and trial p. 31
Publish Basin state statements of assurance		**ACHIEVED** Published a voluntary statement of assurance on compliance with relevant obligations, and voluntary statements of assurance provided by each Basin state and the Commonwealth Environmental Water Holder p. 41
Establish arrangements to meet critical human water use needs and apply, if necessary, during times of severe water storage	Effective management of critical human water needs during times of severe water shortage	**ACHIEVED** Tier 1 water sharing arrangements were in place, meaning that critical human water needs, conveyance water and conveyance reserve requirements were met p. 95
Establish Basin Plan reporting, evaluation approach and audit activities	Reporting, evaluation and audit activities indicate that Basin Plan implementation is: > improving the health of water-dependent ecosystems and ecosystem functions in the Basin > facilitating water reaching its most productive use > contributing to productive and resilient water-dependent industries	**ONGOING** Published the Basin Plan annual effectiveness report which showed early successes in environmental watering at the Basin scale, with water reaching all priority sites p. 41 Established Basin-wide environmental monitoring using existing information where possible and key environmental indicators p. 48 Published water trading rules on 1 July 2014 to contribute to an efficient and effective water market p. 40 Developed indicators and industry case studies to track social and economic impacts on communities p. 33

STRATEGIC GOAL 2

RESTORING RIVER AND ECOSYSTEM HEALTH

To protect, restore or improve the ecological health and resilience of the Murray–Darling Basin's key rivers, wetlands and other ecosystems which depend on water

Overview p. 44

Planning at a Basin-wide scale p. 45

Monitoring the health of the Basin p. 48

Better ways to manage environmental water – constraints p. 49

Coordinating environmental water in the southern-connected Basin p. 51

The Living Murray p. 51

Other river management programs p. 56

Managing salinity p. 58

Summary of our performance p. 60

Highlights

- Published the Basin-wide environmental watering strategy in November 2014.
- Published the Basin environmental water outlook, and the 2015–16 Basin annual environmental watering priorities.
- Established the Southern-Connected Basin Environmental Watering Committee.
- Completed pre-feasibility assessments, (constraints management strategy) and findings reported to Ministerial Council.
- Diverted about 434,454 tonnes of salt from the River Murray.

Overview – *towards a healthy, working Murray–Darling Basin*

As part of implementing the Basin Plan in 2014–15, we significantly strengthened the approach to environmental water planning and management so that the Basin-scale outcomes from environmental watering can be maximised.

Following extensive consultation with our government partners and Basin communities, we completed the Basin-wide environmental watering strategy. The strategy helps guide environmental watering decisions by providing a multi-year, cross-Basin perspective of the expected outcomes from the Basin Plan water reforms. The strategy includes a clear statement of the environmental outcomes expected from the Basin Plan which will also be the focus of monitoring and evaluation activities.

We also worked with state and Australian Government water holders to establish the Southern-Connected Basin Environmental Water Committee as the forum for coordinating the management of environmental water in the southern Basin. The committee also aims to simplify and streamline the way governments work together, for example the management arrangements for The Living Murray environmental water have been transferred to the committee.

Finalising the Basin annual environmental watering priorities for 2015–16 were an important input to the work of the Southern-Connected Basin Environmental Water Committee, as well as the planning for environmental watering elsewhere in the Basin. Together, these actions will help promote Basin-scale environmental outcomes and make the most effective use of environmental water.

We continued to establish a comprehensive program of monitoring and evaluation so that we can assess whether the outcomes detailed in the Basin-wide environmental watering strategy are being achieved. There was an emphasis on coordinating the monitoring and evaluation activities between MDBA and our partner governments. By integrating our activities with the work of others, we are aiming to make the best use of the data being collected.

It is widely appreciated that to maximise the outcomes from environmental watering further

work is required to address the physical, operational and management constraints which affect environmental watering. This was a major area of work for us in the past year, with the completion of pre-feasibility assessments. Basin governments will continue to work with us to develop business cases that can guide decisions by Basin ministers on which projects to proceed with.

We continued to coordinate the response to salinity, in partnership with the Australian Government and Basin state governments. Basin salinity management activities were reviewed in early 2015, and a new salinity management strategy for the next 15 years is being developed. It will be considered by Basin governments in 2015–16.

Challenges and the year ahead

In 2014–15 we made significant progress in improving the way environmental water is planned, managed, monitored and evaluated. Our key challenge is to establish strong and enduring arrangements that add a Basin perspective to environmental water planning and management that complements the locally identified priorities. This approach will maximise the environmental outcomes that can be achieved from the Basin Plan. While substantial work has already been done, much more needs to be put in place to embed the culture of cooperation and integration into everyday practice.

In the coming years we will need to continue to develop and strengthen our partnerships with Basin governments if we are to achieve our goals and shared outcomes in the most cost-effective way. This will need to cover all aspects of environmental water management, including monitoring and evaluation.

There is also much to be done in the lead up to the operation of the sustainable diversion limit adjustment mechanism at the end of 2015–16. Robust business cases for constraints on the River Murray and its tributaries will be essential for Basin governments to make sound investment decisions. These decisions will define the future operating environment for environmental watering, particularly in the southern Basin.

Planning at a Basin-wide scale

In November 2014 we published the first Basin-wide environmental watering strategy. The strategy quantifies the expected environmental outcomes for the Murray–Darling Basin over the long term, and describes water management strategies to achieve them.

The strategy is intended to guide environmental water holders, Basin state governments and waterway managers to plan and manage environmental watering at a Basin scale and over the long term to meet the environmental objectives.

In developing the strategy we worked closely with experts to develop and build on the best science. Using this science to identify realistic, measurable outcomes at the Basin-scale was an important step in improving environmental water management.

Towards a healthy, working Murray–Darling Basin

The overall environmental objectives of the Basin Plan are to:

- protect and restore the rivers, wetlands and floodplains of the Murray–Darling Basin
- protect and restore the ecosystem functions of rivers, wetlands and floodplains
- ensure that rivers, wetlands and floodplains are resilient to climate change and other risks and threats.

The Macquarie Marshes received 30 gigalitres of environmental water in 2014–15 (photo by Tracy Fulford).

The Basin-wide environmental strategy sets out our best assessment of how four important components of the Basin's rivers, wetlands and floodplains are expected to respond over the next decades – river flows and connectivity; native vegetation; waterbirds; and native fish. These components respond to environmental watering and are good indicators of the health of river systems.

Working together to deliver environmental water at the right times and places is expected to:

- improve river flows and the connection between rivers, their floodplains and, ultimately, the ocean.
- maintain the extent of vegetation on the managed floodplain and improve its conditon
- maintain the diversity of waterbird species and improve breeding success and population numbers
- maintain the diversity of fish species, extend their distributions, improve breeding success and population numbers.

The quantified environmental outcomes set out in the strategy are specific, measurable, achievable, realistic and time-bound. This is widely considered to be best practice natural resource management but can be challenging. The quantified outcomes clearly describe the future state of the Basin in a way that helps decision making and links strongly with monitoring, making it easier to evaluate and report on the effectiveness of environmental watering. Clear goals and measuring progress also facilitates adaptation and continuous improvement which are critical requirements of the Basin Plan.

The strategy was prepared with input from the Basin Plan Implementation Committee and its Environmental Watering Working Group. Technical assistance was also provided by environmental water holders, consultants and scientists.

During public consultation on the strategy we received 41 responses. Submissions were generally positive, noting that the strategy provided a framework for Basin-scale, long-term thinking, and will assist the community to understand what the Basin Plan will achieve with environmental water. The submissions led to a number of improvements to the strategy, including describing the basis of expected outcomes, adding information on key fish sites and describing how water will be managed in dry periods. We outlined the way we used public feedback to refine the draft strategy in a consultation report published on our website <www.mdba.gov.au>.

With the long-term outcomes now quantified, we will concentrate on setting annual environmental watering priorities that will help achieve the long-term outcomes. Monitoring and evaluating key environmental indicators, such as waterbird abundance and extent of vegetation, will help determine if the outcomes are being achieved.

Using environmental water effectively

In March 2015 we published the Basin environmental watering outlook for 2015–16. The outlook describes past seasonal conditions, presents the forecast rainfall and temperature from April to June 2015, and includes information on the volume of water held in storages. The outlook outlines our early thinking on potential watering opportunities for the identified climate scenarios. It provides an opportunity to obtain feedback from environmental water holders and managers on the potential watering opportunities.

Each year we work with the Basin states to develop and publish the Basin annual environmental watering priorities. Priorities are the annual expression of the longer-term objectives of environmental watering (as set out in the strategy) and respond to short-term changes in water availability, weather and the environmental condition. Annual priorities provide important guidance from a whole-of-Basin perspective.

The priorities aim to:

- achieve the most effective use of environmental water
- promote Basin-scale environmental outcomes
- coordinate watering between environmental water holders and managers.

This was the first year priorities were able to be prepared to be consistent with the Basin-wide environmental watering strategy. Accordingly, the priorities for the 2015–16 water year are the first step towards meeting the environmental objectives set out in the watering strategy.

The 2015–16 priorities were written to accommodate a range in conditions across both the dry and moderate scenarios and are aimed at maintaining ecological health and ecosystem resilience throughout the Basin.

Environmental watering in line with the seven Basin-wide priorities for 2014–15

1 *Gwydir Wetlands*

Water was delivered to the Gwydir Wetlands, including a full watering of the Gingham and lower Gwydir wetlands, including Ramsar sites.

RESULTS | A flow was also provided for fish in the Mehi River and water was delivered to Mallowa Creek

2 *Mid-Murrumbidgee wetlands*

Water was delivered to Yarradda Lagoon – a nationally significant wetland in the mid-Murrumbidgee.

RESULTS | Contributed to the recovery of aquatic vegetation. Brolgas and the very rare Australasian bittern were recorded in the wetlands.

3 *Macquarie (Wambool) River*

Environmental water was released in the Macquarie River to take advantage of new temperature control curtain infrastructure.

RESULTS | Early reports indicate that opportunities for native fish migration and spawning were provided.

4 *Connectivity in the River Murray system*

Water was delivered to several sites down the length of the River Murray, including Gunbower Forest, Hattah Lakes, Koondrook–Perricoota Forest, Mulcra Island and the Chowilla floodplain.

RESULTS | The environmental flows provided connectivity in the River Murray system, improved vegetation and native fish populations and provided carbon and nutrient cycling between the floodplain and the river.

5 *Winter flows for fish in the southern Basin*

Water was provided for two spring 'freshes' in the Goulburn River. Environmental water was also delivered to Gunbower Forest in winter and spring 2014.

RESULTS | The freshes triggered spawning and migration of golden perch. Silver perch also spawned, which was a significant outcome for this threatened species. Watering Gunbower Forest promoted river red gum health, and triggered a significant breeding opportunity for small-bodied native fish.

6 *Native fish in the northern Basin*

30 gigalitres of water was provided to the Macquarie Marshes.

RESULTS | Sustained semi-permanent wetland communities.

7 *Waterbird refuges*

Environmental water was provided for the Macquarie Marshes, Gwydir Wetlands, lower and mid-Murrumbidgee, Lower Lakes and the Coorong.

RESULTS | Contributed to maintaining waterbird habitat, refuge sites and food sources.

- Connect rivers and floodplains (1 and 2)
- Support in-stream functions (3 to 5)
- Enhance and protect refuge habitat (6 and 7)

Monitoring the health of the Basin

Basin-wide environmental monitoring has focused on establishing routine data collections for ecological information. This includes annual fish and waterbird surveys, and annual assessments and modelling of the condition of woody vegetation. Models for woody vegetation condition assessment are now well established for the southern Basin, and are being scoped for the northern Basin.

Flood inundation models are also being developed, and will be linked with the vegetation models for a quantitative assessment of the effects of flooding on vegetation.

We have begun work on aligning the monitoring data collected for fish and birds, with the outcomes of the Basin-wide watering strategy. This includes investigating the contribution of Basin Plan watering events to the observed outcomes, and comparing the observed outcomes with expected outcomes. The surveys will need to collect data over a longer term to evaluate the effects of implementing the Basin Plan on the environmental condition of the Basin.

Coordinating Basin-wide and site monitoring

A program has been established to integrate Basin-scale and site-based monitoring and evaluation. We consulted with the Basin states to develop an investment proposal, a governance model and a work program for 2015–16. A new investment of $800,000 was approved by Ministerial Council for 2015–16 under the joint program funding. Two staff dedicated to the project will provide coordination, planning and project management.

The program will work on fully integrating monitoring activities carried out across the Basin, by the states, Commonwealth Environmental Water Office and the MDBA, on hydrology, inundation, vegetation, fish and waterbirds. This will ensure that governments avoid duplication and get the maximum value from the data. The investment proposal includes 12 projects which cover monitoring work already occurring as well as projects identified as a future requirement.

One project will involve assessing the condition of woody vegetation through field measurements that can be used to 'train' remote sensing technology. This means that vegetation condition will be able to be assessed over large areas where field data is not available.

Surveying fish and waterbirds

We contracted researchers to conduct annual Basin-wide surveys of fish and waterbirds over four years. These surveys will provide important information on how fish and waterbird are responding to environmental water flows, and broader environmental conditions across the Basin.

The first of the annual waterbird surveys was completed in November 2014. During the survey period six waterbird species were observed breeding at six sites – black-winged stilts, straw-necked ibis, Australian white ibis, pelicans, great cormorants and royal spoonbills. Kerang Wetlands had the greatest nesting activity with over 3,000 nests estimated for straw-necked and Australian white ibis.

Black-winged stilts were one of the six waterbird species recorded nesting in the Basin during the annual waterbird survey in November 2014 (photo by Curtis Hayne).

The annual fish surveys were also completed in the first half of 2015. We are still in the process of receiving and validating data for 145 sites across the Basin.

Sustainable rivers audit 2011–2013

At the request of Basin states, we sampled fish and macro-invertebrates across the Basin from 2011 to 2013. This corresponded to a period of relatively wet conditions. The sampling

programs complemented previous stages of the sustainable rivers audit that assessed ecological condition from 2004 to 2010, a very dry phase. We completed an analysis of the wet versus dry phases in June 2015 to present to Basin governments.

The sustainable rivers audit has provided an important foundation for ongoing fish monitoring. Analyses showed that some fish species exhibited different responses to wet versus dry conditions, and that wet conditions favoured some pest species as well as native species. This indicates that broader activities including good land management practices are essential for the sustainable management of native species. Trends were less clear for macro-invertebrate species.

Better ways to manage environmental water *– constraints*

On behalf of the Basin states we are investigating better ways to manage environmental water to ensure that water is delivered as efficiently and effectively as possible.

> Water can only be delivered at certain flow rates and at certain times so that there are no unacceptable impacts on local communities – these limitations are known as 'constraints'. Constraints can be physical structures along or near a river, such as bridges and roads, or rules or practices that can limit how water can be delivered.

Before rivers were regulated water would regularly flow out of the main river channels into surrounding creeks and flood runners, and onto the floodplains adjacent to the river, especially in late winter and spring. River regulation means that now the creek flows and small overbank flows do not happen as often as they used to. While we will never try to change the system back to natural, addressing constraints will mean we can deliver some of the small overbank flows that used to happen regularly in our rivers, and look after the plants and animals that depend on them.

The constraints management strategy, which was published in November 2013, sets out a 10-year program for addressing constraints to improve environmental outcomes within the Basin. The strategy identifies seven key locations where physical constraints could limit the delivery of environmental water: the Gwydir, Murrumbidgee, Goulburn, lower Darling, and the River Murray, including the reach between Hume and Yarrawonga, Yarrawonga to Wakool Junction and the River Murray in South Australia. The strategy also identifies significant operational and management constraints that require further investigation.

Pre-feasibility assessment

In 2014–15 we conducted pre-feasibility assessments of physical constraint areas. This work included:

- sharing inundation mapping with communities to understand the effects of higher river flows, at a local level
- investigating the benefits of different types of environmental flows at a local level and across the Basin
- investigating ways that we might be able to overcome any negative effects of addressing constraints (for example upgrading roads or purchasing easements over a parcel of land) to allow higher flows to pass, and working out what this might cost.

Independent consultants were employed to work out the broad costs of addressing constraints. This work included estimating costs for bridges and roads that might need to be upgraded if environmental flows were higher, and the costs of purchasing easements on low-lying areas of private land.

In 2014–15 we published the following reports on the pre-feasibility work:

- the *Constraints management strategy annual progress report 2013–14*
- seven reach reports, one for each key focus area. They described the technical work that had been completed for each reach and stakeholder feedback on what higher flows might mean for people living and working on the floodplain
- the *Constraints management cost estimates report*
- the *Constraints management strategy pre-feasibility priority constraints analysis report.*

In late 2014, we completed the pre-feasibility assessment and provided Basin water ministers with key findings and recommendations from the assessment. Ministers accepted the recommendation that research into addressing physical constraints should continue in all of the seven key areas.

In the River Murray, we are continuing to investigate constraints on behalf of the Basin governments. In the Goulburn, Murrumbidgee, Gwydir and lower Darling regions, the state governments are leading the work on constraints, with support from us.

The water ministers also accepted the key findings that out of the nine operational and management constraints identified in the constraints management strategy, the following should be implemented as a matter of priority:

- delivering environmental water on top of other instream flows
- using environmental water at multiple sites as it travels along the river system
- protecting environmental flows from extraction and re-regulation
- developing an equitable and transparent arrangement for sharing channel capacity.

In 2015, research into constraints focused on refining the cost estimates that were developed in 2014. This has involved working closely with landholders, local governments and businesses to make sure we understand the effects of constraints and cost mitigation options to address any negative effects that might result from higher flows. This included developing more refined estimates for infrastructure upgrades such as bridges and roads, understanding the ways flows will affect different agricultural businesses, and making sure that effects on other businesses, such as caravan parks, which are often located on river banks, are included in this phase of work.

Consultation with communities has also continued. To help address concerns we have continued to investigate the risk of increased flooding, and the likely frequency, timing and duration of environmental flows.

At the states' request, we are also examining how to modify river operations on the River Murray to address the key constraints. We will make recommendations to the states because they are ultimately responsible for the rules and policies for operating the rivers. New South Wales, Victoria and South Australia are also examining how to modify river operations in their states.

Developing business cases for constraints on the River Murray

On behalf of the Basin states we are developing business cases for constraints on the River Murray – Hume to Yarrawonga, Yarrawonga to Wakool Junction and the lower River Murray (South Australia). This will assist Basin ministers to decide on investment priorities. The business cases will include refined cost estimates, hydrological information, community consultation undertaken, and information on the benefits, costs and risks associated with addressing constraints at various flow rates. Independent consultants will help refine the cost estimates.

Finalising the constraints business cases by 30 November 2015 will allow Basin governments to decide which projects should be implemented in conjunction with the supply measure projects in the sustainable diversion limit adjustment process. This decision will be made by June 2016.

Talking about constraints in the Hume–Yarrawonga area (photo by Rachel Clarke, MDBA).

Coordinating environmental water in the southern-connected Basin

At the beginning of 2014–15 the total volume of held environmental water in the southern-connected Basin was around 2,190 GL. This water is held by a number of different environmental water holders, including:

- the Commonwealth Environmental Water Holder
- The Living Murray program
- the Victorian Environmental Water Holder
- the NSW Office of Environment and Heritage
- the South Australian Department of Environment, Water and Natural Resources.

The southern-connected Basin is a term used to describe the River Murray and regulated reaches of its major tributaries, which include Murrumbidgee, lower Darling, Kiewa, Ovens, Broken, Goulburn, Campaspe and Loddon rivers.

The Southern-Connected Basin Environmental Water Committee was established in January 2015 to facilitate coordination between the five environmental water holders, listed above, and maximise environmental outcomes in the southern-connected Basin. We coordinate the committee, which has two functions:

- coordinate the planning and delivery of all environmental water in the southern-connected Basin to maximise environmental outcomes. Decisions in relation to the allocation of water from the respective portfolios are retained by the individual environmental water holders
- make decisions on the planning and use of water available under The Living Murray portfolio, River Murray Increased Flows and River Murray Unregulated Flows.

From January 2015 the committee set about establishing processes and frameworks for the coordination of environmental water, which included risk management strategies and communication protocols.

From early February the committee began planning for the coming water year (2015–16). The Basin states submitted proposals in March that identified all proposed environmental watering opportunities across the southern-connected Basin. Modelling carried out by the MDBA was used to help assess the proposed water actions and to identify opportunities for alignment. This work will continue to direct the coordinated delivery of environmental water and aim to maximise the environmental outcomes that are achieved across the southern-connected Basin.

The Murrumbidgee River, one of the major tributaries of the River Murray (photo by Arthur Mostead)

The Living Murray program

The Living Murray program is managed by the MDBA on behalf of the joint governments (Australian Government, New South Wales, Victoria, South Australia, Australian Capital Territory). It does so with a view to integrating with the work of the other environmental water holders to achieve the best possible outcomes from the available environmental water, consistent with the Basin Plan and the Basin-wide environmental watering strategy.

This work involves planning and delivering environmental water, constructing and operating water management structures, monitoring environmental watering outcomes, modelling to support planning and decision making, and engaging with local communities.

Implementation of The Living Murray program in 2014–15 focused on:

- ensuring that it is consistent with the Basin Plan

- maximising the coordination of environmental watering through streamlined and cost-effective arrangements and governance
- maximising commitment and accountability for environmental watering outcomes and mitigation of any risks.
- transitioning the coordination of The Living Murray water portfolio from the Environmental Watering Group to the Southern-Connected Basin Environmental Water Committee.

Prioritising and planning

The Living Murray annual environmental watering plan for 2014–15 was jointly developed by the MDBA and the Environmental Watering Group. The plan sets out the decision framework for prioritising The Living Murray environmental watering actions across the River Murray system for the coming water year.

The Living Murray annual environmental watering plan is consistent with the Basin Plan and considers the Basin Plan annual environmental watering priorities.

Planning for 2014–15 focused on providing water to test the recently completed water management structures and to optimise ecological outcomes. Testing the structures, initially with smaller flows, is important so that we can be sure that they operate effectively and meet with design specifications.

Delivering environmental water to the target sites

Operational advisory groups were established at target sites to oversee and provide advice on delivering environmental water. The advisory groups allowed partner governments to track the water delivered, provide real-time operation advice and to manage potential risks, such as water quality and access issues.

In 2014–15 the six target sites received a total of 1,119 GL of environmental water. This included 285.5 GL from The Living Murray portfolio. About 100 GL of this water was able to be re-used at downstream sites. To deliver water to these sites, flows were coordinated with other environmental water managers and river operators throughout the southern-connected Basin.

Gunbower Forest case study

The Victorian Environmental Water Holder and The Living Murray began a coordinated delivery of environmental water to Gunbower Forest in late May 2014. Over 3,800 hectares of river red gum and black box forest and wetlands were inundated. In addition to successfully testing the new water management structures the watering improved the health of river red gum and black box communities, as well as connected the Gunbower Creek, Gunbower Forest and the River Murray making it possible for both small and large-bodied fish to travel between these systems.

Koondrook–Perricoota Forest case study

The Living Murray and partner agencies in New South Wales began a coordinated delivery of environmental water to Koondrook–Perricoota Forest in early August 2014 to test the new water management structures and to achieve environmental benefits. Over 4,200 hectares of wetlands and floodplain forest were inundated stimulating a strong vegetation response. Larval native fish and frogs were recorded within the wetlands as well as colonial nesting waterbirds, including ducks, herons and ibis. Small-bodied native fish moved through the inlet's vertical slot fishways, demonstrating its importance in providing a connection between the river and the forest floodplain.

Hattah Lakes case study

The Victorian Environmental Water Holder and the Commonwealth Environmental Water Office began a coordinated delivery of The Living Murray environmental water to Hattah Lakes in May 2014. The watering aimed to build on the successful ecological outcomes in 2013–14. Over 6,100 hectares of lakes, wetlands and floodplains were inundated. This included outer floodplain black box communities which had not received water in over 20 years. The watering encouraged waterbirds to breed, and juvenile native fish were observed, including Murray cod, silver perch and golden perch.

The watering also tested the water management structures to water levels approaching the design capacity. Water released from Hattah Lakes after the event returned to the River Murray and was delivered to the Lower Lakes, Coorong and Murray Mouth, providing more environmental benefits.

Mulcra Island case study

The Commonwealth Environmental Water Office and the Victorian Environmental Water Holder coordinated the environmental watering, building on the successful environmental outcomes in 2013–14. Between August and December 2014, water was diverted from the River Murray, upstream of Lock 8, into the Potterwalkagee Creek anabranch. Horseshoe Lagoon was filled and the Mulcra floodplain was inundated. The water then re-entered the River Murray downstream of Lock 8.

The health of river red gums and lignum shrublands improved as did the connection between the Mulcra floodplain and the River Murray. This allowed fish to move between the systems. The watering also tested the operation of structures at Mulcra Island.

Chowilla floodplain case study

The Living Murray water was delivered to Chowilla floodplain from early September, watering over 3,000 hectares of wetlands and floodplains. The watering generated a strong ecological response including the emergence of river red gum saplings. Over 25 waterbird species were observed and six species of frogs, including the nationally endangered southern bell frog.

The environmental watering also tested the regulators and the Chowilla Island loop channel. Water returning from the Chowilla floodplain to the River Murray contributed to downstream watering at the Lower Lakes, Coorong and Murray Mouth.

Lower Lakes, Coorong and Murray Mouth case study

Environmental water was delivered to the Lower Lakes, Coorong and Murray Mouth across the year utilising return flows from the upstream watering actions at Hattah Lakes and Chowilla floodplain.

Environmental water provided flows to support the breeding of native freshwater and estuarine fish (including congolli and the common galaxias) and invertebrates. The flows improved the health of fringing wetlands and provided connectivity between wetlands and the River Murray. Flows supported the continued lowering of salinity levels in Lake Alexandrina and Lake Albert and the export of salt and sand though the Murray Mouth.

River Murray channel

Planning the delivery of environmental water to the target sites also considered environmental outcomes for the River Murray channel through the timing of water delivery and return flows. In 2014–15 the River Murray channel benefitted from environmental water returning from floodplains and wetlands carrying small fish, carbon and other nutrients. In South Australia flows were actively managed to promote native fish breeding in the channel.

Improving social and environmental outcomes

Environmental water, under the Basin Plan, achieves considerable ecosystem benefits at both site and system scales. Establishing the Southern-Connected Basin Environmental

Environmental water supported the breeding of native fish, including congolli (photo by Scotte Wedderburn, University of Adelaide)

Water Committee in January 2015 represents a major step in formalising the coordination of environmental water in the southern-connected Basin. It will provide opportunities to maximise environmental outcomes by all environmental water holders.

Basin governments have agreed that The Living Murray infrastructure projects will be considered as supply measures under the sustainable diversion limit adjustment mechanism in the Basin Plan, page 32. An adjustment to the sustainable diversion limit reduces the volume of water that needs to be recovered and will contribute to improved social and economic benefits while providing system-wide environmental benefits.

The Living Murray environmental monitoring program

The Living Murray environmental monitoring program provides information about the responses to environmental watering actions and the environmental condition of the target sites. This information provides evidence to support future watering and management actions. It also integrates with other environmental watering carried out at the Basin scale, and by the states at the site scale.

Monitoring includes real-time information, such as water quality, for managing water events and medium to long-term information to assess progress towards improving the health of the target sites. Three types of monitoring are conducted as part of The Living Murray monitoring program – site condition monitoring, intervention monitoring and River Murray system-scale monitoring.

Monitoring the health of the target sites

Site condition monitoring provides information about the health of individual sites, including how the condition changes through time. Site condition monitoring focuses on fish, waterbirds and vegetation. In 2014–15 work continued on refining condition monitoring to better define ecological targets and improve future assessments of condition.

Monitoring environmental responses to watering

Intervention monitoring assesses ecological and other responses to The Living Murray watering and management actions. It provides the major link to understanding how specific environmental management actions result in changes at target sites, enabling adaptive management.

The priority projects this year monitored the testing and first use of new water management structures at Gunbower Island, Mulcra Island, Hattah Lakes and Chowilla floodplain. This included collecting data on the flow of water and changes in the natural environment to inform decision making. Data from this monitoring is important to inform modelling and water accounting as well as to manage the initial use of the water management structures. This

Good numbers of Murray hardyhead were recorded (photo by Scotte Wedderburn, University of Adelaide)

The value of monitoring – threatened fish species in the Lower Lakes

Three threatened small-bodied fish species inhabit the Lower Lakes – Yarra pygmy perch, southern pygmy perch and Murray hardyhead. All experienced a severe decline in numbers during the millennium drought. Since then a number of programs have sought to re-establish populations of these fish.

Condition monitoring helps to determine if populations are recovering. In 2014–15 good numbers of Murray hardyhead and southern pygmy perch were recorded in several locations, indicating that the population recovery identified in 2013–14 was continuing. No Yarra pygmy perch were recorded and this species will probably require a re-introduction program. These results highlight the value of condition monitoring, because it identified the species which need extra resources if recovery is to be successful.

information will also help to optimise the future use of the structures to achieve ecological objectives at the sites, and across the River Murray system.

Monitoring fish at Gunbower forest

Under natural conditions, Gunbower forest in north central Victoria would have flooded regularly, providing breeding habitat for small-bodied native fish. River regulation has reduced the frequency of such flooding. The completion of the Hipwell Road regulator and channel this year, has allowed water to be delivered to the forest to replicate a more natural flooding regime.

During its first operation in 2014–15 small-bodied fish, mostly Australian smelt and carp gudgeons, bred in large numbers in the forest. At one point monitoring recorded 14,000 smelt and carp gudgeons moving from the forest into Gunbower Creek, over a two-hour period. Monitoring also showed that these fish moved from the floodplain much earlier than the pest species common carp. As water receded from the forest and carp started to move from the forest the fishway was closed to prevent the carp returning to Gunbower Creek.

Monitoring bush birds at Hattah Lakes

Hattah Lakes is located in the mallee of north-west Victoria and is home to many bird species, including the endangered regent parrot. The lakes are naturally flooded during high flows in the Murray, but river regulation has reduced the frequency and extent of flooding.

In recent years environmental water has been pumped into the lakes to replicate natural inundation. Monitoring during 2014–15 examined the use of various habitats by bush birds, including both areas that had and had not been inundated. Monitoring showed that birds were significantly more common in areas that had been inundated. Flocks of regent parrots were observed feeding in areas that had been flooded 2 or 3 years earlier, suggesting that the benefits of watering last at least that long.

Monitoring the River Murray system

Monitoring at the River Murray at a system-scale is designed to assess whether the overall health of the River Murray system has improved. To assess change at such a large spatial scale, monitoring has focused on developing a method to evaluate the condition of floodplain trees.

The endangered regent parrot at Hattah Lakes (photo by Vic Hughes, MDBA).

The floodplain tree-stand condition monitoring project, now in its seventh year, combines field measurements, satellite imagery and other data to calculate the condition of river red gum and black box forests and woodlands at the sites. The project allows conditions across the sites to be compared, as well as change to be assessed within the sites and across the Murray system over time.

In 2013 and 2014 this monitoring approach was used to assess the condition of river red gum and black box forest in target sites. The results show that the area of forest in good condition increased in most of the sites following flooding and environmental watering. Regular watering of the floodplain will be required to continue to improve the health of the forests following a decade of drought.

More information about environmental monitoring and evaluation in the Basin can be found on our website <www.mdba.gov.au>.

Working with Aboriginal communities

The Living Murray Indigenous Partnerships Program enables Aboriginal community knowledge, values and perspectives to be

considered in managing the target sites and environmental watering activities. This year the program employed six Indigenous facilitators to identify opportunities for planning and managing the sites, and to ensure that Aboriginal knowledge and cultural values are considered and protected.

Facilitators in Victoria are based with the Goulburn-Broken Catchment Management Authority (CMA), North Central CMA and the Mallee CMA. In South Australia they are based with the Department of Environment, Water and Natural Resources and the Ngarrindjeri Regional Authority.

Major highlights for 2014–15 included:

- conducting workshops to gain Ngarrindjeri, Yorta Yorta, Barapa Barapa and other groups' input concerning cultural values into 2015–16 watering priorities
- Indigenous facilitators participating in meetings of the Murray Lower Darling Rivers Indigenous Nations advisory groups
- providing updates on The Living Murray activities in 2014–15 to Yorta Yorta and Barapa Barapa Elders, as well as developing watering priorities for 2015–16
- Ngarrindjeri people providing input into new and emerging ecological research programs in the Lower Lakes, Coorong and Murray Mouth relating to water management and ecology
- Ngarrindjeri people providing assistance with sampling activities for the Lower Lakes threatened fish monitoring program
- running information sessions for Barapa Barapa and Yorta Yorta people about environmental water management
- inspecting cultural sites at Hattah Lakes following the watering event.

Other river management programs

Monitoring water quality in the River Murray

The MDBA coordinates the River Murray Water Quality Monitoring Program. This program is significant at an international level in that it covers a range of geographic areas, 2,500 kilometres of the River Murray, and has been going for 35 years.

With a much reduced budget, we continued delivering an effective and efficient monitoring program during 2014–15 in partnership with

MDBA staff member Tapas Biswas assisting Paul McInerny, from the Murray–Darling Freshwater Research Centre with water sampling in the River Murray at Tailem Bend, South Australia.

New South Wales, Victoria and South Australia. Extensive sampling and analysis was carried out at all 28 locations and phytoplankton was surveyed at 12 sites. River Murray water quality was within acceptable limits for recreation, irrigation and drinking.

We continued monitoring macro-invertebrates at 12 locations in the Murray and Mitta Mitta rivers to help understand the long-term ecological health of the river. The monitoring data provides a unique record of the cause (water chemistry) and effect (macro-invertebrate) relationship in determining the health of rivers in response to climate, flow, water quality and river management changes. The data revealed a substantial decline in biological health throughout the River Murray during the millennium drought (1997–2009), a period associated with low flow and poor water quality.

By combining morphological and molecular information, we added 271 DNA barcodes of the River Murray macro-invertebrate species to a newly created database – aquatic insects of Australia. This represents 40% of the specimens on the database and greatly enhances our ability to develop a rapid identification method.

A recent review by the Murray–Darling Freshwater Research Centre concluded that our biological monitoring program is an outstanding resource that will contribute to evaluating the success of the Basin Plan in improving the health of the Basin.

Assessing development proposals

Under the Murray-Darling Basin Agreement, the Basin states must refer any development proposals that may significantly affect the flow, use, control or quality of River Murray water to the MDBA for assessment. This year to streamline this process we consulted with the Australian Government and Basin state governments to develop guidelines on the types of developments that require referral, and how they would be assessed.

During 2014–15 we assessed about 30 proposals from local governments within the Basin, compared to 40 proposals last year, and 50 the year before. This has helped to reduce costs and time for developers and local governments while still ensuring appropriate evaluation of higher risk activities.

Managing pest fish

Despite a much reduced budget, we engaged the Condamine Alliance to implement the Northern Basin Tilapia Exclusion Strategy. By communicating targeted messages, overall awareness has increased and the risk of tilapia entering the Murray–Darling Basin has been reduced. A series of targeted education programs were also conducted, giving community members the skills to identify tilapia and report any sightings.

The freshwater fish tilapia is a major threat to our native fish and freshwater environments. They are listed in the top 100 of the world's worst pests. They consume native fish and compete for food and nesting space. Less than three kilometres now separates tilapia from entering the Murray–Darling Basin.

Tilapia is listed in the top 100 of the world's worst pests (photo by Matt Barwick).

We also funded the Arthur Rylah Institute to conduct a study on how flow affects carp behaviour. This resulted in a decision-making tool and recommendations to help river operators make environmental watering decisions that will help minimise the negative impacts of carp.

Showcasing river restoration – demonstration reaches

To increase communication about positive monitoring results we provided a small amout of funding to showcase river restoration activities along the Ovens River, Holland's Creek, upper Murrumbidgee and dewfish demonstration reaches.

The results included improved populations of Macquarie perch, two-spined blackfish and river blackfish at Holland's Creek; improved Murray cod and trout cod populations at Ovens River demonstration reach; and Murray cod and golden perch inhabiting fish hotels in the dewfish demonstration reach. Activities in the upper Murrumbidgee demonstration reach not only included extensive communication, monitoring and intervention, but also secured funding from other sources to continue demonstration reach activities.

A demonstration reach is where members of the community work with government agencies on part of a river to help native fish, for example by restoring habitat.

We engaged the Australian Rivers Restoration Centre to host and maintain the Finterest website <www.finterest.com.au>, a legacy product of the native fish strategy which continues to share what is being done in the Murray–Darling Basin to restore native fish populations. Between January and June 2015 the website received over 6,600 visits and about 10,000 web page views. A blog post on tilapia was viewed over 3,000 times and shared over 700 times.

Installing a fish hotel to help improve Murray cod and trout cod populations in the Condamine River (photo courtesy of Condamine Alliance).

Managing salinity

The impact of increasing salinity has long been recognised as a significant issue in the Murray–Darling Basin. We continue to coordinate the response to the salinity threat through a partnership with the Australian and Basin state governments. This partnership and consistent effort over 27 years has helped achieve the Basin salinity target at Morgan, which aims to maintain salinity below 800 EC for 95% of the time, see Table 2.2, and has had a positive impact on salinity levels, see Figure 2.4 on page 59. Throughout 2014–15 salinity at Morgan was generally below 460 EC with a short peak of 575 EC.

An overview of the impact of salinity management strategies is shown in Figure 2.4.

Salt interception

A significant achievement of salinity management in the Basin has been commissioning strategically located salt interception schemes to divert hyper-saline water from entering the River Murray system. In 2014–15 salt interception schemes diverted about 432,454 tonnes of salt away from the River Murray system, see Chapter 4, page 96.

Registering the impacts of actions on salinity

Under the Basin salinity management strategy, actions that increase and decrease average river salinity are accounted as debits and credits and are recorded in a salinity register. Actions such as new irrigation developments may generate a debit on the register because they may increase salt loads to the River Murray. By comparison, actions such as commissioning salt interception schemes and improving irrigation practices may generate credits (a positive impact on salinity).

Table 2.2 Summary of salinity levels (EC) recorded at Morgan, South Australia

Period	Time interval	Average	Median	95th percentile	Peak	% time >800 EC
1 year	July 2014–June 2015	298	281	459	575	0
5 years	July 2010–June 2015	322	305	494	650	0
10 years	July 2005–June 2015	379	359	622	768	0
25 years	July 1990–June 2015	473	445	770	1087	4

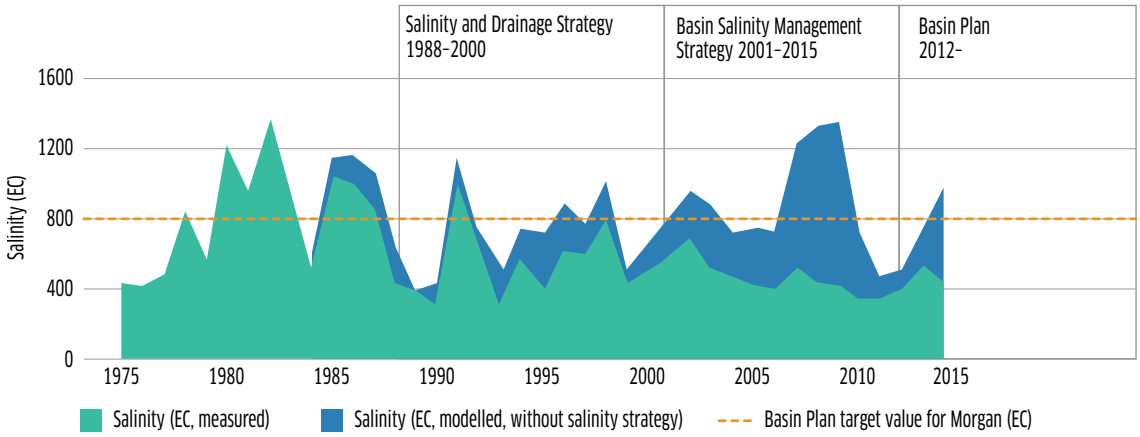


Figure 2.4 River Murray salinity at Morgan and impact of management strategies

Each entry in the register covers salinity impacts on the river arising from recent actions (Register A) as well as from major historical land and water use decisions (Register B) in tributary valleys. Each year the Basin states inform us about reviews of existing register entries and new activities that have significant salinity effects.

We calculate the salinity debits and credits of these activities and update the salinity registers to be reviewed by independent salinity auditors. In November 2014 the auditors confirmed that the contracting governments of New South Wales, Victoria and South Australia remained in net credit on the salinity register (the Australian Capital Territory and Queensland do not have significant salinity impacts). These outcomes were reported to the Murray–Darling Basin Ministerial Council and published on our website <www.mdba.gov.au>.

Planning for the next 15 years

Along with partner governments we reviewed the Basin salinity management activities because of emerging and expected significant changes in river salinity associated with recovery and use of water under the Basin Plan, as well as future development activities. This review was published in March 2015.

The review highlighted the need for a new strategy for the next 15 years. The new strategy is well underway and will be provided to Ministerial Council for consideration in 2015–16.

STAFF SNAPSHOT

Meet Janet

– why I work where I work

I work with the MDBA because I am passionate about rivers.

I've also always had a fascination for fish and their hidden lives beneath the water.

I've been very lucky to spend ten years as a fish ecologist working through droughts and floods in some amazing rivers. Working to support Australia's special rivers is why I joined the MDBA in 2008.

At the moment I'm working on the constraints management strategy. We are looking to see if it is possible to allow rivers to connect with their floodplains more often.

However, the best thing about my job is the people I meet in the Basin. Every person has a different story or perspective and brought together they really improve the work we are trying to do for the Basin's rivers.

Scan to find out more about Janet.

Summary of our performance

Program performance is measured against deliverables and key performance indicators in the *Portfolio Budget Statements 2014–15* of the Environment portfolio. Some deliverables and key performance indicators go across goals so results will also be found in other sections.

A summary of our performance against the deliverables and indicators related to strategic goal 2 is provided in Table 2.3.

Table 2.3 Deliverables from the portfolio budget statements for strategic goal 2 – Restoring river and ecosystem health

Deliverables	Key performance indicators	Results
Implement the Basin Plan reporting, evaluation and audit framework that allows assessment of ecosystem health function and response	Basin Plan implementation is improving the health of water-dependent ecosystems and ecosystem functions in the Basin as indicated by the targets in Schedule 7 of the Basin Plan	**ONGOING** Published the Basin-wide environmental watering strategy which provides specified targets that are being used to develop the evaluation framework p. 47–48 Began biological surveys which will help to detect ecological responses over the five year time frame p. 50
Publish the Basin annual environmental watering priorities by the end of June each year	Basin annual and long-term environmental watering priorities are met and provide a Basin perspective over and above state priorities	**ACHIEVED** An environmental watering outlook was published in March, and priorities were published by the end of June p. 48–49
Finalise the Basin-wide environmental watering strategy by November 2014	Basin Plan implementation is improving the health of water-dependent ecosystems and ecosystem functions in the Basin	**ACHIEVED** Published the Basin-wide watering strategy in November 2014 p. 47–48
Publish a report on the use of held environmental water in the Basin		**COMPLETION BY LATE 2015** The 2013–14 water resources report will be published in late 2015 p. 32–33
Undertake the pre-feasibility assessments under the constraints management strategy	The constraints management strategy leads to the implementation of measures that allow environmental water to be used more effectively, while addressing impacts on third parties	**ACHIEVED** Reported the findings and recommendations from the pre-feasibility assessments to Ministerial Council in October 2014. Ministers agreed to continue investigations through developing business cases in all seven key focus areas p. 51–52
Publish The Living Murray annual water plan by the end of June each year	Positive report from the Independent River Operations Review Group in relation to The Living Murray water	**ACHIEVED** Completed in June 2015
Work with states to develop transitional options for future arrangements for The Living Murray (TLM) program	The Living Murray transition arrangements complement the Basin Plan environmental watering plan and are supported by Basin governments.	**ONGOING** Worked with Basin governments to develop arrangements for TLM that complement the Basin Plan environmental watering plan. This included establishing the Southern-Connected Basin Environmental Watering Committee to coordinate the delivery of all environmental water in the southern-connected Basin p. 53
Synthesis of monitoring of The Living Murray icon sites		**ONGOING** With state partners have continued to synthesise the monitoring findings from The Living Murray icon sites p. 56–57

Deliverables	Key performance indicators	Results
Develop planning tools to inform the prioritisation of environmental water delivery and other water management activities	Reporting on environmental watering implementation and outcomes influences subsequent planning and priority setting	**ONGOING** In consultation with the Southern Connected Basin Environmental Watering Committee developed planning tools to help inform environmental planning and delivery p. 53
Carry out River Murray water quality monitoring program as supported by joint governments		**ONGOING** Data has been collected by the states p. 58
Estimate salt discharge from River Murray system		**ACHIEVED** This is reported every year in the Basin Plan annual report. The three year average is 1.5 million tonnes
Produce material to support implementation of the water quality and salinity management plan	Water quality and salinity targets in the Basin Plan are met and risks are considered and mitigated	**ACHIEVED** Achievement of water quality and salinity targets were assessed and reported consistent with the water quality and salinity management plan. All entities, including the MDBA, have considered water quality and salinity risks when making decisions about water use and management p. 60
Prepare salinity registers and reports	Salinity accountability framework assists governments in meeting agreed outcomes	**ACHIEVED** The salinity registers and the outcomes of the independent salinity audit were published
Finalise a review of salinity management arrangements with jurisdictions	Outcomes of salinity review are supported by Basin governments	**ACHIEVED** Upon considering the finding of the review of salinity management in the Basin, Ministerial Council agreed to develop the next 15-year salinity management strategy for the Basin p. 61
Undertake risk assessment for Murray environmental watering activities		**ACHIEVED** In consultation with the Southern Connected Basin Environmental Watering Committee, developed a risk management strategy for proposed watering activities in 2015–16 p. 53
Business cases for South Australia Riverland Floodplain Integrated Infrastructure Program construction works completed and approved	South Australia Riverland Floodplain Integrated Infrastructure Program delivers environmental improvement	**ACHIEVED** Construction proposals for early works at the two sites have been approved p. 79

STRATEGIC GOAL 3

KNOWLEDGE INTO ACTION

To develop authoritative information, monitoring and research, in partnership with governments, scientists and communities, to underpin decision making and adaptive management

Overview p. 62

Providing information on the Basin p. 63

Communications p. 66

Strategic alliances p. 69

Summary of our performance p. 73

Highlights

- Parliamentary Secretary Bob Baldwin MP launched the Basin Champions education program on World Water Day.
- Our staff had direct interaction with an estimated 23,666 students, teachers and members of the public through education events.
- Formed a new partnership with the National Centre for Groundwater Research and Training.
- Implemented the Source model, an integrated model of the Murray–Darling Basin

Overview
– improving our knowledge base

To support sustainable water resource management across the Murray–Darling Basin, we recognise that knowledge, data and evidence is crucial in assessing the effectiveness of the Basin Plan and River Murray operations, as well as informing policy and decision makers. This year we had a 30% increase in access to our data and information.

Our website is our primary communication method for publishing information and reports, and the new water information service for the River Murray – live river data – continues to be one of the most visited parts of the website. Our education program continues to expand, involving over 23,000 students, teachers and members of the community from across the Basin.

Regional media also plays an important role in helping us to provide information to communities and MDBA staff are regularly interviewed on regional radio. Our social media platforms are also increasingly allowing us to reach new audiences and to share information and stories about the work we are doing.

In 2014–15 about one third of our staff regularly visited communities across the Basin and we facilitated around 250 meetings on the Basin Plan. We also continued to work with our many community advisory committees as a way of gathering local views. Our work program continues to respond to the input and feedback we receive.

The water resource knowledge base was improved by modelling work to inform the sustainable diversion limit adjustment mechanism, constraints management, accrediting water resource plans and work in the northern Basin. The Murray and lower Darling models, developed in the Source modelling platform, were integrated to support the implementation of the Basin Plan.

We continued to work with our partner research institutions to strengthen our science and research capabilities. This year we entered into a major partnership with the National Centre for Groundwater Research and Training to look at three main areas, including the impact that social and economic factors may have on groundwater management into the future.

This year we celebrated 20 years of partnership with the Mekong River Commission and were pleased to host a delegation from the Commission. We also met with delegations from Pakistan, Niger Basin, Kazakhstan, Koshi Basin and Chile as we continue to build relationships with our international counterparts.

Challenges and the year ahead

We will continue to work with communities and governments across the Basin and strengthen our collaborative partnerships with research and educational institutions. We will also continue to increase the amount of information we make publicly available in a way that is accessible and easy to find. This is essential if we are to continue to be a source of authoritative information on water management in the Basin.

Providing information on the Basin

The MDBA is responsible for providing the Murray–Darling Basin Ministerial Council and the Basin Officials Committee with advice and information that informs joint government decision making about the Basin's water resources and related ecosystems.

Modelling the Basin

We develop, operate and maintain river models to support river management, water sharing, and salinity management as well as to help develop water resource policies, including the Basin Plan. Modelling is central to determining state water accounts and calculating state water shares through the water resources assessment.

Flood inundation modelling

Many planned environmental watering events aim to inundate the floodplains to provide benefits for the river–floodplain system. In cooperation with CSIRO we developed inundation models for the Murray, lower Murrumbidgee, lower Darling and the Edward–Wakool which will give us more accurate information about the relationship between flow height and the area inundated. It will also permit us to target specific vegetation communities to determine how much water is needed to achieve optimal watering. The models will also contribute to the constraints management strategy.

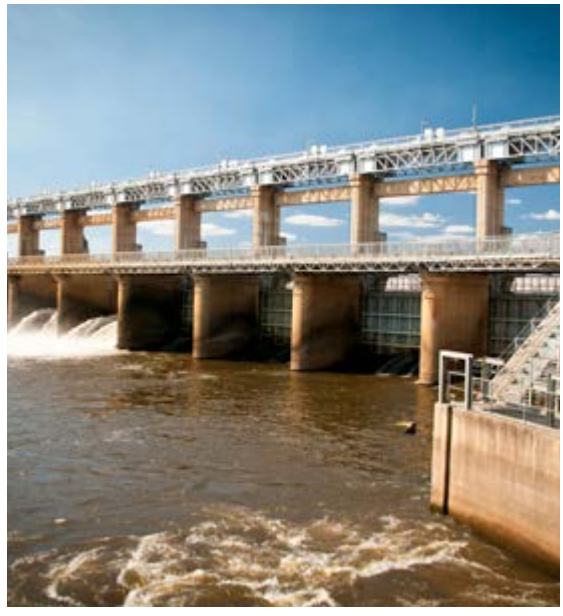
Hydrological modelling for the Basin Plan

During 2014–15 the MDBA provided hydrological modelling support for implementing the Basin Plan. This work included developing and implementing the overall modelling methodology for the sustainable diversion limit adjustment mechanism. MDBA modellers also worked with the sustainable diversion limit assessment technical working group to implement a number of adjustment proposals in the modelling assessment framework.

We also developed inundation models for the northern Basin including the Barwon–Darling and Condamine–Balonne, and carried out model runs to inform the northern Basin review.

Managing images, multi-media and publications

This year we began implementing a digital asset management system which will replace our current systems for managing images, multi-media and publications. We are planning to release the new system by the end 2015. This will allow all users to search for images, documents, videos and audio files in the one search rather than searching in three separate catalogues.



Key operational decisions are made at Yarrawonga Weir to regulate supply and meet irrigation demands. The daily model of the Murray predicts these operational decisions (photo by Brayden Dykes, MDBA).

Transitioning from the Cap to the sustainable diversion limit

The Cap on surface water diversions refers to the limit placed on the total allowable diversion of surface water from the Murray–Darling Basin. Creation of the Cap in 1995 was seen as an essential first step in establishing management systems to achieve healthy rivers and sustainable water use. Cap monitoring and reporting arrangements are formalised in Schedule E to the Murray–Darling Basin Agreement, which now forms a Schedule to the Water Act.

With the adoption of the Basin Plan on 22 November 2012, the monitoring and reporting obligations under section 71 of the Water Act came into effect for the first time for the 2012–13 water year. The Cap reporting, will continue until Basin Plan sustainable diversion limit compliance commences in the 2019–20 water year. We have worked closely with the Basin states to ensure that both requirements (Cap and Basin Plan) were met through a combined reporting process. The Murray–Darling Basin transition period water take report for 2013–14, which replaces the water audit monitoring report, will present information about the use of all Basin water resources and the updated Cap Register for that year.

The Cap valleys are state nominated river valleys or water supply systems under Schedule E. The annual diversions within all Cap valleys remained in credit (i.e. the annual diversions are less than the annual Cap target and the difference is recorded as a credit) for the 2013–14 water year. From the 2019–20 water year, the use of all Basin water resources will be monitored and reported for compliance against the sustainable diversion limit and the Register of Take which will replace the Cap Register.

Implementing the Cap

We audited the performance of the Basin states in implementing the Cap and reporting under section 71 of the Water Act. Previously the Cap was audited by an independent audit group.

The key findings of the audit included:

- total diversions of 8,812 GL were the tenth lowest on record (in 31 years of records, 1983–2014)
- annual diversions in all valleys complied with the annual Cap targets.

Accrediting the models used to assess compliance with the Cap

As Cap compliance will continue to 2019, it is important that the computer models used to assess compliance for each Cap valley are accredited – tested and agreed as fit-for-purpose – to 2019. Of the 24 Cap valleys, there are 23 models needed – some models, such as the Murray model, cover more than one valley while other valleys, such as the Barwon–Darling and lower Darling require two models.

Sixteen Cap models have been accredited to 2019. The NSW Border Rivers, Queensland Border Rivers, Barwon–Darling and Condamine–Balonne models have been accredited to December 2015.

The lower Darling model was audited in 2014 and recommended for accreditation to 2019. This was supported by the states and is waiting on formal accreditation by the MDBA. Cap models for Metro-Adelaide and intersecting stream valleys are yet to be submitted to MDBA to start the accreditation process.

Delivering River Murray information

We work with the state governments to support the operation and maintenance of a number of hydrometric stations across the Basin. These stations are predominantly in the Murray, lower Murray and lower Darling and collect water quality and quantity data. Data and information is collated to underpin key operational responsibilities, including:

- sharing the waters of the River Murray system between New South Wales, Victoria and South Australia, in accordance with the Murray–Darling Basin Agreement
- storing, managing and delivering water to meet consumptive and environmental needs
- operating salt interception schemes
- enabling navigation and supporting recreation and tourism.

This information is used to direct daily releases from a number of structures along the River Murray, working closely with state agencies and constructing authorities (whose staff physically

This year we commissioned two major photographic projects to capture more images in the northern Basin (fishing on the Darling (Barka) River photo by Irene Dowdy).

control the structures) to deliver consistent operations and reliable water supplies for all users in a fair and efficient way.

We regulate the River Murray's flow to ensure that the supply of water is reliable, even during severe drought. During floods our primary aim is to protect the safety of dams and other assets while maximising water availability when flooding recedes. Our other aims include limiting flood damage to downstream communities and increasing the environmental benefits.

We share information in a number of ways, including:

- regular meetings with Basin state government authorities
- close liaison with the Bureau of Meteorology, particularly before and during floods
- online publication of various information resources, including River Murray system daily, weekly and periodical data, see <www.mdba.gov.au>.

Library and geospatial services

Our library collection of 15,389 records comprises hard copy as well as digital information. The library recently sourced 100 historical reports from other government libraries and these were digitised and entered into the MDBA catalogue. Not all items can be digitised. Since 2013–14 about 4,000 records have been digitised allowing broader access to documents relevant to the Murray–Darling Basin.

Our image gallery contains over 20,000 images. We recently commissioned two photographic projects to capture more images of the northern Basin. These will be made available to the public in 2015–16.

In 2014–15 we completed 242 requests for geospatial information, such as maps and data analysis, from internal and external customers. Several major MDBA projects had significant geospatial input including support for:

- the Constraints Management Task Force to investigate the feasibility of structural and non-structural measures to supply increased environmental flows
- advanced remote sensing and analysis of outputs from the use of unpiloted aerial vehicles (drones) for the Lake Victoria soil stability project
- producing maps for the southern Murray–Darling Basin blue-green algal status. This assists the river operations team determine flow options to address water quality targets in the River Murray system
- assessing vegetation condition at The Living Murray target sites, using high resolution aerial imagery, known as RapidEye, and computer modelling.

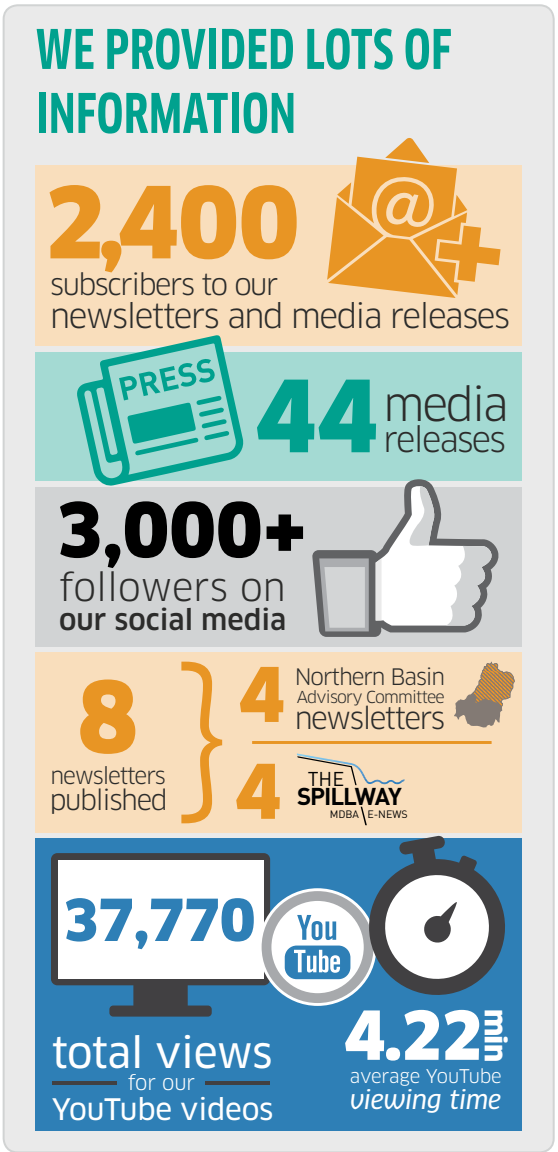
Enterprise information strategy

In 2014–15 we continued to develop our 'whole of agency' information strategy. The strategy is a living document which identifies the current status and forecasted expectations for capturing, storing, managing and delivering our valuable information and data. We also began the continuous improvement program for ICT and our enterprise information system.

Communications

Media and social media

Regional media continues to play an important role in helping us to provide information to communities about our work. Our staff regularly appear on regional radio to talk about river operations in the River Murray, as well as about our work in implementing the Basin Plan, such as the northern Basin review, constraints management, environmental watering priorities, water trading rules, and social and economic monitoring and evaluation.



Over the past year, we issued 44 media releases and river flow advices, two ministerial communiques and numerous contributions to regional newspapers across the Basin.

Our social media platforms are increasingly allowing us to reach new audiences and to share information and stories about the work we are doing across the Basin. Through Twitter and Facebook, we inform people about upcoming meetings, opportunities to provide feedback, direct them to new information and data on our website and respond to questions. We enjoy hearing from people from across the Basin and sharing their photos and stories about how rivers and wetlands are faring in their patch, as well as how local activities and programs are helping to improve Basin health.

We also use social media to link up with Australian Government and state agencies in the Basin who are having great success with environmental watering. We share with our followers examples of how environmental water, through the Basin Plan, is helping to improve the condition and resilience of these important areas.

We have discovered in our followers a passion for fish stories, with these consistently being our most popular posts. Among the favourites was the infamous silver perch, fondly named 'Percy', who through our fish tagging program was tracked travelling upstream. Percy covered 470 km over one month using our highly successful River Murray fishways #Percyforpresident.

Communication products

Our annual report was again recognised with the 2013–14 report receiving a silver award at the Australasian Reporting Awards. We also published our first full year Basin Plan annual report which was distributed widely to communities across the Basin. We also asked for feedback and suggestions to help shape future reports.

We again published four editions of our newsletter, *The spillway*, to over 1,165 subscribers, and four editions of the northern Basin newsletter to help keep communities informed. We produced three more snapshots of northern Basin catchments – Border Rivers, Condamine–Balonne and Namoi. We also

Brent Williams from the constraints management team talking on regional radio.

continued to support training sessions for our staff in writing for the web and thinking visually.

Supporting communication material was also prepared for the Basin Plan update meetings which were held in towns across the Basin throughout the year.

Peer reviewed journals

To inform the academic community of the key work involved in developing and implementing the Basin Plan a list of priority journal papers was agreed and a strategy adapted to guide and support staff in contributing articles to academic journals. In 2014–15 two journal papers were submitted:

- Neave, I., McLeod, A., Raisin, G. and Swirepik, J. 2015 Managing water in the Murray–Darling Basin under a variable and changing climate: dealing with climate change in the 2012 Basin Plan and into the future, *Water – Journal of the Australian Water Association*, pp. 100–105
- Swirepik, J., Burns, I., Dyer, F., Neave, I., O'Brien, M., Pryde, G., Thompson, M. submitted, Establishing environmental water requirements for the Murray–Darling Basin, Australia's largest developed river system, *River Research and Applications*.

Website

Our website <www.mdba.gov.au> continues to be our primary communication method for publishing information and reports. Web visitors are staying on our website longer and viewed over 1 million pages. We launched our new water information service for the River Murray – live river data. It continues to be one of the most visited parts of the website. The site features an interactive map and current data from over 60 locations along the River Murray and is now compatible with smartphones and tablets, see <http://livedata.mdba.gov.au>.

We continued to seek feedback and carried out market research for our website so we can ensure visitors are able to find what they are looking for in a timely manner. We began redeveloping our website to provide a more streamlined and user-friendly site and integrate our social media channels. A more comprehensive update is planned for 2015–16.

Publications

Our publications in 2014–15 included:

- *Basin-wide environmental watering strategy 2014*
- *Towards a healthy, working Murray–Darling Basin, Basin Plan annual report 2013–14*
- *Murray–Darling Basin water reforms: framework for evaluating progress*
- *General review of salinity management in the Murray–Darling Basin*
- *2015–16 Basin annual environmental watering priorities.*

For a full list of our publications see Appendix E, page 197.

education@MDBA – across the Basin

The diverse events, resources, activities and programs that make up education@MDBA were widely used by teachers, students and members of the public. We had direct interaction with an estimated 23,666 students, teachers and members of the public. There were about 4,000 unique visits to our website for resources such as lesson plans and worksheets.

Senator the Hon. Bob Baldwin, Parliamentary Secretary to the Minister for the Environment, became directly involved with the education program in March, launching the interactive MDBA World Water Day display and participating

Parliamentary Secretary to the Minister for the Environment, the Hon. Bob Baldwin, launching our Basin Champions education program during World Water Day at Questacon, Canberra. He is seen here with MDBA staff member, Emma Hampton, and local school children (photo by Brayden Dykes, MDBA).

in a live Basin Champions video conference session at Questacon, the National Science and Technology Centre.

The success of the Basin Champions video conference-based program is key to the education@MDBA program reaching out to the many remote and regional communities that play an important role in making the Basin so productive. Students participating in the program investigate a local water-related issue over a school term. Weekly live videoconferencing events give students access to our technical staff to assist with their investigation or to learn more about water management. The delivery model used to run the Basin Champions program in previous years was changed this year in an effort to make the program more accessible to teachers. This change has resulted in an immediate increase in participants across the school years.

The 30 minute science theatre show Trickle Down, developed last year by Questacon and the MDBA, continues to be performed five times a week at Questacon to school, family and public audiences. This hands-on science show introduces the Basin and the challenges and techniques related to managing water. Questacon staff performed the show 225 times to over 10,058 people from around Australia. The show was reviewed this year to update content, including new material on environmental watering and constraints.

Our smart device app *Run the river* was launched last year and continues to be popular. Over 8,000 people have installed the app since March 2014.

We continued to provide funding for the Murray–Darling Basin natural resource management and environmental educators network. The network holds chapter and whole-of-Basin meetings, allowing natural resource management and environmental educators to coordinate activities, share best practice techniques as well as look at opportunities for joint activities.

Staff throughout the MDBA form an important part of the education@mdba program, promoting careers in water resource management, providing content and assisting with delivering education programs. Over 64 staff members assisted with education programs, participating at events such as:

- World Water Day at Questacon
- the National Youth Science Forum career awareness event
- the Basin Champions program
- teacher professional association meetings and conferences.

Strategic alliances

International engagement

We continued to build relationships with our international counterparts in 2014–15 and met with several delegations to discuss water management issues. These included delegations from the Mekong, Pakistan, Niger Basin, Kazakhstan, Koshi Basin and Chile.

We also had the opportunity to participate in key international forums, which enabled us to share knowledge and gain insights into current thinking in river basin management. These included:

- World Water Week in Stockholm in August 2014. Russell James represented the MDBA and spoke at two forums, including a comparative case study session looking at different experiences in sustainable water resource management. Russell, and colleague Jenny Nutter, are contributing authors to an article on the outcomes of this session
- a strong presence at the International River*Symposium* in Canberra. Staff presented at three sessions and interacted with delegates at our information booth
- the 4th Mekong River Commission Regional Forum on the Mekong Basin Development Strategy, Siem Reap, Cambodia in November 2014. Russell James attended this forum and participated in a panel session. Russell then presented on the Australian experience in the millennium drought at a regional seminar on challenges and responses to extreme climatic events in Bangkok
- Global Water Summit, Chicago, USA, in November 2014 where former MDBA Chair, Craig Knowles, participated in the opening panel session on 'securing water' at this summit. The forum brought together 400 scientists, practitioners, corporate leaders and policy makers to look at practical approaches to water management
- India Water Week in New Delhi in January 2015 where Jody Swirepik represented the MDBA and gave two presentations on the utility of river basin organisations and participatory approaches to water management
- Asia–Pacific Economic Corporation Sharing Best Practice on Public Consultations workshop, Kuala Lumpur, Malaysia, 10–11 June 2015 where Katrina Maguire attended and provided two presentations: public consultation process and encouraging public voice, and Industry's view through online consultation.

This year we celebrate 20 years of partnership and collaboration with the Mekong River Commission. We have held a Memorandum of Understanding with the Commission since its inception in 1995.

> We were pleased to host a delegation from the Mekong River Commission in 2014. Along with the Department of Foreign Affairs and Trade, the MDBA and Mekong River Commission had conversations focused on sharing knowledge and expertise between the two river basin planning agencies.

Staff members Brianna, Janna and Tariq at our booth at the International River*Symposium* (photo courtesy of International River*Symposium*)

Sponsorship

Through our sponsorship program we invest in worthwhile initiatives that align with our work and help us develop relationships with the research, education sectors and Basin communities.

Our sponsorship program also supports future water leaders. In 2014 we supported the Science to Policy Leadership Program, which is organised and funded by the Peter Cullen Trust. Former MDBA Chair, Craig Knowles, presented to the group in November.

Sponsorship of groups like the Peter Cullen Trust supports stakeholders from a variety of sectors across Australia to develop their leadership, communication and collaboration skills. This is specifically geared towards bringing about positive change in water and catchment management in Australia.

This year we also supported a number of other conferences, workshops, leadership groups and events, including:

- Australian Bureau of Agricultural and Resource Economics and Sciences regional outlook conference
- Australian Society for Fish Biology and Australian Society for Limnology
- Fairley Leadership Program
- Healthy Rivers Forum
- Loddon Murray and Northern Mallee Leadership Program
- Murray–Darling Association annual conference
- Rice Growers' Association of Australia annual conference
- Wetland Care Australia art and photographic competition.

We have now supported the Wetland Care Australia art and photography competition for five years. The competition encourages children and adults to submit their art and photography, illustrating the importance of wetlands. In 2014–15, we sponsored the 'helping wetlands flourish' category, with MDBA staff member and avid photographer, Vic Hughes, selected to judge the entries.

Research partnerships

Many research institutions and organisations, including universities and Australian Government and state agencies, contribute to our environmental, social and economic knowledge of the Basin. We support relationships and partnerships that build and enhance our scientific understanding of the Basin. These partnerships align with our high priority research needs.

Murray–Darling Basin Futures

The Murray–Darling Basin Futures Collaborative Research Network, based at the University of

Letter from America

We contributed to the General Sir John Monash scholarship program by providing for a scholarship in water-related studies to Ben Mylius to support his studies towards a Masters in Law at Yale Law School, the top-ranked law school in the United States.

In 2014–15, Ben's studies focused on earth law, and on understanding how the philosophical assumptions we make about the relationship between human systems and natural systems shape our understandings of policy, politics and ethics.

Ben spent a week in the Canyonlands National Park, Utah, as part of an inter-disciplinary team conducting fieldwork and interviews with locals, rangers and ranchers about their knowledge of where they live (place-based knowledge).

With the support of the scholarship, Ben was able to devote himself to a busy year at Yale: taking courses in jurisprudence (legal philosophy), anthropology, religion and ecology; serving as Earth Jurisprudence Chair of the Yale Environmental Law Association, and as an editor for the Yale journal for law and humanities; presenting his work at several conferences; and joining an interdisciplinary team for a place-based studies project in the Canyonlands National Park.

Ben has just returned to the United States from Europe, and will be based at the Yale Law School as he prepares for his PhD.

Ben in the Canyonlands National Park Utah, the most isolated national park in the lower 48, United States (photo by Nelson Walker).

Canberra, is a partnership built in collaboration across four Australian universities (University of Canberra, Australian National University, Charles Sturt University, and the University of Queensland) the MDBA, CSIRO and other key government agencies.

MDB*futures*, which finished in June 2015, was focused on building resilience in the Murray–Darling Basin through multi-disciplinary programs in environmental science, social and economic modelling, public policy, public health and urban and regional planning.

We provided funding to the University of Canberra to carry out the regional wellbeing survey to provide information about the lives and wellbeing of people living in rural and regional areas.

Murray–Darling Freshwater Research Centre

The MDBA, on behalf of Basin governments, is an investment partner, with CSIRO and La Trobe University, in the Murray–Darling Freshwater Research Centre. In 2014 a new collaboration agreement was signed and we moved from the Board onto the Investment Committee.

The research centre provides specialist skills and knowledge in riverine ecology in the southern Basin and the River Murray in particular. The research centre focuses on generating and communicating freshwater ecological knowledge and specialises in providing advice and solutions to optimise water management decisions.

This long-standing partnership has provided critical information and management advice around blue-green algae, blackwater, acid sulfate soils and the condition of The Living Murray's target sites.

CSIRO

We continued to work with CSIRO through a number of established partnerships. We entered into a new collaborative head agreement with the CSIRO Land and Water Flagship to move towards a more collaborative arrangement.

eWater

eWater is a not-for-profit partnership committed to ecologically sustainable water management in Australia and around the world. eWater's main function is to support the implementation and use of the Source integrated modelling system as the new national hydrological modelling platform for Australia.

The MDBA and partner governments are supporting the Source integrated modelling system development through representation on the National Hydrological Modelling Platform Steering Committee and technical working group.

We are setting up a model for the River Murray and lower Darling systems using the Source software. The model setup and calibration will be completed by 2015.

University of Canberra – Institute of Applied Ecology

We signed a Memorandum of Understanding (MoU) with the University of Canberra to foster collaboration and cooperation in research and innovation. Activities contemplated under this MoU include:

- University of Canberra–MDBA distinguished visitor scheme
- University of Canberra–MDBA visiting fellow scheme
- providing support for applications for third party funding of priority work
- participating in co-supervision of PhD students
- co-hosting events, such as conferences, seminars and symposia
- providing access to data and information and networks and engagement mechanisms
- providing briefings to assist university research staff to gain an understanding of Murray–Darling Basin policy and planning issues
- co-producing papers for publication in areas of shared interest and expertise.

National Centre for Research and Groundwater Training

This year we entered into a three year strategic research alliance with the National Centre for Groundwater Research and Training. Research will be focused on three main areas: groundwater

and surface water interactions; groundwater replenishment processes; and the impact that social and economic factors may have on groundwater management into the future.

The research will be carried out by the centre's partner universities in collaboration with the MDBA and state water agencies.

Develop partnerships with other agencies to give effect to the MDBA science and research strategy

We collaborated with the Australian Bureau of Statistics to increase the availability and use of Australian Bureau of Statistics information.

Specific activities in the project included: capturing MDBA-relevant information; identifying the current obstacles and inhibiters to our access and use of Australian Bureau of Statistics information; ongoing discovery; and producing a strategy to support the ongoing development of Murray–Darling Basin resources using Australian Bureau of Statistics information.

By collaborating with Geoscience Australia, significant areas of the Murray–Darling Basin have had new LiDAR (high resolution ground surface elevation data) and aerial photography captured. These datasets are now accessible through the National Elevation Data Framework portal at Geoscience Australia.

We will continue to release more spatial data as acquisition and licensing is finalised.

STAFF SNAPSHOT

Meet Tony – *on the trail of Alfred Deakin*

Tony at Parker Lake, Nevada United States

Tony is the general manager of our water management branch and has been interested in water management since the 1980s when he began his PhD in water resource management. He has worked for both New South Wales and Australian Government agencies and helped develop the *Water Act 2007*.

Tony is a long-term member of staff having also worked for our predecessor the Murray–Darling Basin Commission. He was awarded the Public Service Medal for his role in the instigation and development of the Basin Plan.

In 2014 Tony spent four months in the United States, based at the University of Colorado, Boulder, on a Fulbright Fellowship. His work focused on the shared water management challenges of both the Colorado Basin and the Murray–Darling Basin. He looked at issues such as institutional reform, climate change and involving Indigenous people in water management.

> *The Fulbright program promotes education and cultural exchange between Australia and the Unites States in order to enhance mutual understanding and strengthen relations between the two countries.*

Tony's time in the United States also provided an invaluable opportunity to research historical connections between water management laws in Australia and the western United States (and Mexico) dating from the 1885 tour by the Victorian Royal Commission on Water Supply – headed by a young Alfred Deakin.

Summary of our performance

Program performance is measured against deliverables and key performance indicators in the Portfolio Budget Statements 2014–15 of the Environment portfolio. Some deliverables and key performance indicators go across goals so results will also be found in other sections.

A summary of our performance against the deliverables and indicators related to strategic goal 3 is provided in Table 2.4.

Table 2.4 Deliverables from the portfolio budget statements for strategic goal 3 – Knowledge into action

Deliverables	Key performance indicators	Results
Develop partnerships with research institutions and agencies to give effect to the MDBA science and research strategy	Knowledge gaps are identified and priority gaps are addressed	**ONGOING** Signed agreements with the National Centre for Groundwater Research and Training, CSIRO Land and Water Flagship, the Murray–Darling Freshwater Research Centre and the Institute of Applied Ecology, University of Canberra p. 70–72 Continued our partnership with MDB*futures*, based at the University of Canberra, and eWater p. 70 Began negotiations with the University of Canberra and Griffith University to form a partnership for long term research needs in the northern Basin
Develop indicators for monitoring and evaluating the long-term social, economic and environmental impacts of the Basin Plan	Evaluation of Basin Plan effectiveness is well supported by evidence	**ACHIEVED** Indicators have been developed and information is being collected and collated from numerous sources to inform the evaluation process p. 33–34
Progress the adoption of integrated water resource modelling to support the development and implementation of the Basin Plan	Adoption of integrated water resource modelling across the Basin	**ONGOING** Implemented the Source model of the Murray and lower Darling p. 71
Complete stage 1 of the cultural flows research project		**ACHIEVED** Completed stage 1 – a literature review to provide a baseline to describe Aboriginal cultural water values and needs across Australia p. 36–37
Establish information co-ordination and collaboration arrangements to enhance MDBA's access to the best data, information and knowledge	Increased stakeholder access to data and information	**ACHIEVED** 30% increase in access. Projected to increase to 70% in 2015–16 p. 65
Use the MDBA website as the primary source of information for stakeholders and disseminate information through a range of media	Increased stakeholder access to data and information	**ONGOING** People stayed on our web pages longer and viewed over one million pages p. 67 Launched our new water information service for the River Murray – live river data p. 67
Develop communication products to promote availability of information to stakeholders	Increased stakeholder access to data and information	**ONGOING** Published 28 reports including the Basin wide environmental watering strategy, and the Basin Plan annual report p. 66–67, 195

STRATEGIC GOAL 4

MANAGING RIVER MURRAY ASSETS

To equitably, efficiently and effectively manage, operate and sustain the River Murray system assets to deliver states' agreed water allocations and environmental outcomes in the River Murray system

Overview	p. 74
Maintaining and improving assets	p. 75
Improving the physical assets base	p. 77
Delivering water	p. 83
Operating the River Murray system	p. 90
Salt interception schemes	p. 96
Summary of our performance	p. 97

Highlights

- All major water management structures completed for The Living Murray program.
- The Hipwell Road Channel water management structure (Gunbower Forest, Victoria) launched.
- The Sea to Hume Fishway Program launched in South Australia.
- Tag readers in place at all fishways to enable fish movement to be monitored.
- Completed the first stage of the remedial works on the Lake Victoria outlet regulator without impacting on water availability.
- Celebrated 100 years since the beginning of construction of Lock 1 at Blanchetown, South Australia.

Overview
– operating the River Murray

Despite average to below-average rainfall across much of the Murray–Darling Basin in 2014–15, inflows to the rivers were relatively low. Much of the northern Basin remains in drought, while rainfall in the southern Basin was sporadic and particularly low in the normally high inflow months of August to October. Having started the season with close to long-term average water in the storages, low inflows combined with above-average temperatures saw storages fall through the year.

Water stored in Hume Dam was used to supply downstream demands and despite transferring around 1,000 GL from Dartmouth to Hume Dam by mid-April Hume had dropped to 20% of capacity. By the end of the year water in storages was around 1,500 GL below the long-term average for that time of year.

Delivering environmental water is an ever increasing part of operating the River Murray system. Finding ways to efficiently pass large volumes of environmental water the length of the system while still being able to meet the requirements of other entitlement holders is a challenge. Our river operators need to continually review and renew operating rules and policies that were largely developed before the additional focus on environmental water.

Throughout the year we worked collaboratively with environmental water holders and state agencies to deliver environmental water to all The Living Murray target sites. Significant volumes of environmental water were delivered across the South Australian border with much of this ultimately flowing to the Lower Lakes and into the Coorong.

A significant achievement was completing stage 1 of the remedial works to strengthen the Lake Victoria outlet regulator. This 80 year old structure provides critical flexibility in meeting periods of high water demand all the way downstream from Barmah. The works will ensure its continued safe operation for years to come.

Salinity in the River Murray is as low as it has been since programs commenced in the late 1960s to prevent salt entering the river. Recognising this, some of the salt interception

schemes were turned off for part of the year, reducing the cost of operation. Monitoring the river showed little or no impact on salinity for these periods. This approach will be further trialled in years to come.

Challenges and the year ahead

With El Niño conditions emerging, and predictions of dry conditions in coming months, operating the system to maximise water availability for all water users will be a priority.

We need to continue to develop smarter ways to operate rivers to ensure environmental water can be used to maximum advantage without impacting the delivery of other entitlements. As more of the recently completed water management structures come online, the complexity of river operations increases and the ability to plan and adapt with the river conditions becomes more important. We will continue to build our capability in this area.

Maintaining and improving assets

River Murray Operations assets include Hume and Dartmouth dams, operating storages, 14 weirs, 13 locks, barrages at the Lower Lakes, and water management structures at the target sites. The assets are jointly controlled by the Australian Government and the governments of New South Wales, Victoria and South Australia. The governments' control is exercised through the Murray–Darling Basin Ministerial Council and the Basin Officials Committee.

By agreement of the four asset controlling governments, the MDBA manages the River Murray Operations assets in accordance with the functions, powers and duties set out in the Murray–Darling Basin Agreement. The constructing authorities appointed by the state governments to carry out these duties are:

- Water NSW. The NSW Office of Water also carries out significant works relating to salt interception schemes, river improvement, hydrometric and water quality monitoring, and land management
- Goulburn-Murray Water, Victoria
- South Australian Minister for the River Murray, including the operating agents South Australian Water Corporation (SA Water) and the South Australian Department for Environment, Water and Natural Resources.

A strong relationship has developed between the MDBA and state construction authorities, ensuring that maintenance and renewal is proactive, decision making is generally by consensus and issues are raised sufficiently early to enable a quick resolution.

The recently completed environmental regulator on Chowilla Creek, South Australia. It will be used to inundate the Chowilla floodplain and wetlands (photo by Vic Hughes, MDBA).

Environmental Works and Measures Program

The Environmental Works and Measures Program aims to improve the health of the River Murray system by building and operating water management structures that deliver and manage water for The Living Murray's target sites, see page 51.

Major water management structures have been constructed at six locations to assist in delivering water to environmentally significant areas within the target sites.

Construction progress

The final water management structure to be constructed for The Living Murray project – installing a gated weir and fishway on Mullaroo Creek near Lock 7 – was delayed due to a wet autumn in 2014. Work was completed in June 2015, with minor finishing touches to be completed in July 2015.

Significant progress throughout the year included:

- Hattah Lakes were again watered in winter 2014 to build on the previous event. Watering inundated about 6,000 hectares, including Lake Kramen which is located higher on the floodplain
- the first environmental watering using the Koondrook–Perricoota Forest water management structure began in August 2014. The watering was small to allow the operators and land managers to assess how the scheme works. The upstream works were commissioned for low flows but downstream works were not commissioned as no water was released from the forest
- the second stage commissioning of the Mulcra regulator was carried out in conjunction with the New South Wales Weir Pool Manipulation Project. This raised the water level behind the main structure to a higher level than previous commissioning. A drying phase was also carried out for the creek and fringing wetlands. This confirmed that the two projects can be operated in a complementary manner
- limited testing of the Chowilla regulators in spring 2014 to confirm the structural integrity of the major structures.

Restoring fish passage along the length of the Murray

The world-class Sea to Hume Fishway Program has re-established opportunities for fish to migrate over 2,000 km of the River Murray, by installing 16 new fishways and modifying one existing fishway. It is the first program anywhere in the world that allows for fish passage for the majority of native species in a migrating fish community rather than focusing on only one or two species of economic or social significance.

The Sea to Hume Fishway Program was officially opened at Lock 2 on 22 September 2014 by Senator the Hon. Simon Birmingham and the Hon. Ian Hunter MP (South Australian Minister for Water and the River Murray) (photo by Ben Dyer, MDBA).

Monitoring showed that millions of native fish are using the new fishways, passing as many as 10,000 per day, with a high diversity (13 species) and a wide range of sizes, the smallest being about 30 mm long.

Engineering awards for Hattah Lakes

The Hattah Lakes project won three major engineering excellence awards in the environmental engineering category during 2014–15. This project was a collaborative effort with Goulburn–Murray Water managing the implementation, as the constructing agency for MDBA, and working with a range of organisations including the Mallee Catchment Management Authority, Parks Victoria and the Victorian Department of Environment and Primary Industries.

The project, which included constructing a permanent pump station, four regulators and three environmental levees, will help create a more natural flooding regime to restore the health of Hattah Lakes.

Part of the Hattah Lakes project team showing all levels of involvement from the designers, construction contractors and project managers, from left back row: Mark Locke and Danny Grzan, GHD; Danny Moon, Comdain Infrastructure; Gavin Hanlon, Goulburn–Murray Water. Front row: Paul Jardine, Goulburn–Murray Water, Chan Chong, Goulburn–Murray Water; Heather Peachey, MDBA; Marc Lon Ho Kee and Martina Cusack, Goulburn–Murray Water; Ben Dyer, MDBA (photo courtesy of Engineers Australia).

Counting fish

Passive integrated transponder tag readers are now in place at all fishways from Lock 1 (Blanchetown) to Lock 26 (Torrumbarry). These readers record when tagged fish pass through a fishway and provide valuable information for assessing the effectiveness of the fishways and monitoring fish movement along the River Murray and tributaries. In order to increase the number of tagged fish using the fishways we are collaborating with state agencies and Basin Plan monitoring efforts to develop a program for ongoing fish tagging.

Construction began on the Boundary Creek and Ewe Island fishways at the Murray Mouth barrages. These fishways will allow fish to move between the Lower Lakes and the Coorong by allowing them access to fresh and estuarine areas. This is an important part of the breeding cycle for some native fish. Seven new fishways for the barrages are due to be completed in 2015–16.

Complementary environmental works

We have provided support and input to other environmental works programs that will impact on River Murray assets. The largest of these is the Commonwealth-funded $155 million South Australian Riverland Floodplain Integrated Infrastructure Program, which seeks to improve the health of the River Murray floodplain below locks 4 and 5. New structures will use the level of the weir pools to direct water onto the floodplains. Construction will begin in 2015–16.

Other infrastructure projects will help reduce the impacts of salinity on the floodplain and restore vegetation health.

Improving the physical assets base

Hume Dam

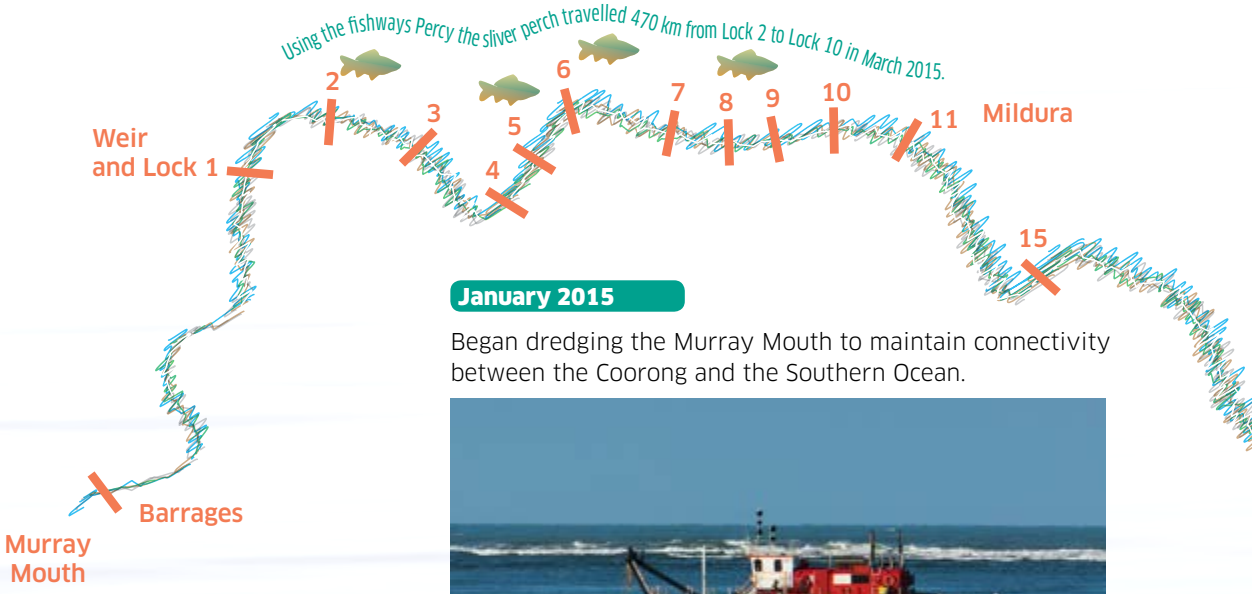
The completion of two major projects in the dam safety upgrade program at Hume Dam over recent years has significantly reduced the overall dam safety risk for Hume Dam. As a result Hume Dam is assessed as being below the Australian National Committee on Large Dams 'limit of tolerability' for societal risks.

The third dam safety project in the upgrade program is to address the spillway flood capacity. In 2014–15 we commissioned a study to refine the characteristics of extreme rainfalls for both the Hume and Dartmouth catchments. This is the first study of its type carried out in Australia, building on similar studies carried out in North America and previous research in Australia. The outcomes of the study are being considered.

A busy year on the River Murray

2015 marks 100 years since the beginning of construction of Lock 1 on the River Murray, signifying a century of cooperation between the Commonwealth and state governments.

Thirteen locks, 14 weirs, 5 barrages, 2 dams, numerous water management structures and 14 salt interception schemes are constructed, operated, maintained and managed by state water authorities on behalf of the MDBA.



January 2015

Began dredging the Murray Mouth to maintain connectivity between the Coorong and the Southern Ocean.

Dredging at the Murray Mouth (photo by Brayden Dykes, MDBA)

July 2014

Lock 11 (Mildura), the river's busiest lock, closed and weir drawn down to install mechanised gates.

September 2014

Began testing the new water management structures on the Chowilla floodplain, South Australia.

February 2015

The newly constructed water management structure at Koondrook–Perricoota Forest, NSW, put to the test, with almost 28 billion litres of water passing through the forest since late August.

August 2014

At locks 8 and 9 the weir pool levels were gradually increased as part of a trial to achieve a more natural wetting and drying cycle for wetlands and floodplains along the river.

April 2015

Lock 7 (Rufus River) was reopened after recent maintenance work by SA Water.

Lake Mulwala was lowered in June to control water weed and maintain Yarrawonga Weir (photo by Peter McLean copied with the permission of Yarrawonga flight training).

June 2015

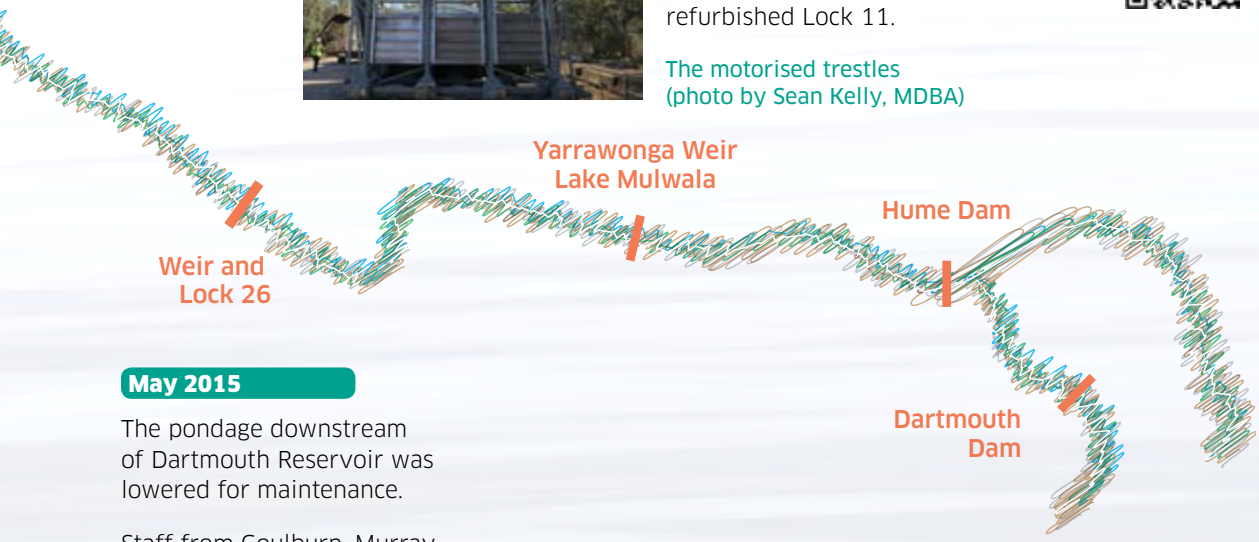
At Weir and Lock 11 all 24 trestles were removed. Each trestle has two sets of 35 timber drop bars (about 1,400 in total). During high flows or maintenance the drop bars are removed from the trestles, and the trestles are then winched one by one from the river.

Five new mechanised trestles will be installed to replace old trestles. This will mean the drop bars will not need to be changed as frequently, reducing the risk associated with manual handling.

The trestle tracks which have been in place since the weir was constructed (1927) also required maintenance. This was tricky because they are underwater. To overcome this, a custom-built structure known as a cofferdam was used. *Scan to see video.*

While work was taking place on the weir, Goulburn–Murray Water refurbished Lock 11.

The motorised trestles (photo by Sean Kelly, MDBA)



May 2015

The pondage downstream of Dartmouth Reservoir was lowered for maintenance.

Staff from Goulburn–Murray Water began major works on Mildura lock and weir (Lock 11), the last of the Dethridge type weirs remaining along the river.

Mildura weir being removed in preparation for maintenance works (photo by Steven Bloomfield).

An improved understanding of the extreme rainfall characteristics will inform the assessment of the flood related risk at Hume Dam and in turn the nature and priority of any upgrade works. In late 2014–15 additional geo-technical site investigations began on the main embankment. Testing and related studies will follow in 2015–16. These studies, combined with the improved understanding of extreme rainfall characteristics, will inform the options for upgrading the flood capacity and be used in preparing the detailed design.

The current preferred option includes strengthening the main embankment parapet wall, along with minor modifications to other embankments at Hume. The need to raise the parapet wall crest level will be assessed after considering the recent study into extreme rainfalls.

We are continuing to investigate flood upgrade options, taking into account:

- guidelines prepared by the Australian National Committee on Large Dams
- the move towards a more risk-based approach by the NSW Dams Safety Committee (the NSW dams regulator)
- results from the study into refining extreme rainfall characteristics
- a possible change in the operating strategy for extreme rainfall events to further increase flood-routing capacity, in addition to any recommended structural upgrade works.

Dartmouth Dam

Inspections are carried out annually at each of the MDBA's major dams in accordance with guidelines issued by the Australian National Committee on Large Dams. The annual dam safety inspection of Dartmouth Dam in May 2015 confirmed that the dam is in good condition, well maintained and performing as expected.

We place a high priority on ensuring that our dam assets comply with contemporary standards including guidelines prepared by the Australian National Committee on Large Dams. Although the spillway capacity at Dartmouth was designed to meet flood standards in place in the mid-1970s, changes in standards, and our understanding of the largest rainfalls and floods that can occur, means that the existing spillway capacity does not meet the most conservative estimate of the probable maximum flood. A detailed design was completed in 2012 for the first stage of a flood capacity upgrade which includes refurbishing the dam crest at Dartmouth Dam.

Funding for an upgrade is expected to depend on partner governments first addressing higher priority dam safety risks within their states. This work could only proceed when the storage is low enough to satisfy the dam safety risks associated with flooding during construction because construction of the upgrade involves the temporary removal, in stages, of the upper part of the dam. The storage level at the start of construction needs to be less than half full so that the overall dam safety risk during construction does not exceed the existing risk level.

Lake Victoria

Two significant dam safety improvement projects for Lake Victoria were completed in 2014–15. The first project was to strengthen the outlet regulator – a structure that has been in operation since 1925. Construction began in February 2014 and continued, typically seven days a week, until the stage 1 works were completed in September 2014, just ahead of rising lake and river levels. With careful management of both the project and river operations, Lake Victoria remained in operation throughout the construction period and the works were successfully completed without impacting on water availability.

The second project at Lake Victoria involves remedial works at two creek crossings along the Frenchman's Creek inlet channel. The first project was successfully completed in April–May 2015 when lake levels were low. At the second creek crossing the area requiring remedial works is much larger and so, if similar risk reduction measures are used, the environmental and cultural heritage impacts will be much greater. An alternative, minimal impact option will be implemented in 2015–16.

Locks and weirs

The centenary of the beginning of construction of Lock 1 Blanchetown was recognised with a ceremony on site on 5 June 2015 – a hundred years to the day after the laying of the

foundation stone. A book by Helen Stagg on the history of the construction of locks 1 to 9 was also launched at the event.

On 5 June 1915 the laying of the foundation stone at Blanchetown marked the start of joint construction work on the River Murray by the four partner governments of South Australia, New South Wales, Victoria and the Commonwealth. Over 100 politicians caught a train to Murray Bridge and then boarded PS Marion to cruise down to Blanchetown for the ceremony.

HARNESSING THE RUNAWAY

The Future of the Murray.

South Australia's First Lock.

[By our Special Reporter.]

Long projected, long postponed, the dawn of hope and the sunburst of triumph at last breaking through the dreary arctic night of despair and disappointment, His Excellency the Governor to-morrow afternoon will, amid the quiet picturesqueness of Blanchetown, lay a stone to mark the site of the first lock on the Murray. We have dammed the river so often by conferences that to dam it by locks and weirs and storage basins seems amazing. To think

Many dignitaries attended, including Prime Minister Andrew Fisher, William Hughes (Attorney–General), William Holman (Premier of New South Wales), Crawford Vaughan (Premier of South Australia) and the Governor of South Australia, Sir Henry Galway. The number of eminent people demonstrated the significance of the event, at a time when travel to these places was a significant challenge.

The PS Marion carried the official party to the centenary celebration in 2015, much to the joy of the crew who continue to lovingly care for this century old paddle steamer.

Hume to Yarrawonga reach

This year work continued on protecting river banks from erosion between Hume Dam and Lake Mulwala. This included log revetment (using logs to protect river banks), rock beaching, fencing and revegetation to provide long term stability and improve environmental values. Willow blockages, along with other weed species, were also removed in several anabranch channels to enhance flow conveyance and reduce erosion. A streambank stability assessment tool and prioritisation matrix was developed to guide future works.

Laying the foundation stone on 5 June 1915 at Blanchetown, South Australia (photo courtesy of SA Water)

A hydraulic analysis of the Dights Creek anabranch was also completed. The anabranch continued to carry an increasing proportion of flow, and is starting to convey more water than the main River Murray channel. The hydraulic analysis is required to model the effect of an engineered log jam proposed for the channel. Engineered log jams have been used very successfully to reduce flow and erosion on other rapidly developing anabranches along the Hume Dam to Yarrawonga reach. A large quantity of suitable timber to construct the log jam was also sourced and stockpiled throughout the year.

Access to a number of floodplain properties was also refurbished. Access to the properties is impacted when anabranches flow all summer, because of regulated releases from Hume Dam. Environmental works and bank condition were also monitored between Hume Dam and Torrumbarry, assisted by students from Charles Sturt University.

Dredging the Murray Mouth

Tides, waves and currents cause natural movement of sand around the mouth of the River Murray. Over time, and as flows through the mouth are reduced, the sand builds up restricting the flow and reducing the exchange of water between the sea and the Coorong. The Coorong ecosystem relies on cooler, oxygenated water coming in from the sea on high tides. It takes a very large flood to scour significant amounts of sand from the mouth back out to sea.

Along with South Australia, we routinely monitor the build-up of sand at the Murray Mouth. In late 2014 so much sand had settled that it was possible that without intervention the connection between the Coorong and the sea would drop below the level needed to maintain a healthy system. There was also the possibility that the mouth would close altogether.

Dredging began in January 2015. One dredge was initially used with another added a month later. By operating two dredges almost continuously the tidal flow between the sea and Coorong has been maintained above the target level. It is likely that dredging will continue until a large flood passes over the barrages and scours a much larger volume of sand from the mouth than can be moved by dredging.

Reducing bank erosion along the Mitta Mitta River

Work continued to help reduce bank erosion caused by passing large volumes of water between Dartmouth and Hume dams. Works along the reach included rock beaching, log revetment, re-aligning fallen trees, fencing and revegetating river banks with native plants. These erosion control methods will maintain channel capacity and minimise the risk of significant erosion, while enhancing environmental values along the reach.

Willow control also forms a major and increasing component of the works program. The majority of willows are now over-mature with many projecting into the flow leading to diversion of flows, a reduction in flow capacity and erosion caused by outflanking. In addition, significant numbers are now collapsing into the river, leading to blockages and island formation reducing channel capacity further. Recent willow clearing works revealed a significant channel avulsion (removal of land by a change to a river's course) had been caused by flow being diverted around one willow blockage.

An important part of the program is the ongoing engagement with landholders and local communities about the aims of the program, principles of river management and ways they can help.

Inspecting the assets – and the winner is!

Each year senior MDBA staff inspect all the River Murray Operations assets, specifically to assess the operational performance of the assets and award the Senator Collings trophy. Assessment criteria includes:

- condition of the assets
- operations and maintenance documentation
- occupational health and safety documentation and performance
- achievement of the year's works program
- expenditure against budget in meeting the program.

The Senator Collings trophy has been awarded annually since 1943 to the team that has the most effectively maintained site on the River Murray. The award was instituted by Senator J S Collings, the Minister for the Interior from

1941 to 1945 and President of the River Murray Commission at the time. The major dams and barrages have only been eligible for the award since 2003.

The award is keenly contested along the length of the river and the winner in 2014 was Weir and Lock 7 (Rufus River). The team's attention to maintaining the assets was recognised. Weir and Lock 7 is managed by SA Water, as the state constructing authority.

Congratulations to (from left to right) Scott Jenke, John Martin, Michael Ricardi, Andrew Cooke and Sid Lawson (seated) from Lock and Weir 7

The most successful Goulburn–Murray Water (Victoria) asset in 2014 was Torrumbarry Weir and the leading asset in New South Wales was Weir and Lock 10 (Wentworth Weir).

Delivering water

Agreed water shares delivered to states

The following key actions are carried out to deliver agreed water shares in the River Murray system to the states, including in extreme conditions:

- regularly assess the water resources of the River Murray system to determine the volume of water available to New South Wales, Victoria and South Australia
- operate structures under the control of the MDBA and determine and review procedures for their efficient and effective operation
- establish, operate and maintain a system of continuous monitoring of the volumes and quality of stored water, and of flows in the River Murray and from its tributaries
- liaise with state and Australian Government authorities on matters related to the River Murray system to provide an up-to-date and comprehensive flow of information.

Rainfall and inflows

Rainfall in 2014–15 was average to below-average throughout much of the Murray–Darling Basin (Figure 2.5). A large region extending across the southern boundary of the Basin received very much below-average rainfall for the year, with some sections of western Victoria registering their lowest rainfall on record. The catchments immediately above the River Murray headwater storages of Dartmouth and Hume received generally below average rainfall for the year.

The first significant winter rain event occurred in late June 2014, and was followed by further significant rain in mid-July. These rainfall events generated good inflows into the River Murray system, with inflows during July generally above the long-term average (Figure 2.6). A significant portion of these inflows was captured in headwater storages.

Inflows to the River Murray system declined sharply in August (Figure 2.6) due to below average rainfall across the southern Basin. Low rainfall continued through September and October (Figure 2.7) resulting in very low inflows during the three-month period when historically inflows would have been highest. Coupled with the poor rainfall, temperatures throughout this period were extremely warm.

Despite a return to more average rainfall in the southern Basin during November and December and wetter than average conditions in January, River Murray system inflows remained below the long-term average throughout summer, autumn, and into June 2015.

Inflows to the Menindee Lakes system over 2014–15 continued to be very low and are now approaching the extended dry periods experienced during the millennium drought. Total inflow to Menindee Lakes for 2014–15 was around 40 GL, which has an annual exceedance probability of 99% – meaning that there will be a higher inflow in 99% of years.

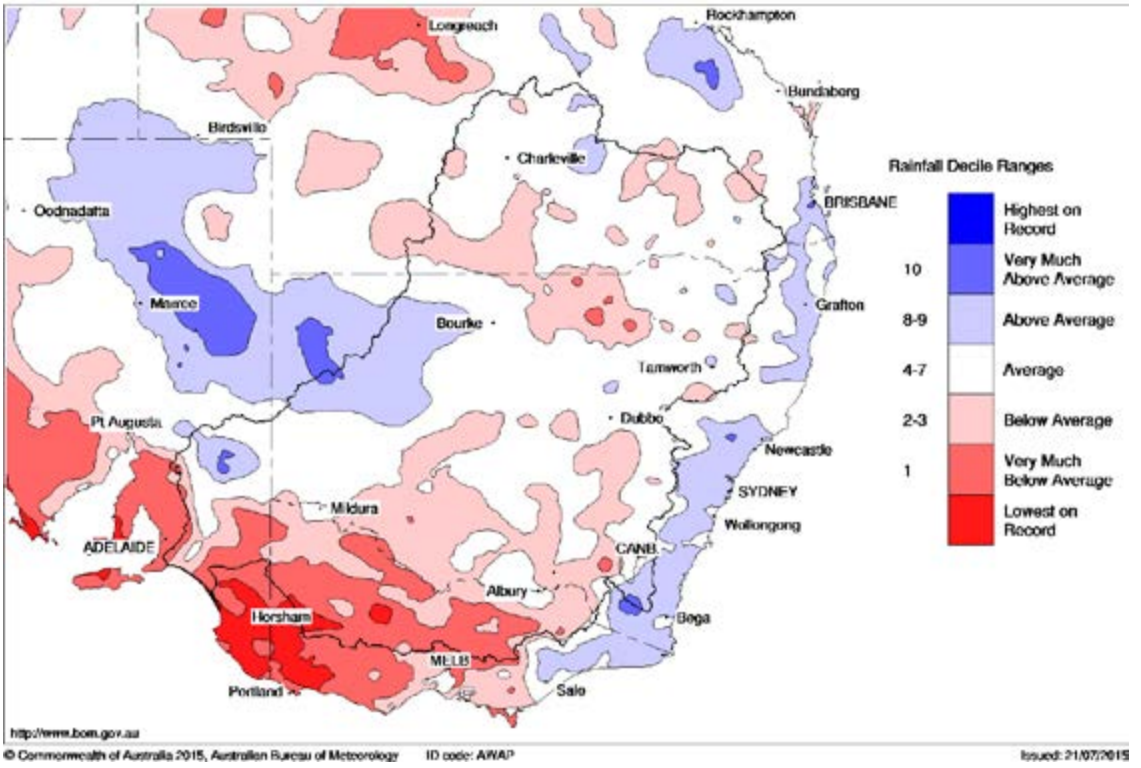


Figure 2.5 Murray–Darling Basin rainfall deciles for 2014–15 (courtesy of Bureau of Meteorology)

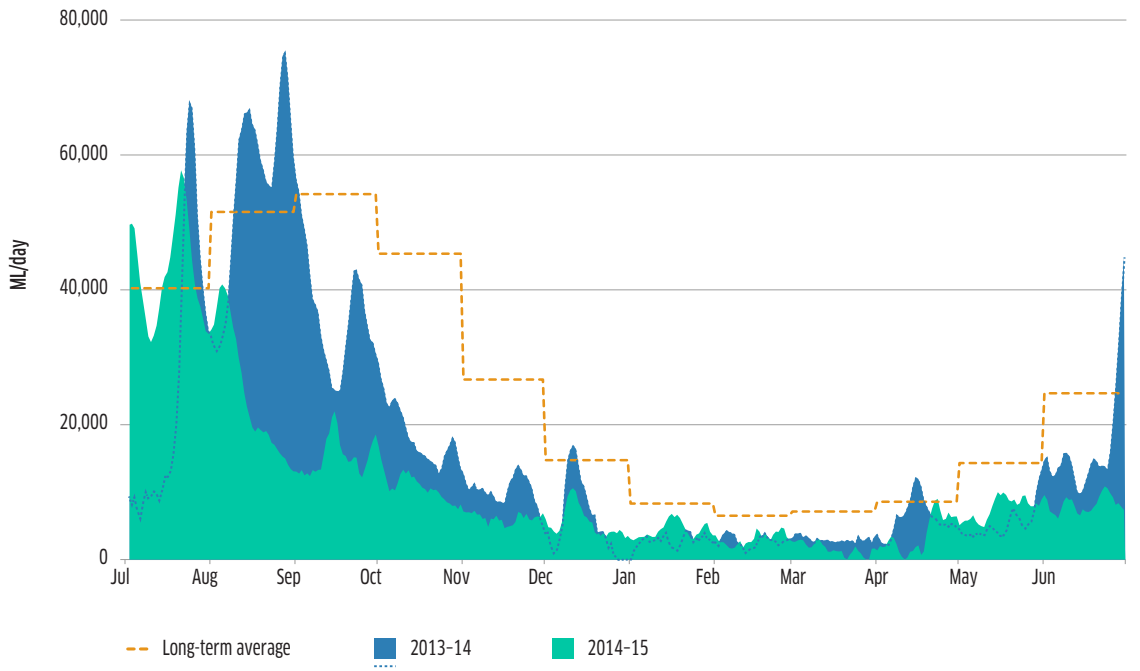


Figure 2.6 River Murray system daily inflows (excluding inflows to Menindee Lakes, releases from the Snowy Mountains Scheme, inter-valley transfers and environmental water inflows) – past two years and long-term average

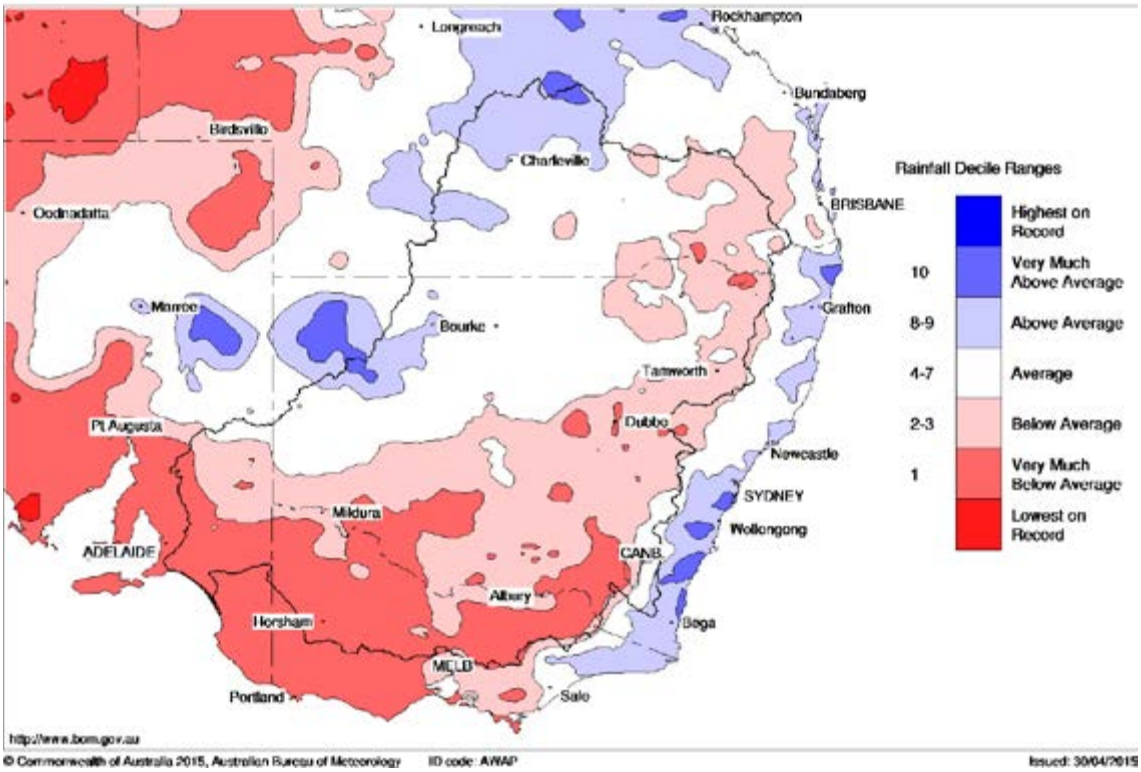


Figure 2.7 Murray–Darling Basin rainfall deciles for August–October 2014 (courtesy of Bureau of Meteorology). Below average rainfall in the southern Basin over this period resulted in very low inflows to the River Murray System

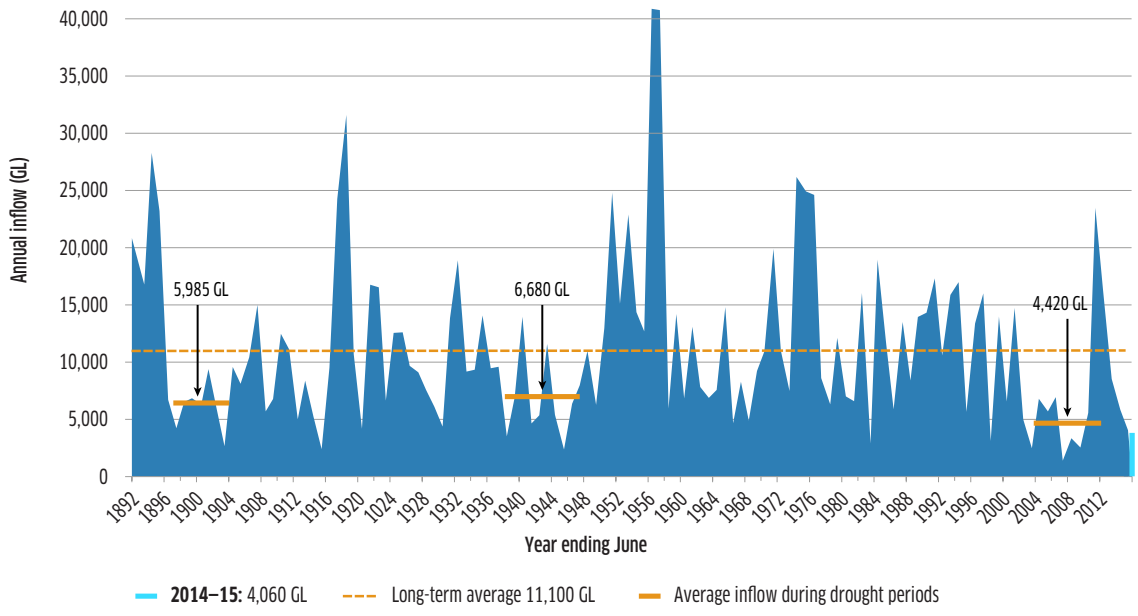


Figure 2.8 River Murray system annual inflows (including inflows to Menindee Lakes, but excluding releases from the Snowy Mountains Scheme, inter-valley transfers and environmental water inflows) since 1892 assuming modelled current conditions

Overall River Murray system inflows during 2014–15 (including inflows to Menindee Lakes, but excluding Snowy Mountains Scheme, inter-valley transfers and environmental water inflows) totalled around 4,060 GL (Figure 2.8). This volume was relatively low, with an annual exceedance probability of 92%. The long-term median for River Murray system inflows is 9,290 GL and the volume in 2013–14 was 5,810 GL.

In late May 2015 the Bureau of Meteorology announced that El Niño thresholds had been exceeded and that El Niño conditions were likely to continue into spring. While this does not automatically mean dry conditions, there is an increased likelihood of lower rainfall in winter–spring for south east Australia, particularly for the upper Darling catchments.

Active storage

Active storage is the portion of the reservoir that can be utilised for flood control, power generation, navigation and downstream releases. From late 2001 to late 2010 active storage was well below the long-term average due to drought conditions (Figure 2.9). High inflows in the second half of 2010 raised MDBA active storage back above the long-term average. MDBA active storage remained above the long-term average for approximately three years until late 2013, then tracked close to average throughout the first half of 2014.

2014–15 began with MDBA active storage close to the long-term average. Active storage increased throughout winter 2014 in line with the historic average, however during spring and early summer high demands and low inflows began drawing MDBA active storage below the long-term average. Although January and April were relatively wet, high demands and system losses continued well into autumn which drew active storage further below the long-term average.

Water storage in Hume Reservoir was drawn upon to meet the high downstream demands throughout 2014–15, with the volume dropping to 20% capacity by mid-April. This is despite transferring around 1,000 GL from Dartmouth Reservoir. Due to very low storage levels, no water was available to the MDBA in Menindee Lakes during 2014–15.

The total MDBA active storage on 30 June 2015 was 4,050 GL. This is around 1,500 GL below the long-term end-of-June average.

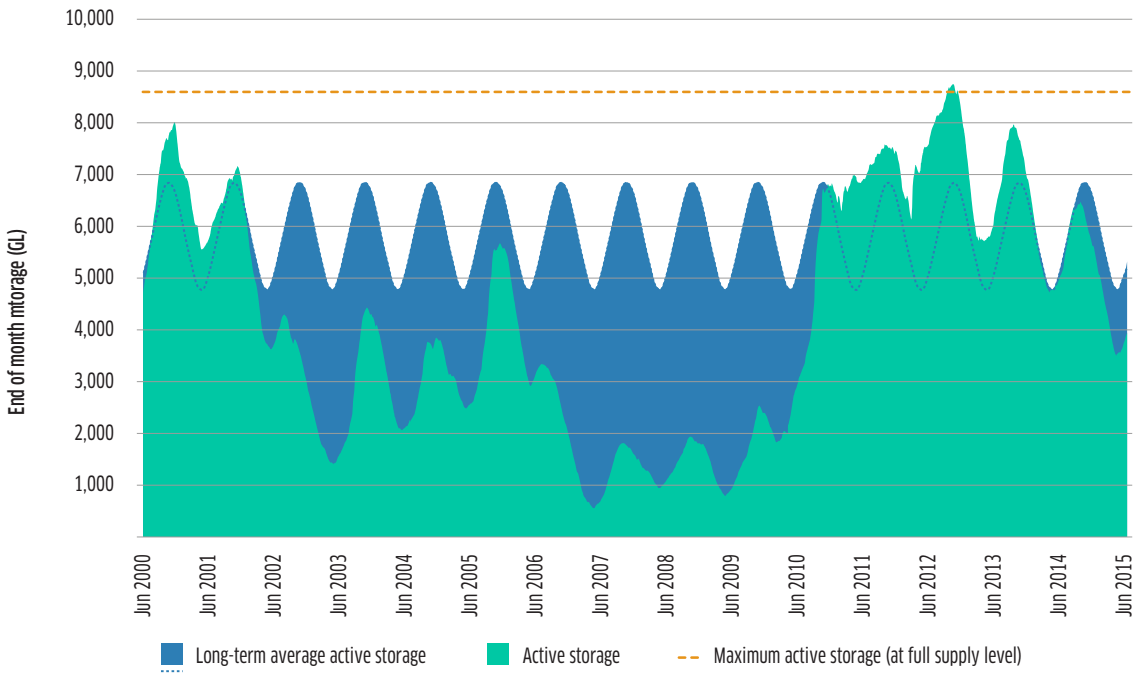


Figure 2.9 MDBA active storage June 2000 to June 2015. The total MDBA active storage on 30 June 2015 was 4,050 GL. This is around 1,500 GL below the long-term end-of-June average.

State water shares

South Australia again deferred a portion of their entitlement flows in 2014–15 for later use. Under Schedule G of the Murray–Darling Basin Agreement, which came into effect in 2011, South Australia may defer some of its entitlement flow, which is then stored in River Murray storages under specific provisions, in order to build a reserve for critical human water needs and private carryover.

South Australia used these provisions to defer 11 GL of entitlement in 2014–15.

State water shares in MDBA storages at the beginning and end of 2014–15 are shown in Table 2.5. At the end of 2014–15, the following volumes were also available for use in the River Murray in 2015–16:

- about 20 GL of water in inter-valley trade accounts in the Murrumbidgee and Goulburn valleys
- 440 GL of River Murray Increased Flow environmental water (stored in the Snowy Mountains Scheme)
- 215 GL of water in the River Murray drought account. The drought account is a reserve held in Snowy storages that the states can call on to supply critical human water needs in times of severe shortage.

State water allocations, diversions and carryover

2014–15 began with moderate water availability. South Australia started the year with a 100% allocation for the fourth consecutive year. The New South Wales Murray high security allocation started at 97% and New South Wales Murray general security access licence holders started at 6%. General security licence holders also had access to, on average, about 30% allocation as carryover from the previous year. Over the course of the year New South Wales Murray general security allocations gradually increased, reaching 61% in March 2015. No further improvements were available for high security licence holders, with the allocation remaining at 97%.

On the lower Darling River, both general and high security water holders had a 100% allocation for the whole of 2014–15. New South Wales Office of Water, who is managing Menindee Lakes until the storage goes above 640 GL, issued regular updates throughout 2014–15 on the status of water availability for lower Darling water users.

In Victoria, Murray high reliability water shares started with an allocation of 57% compared with a starting allocation of 42% for the previous year. Victorian licence holders also carried over, on average, about 30% allocation into 2014–15. Victorian Murray high reliability allocations

Table 2.5 Water shares for New South Wales, Victoria and South Australia – at the end of June 2014 and June 2015

	Storage at end of June 2014 (GL) [a]				Storage at end of June 2015 (GL) [a]			
Storage	**NSW**	**Vic**	**SA [b]**	**Total**	**NSW**	**Vic**	**SA [b]**	**Total**
Dartmouth Reservoir	1,534	1,928	43	3,505	1,007	1,824	49	2,823
Hume Reservoir	546	1004	0	1,550	377	377	0	970
Lake Victoria	205	249	7	460	179	144	5	447
Menindee Lakes [c]	380	0	0	380	73	0	0	83
Total [d]	**2,665**	**3,181**	**50**	**5,895**	**1,637**	**2,346**	**54**	**4,322**

a Data relates to total storage.

b South Australia has deferred a portion of its entitlement flows. This volume exists in storage under specific provisions and does not contribute to the figure for total storage volume.

c When the storage volume is less than 480 GL, water is not available to MDBA.

d Accounts are based on the best available data, which may contain some unverified operational data that could change in the future. Figures are rounded to the nearest GL and that is why some calculations in this table appear slightly incorrect.

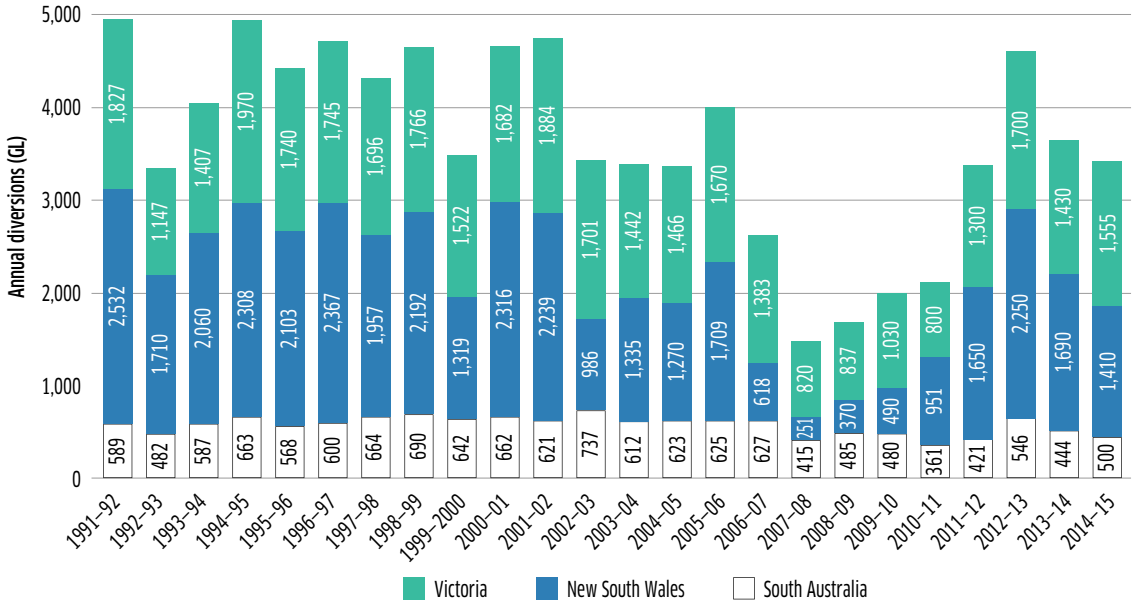


Figure 2.10 State diversions River Murray system (not including environmental water) 1991–92 to 2014–15 (Diversions include the lower Darling and any inter-valley trade received by a state. 2014–15 figures are indicative only and may change as updated data becomes available.)

steadily improved, and reached 100% in September 2014.

With moderate water availability and early increases in allocations, total water diversions (not including environmental water) during 2014–15 for Victoria, New South Wales and South Australia were around 3,460 GL (Figure 2.10). This volume is similar to last year, which in part reflects the similar weather conditions of very hot and dry conditions through spring-summer and resultant large demands for crop and pasture water. As was the case in 2013–14, demand this year remained relatively high into autumn, then quickly reduced following a significant rain event in mid-April.

Delivering environmental water

Delivering environmental water is a complex and growing challenge for the MDBA and partner governments. In exercising the operational functions under the Murray–Darling Basin Agreement, our operational staff play an important role in coordinating the delivery and accounting of environmental water across the River Murray system. We also work very closely with partner agencies working in the Goulburn and Murrumbidgee valleys to ensure the best outcomes can be achieved across the southern-connected system. The water management tools, policies and procedures – which evolved largely before the additional focus on environmental water – are being reviewed and renewed to meet current and future requirements.

During 2014–15, we again delivered substantial volumes of environmental water held by the Basin states, The Living Murray and the Commonwealth Environmental Water Holder, to target a range of environmental outcomes.

Throughout the year we assisted in delivering significant volumes of environmental water to commission new environmental water management structures at Hattah Lakes, Gunbower Forest, Koondrook–Perricoota Forest, Mulcra Island and the Chowilla floodplain. Around 610 GL of environmental water reached the South Australian border, and a substantial portion of this was delivered to the internationally-significant Coorong and Lower Lakes.

Over the course of 2014–15 we supported a trial by the New South Wales Office of Water to introduce variations in weir pool levels to achieve a more natural wetting and drying cycle

for the riverine environment. The weir pools raised and lowered as part of this trial included locks 8 and 9. South Australia also managed their own weir pool variation trial which included locks 1 and 2. Further weir pool variations are planned throughout the River Murray system for 2015-16.

In each event we provided a range of technical advice to assist the decision making of environmental water holders and managers throughout the southern Basin.

Flow to South Australia

South Australia began the year with its full entitlement of 1,850 GL for the fourth consecutive year. No additional dilution flow was delivered to South Australia in 2014–15 as the required monthly trigger volume at Menindee Lakes was not met at any point throughout the year.

Flow across the border in the first weeks of July was at entitlement rates. Following increased rainfall and inflows, MDBA announced 'unregulated flows' across the South Australian border on 17 July 2014. Periods of unregulated flow are declared by the MDBA when it is forecast that flows in the River Murray system cannot be captured in Lake Victoria – because of operating rules, inlet capacity constraints or storage capacity constraints – and the flow passing through to South Australia will be in excess of its entitlement flow.

Inflow to the River Murray system reduced dramatically in August, and unregulated flows across the South Australian border ceased on 1 September 2014. Shortly after unregulated flows ceased, significant volumes of environmental water began being delivered across the South Australian border to test the Chowilla regulators and to provide environmental outcomes in the Coorong and Lower Lakes. Delivery of environmental water for Chowilla finished at the end of November, however environmental deliveries across the South Australian border for the Coorong and Lower Lakes continued for the remainder of the year.

Of the 610 GL of environmental water delivered to South Australia in 2014–15, about half had previously been used in environmental watering events at upstream locations before being traded to South Australia. Locations where environmental water was used before being traded to South Australia included the Goulburn River, Campaspe River, Broken Creek, and flows returned from a watering event in Hattah Lakes.

The total annual flow across the South Australian border, including unregulated flow, environmental water and traded water was about 2,860 GL (annual exceedance probability 79%), compared with 3,550 GL total annual flow last year and the long-term median annual flow of 5,080 GL (based on modelling the current level of development).

The Murray component of the Snowy Mountains Scheme

The Snowy Scheme terms of operation are defined in the Snowy Water Licence, which sets a minimum release that must be achieved by the licensee (Snowy Hydro Limited) over the course of the Snowy water year, which runs from 1 May to 30 April.

The required annual release volume may change during the Snowy water year and Snowy Hydro Limited is free to release volumes in excess of the required release. During the 2014–15 Snowy water year, the required annual release increased from 67 GL at the start of the Snowy water year to close at 754 GL. These required annual release volumes included allowance made for the 168 GL released in 2013–14 as an advance on 2014–15 requirements.

The 2014–15 required annual release was adjusted by the changing dry inflow sequence volume through the course of the year (to March 1). The dry inflow sequence volume is a measure of how much the inflows to the Snowy scheme are below the level required to ensure a reliable supply through a repeat of drought conditions, and reduces the release obligation.

The 2014–15 accounted release to the Murray was 756 GL, comprising the 754 GL required annual release and 2 GL advanced on the 2015–16 required annual release. No credit was made to the drought reserve held in Snowy storages. The total held in the drought reserve remains at 215 GL, the maximum volume allowed in the drought reserve is 225 GL.

The 2011 changes to the Snowy Water Licence provided Snowy Hydro Limited with the flexibility to badge at least 200 GL of releases in any year as an advance on next year's releases. Prior to 2011 Snowy Hydro Limited was only able to make advance releases in drier years or through special arrangements.

The 2 GL advanced in 2014–15 was the lowest advance released to the Murray since the 2003–04 water year. The 2010–11 water year was the only other (since 2003–04) that did not include a significant advance release to the Murray.

Snowy Hydro Limited's required annual release to the Murrumbidgee in 2014–15 was reduced by 100 GL with the agreement of NSW (and the support of the MDBA). The 2015–16 required release to the Murrumbidgee will be increased by 100 GL to repay the reduced release.

Operating the River Murray system

2014–15 provided a number of challenges to operating the River Murray system, arising from very low inflows throughout spring, reasonably high water allocations, and no access to water in Menindee Lakes.

Throughout July operations were focused on managing moderate inflows generated from consecutive rainfall events across the southern Basin. Most of these inflows were captured in River Murray headwater storages. Conditions turned relatively hot and dry across south-east Australia from late winter into spring, which contributed to high demands and seasonally high system losses throughout the River Murray system.

With no water available in Menindee Lakes and low tributary inflows, supplying water to meet all demands in the lower Murray across summer and autumn was forecast to be challenging. To protect the delivery of water downstream the relaxation of trade restriction from above the Barmah Choke to below was ended on 28 October 2014.

Despite a return to more average rainfall in the southern Basin in December and wetter than average conditions in January, River Murray system inflows remained well below the long-term average. Large volumes of water were released from Dartmouth and Hume Reservoirs in order to supply downstream demands. This resulted in a prolonged period of flow through the Barmah Choke at channel capacity. Even with flow through the Barmah Choke at channel capacity we still needed to utilise privately-owned irrigation supply networks to pass water around the Barmah Choke to meet all the downstream demand. In addition to releases from headwater storage, we also called upon record volumes of water from our inter-valley trade accounts in the Goulburn and Murrumbidgee valleys.

Relatively high demands carried on into autumn, but then abruptly declined following significant rainfall along the length of the River Murray in mid-April. This rain event was very similar to a rain event that occurred twelve months ago, which effectively ended irrigation demand in 2013–14.

The upper Murray – highest releases from Dartmouth Reservoir since 2006–07

At the start of 2014–15 storage at Dartmouth Reservoir was 3,510 GL (91% of capacity) and releases were at a minimum rate of 200 ML a day.

Storage at Dartmouth Reservoir gradually increased from July through to mid-September 2014, during which time releases were at minimum rates. The storage reached its peak volume for the year of 3,690 GL (95% capacity) on 17 September 2014. From mid-September through to the end of June 2015 Dartmouth Reservoir gradually decreased as bulk volumes of water were transferred downstream to Hume Reservoir. Releases during this time, measured at Colemans gauge, varied from 500 ML a day to 7,000 ML a day, and were released in a variable manner to promote environmental outcomes in the Mitta Mitta River.

Bulk transfers from Dartmouth to Hume are not typically undertaken in late autumn and early winter. However, given the relative storage volume of Hume, and the announcement of El Niño by the Bureau of Meteorology, it was decided to continue supplying water to Hume throughout May and June 2015.

The total volume released from Dartmouth Reservoir during 2014–15 was around 1,210 GL.

This was the highest release since 2,330 GL was released in 2006–07. As of 30 June 2015 the storage volume was 2,820 GL (73% capacity) and the release was 4,500 ML a day.

At Hume Reservoir, 2014–15 began with the storage at 1,570 GL (52% capacity) and releases at a minimum rate of 600 ML a day. There were moderate inflows throughout July and early August which raised the storage to 2,250 GL (75% capacity). In mid-August, downstream demands required releases from Hume to be increased above minimums, which drew the overall storage volume down. However, the arrival of bulk transfers from Dartmouth in late September led to Hume's storage gradually rising again. Hume Reservoir reached its peak volume for the year of 2,340 GL (79% capacity) in early October 2014.

From the beginning of October 2014 to mid-April 2015, high downstream demand required the release of significant volumes of water from Hume Reservoir. The average release during this period was 15,900 ML a day, with a peak release of 20,400 ML on Christmas Day 2014. Releases from mid-April to mid-May 2015 continued at an average rate of 6,800 ML a day as water was transferred to Lake Victoria in accordance with system operations objectives.

Releases from Hume returned to a minimum release of 600 ML a day in mid-May. From 22 June 2015, Hume releases were raised above the minimum flow to deliver environmental water along the length of the Murray. The releases are planned to continue for the rest of 2015.

Releases to meet environmental, irrigation and normal system demands throughout the year resulted in Hume Reservoir being drawn down to a low of 611 GL (20% capacity) on 17 April 2015. Reduced demands from mid-April onwards, combined with natural inflows and bulk transfers from Dartmouth, increased Hume's storage volume to 970 GL (32% capacity) by the end of June 2015. The total volume released from Hume Dam during 2014–15 was around 3,730 GL, and there were no spills.

Mid-Murray – high demands for water

At Yarrawonga Weir, releases exceeded 20,000 ML a day on two occasions in July 2014 following rain events. The releases peaked for the year at 24,000 ML a day on 23 July 2014. Tributary inflows upstream of Yarrawonga receded in early August and releases were reduced below 10,300 ML a day, which is just below the normal channel capacity of the Barmah Choke.

High downstream demands throughout spring, summer and autumn required a long period of time with releases from Yarrawonga at close to channel capacity of the Barmah Choke. From late-August 2014 to mid-April 2015 releases from Yarrawonga averaged 9,950 ML a day. During this time irrigation supply networks were also utilised to pass water around the Barmah Choke to meet downstream demands. A significant rain event along the Murray in mid-April reduced demand, however releases from

High country New South Wales (photo by Andrew Beer, MDBA)

Yarrawonga remained at around 8,500 ML a day as water was passed downstream to meet Lake Victoria's end of season target volume.

From the start of May 2015, the Yarrawonga Weir pool was gradually lowered to 3.5 metres below its regular operating level. This was to enable essential maintenance works on the weir, as well as to control the aquatic weed *Egeria densa*. The pool level is planned to be returned to its full supply level around late July in time for the start of the irrigation season.

Record volumes of inter-valley trade water were called upon in 2014–15 in order to assist meeting the high demands in the lower Murray. This included about 240 GL from the Goulburn River and 150 GL from the Murrumbidgee River.

Inflow from the Goulburn River at McCoys Bridge totalled 930 GL for the year (Annual Exceedance Probability of 55%) with a peak flow in late-July 2014 of 9,200 ML a day, which is well below the minor flood level. The peak flow from the Goulburn contributed to the peak flow at Torrumbarry Weir for 2014–15 of 17,000 ML a day. Flows of this magnitude remain within the River Murray channel and do not flow overbank into Gunbower or Koondrook–Perricoota forests.

Flows along the Murrumbidgee River were reasonably low in 2014–15, with inflow to the Murray measured at Balranald totalling about 440 GL (annual exceedance probability of 76%). This is well below the long-term average of 1,240 GL and the median inflow of 860 GL. The flow at Balranald peaked during early August at 5,100 ML a day.

At Euston, the flow exceeded 20,000 ML a day for approximately three weeks from late July to mid-August 2014 with a peak of 24,300 ML a day on 6 August (minor flood level occurs at about 88,000 ML a day). At Mildura, the weir was removed in late May 2015 to enable work on the concrete trestleway. The weir is planned to be reinstated and the weir filled by late July 2015.

Downstream of the confluence of the Murray and Darling rivers the flow at Wentworth was primarily driven by Murray flows throughout 2014–15. The flow reached a peak in mid-August 2014 of 21,400 ML a day (minor flood level occurs at about 87,000 ML a day).

Menindee Lakes, lower Darling River and the Great Darling Anabranch – very low inflows

As was the case in 2013–14, total inflows to Menindee Lakes for 2014–15 were again very low, totalling around 40 GL (annual exceedance probability of 99%). This is well below the long-term median annual inflow of about 950 GL. These low inflows were due to consecutive years of poor rainfall in the northern Basin, which has led to relatively dry catchments and low inflows into the Darling River.

The MDBA had no access to water from Menindee Lakes storage throughout 2014–15. In accordance with the Murray-Darling Basin Agreement, we will not have access to call on water from Menindee Lakes until the storage refills to above 640 GL. With very low volumes of water in storage, New South Wales Office of Water issued regular updates throughout 2014–15 on Menindee Lakes storage volume and the status of water availability for lower Darling water users.

Storage levels at the Menindee Lakes began the year at 380 GL (22% capacity) with releases at a minimum flow of 200 ML a day at Weir 32. Total storage at Menindee Lakes fell throughout the year, with only brief pauses due to local rainfall in early January and inflows in March and May 2015. The primary reason for reductions in storage volume throughout 2014–15 was evaporation, with evaporation rates for several months through spring and autumn close to the maximum on record. Releases from Menindee Lakes were held at, or below minimum rates from July 2014 to May 2015. From 1 May 2015 releases into the lower Darling were stopped in order to conserve the remaining water in Menindee Lakes for critical human water needs and permanent plantings.

As of 30 June 2015, Menindee Lakes total storage was 83 GL (5% capacity) and gradually rising due to a small inflow from the Darling River.

Lake Victoria – significant volumes released

At the start of the year storage at Lake Victoria was 460 GL (68% capacity, 25.11 m AHD). The storage level rose steadily throughout July, and on 17 July MDBA announced unregulated

flows within the River Murray system, indicating that flows in transit were greater than the volume that could be captured in Lake Victoria. Following a return to drier conditions in August, unregulated flows across the South Australian border stopped on 1 September 2014.

Lake Victoria's storage volume peaked in early September at 673 GL (99% capacity, 26.97 m AHD). High environmental water demands in South Australia, together with the delivery of standard entitlement, resulted in significant volumes of water being released from Lake Victoria throughout spring, summer and autumn. The lake was gradually drawn down over this period, reaching its lowest level for the year of 165 GL (22.10 m AHD) on 6 April 2015. This was the lowest the storage has been since June 2009, and is beneficial for the vegetation along the lakes foreshore which prefers a wetting-drying regime.

In response to transfers of water from Hume Reservoir, tributary inflows, and water released from upstream weir pools at Yarrawonga and Mildura, Lake Victoria began slowly refilling from mid-April onwards. By the end of June 2015 the storage was 450 GL (66% capacity, 25 m AHD).

The target storage levels identified in the Lake Victoria operating strategy did not apply in 2014–15, due to a conditional rule that removes the requirement to lower the lake when we cease to have access to water in Menindee Lakes. Regardless, Lake Victoria levels remained below all of the target levels throughout the year due to normal operations.

Lower Lakes and barrage operation in South Australia – significant volumes of environmental water

Although the period of unregulated flows to South Australia was relatively short in 2014–15, the delivery of significant volumes of environmental water allowed releases through the barrages to continue throughout most of the year, apart from during 'reverse head' periods. These occur when downstream water levels in the Coorong exceed upstream water levels in Lake Alexandrina, because of high tides and or storms. This requirs some barrage gates to be closed to limit the inflow of sea water.

However, the limited unregulated flows entering South Australia meant that there were no opportunities to make very large daily releases of water through the barrages (greater than 75,000 ML a day). It is these large daily barrage releases that typically scour large volumes of sand from the Murray Mouth and enhance connectivity between the Coorong and the Southern Ocean. In the absence of any large flows, since autumn 2011, sand has been gradually accumulating in the Mouth and adjacent sections of the Coorong, see page 82.

The Lower Lakes started the year at 0.69 m AHD (5-day average level). The lakes were steadily

Significant volumes of water were released from Lake Victoria during spring, summer and autumn (photo by Melissa Meadowcroft, MDBA).

filled throughout July and early August, reaching a peak of 0.85 m AHD on 11 August 2014. Barrage releases through July and August averaged around 6,700 ML a day, with a peak release of about 22,000 ML a day in mid-August.

Following the end of unregulated flows across the South Australian border on 1 September, releases through the barrages were reduced to 2,000 ML a day. Environmental water deliveries enabled South Australia to meet this release while also maintaining lake levels at around 0.70 m AHD.

Temperatures throughout late spring and summer at the Lower Lakes were above average, leading to high evaporation rates. Environmental water continued to be provided, with barrage releases targeted at between 1,000 to 2,000 ML a day. The average lake level was relatively stable at around 0.70 m AHD throughout spring, but then began gradually falling over summer, and by the end of February was around 0.57 m AHD.

Environmental water holders had guaranteed to provide significant environmental water to assist the lake levels recover in late autumn, which provided confidence for the South Australian water managers to continue releasing environmental water out of the barrages and allow the lakes to gradually lower. The average water level of the lakes reached a low of 0.50 m AHD at the end of March and then began slowly rising. As of the end of June 2015, the average lake level was 0.68 m AHD.

Similar to past years, barrage operations in 2014–15 continued to target fish passage to support movement and recruitment for a range of fish species. The fishways at Goolwa and Tauwitchere remained open and flows were provided to encourage fish to enter the fishways when conditions were suitable.

Improving river operations

The river operations improvement team focuses on documenting and improving existing River Murray system operations against current and future requirements. This is set out in the Murray–Darling Basin Agreement and the objectives and outcomes for River Murray system operations. The objectives and outcomes document is set by the Basin Officials Committee and provides a transparent decision-making framework for operations. It is available on our website at <www.mdba.gov.au>.

The team works closely with river operators and state agencies to identify efficient and effective ways to modernise river operating practices. Our work in 2014–15 included:

- taking steps to integrate environmental water delivery into everyday river operations
- reviewing the Murray–Darling Basin Agreement provisions for water accounting during periods of 'special accounting' (which apply during dry conditions), to ensure they continue to work effectively in extreme dry conditions

Environmental water delivered to South Australia helped levels in the Lower Lakes recover (photo of Lake Alexandrina, near Milang South Australia by Denise Fowler, MDBA).

- reviewing processes and developing reference material on our obligations under the Basin Plan to 'have regard to' water quality targets and risk management strategies when making river operations decisions
- conducting training as required under the River Murray system Emergency Action Plan
- developing a list of training courses to improve the capability of river operators and managers across the Basin. The list was aligned against the agreed capability framework for river operators
- continuing to use adaptive management to learn and develop improved ways of operating the River Murray system, for example, through the Environmental Guidelines Program we:
  - increased our knowledge of the spawning and survival of early life stages of Murray cod in the lower Darling River during a period of low flows
  - reflected on the reasons for success and lessons learned from drawdown operations at Lake Mulwala to control the common waterweed, to develop an operational strategy
  - continued to track the movements of 25 adult Murray cod in the Mitta Mitta River. We will be relating the movement data to the river's flow and water temperature regime, to identify ways to help protect and increase Murray cod numbers in this reach

An annual review of the objectives and outcomes for the River Murray system was carried out and approved by the Basin Officials Committee in May 2015. The amendments included the added role of the recently established River Murray Operations Committee and agreed recommendations from the Independent Review of River Operations Group report. They also included:

- temporary amendment of specific objective and outcome 2.2, maximum rate of fall in river level downstream of Hume Dam during planned regulated releases (the '6 inch rule')
- the addition of specific objectives and outcomes 12.13 'determining the minimum inflow prediction' and 15.1-4, Tier 2 and 3 water sharing arrangements.

Critical human water needs

The Murray–Darling Basin Agreement ensures that the southern Basin states set aside and deliver water for critical human water needs. It also establishes processes for managing periods when normal water sharing arrangements would not provide enough water for critical human needs.

The Basin Plan sets triggers, or tiers, for changing water sharing arrangements.

Tier 1 is 'normal' water sharing arrangements. Tier 2 arrangements apply during periods of very low water availability, and Tier 3 arrangements are for extreme and unprecedented conditions.

During 2014–15 Tier 1 water sharing arrangements were in place, meaning that critical human water needs were met, as well as the conveyance water needed to ensure sufficient flow in the river system to deliver critical human water needs.

Conveyance water

Conveyance water is the water needed to physically run the river system. Extra water must then be supplied on top of the conveyance water in order to meet deliveries along the river system. The conveyance reserve is water set aside for the next year to minimise the risk of not having enough conveyance water.

Setting aside water for conveyance and critical human needs aims to safeguard fundamental water requirements during a drought more severe than the millennium drought.

Work has focused on ensuring that critical human water needs is a standard part of planning and risk management for river operations, especially for the water resource assessment and annual operating plan for river operations. Lessons from the millennium drought continue to be captured, with the Basin Officials Committee approving the specific objective and outcome for periods of Tier 2 and 3 water sharing arrangements in April 2015.

Salt interception schemes

The River Murray salt interception schemes are a significant component of the Basin Salinity Management Strategy 2011–15, see page 58, and help us to achieve and maintain agreed salinity levels in the River Murray. The schemes are also operated to maximise environmental benefits to the Basin. Around 432,454 tonnes of salt were diverted from the River Murray in 2014–15, see Table 2.6 and Figure 2.11.

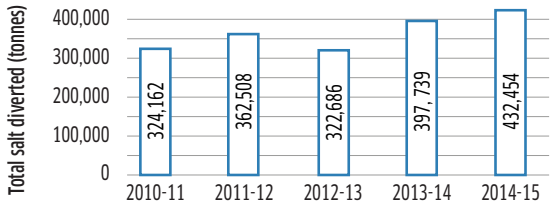


Figure 2.11 Total salt load diverted from the River Murray 2010-11 to 2014-15

Table 2.6 Joint/shared salt interception scheme performance reporting 2014–15

Salt interception scheme	Volume pumped (ML)	Salt load diverted (tonnes)	Average salinity (EC units)	Target achieved (% of time)	Power consumption kWh (totals)
Pyramid Creek	1,159	28,964	41,769	100%	173,867
Barr Creek	5,629	21,051	6,656	100%	101,682
Mildura–Merbein	1,021	64,016	80,733	100%	138,327
Mallee Cliffs	1,019	35,302	51,700	51%	298,685
Buronga	2,180	60,309	43,060	100%	458,613
Upper Darling	1,380	32,502	36,800	100%	227,198
Pike River	291	13,564	58,850	n/a	71,741
Murtho	615	14,457	39,669	11%	231,571
Bookpurnong	982	23,875	36,408	78%	370,379
Loxton	1,268	25,291	24,933	98%	511,078
Woolpunda	4,483	87,018	30,858	99%	2,741,037
Waikerie	1,343	23,573	29,962	52%	628,955
Rufus River (groundwater)					
Line 1	24	43	3,138	88%	2,800
Line 2	18	540	46,605	63%	5,104
Line 3	19	930	70,518	100%	3,576
Line 4	17	503	46,695	100%	3,415
Minor pump station	0	0	149,033	100%	901
Major pump station	64	517	13,932	97%	374
Total groundwater diversion		**2,532**			
Total salt pumped during year		**432,454**			

- Targets for Pike River, Murtho, Bookpurnong, Loxton, Woolpunda, Waikerie and Rufus Riverare based on a % of elevation target
- Murtho pump station was shut down for a major repair at the Pike salt interception scheme
- Waikerie Stages 1 and 2 bores were shut down for 7 months due to a series of major repairs to the pipeline
- Mallee Cliffs shut down for 21 days due to high river flows, than on standby mode from 20 January 2015 to 30 June 2015
- Upper Darling construction completed and fully operational from 17 November 2014. NSW, in addition to the joint venture, part funded the operation to enable 100% operation

Our performance

Program performance is measured against deliverables and key performance indicators in the *Portfolio Budget Statements 2014–15* of the Environment portfolio. Some deliverables and key performance indicators go across goals so results will also be found in other sections.

A summary of our performance against the deliverables and indicators related to strategic goal 4 is provided in Table 2.7.

Table 2.7 Deliverables from the portfolio budget statements for strategic goal 4 – Managing River Murray assets

Deliverables	Key performance indicators	Results
Carry out the annual planned maintenance and renewals program according to contemporary best practice	Annual inspection assesses all assets to have achieved a good or high standard of maintenance	**ACHIEVED** All assets functioning as required and well maintained p. 82–83
Reduce the risks associated with joint venture assets to acceptable levels in accordance with jurisdictional dam safety regulations through the Dam Improvement Program	No adverse rulings from jurisdictional dam safety regulators	**ONGOING** Achieved significant risk reduction at Lake Victoria outlet regulator and Bank 4 Frenchman's Creek crossing p. 80–81 Hume Dam sits below the Australian National Committee on Large Dams 'Limit of tolerability' for societal risks. No adverse feedback from dam safety regulators p. 77, 80
Finalise Environmental Works and Measures Program projects including commissioning and first operations	Environmental works and specific projects are managed efficiently to achieve their objectives and are maintained to contemporary standards	**ACHIEVED** Completed construction at all sites p. 76
Operate and maintain existing salt interception schemes in accordance with agreed operating rules and operating and maintenance procedures	Positive annual performance report for all salt interception schemes	**ACHIEVED** Schemes operated to agreed plans. Annual reports completed p. 96
Conduct day to day operation of the River Murray system assets in accordance with the objectives and outcomes set by the Basin Officials Committee	Positive report on River Murray system operations of the Independent River Operations Review Group (IRORG) endorsed by the Basin Officials Committee	**ACHIEVED** IRORG reported that the MDBA performed well in its river operations functions in 2013–14 A report on operations in 2014–15 will be submitted on 30 September 2015
Transparently determine state water entitlements in accordance with the Agreement		**ACHIEVED** All water resource assessments were completed on time p. 87
Effectively maintain the River Murray system water accounts		**ACHIEVED** All water accounts were prepared p. 87–88
Support a review of cost effectiveness for the joint asset arrangements as directed by the Basin Officials Committee		**ACHIEVED** Findings of the review – that River Murray operations are efficient and effective – accepted by the Basin Officials Committee and Ministerial Council p. 94–95
Effective planning and real time management to deliver coordinated water events		**ACHIEVED** IRORG reported that the MDBA coordinated, delivered and accounted for the 2013–14 large scale environmental watering event on the River Murray in an efficient manner A report on 2014–15 environmental watering activities will be submitted on 16 November 2015

MDBA staff members looking at water management structures in the southern Basin.

CHAPTER 3

MANAGEMENT AND ACCOUNTABILITY

Risk management	103
Our people	108
Our workforce	110
Work health and safety	114
Our planning and finances	117
Our information resources	123

MANAGEMENT AND ACCOUNTABILITY

Highlights

- Voted 25th in the Australian Association of Graduate Employers' top graduate employers for 2015 and in the top four of Australian Public Service agencies.
- Updated our risk management framework and policy.
- Ranked in the top 21% in the Comcover 2015 risk management benchmarking survey.
- Updated our legal services policy.
- Received 343 applications for our graduate program.

Graduates learning about what we do (photo by Rebecca Thornberry, MDBA).

Overview
– a new Act and new role

In 2014–15 we continued to focus on strengthening internal governance and systems to improve the operation of the MDBA. The *Public Governance, Performance and Accountability Act 2013* (PGPA) came into effect on 1 July 2014 along with our new role as a regulator under the water trade rules.

As a result of the introduction of the PGPA Act, we implemented changes in the governance of the MDBA, which has allowed us to improve and streamline operations against a background of strengthened and improved internal controls and risk management. We have also been working to reduce administrative compliance burdens and red tape.

The new MDBA resource management framework consolidates our governance, performance and accountability requirements. The framework sits under the umbrella of the accountable authority instructions which provides the Chief Executive with the mechanism to apply the key principles of and requirements of the PGPA Act.

There is now an explicit obligation on all individual officials to consider the proper use and management of public resources before approving commitments of relevant money, against the backdrop of risk management and internal controls.

We have refined performance measures including key performance indicators with a view to increased accountability results and driving a positive risk culture.

Challenges and year ahead

We have started work on developing a new policy proposal to ensure future funding. As part of this we are working on:

- a review of procurement systems and processes
- increasing the flexibility of our information and technology systems and processes
- preparing workforce strategies
- implementing a broad ranging financial improvement program.

Senior management committees

During the year senior management committees continued to provide advice and assurance to the Chief Executive and to manage cross-agency aspects of our business.

Executive Committee

The MDBA's Executive Committee, chaired by the Chief Executive, is the key forum in which cross-agency issues on policy and corporate governance are discussed. The committee meets on a weekly basis and comprises the executive directors of our four divisions (policy and planning; environmental management; river management; and corporate and business services), the General Manager, Communications, Engagement, Research and Compliance; and the Director Media and Chair Support.

Three sub-committees report to the Executive:

- the Information Management and Technology Committee, which provides strategic direction and governance for MDBA's information and technology management
- the Budget and Reporting Committee, which oversees the financial management and corporate reporting aspects of the MDBA
- the People, Communications and Culture Committee, which focuses on all aspects of the MDBA's organisational culture, learning and development initiatives, performance management and recruitment strategies. It also oversees internal communications.

During 2014–15 the Executive Committee considered strategic and critical management issues such as:

- implementing the Basin Plan, including publishing the first Basin-wide environmental watering strategy and the start of new water trade rules
- publishing the first full-year Basin Plan annual effectiveness report
- establishing the Southern Connected Basin Environmental Watering Committee
- developing and trialling the method to assess proposed sustainable diversion limit adjustments
- completing and commissioning all water management structures under The Living Murray program
- compliance and water resource planning policy positions
- preparing a reconciliation action plan
- negotiating the new enterprise agreement
- developing an ICT strategy and ICT enterprise architecture.

Information Management and Technology Committee

The Information Management Committee advises on, and provides strategic direction for our information management and information technology initiatives. It also discusses and endorses major projects which have information management or information technology components or impacts. The major focus of the committee has been developing the enterprise information strategy to position and provide direction for our information management and technology.

The committee is chaired by the General Manager Policy and Coordination, and the Chief Information Officer. Its membership includes two additional senior executive service officers who have backgrounds in strategic ICT issues.

Health and Safety Committee

The Health and Safety Committee operates in accordance with the *Work Health and Safety Act 2011* and meets quarterly to oversee work health and safety matters across the MDBA. In 2014–15 the committee met in July, November, March and June. Committee members include: health and safety representatives from MDBA work groups, a representative from the Employee Consultative Committee, Director People, Planning and Performance, the Chief Emergency Warden and the Work Health and Safety Coordinator. The Chair for 2014–15 was the General Manager, Constraints Management.

Work health and safety issues considered by the committee during the year included:

- health and wellbeing activities and targeted programs to increase employee wellbeing such as staff education and awareness, flu vaccinations and health testing during safety month
- enhancing arrangements to comply with the new work health and safety legislative framework

- new and revised policies, procedures and guidelines, including rehabilitation policy, sit-stand work arrangements, testing and tagging electrical appliances, rural, regional and remote travel arrangements and safe work practices guidelines
- documentation of the rehabilitation management system and auditing against standards issued by Comcare
- compensation and non-compensation rehabilitation issues and statistics
- strategies to reduce the incidence and impact of musculo-skeletal disorders and psychosocial injury issues including awareness raising and ergonomic assessments and provision of aids and support
- workplace inspections and workplace incident and injury reports
- analysis of trends and statistics by the employee assistance provider
- reports from first aid officers, emergency wardens and harassment contact officers
- accommodation issues with work health and safety implications
- dealing with specific workplace issues such as reactions to potential allergens in the workplace.

Employee Consultative Committee

The Employee Consultative Committee is established under the MDBA Enterprise Agreement 2011–14. Despite passing the nominal expiry date of 30 June 2014, the MDBA Enterprise Agreement 2011–14 remains in place until a replacement agreement is negotiated. The committee continued to meet throughout 2014–15 in August, November, December, February and May.

The Employee Consultative Committee provides a forum for:

- staff consultation and input into the decision-making process in relation to changes to existing policies, guidelines or procedures or developing new policies, guidelines or procedures referred to in the Enterprise Agreement
- consultation and agreement prior to the Chief Executive commencing a formal variation process under the *Fair Work Act 2009* in relation to changes in any current conditions or entitlements included in the Enterprise Agreement
- providing advice to the Chief Executive on matters arising from the operation of the Enterprise Agreement.

The committee comprises an elected employee representative from each division, three elected employee organisation representatives (from Professionals Australia, the Community and Public Sector Union, and the Media Entertainment and Arts Alliance), the Chief Executive and two other management representatives. The committee meets quarterly to facilitate communication, consultation and cooperation with employees on matters affecting the workplace and the operation of the Enterprise Agreement. Additional meetings can be scheduled to address any significant issues that arise. An additional meeting was held in December 2014 to facilitate discussion on broadbanding and professional job streams.

During 2014–15 the committee reviewed workplace-related MDBA policies, staff accommodation, organisational restructuring, response to the state of the service employee census results and the implementation of initiatives and commitments contained in the Enterprise Agreement.

With negotiation of a replacement enterprise agreement beginning in May 2014, the review of the majority of human resources policies linked to the enterprise agreement was put on hold unless changes to legislation, or other arrangements, necessitated changes. The committee also worked cooperatively with the Health and Safety Committee to develop and implement several work health safety policies following consultation.

Audit Committee

The Audit Committee was established by the Chief Executive under the Public Governance, *Performance and Accountability Act 2013* to provide independent advice and assurance to the Chief Executive. The committee's functions include reviewing the appropriateness of our:

- financial reporting
- performance reporting

- system of risk oversight and management
- system of internal control.

The Audit Committee met five times during 2014–15, in September, October and December 2014, and in March and June 2015. The meeting held in October 2014 was a short meeting held specifically to consider and recommend our 2013–14 financial statements to the Chief Executive for signature.

The committee's membership remained constant during the year, with the exception of the Deputy Chair David Dreverman who completed his term of appointment on 30 March 2015, and the appointment of Colin Mues for the period 1 June to 30 June 2015. The committee membership and meeting attendance was:

- Jenny Morison (Chair and independent member) – 5 meetings
- David Dreverman (Deputy Chair until 30 March 2015) – 4 meetings
- Russell James (member) – 3 meetings
- Jo Kneebone (member) – 2 meetings
- Colin Mues (member 1 June to 30 June 2015) – 1 meeting.

The committee considered financial management and reporting at each of its meetings. Particular attention was paid to the new *Public Governance, Performance and Accountability Act 2013* compliance reporting requirements as well as management of financial risks.

The committee considered the MDBA's system of risk oversight and management, at all but its October 2014 meeting, and considered and provided input into the completely revised MDBA risk management framework and policy. The committee also considered and provided advice in relation to the 2015–16 MDBA risk management plan, reviewed the revised business continuity policy and business continuity plan and received reports on the implementation of actions in the fraud control plan. The committee was advised of one fraud incident during the year.

The committee introduced a process for receiving reports on ICT matters at its regular meetings. This included reporting on information management and ICT disaster recovery arrangements.

The committee received a report from consultants at its June 2015 meeting on the work they are doing to assist the MDBA to implement the enhanced Australian Government performance framework and the regulator performance framework.

The committee also considered the MDBA's systems of internal control (including policies and procedures, delegations and authorisations, and legislation) and activities to monitor compliance with the internal control framework. The committee will further consider and monitor the internal control compliance framework in 2015–16.

The committee continued to review internal audit reports and the implementation of audit recommendations and was pleased to note a reduction in the number of outstanding audit recommendations over the year. Three internal audit reports were reviewed (information management, South Australian Riverland Floodplain Integrated Infrastructure Program, and conflict of interest). The committee recommended to the Chief Executive changes to the process for reviewing and approving internal audit reports, as well as changes in the internal audit plan for 2014–15 and the draft internal audit plan for 2015–16.

Risk management

Risk management is an essential part of our operations. Our risk management framework and policy was revised in 2014–15 to comply with the *Public Governance, Performance and Accountability Act 2013* and better practice. We also updated our risk management plan, our business continuity policy and our business continuity plan.

The Audit Committee and the Executive Committee monitor the risk management framework and implementation of enterprise risk treatments. Risk management is monitored as part of quarterly corporate planning and reporting processes. Our Health and Safety Committee monitors health and safety risks, and the Security Group monitors security risks.

The fraud control plan continues to be monitored by the Executive Committee and the Audit Committee. Our fraud risk assessment and fraud control plan will be updated during 2015–16.

Men working on a large slab of fallen rock, Hume Reservoir 1952 (MDBA historic images collection).

Comcover

Comcover provides insurance cover to the MDBA. Identifying and assessing MDBA's insurable risks is done annually through Comcover's insurance renewal process. The MDBA is separately insured by Comcare for worker's compensation for employees.

In 2015 we again participated in the annual Comcover risk management benchmarking survey. The survey, which is now mandatory for all Australian Government entities, provides an opportunity for agencies to review and measure how successfully risk management has been integrated into their business operations.

The survey report showed that we again rated well, near the top 21% of all entities. We were assessed as having an overall risk maturity level of advanced. Only one entity rated in the category above this (optimal).

The Comcover survey determined that our strengths in risk management were in relation to establishing a risk management policy, defining responsibility for managing risk and developing a positive risk culture.

> The elements where the survey found that we could improve the most were: maintaining a risk management capability, communicating and consulting about risk, and embedding systematic risk management into business processes.

During the year the MDBA provided training on risk management, and mandatory online training in ethics, fraud and conflict of interest (including managing sensitive water market information).

Fraud control and investigations

Our fraud control policy is set out in our fraud control plan, on our intranet and external website and in our contract documents. Our management of fraud and implementing the fraud control plan is monitored by the Audit Committee. All employees with financial delegations are required to address their compliance with the Australian Government's fraud control guidelines and report any actual or potential fraud related occurrences through the compliance reproting process.

Fraud investigations

One incidence of fraud was identified in 2014–15. The incident involved a break-in to MDBA premises. The funds were recovered.

Business continuity and ICT disaster recovery plans

Our arrangements for recovering from a business disruption are outlined in the River Murray system emergency action plan, the MDBA business continuity plan and the ICT disaster recovery plan. In 2014–15 we updated our business continuity policy and business continuity plan based on an audit by the consultancy firm KPMG in 2013–14. Further work is being carried out to update the ICT disaster recovery plan in 2015–16.

Internal audit

In 2014–15 KPMG provided internal audit services. The internal audit plans are developed in light of the MDBA risk management plan and following consultation with senior managers. In 2014–15 there was a slightly greater concentration on performance audits than in the previous year. KPMG also assisted with the update of the MDBA risk management plan.

The following internal audit reports were finalised in 2014–15:

- information management
- South Australian Riverland Floodplains Integrated Infrastructure Program
- conflict of interest.

No serious matters were raised in the reports.

Work commenced on internal audits of the sustainable diversion limits adjustment mechanism method, and project governance – the Basin Plan Implementation Committee.

Implementing internal audit report recommendations is monitored by the Audit Committee.

Compliance reporting

Commonwealth entities and Commonwealth companies in the general government sector are required to provide an annual report on compliance (compliance report) within the *Public Governance, Performance and Accountability Act 2013* (PGPA) framework.

The compliance report process is an important means of identifying and disclosing instances of non-compliance with the PGPA framework, as a basis for continuous improvement. It is provided to the Minister for Finance, through the Secretary of the Department of Finance, and to an entity's responsible minister, by 15 October each year, with the first report under the PGPA framework being provided for the 2014–15 financial year.

Compliance performance for the 2014–15 financial year was assessed against:

- the *Public Governance, Performance and Accountability Act 2013*
- the Public Governance, Performance and Accountability Rule 2014
- government policy orders.

The new framework is a departure from the previous Certificate of Compliance under the *Financial Management and Accountability Act 1997* in that it is framed more against principles rather than prescriptive provisions and rules.

With the introduction of the PGPA Act and the MDBA's transition to a corporate Commonwealth entity; the MDBA revised or updated all its internal financial policies, procedures and guidance. Training was provided to officials on the new MDBA Resource Management Framework and compliance requirements.

In addition to strengthened internal controls that limit the likelihood of non-compliance; the MDBA updated its Financial Management Compliance online system and surveyed all officials holding financial authorisation, including senior executives. During 2014–15, the MDBA identified one reportable breach, which represents a significant reduction on the previous financial year's results.

The one instance of non-compliance reported by the MDBA is considered very low and can be readily contrasted with the substantial number, scope and complexity of financial activities, with an annual expenditure of around $138 million and assets managed in excess of $2.6 billion.

Secretariat services

The Secretariat team provide support to the Authority and a range of committees established to support the MDBA in delivering our business. The team also supports the Murray–Darling Basin Ministerial Council and the Basin Officials Committee which were established under the Murray–Darling Basin Agreement, under which the joint programs operate, see Appendix A, page 186.

During 2014–15 the Secretariat provided support to over 56 committee meetings, four of which were Ministerial Council meetings. We also provided support to sub-committees, including working groups and technical panels across the MDBA.

Appendix A includes a summary of committee meetings.

External scrutiny

Auditor-General reports

The MDBA's financial statements are audited by the Auditor-General. No additional audits carried out by the Auditor-General specifically involved the MDBA in 2014–15.

The Audit Committee monitors the implementation of recommendations made by the Auditor-General in its audit of the financial statements and any other audits it undertakes involving the MDBA. The committee also reviews all cross-agency audit reports, better practice statements and guides issued by the Auditor-General, where these are relevant to MDBA operations.

Commonwealth Ombudsman

The Commonwealth Ombudsman made no formal reports relating to the MDBA during 2014–15.

Parliamentary committees

On 24 June 2015 the Senate resolved to establish the Select Committee on the Murray–Darling Basin Plan. The committee is to inquire on the positive and negative impacts of the Basin Plan on regional communities and provide a final report to the Senate on or before 26 February 2016.

Judicial decisions and tribunals

On 15 May 2015 the High Court rejected an application for special leave to appeal to the High Court in relation to a challenge to the constitutional validity of the *Water Act 2007*. The Commonwealth of Australia and the Murray–Darling Basin Authority were named as respondents. The Court also ordered the applicants to pay the costs of the Commonwealth of Australia and the Murray–Darling Basin Authority.

On 6 June 2015 Justice Jagot of the Federal Court made a consent determination recognising the Barkandji people's native title rights and interests in relation to an area of land and waters covering about 128,482 square kilometres in New South Wales. The application for a native title determination was made in 1997. The Murray–Darling Basin Authority was one of the named respondents.

Legal services

Our legal services are provided mainly through an in-house legal team. We also use legal services through the legal services multi-use list established by the Attorney-General's Department.

During 2014–15 internal demand for legal services included:

- advising all MDBA divisions in relation to implementing the *Basin Plan 2012*
- coordinating preparation of the MDBA's case in relation to a constitutional challenge to the validity of provisions of the *Water Act 2007*
- contributing to the development of regulations under the *Water Act 2007*
- providing advice and training to MDBA staff about program delivery and legislative obligations.

Privacy

The MDBA treats the personal information we handle in the course of our business functions in accordance with the Privacy Act 1988, including the Australian Privacy Principles which set out how the MDBA must collect, store, use or disclose, allow access to and correction of, personal information. Our Australian privacy principles notice is available on our website <www.mdba.gov.au/privacy>.

The MDBA registered with the Office of the Australian Information Commissioner as a partner in Privacy Awareness Week 2015, which ran from 3 to 9 May 2015, and which is the primary privacy and education event in the Asian Pacific region. The theme for 2015 was privacy every day. The theme emphasised the need for organisations to embed privacy practices into business as usual processes. Staff education and other activities were provided for staff to refresh their knowledge and application of the MDBA's privacy obligations.

Freedom of information

The *Freedom of Information Act 1982* gives individuals the right to access copies of documents held by Australian Government ministers and agencies, with some exceptions.

During 2014–15 the MDBA received five freedom of information requests. Our freedom of information policy and procedures were updated in line with the Australian Information Commissioner's freedom of information guidelines.

Under the Freedom of Information Act, we must publish a range of information on our website as part of the Information Publication Scheme. This information includes our structure, what we do and how we do it, appointments, annual reports and consultation arrangements, as well as contact details for our freedom of information officer.

Details of how to obtain information released following freedom of information requests and information routinely provided to parliament are also published online. Our Information Publication Scheme agency plan outlines our approach to the scheme and what we include in our publication scheme entry and publish online, see <www.mdba.gov.au/about-mdba/corporate-documents/information-publication-scheme>.

Documents we hold

The MDBA holds the following types of documents:

- working files, including correspondence, analysis and advice
- internal administrative records, such as personnel files, staffing and financial records and office procedures
- submissions and comments from the public and stakeholders
- papers relating to new and amending legislation, drafting instructions and draft legislation
- briefing papers and submissions prepared for the Australian Government minister responsible for water
- documents relating to meetings and committees (such as agenda, minutes and reports)
- copies of questions asked in parliament, together with related replies
- tender documents
- government (including agency) policy statements, communiqués, guidelines and media releases
- contracts
- educational materials
- reports on research, water audits and MDBA activities.

How to lodge a freedom of information request

Your request must:

- be in writing
- state that the request is an application for the purposes of the Freedom of Information Act
- provide information about the document(s) to assist us to process your request
- provide an address for reply.

Please note charges may apply.

For more information, contact the MDBA's freedom of information officer:

FOI Officer
Murray–Darling Basin Authority
GPO Box 1801
CANBERRA ACT 2601

email: foi@mdba.gov.au
Phone: 61+2 6279 0100
Fax: 61+2 6248 8053

Directions under section 175 of the Water Act

No directions were given by the Commonwealth Minister under section 175 of the Water Act.

Ministerial and parliamentary business

The MDBA provides the minister and the parliamentary secretary with timely, evidence-based advice or information on key issues through written briefs and meetings. The preparation of responses to ministerial correspondence with information on the MDBA's policies and programs supports an important function of government. Attending the public hearings of the Senate

Table 3.1 Volume of ministerial and parliamentary advice 2010–11 to 2014–15

Type of advice	2010–11	2011–12	2012–13	2013–14	2014-15
Ministerial briefs	34	32	11	42	63
Ministerial correspondence	6	0	0	0	13
Senate estimates questions on notice	45	199	68	260	109

estimates committees and responding to questions on notice is also an important part of providing information about the policies and programs administered by the MDBA.

Table 3.1 sets out the volume of advice provided during 2014–15 compared to previous years.

Our people

Highlights

- We continue to boost our leadership capability with the successful delivery of the final executive level 1 and executive level 2 MDBA leadership programs.
- We increased the rate of employee participation in our learning and development activities provided in-house.
- We continued to upgrade the CHRIS21 payroll system to enhance performance.
- We developed an electronic performance management system called ePerform.
- We reviewed and updated our online induction system.
- We extended our early intervention and rehabilitation by providing targeted programs and actively working with staff following notification of injuries and diseases, or through preventative action.

Learning and development

The MDBA is committed to the continuous development of all employees, and offers diverse training opportunities throughout the year. Courses held in-house this year included: writing skills for subject matter experts; procurement and contracts; preventing and responding to workplace bullying; writing for the web; performance conversations that matter; inappropriate workplace conduct; diversity and cultural awareness; Australian Public Service ethics and values; ergonomic awareness and safe work practices; Finance 1 training; risk management; mental health awareness; and privacy awareness.

During 2014-15 there was an increase in employee uptake in external specialist training programs, including subjects such as: introductory meteorology course, science to policy leadership program, ArcGIS III performing analysis, ICEWARM hydrology and hydraulics for non-engineers, and understanding groundwater. There was also strong attendance at Australian Public Service Commission facilitated courses such as: SharePoint, strategic thinking, dealing with difficult situations and continued demand for external IT computer training.

We continue to support employees who choose to study at a tertiary level. During 2014–15, 21 employees were approved to receive study assistance. The most popular areas of study were business, financial management, environmental management, water policy, procurement and communications.

Leadership

During the 2014–15 one cohort of executive level 1 employees participated in the MDBA leadership development program. This three month program combined structured learning in a series of facilitated workshops with experiential learning in the form of on-the-job projects relevant to our operational needs. The key objectives of the program were to:

> build a strong leadership cohort across the organisation with the flexibility to support a matrix workforce structure

> recognise and develop talented executive level staff for succession to senior executive service within the MDBA.

Personal Efficiency Program

Several groups from across senior and middle management levels in the MDBA went through the Personal Efficiency Program. The Personal Efficiency Program Worldwide facilitated the delivery of their highly acclaimed productivity solution which has at its core a set of principles designed to streamline work methods and decrease the time taken to complete tasks. Through implementing these structured behaviours and associated tools, the Personal Efficiency Program works to increase the productivity of participants by enabling the identification of time and capacity to undertake work with high value outcomes. Participants in 2014–15 acknowledged changes in their behaviour and linked the learning to improved outcomes.

Internal seminars

The MDBA internal seminar series continued to focus on supporting the professional development of our staff. This year our speakers presented on a wide range of topics including groundwater, managing flows, waterbirds, Aboriginal natural resource management, MDBA history, and modelling. We also continued to run our staff education seminars called 'Understanding our business'.

Coaching program

Executive coaching is offered to staff at the executive level 1 and executive level 2 levels as a way to improve leadership capability and team management, as well as to enhance effectiveness.

Executive coaching is also an essential part of the leadership development program. The MDBA includes one on one coaching sessions for the executive level cohorts undertaking leadership development and as part of targeted support and development arrangements.

The employee coaching program has been strengthened by using training providers that consist of professional organisations with a range of specialities. Once a staff member is approved for coaching, they are matched to a suitable coach to provide the outcomes they are looking for.

Performance management

All MDBA employees are required to participate in the annual performance management and development scheme to assist the MDBA to achieve our organisational goals and meet employee expectations.

The performance management plan seeks to:

- establish realistic and meaningful individual performance objectives for MDBA employees
- connect with individual and team goals with the strategic objectives of the MDBA
- act as a mechanism for seeking and providing feedback to employees, supervisors and managers that is constructive, fair and honest
- promote continual informal and formal communication relating to work goals.

In 2014–15 we conducted three workshops for staff on effective performance feedback which were aimed at:

- understanding their responsibilities in giving performance feedback
- developing strategies required for meaningful performance feedback conversations
- identifying the value of feedback in building capability
- developing strategies and skills necessary to talk to staff when their performance is not matching the original agreed performance management plan
- assisting and providing advice in development needs and longer career aspirations.

The MDBA encourages employee participation in the performance management process. The human resources team actively supports and assists employees and managers to resolve conflict and maintain workplace relationships by ensuring disputes do not escalate.

We also developed an electronic performance management system called ePerform. The new performance management module allows the MDBA to effectively manage the review process using a user-friendly interface. ePerform has been configured to suit the MDBA performance review cycle and aligns performance objectives to organisational strategy.

Our workforce

Workforce planning

During 2014–15 the human resources team worked with line managers to better understand operational workforce issues and to continue to implement actions from the strategic plan. We continued to implement the revised organisational structure taking into account the transition from developing the Basin Plan to implementing it.

We also continued to manage the availability of resources given the controlled recruitment arrangements which applied to all Australian Public Service agencies. These arrangements remained in place for 2014–15 although there were some changes part way through the year.

The arrangements included maximising the use of existing Australian Public Service staff and reduced our capacity to employ new staff without specific approvals. The MDBA actively considered redeployment arrangements through the processes coordinated by the Australian Public Service Commission. We also sought approval for external advertising from the Australian Public Service Commission on one occasion due to the specific skills that were needed for the position.

Our entry-level cadetship and graduate programs remain critical for the MDBA. We increased the size of our graduate intake from five to eight with employment decisions made on the basis of emerging skill requirements.

The MDBA actively participated in the Australian Public Service Commission's service-wide recruitment efforts to attract Indigenous graduates, cadets and trainees but was not successful in employing any Indigenous employees through these programs despite making one offer to an Indigenous graduate. We were also not able to employ an Indigenous trainee through our participation in the Indigenous Australian Government Development Program coordinated by the departments of employment and education.

The human resources team began developing the replacement strategic workforce plan, utilising the preliminary outcomes from developing the MDBA's strategic plan. We will continue to develop the new workforce plan in 2015–16 using the contemporary workforce planning guidelines and job family model developed by the Australian Public Service Commission.

Australia Day achievement awards

The MDBA recognises high performance by individual employees and teams. The Australia Day Awards are hosted by the Chief Executive annually and are a formal way to celebrate outstanding achievements and acknowledge employee performance. We recognise that building a culture that values its employees and recognises and rewards outstanding performance is a critical element in attracting and retaining the best people.

In 2015 awards were presented at an all staff meeting to celebrate Australia Day. A total of 13 nominations were received with 8 individual and 5 team nominations.

Individual recipients were Brayden Dykes, Matthew O'Brien, Jeannette Pucci, Robert Wilson and Rob Kingham. Team awards recognised the water resource plan policy team, the legal section, the environmental water planning and implementation teams, the constraints management taskforce, and the physical constraints team.

Australia Day award for Robert Wilson, Senior Assets Engineer, River Mangement Division

Determining senior executive service employee remuneration

The MDBA had 12 senior executive service employees at 30 June 2015, which does not include the Chief Executive who is employed as a statutory office holder.

Rates of pay for senior executive service employees are set by the Chief Executive after consultation with individual employees and in accordance with the senior executive service remuneration policy. All senior executive service employees are covered by determinations made under Section 24 (1) of the *Public Service Act 1999*. Salary increases are linked with general staff increases available through the Enterprise Agreement. As such, no Senior Executive Service remuneration increases were applied in 2014–15 as the MDBA had not negotiated a replacement Enterprise Agreement by 30 June 2015.

Performance pay

Senior executive service and non-senior executive service employees are not eligible for performance pay. However, a non-senior executive service employee at the top, or penultimate increment point, in their salary range may be eligible for one-off bonus as a result of achieving an 'outstanding' performance rating at the end of the performance cycle.

Individual non-senior executive service terms and conditions

In certain circumstances, and where appropriate, terms and employment conditions may be agreed to make an individual flexibility arrangement between the Chief Executive and a non-senior executive service employee.

Enterprise agreement

The Enterprise Agreement 2011–2014 has a nominal expiry date of 30 June 2014. The Enterprise Agreement 2011–2014 has no facility for general salary increases after 1 July 2013 although incremental advancement linked to suitable levels of performance is available to all staff up to the maximum of the salary range for their classification.

Following the release of the Australian Government Public Sector Workplace Bargaining Policy on 28 March 2014, the MDBA formally commenced consultation and bargaining with employee representatives in May 2014 to develop a replacement Enterprise Agreement. The bargaining team held 14 meetings during 2014–15 following two initial meetings in 2013–14.

Significant progress was achieved by the bargaining representatives throughout the year in identifying productivity offsets and potential content for the replacement Enterprise Agreement that would meet the requirements of the bargaining policy. In June 2015, MDBA tabled a comprehensive and affordable remuneration proposal and draft replacement Enterprise Agreement for discussion with staff for further bargaining.

As at 30 June 2015, no formal offer had been put to staff for consideration. Negotiations will continue in 2015–16 to finalise and achieve a replacement Enterprise Agreement.

Staffing profile

The following tables and figures summarise MDBA staffing statistics for 2014–15.

Table 3.2 MDBA staff by employment agreement as at 30 June 2015

Category	2011–12	2012–13	2013–14	2014–15
Enterprise agreement	306	287	276	275
Non-SES individual flexibility agreements	13	14	14	15
SES individuals s. 24 (1) determinations	14	12	11	12
Chief Executive	1	1	1	1
Total	**334**	**314**	**302**	**303**

Note: The Chair and the other four part-time members of the Authority are not included.

Figure 3.1 shows the number of staff employed at the different levels in the organisation, as well as the number of males and females employed at each level. The proportion of female staff remained similar to last year at around 55%. There was a slight increase in the number of female staff at the SES level.

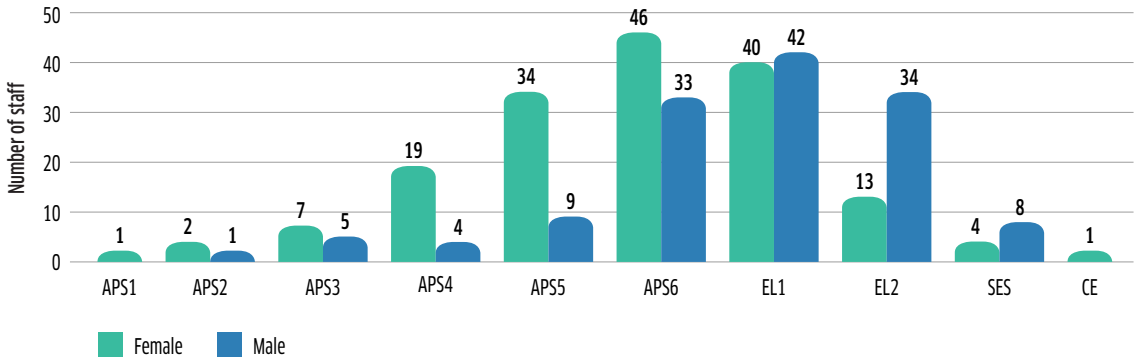


Figure 3.1 MDBA classification profile by gender, as at 30 June 2015

Table 3.3 Number of ongoing and non-ongoing staff from 2010–11 to 2014–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Ongoing staff	260	299	289	283	275
Non-ongoing staff	54	35	25	19	28
Total	**314**	**334**	**314**	**302**	**303**

Figure 3.2 shows that the highest proportion of staff are in the 35 to 44 age range. The number of staff under 25 has increased slightly from last year, and the number of staff in the other age categories has decreased slightly.

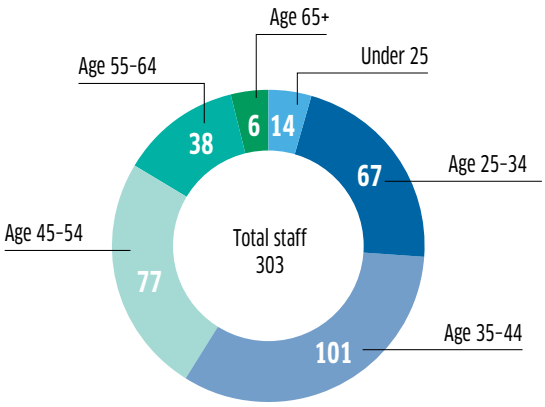


Figure 3.2 Age profile of MDBA staff, as at 30 June 2015

Recruitment

There has been minimal recruitment in 2014–15 due to the interim recruitment arrangements for the Australian Public Service which commenced on the 31 October 2013. As a result of these arrangements we advertised only 13 ongoing roles mainly to staff already employed in the Australian Public Service. Approval was granted to advertise one ongoing vacancy to all members of the public.

As a result of the interim recruitment arrangements, all non-ongoing contracts and extensions less than 3 months were being determined by the agency head and for periods of employment 6 months or greater, continued to be advertised to ongoing MDBA and Australian Public Service employees through an expression of interest.

The human resources team continues to improve the MDBA induction modules, recruitment guidelines and new starter application packs to provide employees with comprehensive information on conditions of employment and the Australian Public Service Commission frameworks.

Our 2015 graduates are (from left to right) Sean, Amy, Kyra, Matthew, Will, Beatrix, David and Jenny. They have diverse qualifications including environmental engineering, economics, law, sciences (environmental, geoscience, applied, social, chemistry, ecology, botany), environmental management and business management (photo by Brayden Dykes, MDBA).

Graduate program

The MDBA was voted 25th in the Australian Association of Graduate Employers' top 75 graduate employers for 2015. This positioned the MDBA in the top four Australian Public Service agencies, as voted by graduates. This listing is based on feedback from graduates about the program and the support provided by the employer. This is a clear indication that the MDBA values and supports our graduates.

Five graduates completed the Australian Public Service Commission's whole-of government graduate development program in December 2014, gaining a Diploma of Government.

Eight graduates began the MDBA's structured 11-month graduate program in February 2015, which provides graduates with exposure to the MDBA's broad range of work.

The 2015 MDBA graduates continue to participate in the Australian Public Service Commission Graduate Development Program. Graduates are supported in their professional development through a mentoring program and provided with additional training, including in-house seminars and a field trip, arranged by the graduates. The training is designed to equip graduates with the skills and knowledge they will need to make a meaningful contribution to the MDBA and the Australian Public Service.

The field trip is an opportunity for graduates to further develop their understanding of MDBA's responsibilities and activities. For the 2014 trip, the graduates arranged visits to industry, agriculture, state government, local government and non-government organisations. The group presented their findings in the internal seminar series.

The MDBA continued to engage with the Australian Public Service's Pathways and Indigenous Australian Government Development Programs and participated in the graduate employment careers fairs.

Diversity

We continue to support equity and diversity within the workplace through our workplace diversity program, the Indigenous employment strategy, and disability strategy. Figure 3.3, see page 114, shows the percentage of staff by equal opportunity group from 2010 to 2015.

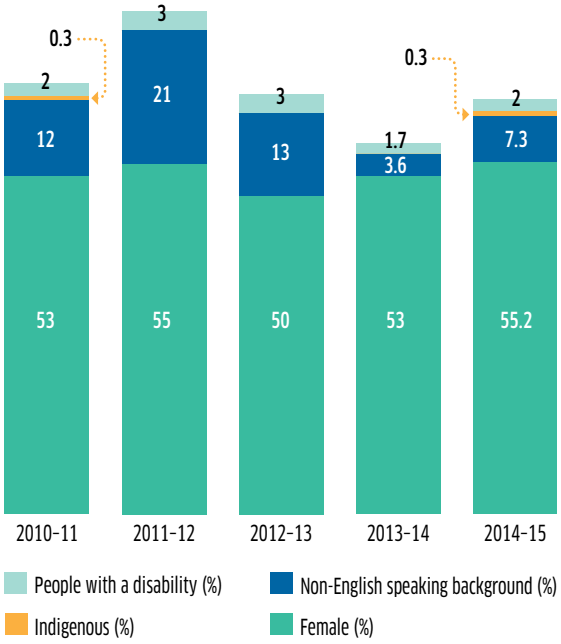


Figure 3.3 Percent of MDBA staff by equal employment opportunity group 2010–11 to 2014–15

We are committed to embracing the principles of equity and diversity in our daily business by providing an inclusive work environment that is fair, harmonious and safe and offers opportunities for all employees to achieve their full potential.

The MDBA is actively involved in all Australian Public Service pathways entry level programs particularly as a means to engage Indigenous graduates, trainees and cadets. During 2014–15 we participated in the Indigenous Australian Government Development Program to attract Indigenous employees. The program offers a 15 month development opportunity for Indigenous trainees while they complete a Diploma of Government. The MDBA will aim to engage trainees through this program in 2015–16.

We continue to work in partnership with Aboriginal Nations throughout the Murray–Darling Basin. During Reconciliation Action week 2014, we launched the process to begin developing our first Reconciliation Action Plan. Since 2006 Reconciliation Australia has assisted Australian public and private sector organisations to develop meaningful and practical plans to help develop relationships, show respect and increase opportunities for Aboriginal and Torres Strait Islander people.

In 2014–15 a working group was established to build the content of the reconciliation action plan. The approved plan 'Strengthening connections' will be launched during NAIDOC week in early July 2015.

An updated MDBA Indigenous employment strategy 2015–20 will also be launched during NAIDOC week in early July 2015.

Disability

The MDBA's disability strategy and action plan identifies strategies and support measures that assist people with a disability to access our programs, policies and information.

We continue our commitment to provide people with disability the same access to information and opportunities to participate and contribute to our workplace and our programs as the rest of the community.

The MDBA complies with the Australian Government accessibility requirements for online access and publishing, and we are proactive in recruitment processes by using assistive technology, furniture and equipment to assist employees with their duties.

Work health and safety

Executive commitment, work health and safety structure and oversight

The MDBA comprises two 'persons conducting a business or undertaking' under the *Work Health and Safety Act 2011*, the six member Authority and the MDBA. Both the Authority and the MDBA have responsibilities under the Work Health and Safety Act for the safety of their workers and workplaces. All MDBA's senior executive service employees are officers under the Work Health and Safety Act and have been provided with information and training to assist them in carrying out their responsibilities.

Executive commitment to the maintenance of safe and healthy MDBA workplaces is set out in the MDBA health and safety management arrangements. The commitment of all parties to workplace safety is also set out in the MDBA Enterprise Agreement 2011–14. Management of work health and safety arrangements is overseen by the MDBA Health and Safety Committee.

Effective communication and consultation

Communication and consultation with MDBA staff continued during 2014–15 through:

- quarterly meetings of the Health and Safety Committee
- notices on the daily updates on the intranet, email, posters and signage
- mandatory work health and safety induction and training
- consultation with health and safety representatives
- procedures to consult with 'persons conducting a business or undertaking' that share responsibilities for MDBA workers and worksites.

Initiatives ensuring workers' health and safety

Initiatives to ensure workers' health and safety have continued to be put in place during 2014–15. These include:

- regular workplace inspections, risk assessments and monitoring by the Health and Safety Committee
- offering flu vaccinations to all employees
- providing an annual health and wellbeing allowance and an annual health and wellbeing week
- providing health and safety information and policies
- providing workstation assessments by qualified occupational therapists and providing ergonomically suitable equipment recommended as part of these assessments
- providing early intervention services to prevent or mitigate development of chronic injury or illness
- maintaining and developing a range of policies to encourage and maintain health and safety of MDBA workers and workplaces
- providing training.

In 2014–15 MDBA provided an office walk-around by occupational therapists to assist staff to understand and ensure correct set up of workstations. This complemented a broad program of trained MDBA staff providing initial advice and assistance. Training was provided to assist staff in developing awareness in mental health, workplace bullying and conflict resolution as well as ergonomic awareness.

Downtown Deniliquin (photo by Brayden Dykes, MDBA)

Towns in the Basin we come from

MDBA staff come from around the Basin, around Australia and around the world. We come from cities and towns across the Murray–Darling Basin including: Albury, Armidale, Barham, Bigga, Coonamble, Deniliquin, Canberra, Cooma, Cowra, Crookwell, Finley, Gerogery West, Hanwood, Leeton, Mildura, Miles, Montieth, Mount Beauty, Nyngan, Orange, Renmark, Swan Hill, Toowoomba, Tumut, Wagga Wagga, Wakool, Walwa, Wangaratta, Whorouly South, Wodonga and Yerong Creek.

Health and safety outcomes achieved as a result of initiatives

All issues identified through hazard and incident reports and regular workplace inspections were investigated and action taken. The Health and Safety Committee monitors incidents as well as the use of harassment contact officers and the Employee Assistant Program.

Work health and safety statistics comparison

Table 3.3 compares work health and safety statistics from 2010–11 to 2014–15. Lost time caused by incident increased to 10 days in 2014–15 due to a crane accident on one of the construction sites for the Environmental Works and Measures Program. No one was injured.

Comcare investigations conducted or notices issued

Comcare did not conduct any investigations or issue any notices to the MDBA under the Work Health and Safety Act during 2014–15.

The MDBA participated in an audit of the rehabilitation management system and received a conformance rating of 88%. We developed an action plan to address all areas of non-conformance and the 'Certificate of compliance with the guidelines for rehabilitation authorities 2012' was signed.

Comcare premiums

The agency premium rate for each employer provides an indication of the employer's effectiveness in preventing injury or illness and in helping its employees return to work quickly and safely after a work-related injury or illness. The overall scheme premium rate increased from 1.65% in 2013–14 to 1.93% in 2014–15.

Our MDBA premium rate since 2011–12 has increased more rapidly than the average premium rate. Our efforts over the last few years on implementing early intervention strategies are achieving results with our premium increases now slowed to a level below the increases shown by other agencies, see Table 3.5 and Figure 3.4.

The initial premium provided by Comcare was 2.88% for 2014–15. The premium was revised by Comcare to 3.35%.

Table 3.4 Work health and safety statistics

	2010–11	2011–12	2012–13	2013–14	2014–15
Internal reports on workplace hazards and incidents	24	59	50	70	44
Lost time caused by incident and injury not reported to Comcare (staff days)	10.5	2	8	26.3	4.5
Lost time caused by incident and injury reported to Comcare (staff days)	4	17	0	0	10
Incidents reported to Comcare	2	5	0	0	1

Table 3.5 Comparison between Comcare claims and premiums

	2011–12	2012–13	2013–14	2014–15
Number of claims	5	4	4	1
Total cost of claims ($)	124,407	105,682	61,754	11,625
Average cost of claims ($)	24,882	26,421	10,292	11,625
Claim frequency per $1 million payroll	0.29	0.21	0.16	0.12
Comcare premium ($)	408,828	628,621	1,094,118	1,080,859
Premium percent of payroll	1.60	2.29	2.74	2.88
Premium rates for all agencies combined	1.41	1.77	1.81	2.12

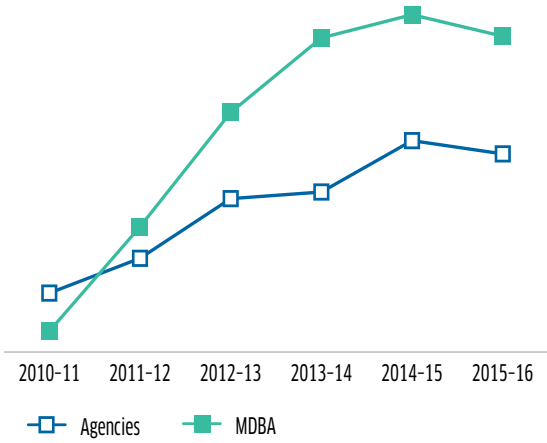


Figure 3.4 MDBA compensation premium rate compared to premium rates for all other agencies combined

Accident and dangerous occurrence statistics

Figure 3.5 shows the number of accidents and dangerous incidents notified from 2010–11 to 2014–15. The one dangerous occurrence in 2014–15 was a crane accident on one of the construction sites for the Environmental Works and Measures Program.

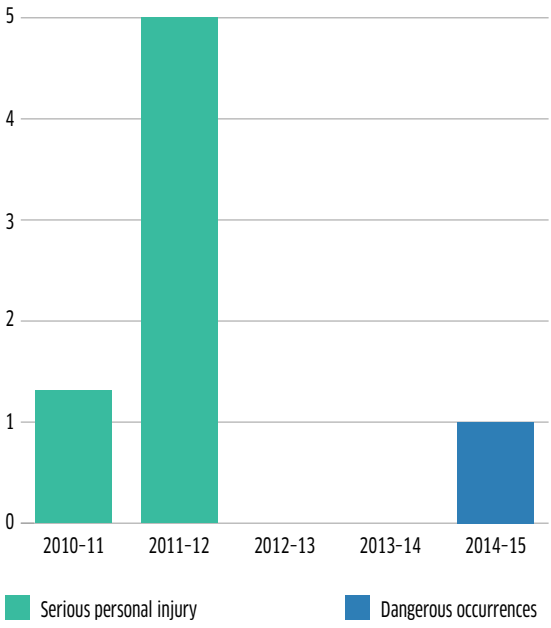


Figure 3.5 MDBA incidents notified from 2010–11 to 2014–15 (no deaths or incapacity > 30 working days were recorded)

Our planning and finances

Highlights

- With the introduction of the *Public Governance, Performance and Accountability Act 2013* we revised or updated our internal financial policies, procedures and guidance.
- Began implementing the new internal resource management framework, which highlighted areas where financial management services can be improved and streamlined
- Re-developed internal management reporting to further integrate non-financial performance measures and enable flexible and adaptive planning.
- We began a review of project management and reporting arrangements to ensure appropriate governance and reporting mechanisms underpinned access and use of project support arrangements.

Business planning

The MDBA carries out complex cross-jurisdictional activities requiring high levels of collaboration and program planning. The efficient and effective delivery of these activities is supported by our integrated planning and reporting framework and annual business planning process.

Our strategic framework incorporates a multi-year strategic plan, a corporate plan which outlines our planned activity for the next financial year and the three out years, and business plans at the sub-program level. Individual performance discussions complete the loop by linking individual activity and performance with broader program and organisational plans, see Figure 3.6.

Responsibility for setting MDBA's strategic direction, outlined formally through our strategic plan, rests with the MDBA Executive and consultation with key stakeholders. The MDBA Executive take account of obligations under the Water Act, including Schedule 1 (the MDBA Agreement) and decisions of the Ministerial Council.

Business planning is critical to the success of our programs, and in an effort to strengthen our standard in planning, program management and delivery, we are developing an enterprise-wide electronic planning and reporting system, which we plan to have in place by early 2016.

Corporate plan

The Water Act requires the MDBA to prepare a corporate plan each year and provide it to the Minister.

The plan covers a period of four years and sets out:

- the objectives of the MDBA
- the planned activities of the MDBA for the current financial year, and three out years, relating to its functions. This includes new capital works and operational and maintenance programs to be carried out under the Murray–Darling Basin Agreement
- the budget for those activities.

The MDBA 2014–15 corporate plan was adopted by the Authority on 1 July 2014, for the Australian Government funded activities, and Ministerial Council on 28 August 2014, for jointly funded activities.

During 2014–15, the MDBA committed to working with Basin governments and the people who live and work in the Basin to implement the Basin Plan and deliver the joint programs.

Key implementation priorities were to:

- continue to work collaboratively with the states, the Commonwealth Environmental Water Office and Basin communities to implement the Basin Plan
- progress arrangements for the accreditation of state water resource plans
- develop the Basin-wide environmental watering strategy, the constraints management strategy, the sustainable diversion limit adjustment mechanism, and the northern Basin work program
- efficiently and effectively deliver the joint programs agreed by contracting governments
- manage the River Murray system assets in accordance with the asset management plan
- deliver states' water shares and agreed environmental outcomes
- progress the Environmental Works and Measures Program towards completion in 2015–16.

Figure 3.6 The relationship of key planning processes within the MDBA

Review of the joint activities

Over the last three years, state government contributions to the joint activities has declined from $107 million, in 2011–12, to $64 million in 2014–15, a reduction of about $43 million, in four years.

In response to the funding reductions all joint activities have been reviewed and assessed, with significant savings and efficiencies achieved.

The reviews included:

- a cost share review – which concluded that the cost sharing arrangements agreed to in 2006 between the joint partner governments were still appropriate and should be maintained
- the building blocks and efficiency review of River Murray Operations – which found that River Murray Operations is managed efficiently, and compares well with similar organisations for cost and technical efficiency. Recommendations were made on how the MDBA could improve its reporting of risks and costs
- The Living Murray Review – which considered the devolvement of The Living Murray water portfolio and program in an effort to streamline the program and identify cost savings. The 2014–15 budget required reductions across all The Living Murray program areas.

The challenge for the joint programs is to continue finding cost savings within a tight fiscal environment without jeopardising the viability of the programs. Stable multi-year funding is critical to the ongoing viability and management of the programs. The continued year-to-year budget cycle raises significant issues with regard to asset risk, program delivery and cost management.

In providing support and advice to our partner governments during 2014–15, the MDBA carried out the delivery of its goals and objectives in an efficient and effective way. This included being flexible and adaptive, building on the capability, and competency of its employees and implementing best practice management systems.

In 2015–16 the MDBA will manage two additional reviews requested by the Murray–Darling Basin Ministerial Council:

- a review to fully scope the work required to implement key recommendations from the River Murray Operations efficiency review
- a review into financial and institutional options for managing cost spikes in River Murray Operations budgets.

Performance reporting

Performance reporting is an essential aspect of the Commonwealth Public Management Reform Agenda Performance Framework, supported by the Public Governance, Performance and Accountability Act.

Organisational performance reporting is also an important management activity within the MDBA. It provides essential feedback ensuring that organisational effort is directed towards the right objectives in the right way, to deliver desired outcomes.

To ensure there is appropriate oversight in delivering the MDBA's Australian Government and jointly funded programs, we operate a comprehensive performance reporting process. Quarterly performance reports are provided to the Executive team, the Authority, the Basin Officials Committee and Ministerial Council.

The reports provide a mechanism to review program activity and provide feedback to support day-to-day management and continuous improvement in our program management standards.

All performance reports outline information on financial and non-financial performance, and include performance against budgets, deliverables, key performance indicators, risks and pressures, and proposed remedial actions.

In the ongoing effort to improve the efficiency and effectiveness of performance reporting, we are reviewing opportunities to invest in an enterprise-wide planning and reporting system that integrates financial and non-financial information seamlessly.

We are planning to implement the system in early 2016.

Project management framework

During 2014–15 the project management framework, supported by the electronic project registration and reporting system, continued to support the initiation and management of MDBA projects.

The usefulness and capabilities of the project management framework is promoted through the graduate and leadership development programs, as well as providing internal group project management training sessions and individual mentoring.

During 2014–15, we began a review of project management and reporting arrangements to ensure appropriate governance and reporting mechanisms underpinned access and use of project support arrangements.

As a result changes will be made to the project management framework and arrangements in early 2015–16.

Financial management

During this year our focus has shifted from developing a new internal Resource Management Framework to implementing it.

The new framework highlighted a number of areas where financial management services can be improved and streamlined. A financial services program of works was developed and is currently being deployed.

The main focus of this program is on reducing red tape and updating outdated systems. The MDBA is actively engaged in evaluating shared service solutions for many back office activities. Internal systems are being aligned with standardised packages to enable a smooth transition to sharing financial management services.

Internal management reporting is also being redeveloped to further integrate non-financial performance measures and enable flexible and adaptive planning. Internal reporting is being aligned with business processes and aims to increase organisational awareness of the Public Governance, Performance and Accountability legislation.

Financial performance

Revenues

From 1 July 2014, due to the introduction of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act), funding for the South Australian Riverland Floodplains Integrated Infrastructure Project is being recorded as revenue from government, and expenses are recorded as a grant expense in the MDBA's Statement of Comprehensive Income. The project was previously recorded as an administered item.

During 2014–15, the MDBA received $55.6 million (compared to $47.8 million in 2013–14) as revenues from government, including the $7 million South Australian Riverland Floodplains Integrated Infrastructure Project funding .

Another outcome associated with the introduction of the PGPA Act; was that on 30 June 2014 the MDBA elected to fully draw-down the $91.427 million Special Account balance and transfer these monies to 'Cash at bank'.

This was to facilitate the subsequent transfer of these funds on 1 July 2014 to a new, interest bearing, operating bank account that functions outside of the Official Public Account.

As of 1 July 2014, The Murray–Darling Basin Special Account (established under the *Water Act 2007*, section 209) for the purposes of the *Financial Management and Accountability Act 1997* ceased to exist.

Other revenues of $6.9 million (compared to $5.3 million in 2013–14) included $2.2 million of interest receipts from this new operating bank account and the MDBA no longer receives interest equivalency payments due to the abolition of the Special Account.

Expenditure

The MDBA's total expenditure for 2014–15 was $137.9 million (compared to $169.3 million in 2013–14). Table 3.6 outlines the main features of our financial performance.

Financial position

The MDBA's net equity position was reduced in 2014–15 by $11.2 million, to $63.1 million.

This reduction was caused by an operating deficit of $11.2 million, funded from equity. The operating deficit and reduction in cash resources reflects planned activity relating to Environmental Works and Measures Program, see page 78.

Assets and asset management

The MDBA's financial and non-financial assets at the end of 2014–15 were $85.3 million and $11.4 million respectively. Our financial assets consist of cash and cash equivalents, trade and other receivables. Our non-financial assets consist of ICT infrastructure, office fit-out and equipment, and intangibles including datasets.

Liabilities

Liabilities administered directly by the MDBA at the end of 2014–15 amounted to $33.6 million. Our liabilities mainly consist of amounts owing to suppliers and provisions for employee entitlements.

Total equity

The MDBA ended the year with a total equity of $63.1 million, see Table 3.7, consisting mainly of cash resources, minor fixed assets offset by trade creditors and employee liabilities.

Managed assets: joint ventures

The MDBA is the appointed manager for the following classes of assets:

- infrastructure assets under River Murray Operations
- water entitlements under The Living Murray Initiative.

These assets are controlled through two unincorporated joint ventures. Both joint ventures were established through separate agreements between partner governments:

- the Asset Agreement for River Murray Operations assets
- Further Agreement on Addressing Water Overallocation and Achieving Environmental Objectives in the Murray–Darling Basin – Control and Management of The Living Murray Assets.

At 30 June 2015, the River Murray Operations assets joint venture held net assets of $2.6 billion. The Living Murray joint venture held net assets of $535.9 million, comprising gross investment in water recovery measures of $693 million and accumulated impairment losses of $157.1.

Table 3.6 MDBA financial performance from 2010–11 to 2014–15

	MDBA	2010–11 Actuals $'000	2011–12 Actuals $'000	2012–13 Actuals $'000	2013–14 Actuals $'000	2014–15 Actuals $'000	2014–15 Variance $'000
Outcome 1 and total departmental	Revenue	175,687	172,170	155,802	137,434	127,058	(3,632)
	Expenses	218,588	199,512	204,729	169,274	138,244	(12,708)
	Surplus (deficit)	(42,901)	(27,342)	(49,126)	(31,876)	(11,186)	(16,340)

Table 3.7 MDBA equity 2010–11 to 2014–15

Measurement	2010–11	2011–12	2012–13	2013–14	2014–15
Assets	227,653	207,879	154,456	108,038	96,695
Liabilities	45,039	52,607	48,310	33,768	33,611
Total equity	182,614	155,272	106,146	74,270	63,084

Procurement, grants and contract administration activities

Procurement

The MDBA's policies, practices and approach to procuring goods and services, including consultancies, is consistent with:

- all relevant Commonwealth legislation
- the *Public Governance, Performance and Accountability Act 2013* and Rules, including the Commonwealth Procurement Rules
- the Accountable Authority Instructions and relevant MDBA policies.

These rules are applied to activities through the Accountable Authority Instructions, supporting operational guidelines and a procurement framework, which are underpinned by the core principle of value for money.

Officials may seek advice from the MDBA's Procurement and Contracts Unit on compliance with frameworks and procedures, government policies or the tendering process.

The MDBA advertises tender opportunities through the AusTender website and all contracts with a value of $10,000 (inclusive of GST), or more, were reported on AusTender during 2014–15.

The MDBA's annual procurement plan is a rolling document that is updated regularly and is available on the AusTender website at <www.tenders.gov.au>. The plan outlines the planned procurement for the forthcoming year, giving prospective suppliers the opportunity to prepare for potential work with the MDBA. It consists of a short strategic procurement outlook for the MDBA, supported by details on planned strategic and major procurements.

No contracts of $100,000 (inclusive of GST), or more, were let during 2014–15 that did not provide for the Auditor-General to have access to the contractor's premises.

No contracts in excess of $10,000 (inclusive of GST) or standing offers were exempted by the Accountable Authority from being published on AusTender on the basis that they would disclose exempt matters under the *Freedom of Information Act 1982*.

Consultancy Services

The MDBA engages consultants when it requires specialist expertise or when independent research, review or assessment is required. Consultants are typically engaged to investigate a defined issue; carry out defined reviews or evaluations; or provide independent expert advice, information or creative solutions to assist in the MDBA's decision making.

The decision to engage a consultant is made in accordance with the *Public Governance, Performance and Accountability Act 2013* and related regulations, including the Commonwealth Procurement Rules and relevant internal policies.

All new consultancy contracts entered into in 2014–15 valued at $400,000 (inclusive of GST), or more, are published on the AusTender website, <www.tenders.gov.au>.

This annual report contains information about actual expenditure on contracts for consultancies. Information on the value of contracts for consultancies is available on the AusTender website, <www.tenders.gov.au>.

Procurement initiatives to support small business

The MDBA supports small business participation in the Australian Government procurement market. Small and medium enterprises and small enterprise statistics are available on the Department of Finance's website <www.finance.gov.au/procurement/statistics-on-commonwealth-purchasing-contracts/>.

Our procurement processes support small and medium enterprises by:

- following the small business engagement principles (outlined in the government's industry innovation and competitiveness agenda), such as communicating in clear, simple language and presenting information in an accessible format
- using electronic systems or other processes to facilitate on-time payment performance, including the use of payment cards.

Grants

Information on grants awarded by the MDBA during 2014–15 is available on our website at <www.mdba.gov.au/about-mdba/tenders-grants>.

Accommodation

The MDBA has two offices in Canberra, located at 40 and 51 Allara Street, Canberra City. The combined premises are managed to meet the MDBA's existing and foreseeable accommodation needs.

Our information resources

Information communications technology and records management

During 2014–15 the information communication technology and records management area completed major upgrades and improvements to the corporate server infrastructure, internal and external internet sites, staff desktop hardware and software and ICT security systems.

Key accomplishments included:

- updating the corporate core servers with high performance blade servers and providing remote desktop based application development environments for modellers and GIS staff
- implementing a new water in storages information portal, and online water trading system for the Barmah Choke
- implementing new electronic workflows for business processes and e-document sharing
- implementing the whole-of-government mandated ICT software security measure application – whitelisting
- rolling out Office 2013 and Skype for business unified communications software
- continuing to replace obsolete monitors and replacing 150 desktop displays for improved work health and safety.

Lake Bonney, near Barmera South Australia, is a freshwater lake that is fed and drained by the River Murray (photo by Jessie Boyd).

CHAPTER 4

FINANCIAL PERFORMANCE

Chief Finance Officer's report 126

Financial statements 128

Independent auditor's report 130

CHIEF FINANCE OFFICER'S REPORT

During 2014–15 the MDBA reported a much reduced operating deficit of $11.2 million, which compared favourably with its approved operating deficit of $27.5 million. Programs were delivered costing $137.9 million despite a reduction in revenues from contributions of $20.2 million; down from $84.3 million. The MDBA continued to manage over $4 billion (gross value) in assets.

The new *Public Governance, Performance and Accountability Act 2013,* which took effect from 1 July 2014, brought about significant changes to the way in which the MDBA approached its overall resource management, including transitioning away from having a special account forming part of the consolidated revenue fund. The MDBA's operating account sat outside of the consolidated revenue fund from 1 July 2014.

The changes also impacted on how the MDBA would report what had been referred to as an 'administered item'. This activity had been reported in terms of separate administered schedules and supporting disclosure notes. From 1 July 2014, the transactions and financial position of the South Australian Riverland Floodplains Integrated Infrastructure Program, previously treated as an administered item, are now reported in the main body of the MDBA's financial statements and notes.

The transactions during 2014–15 for South Australian Riverland Floodplains Integrated Infrastructure Program did not result in any residual assets or liabilities and it is the intention that this will similarly not occur in terms of any future reporting periods.

The MDBA's closing equity (net assets) of $63.1 million, while reduced, reflects a continuation of responsible financial stewardship.

Financial results

Figures 4.1 and 4.2 show a significant decline in the MDBA's revenue and expenditure since 2011–12 with contributions from the Basin states almost halving in value. There has been a steady level of revenue from Government, which represents core funding for Basin Plan related functions.

Revenue received, including a special appropriation in 2009 for $441.5 million, were credited to the Murray–Darling Basin special account. A significant component of these funds have been applied for the purposes of the Environmental Works and Measures Program. Spending on this program has been funded through the MDBA's cash reserves, which has the simultaneous effect of reducing net assets and also increasing the MDBA's operating deficit.

General and special purpose reporting

The MDBA's general-purpose financial report sets out our objectives and refers to our economic dependency on the Australian Government in order to administer the entity and its functions.

A key function of the MDBA is as an asset manager for key infrastructure assets throughout the Basin. Infrastructure assets comprise $2.6 billion (written down value) in River Murray Operations assets (such as Hume and Dartmouth dams, and the locks and weirs on the River Murray). More assets are being added as major water management structures are completed under the Environmental Works and Measures Program, page 76.

The MDBA also manages $535.9 million in water entitlements through The Living Murray program. These assets were either purchased from the market or acquired as a result of environmental water infrastructure projects. These assets are subject to valuation on an annual basis and are valued (on a consistent basis) in accordance with Australian accounting standards.

The River Murray Operations and The Living Murray assets do not form part of the MDBA's general-purpose financial statements. They are reported separately in special-purpose financial statements on behalf of the unincorporated joint ventures that control these assets.

These special-purpose financial statements do not form part of this annual report, but are audited annually by the Australian Auditor-General. In turn, the asset values reported in the special-purpose financial statements provide the formal basis for the Australian Government, and other state controlling governments, to reflect their controlling shares in these assets and report them in their respective general-purpose financial statements.

Internal controls

The Auditor-General has advised that the MDBA has appropriate financial controls in place and that these operated effectively and reliably during the past year. Similarly, no major issues have been identified by the MDBA's internal auditors.

These findings took into consideration the changes implemented by the MDBA as required under the new Public Governance, Performance and Accountability Act legislative framework.

This has escalated the requirements on the MDBA to ensure that controls are maintained in an effective, efficient and reliable manner.

It is relevant to note that we have:

- a sound internal control framework, including effective identification and management of business risks in the MDBA, with supporting procedures in place
- reliable financial and management reporting systems
- complied with applicable laws, regulation and government policies (including reporting on the results of using mandatory compliance reporting).

The implementation of the key elements of the Enhanced Commonwealth Performance Framework represents the next major phase of reforms and we have commenced work on implementing the necessary changes.

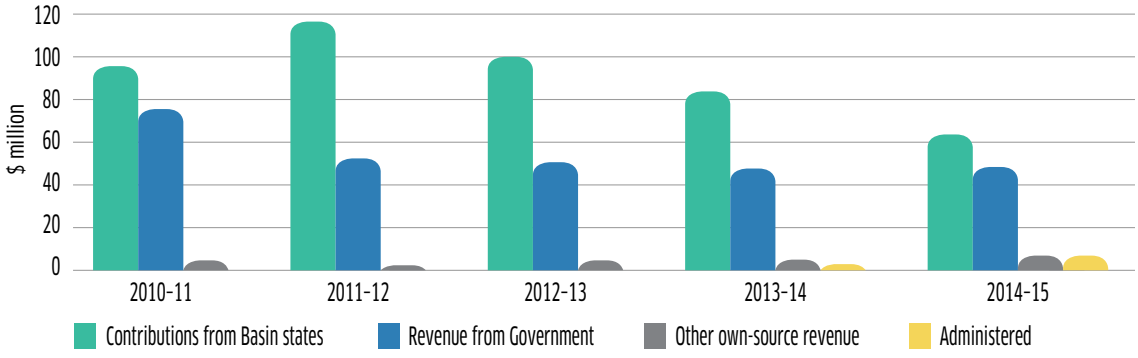


Figure 4.1 MDBA revenue (2010–11 to 2014–15)

Notes:

- The 2011–12 and 2012–13 contributions include one-off contribution of $10 million each year for the Hume Dam Improvement project.
- The 2011–12 and 2012–13 revenue from government figures include $3.3 million one-off contribution each year for the above Hume Dam Improvement project.

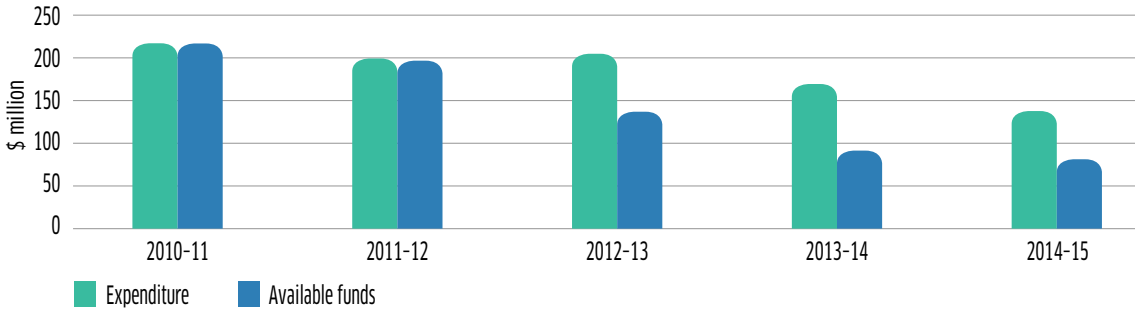


Figure 4.2 MDBA expenditure and special account (2010–11 to 2014–15)

Notes:

- The expenditure on Environmental Works and Measures Program, which was funded from a special appropriation in 2009, represents the declining balance in available funds.
- The MDBA became a corporate Commonwealth entity with the commencement of the *Public Governance, Performance and Accountability Act 2013;* one of the implications was that the MDBA special account under the *Financial Management and Accountability Act 1997* was abolished and the funds were drawn from the special account on 30 June 2014. The figures above include the balance of the former special account (that are now held as 'cash at bank').

FINANCIAL STATEMENTS

Statement by Chief Executive and Chief Finance Officer	129
Independent Auditor's report	130
Statement of comprehenisve income	132
Statement of financial position	133
Statement of changes in equity	134
Cash flow statement	135
Schedule of commitments	136
Administered schedule of comprehensive income	137
Administered schedule of assets and liabilities	138
Administered cash flow statement	139
Schedule of administered commitments	140
Notes to and forming part of the financial statements	141

Murray-Darling Basin Authority

STATEMENT BY THE ACCOUNTABLE AUTHORITY AND ACTING CHIEF FINANCE OFFICER

In our opinion, the attached financial statements for the year ended 30 June 2015 comply with subsection 42(2) of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act), and are based on properly maintained financial records as per subsection 41(2) of the PGPA Act.

In our opinion, at the date of this statement, there are reasonable grounds to believe that the Murray-Darling Basin Authority will be able to pay its debts as and when they fall due.

Signed.....

Russell James
Acting Chief Executive
27 October 2015

Signed.....

Harish Madan
Acting Chief Finance Officer
27 October 2015

Australian National
Audit Office

INDEPENDENT AUDITOR'S REPORT

To the Minister for Agriculture and Water Resources

I have audited the accompanying annual financial statements of the Murray-Darling Basin Authority for the year ended 30 June 2015, which comprise:

- Statement by the Accountable Authority and Acting Chief Finance Officer;
- Statement of Comprehensive Income;
- Statement of Financial Position;
- Statement of Changes in Equity;
- Cash Flow Statement;
- Schedule of Commitments;
- Administered Schedule of Comprehensive Income;
- Administered Schedule of Assets and Liabilities;
- Administered Reconciliation Schedule;
- Administered Cash Flow Statement;
- Schedule of Administered Commitments; and
- Notes comprising a Summary of Significant Accounting Policies and other explanatory information.

Accountable Authority's Responsibility for the Financial Statements

The Chief Executive of the Murray-Darling Basin Authority is responsible under the *Public Governance, Performance and Accountability Act 2013* for the preparation and fair presentation of annual financial statements that comply with Australian Accounting Standards and the rules made under that Act. The Chief Executive is also responsible for such internal control as is necessary to enable the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

My responsibility is to express an opinion on the financial statements based on my audit. I have conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. These auditing standards require that I comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

GPO Box 707 CANBERRA ACT 2601
19 National Circuit BARTON ACT
Phone (02) 6203 7300 Fax (02) 6203 7777

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements 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 entity's internal control. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of accounting estimates made by the Accountable Authority of the entity, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Independence

In conducting my audit, I have followed the independence requirements of the Australian National Audit Office, which incorporate the requirements of the Australian accounting profession.

Opinion

In my opinion, the financial statements of the Murray-Darling Basin Authority:

(a) comply with Australian Accounting Standards and the *Public Governance, Performance and Accountability (Financial Reporting) Rule 2015*; and

(b) present fairly the financial position of the Murray-Darling Basin Authority as at 30 June 2015 and its financial performance and cash flows for the year then ended.

Australian National Audit Office

John Jones

Executive Director

Delegate of the Auditor-General

Canberra

27 October 2015

Statement of Comprehensive Income
for the period ended 30 June 2015

	Notes	2015 $'000	2014 $'000
NET COST OF SERVICES			
Expenses			
Employee benefits	3A	**37,671**	37,534
Suppliers	3B	**83,490**	120,339
Grants	3C	**15,292**	9,727
Depreciation and amortisation		**1,408**	1,622
Write-down and impairment of assets	3D	**27**	3
Finance costs		**38**	36
Losses from asset sales		**19**	13
Total expenses		**137,945**	169,274
Own-Source Income			
Own-source revenue			
Contributions from jurisdictions	4A	**64,098**	84,303
Grants	4B	**1,165**	-
Other revenue	4C	**3,569**	5,305
Interest	4D	**2,167**	-
Total own-source revenue		**70,999**	89,608
Gains			
Other Gains	4E	**490**	-
Total Gains		**490**	-
Total own-source income		**71,489**	89,608
Net cost of services		**(66,456)**	(79,666)
Revenue from Government		**55,569**	47,826
Share of deficit of joint ventures accounted for using the equity method		**(310)**	(36)
Deficit attributable to the Australian Government		**(11,197)**	(31,876)
OTHER COMPREHENSIVE INCOME			
Changes in asset revaluation surplus		**11**	-
Total comprehensive loss attributable to the Australian Government		**(11,186)**	(31,876)

The above statement should be read in conjunction with the accompanying notes.

Statement of Financial Position
as at 30 June 2015

	Notes	2015 $'000	2014 $'000
ASSETS			
Financial assets			
Cash and cash equivalents		**81,271**	91,427
Trade and other receivables	6A	**4,066**	5,454
Investments accounted for using the equity method	6B	**-**	310
Total financial assets		**85,337**	97,191
Non-financial assets			
Land and buildings	7A,C	**1,002**	1,585
Property, plant and equipment	7B,C	**1,041**	752
Intangibles	7D,E	**9,261**	8,228
Other non-financial assets	7F	**54**	282
Total non-financial assets		**11,358**	10,847
Total assets		**96,695**	108,038
LIABILITIES			
Payables			
Suppliers	8A	**15,846**	14,370
Other payables	8B	**6,554**	9,268
Total payables		**22,400**	23,638
Provisions			
Employee provisions	9A	**10,994**	9,461
Other provisions	9B	**217**	669
Total provisions		**11,211**	10,130
Total liabilities		**33,611**	33,768
Net assets		**63,084**	74,270
EQUITY			
Contributed equity [1]		**(11,199)**	(11,199)
Reserves		**11**	-
Retained surplus		**74,272**	85,469
Total equity		**63,084**	74,270

The above statement should be read in conjunction with the accompanying notes.

1. Please refer to the Statement of Changes in Equity for more information.

Statement of Changes in Equity
for the period ended 30 June 2015

	Retained earnings		Asset revaluation surplus		Contributed equity/capital [1]		Total equity	
	2015	2014	**2015**	2014	**2015**	2014	**2015**	2014
	$'000	$'000	**$'000**	$'000	**$'000**	$'000	**$'000**	$'000
Opening balance								
Balance carried forward from previous period	**85,469**	117,345	**-**	-	**(11,199)**	(11,199)	**74,270**	106,146
Adjusted opening balance	**85,469**	117,345	**-**	-	**(11,199)**	(11,199)	**74,270**	106,146
Comprehensive income								
Deficit for the period	**(11,197)**	(31,876)					**(11,197)**	(31,876)
Other comprehensive income	**-**	-	**11**				**11**	-
Total comprehensive income	**(11,197)**	(31,876)	**11**	-	**-**	-	**(11,186)**	(31,876)
Closing balance as at 30 June	**74,272**	85,469	**11**	-	**(11,199)**	(11,199)	**63,084**	74,270

The above statement should be read in conjunction with the accompanying notes.

1. The negative contributed equity is a historical legacy relating back to the transition of the Murray-Darling Basin Commission (MDBC) to the Murray-Darling Basin Authority on 15 December 2008. As part of the transition arrangement, all cash held by the MDBC totalling $441.488m was paid back to the Official Public Account (OPA) before being appropriated to the Authority. Once appropriated to the Authority these funds were recorded as revenue in the Authority's accounts.

Liabilities of $19.180m and assets of $7.981m were transferred to the Authority during the 2008-09 financial year. The excess of liabilities over assets of $11.199m continues to be shown in the Financial Statements of the Authority as negative contributed equity.

Cash Flow Statement
for the period ended 30 June 2015

	Notes	2015 $'000	2014 $'000
OPERATING ACTIVITIES			
Cash received			
Appropriations		**55,569**	47,826
Drawdown from Special Account		**-**	131,318
Contributions from jurisdictions		**64,098**	88,519
Grants		**1,710**	-
Interest		**2,167**	-
Net GST received		**7,477**	14,085
Other		**4,434**	5,217
Total cash received		**135,455**	286,965
Cash used			
Employees		**36,007**	37,193
Suppliers		**93,046**	154,017
Grants		**14,365**	9,151
Other		**-**	202
Total cash used		**143,418**	200,563
Net cash (decrease) used by operating activities	10	**(7,963)**	86,402
INVESTING ACTIVITIES			
Cash used			
Purchase of property, plant and equipment		**544**	237
Purchase of intangible assets		**1,649**	58
Total cash used		**2,193**	295
Net cash (decrease) used by investing activities		**(2,193)**	(295)
Net increase in cash held		**(10,156)**	86,107
Cash and cash equivalents at the beginning of the reporting period		**91,427**	5,320
Cash and cash equivalents at the end of the reporting period	10	**81,271**	91,427

The above statement should be read in conjunction with the accompanying notes.

Schedule of Commitments
as at 30 June 2015

	2015 $'000	2014 $'000
BY TYPE		
Commitments receivable		
Net GST recoverable on commitments	**(2,025)**	(1,263)
Other	**(1,268)**	-
Total commitments receivable	**(3,293)**	(1,263)
Commitments Payable		
Capital commitments		
Intangibles	**133**	-
Total capital commitments	**133**	-
Other commitments		
Operating leases[1]	**4,988**	6,975
Other[2]	**22,023**	6,923
Total other commitments	**27,011**	13,898
Total commitments payable	**27,144**	13,898
Net commitments by type	**23,851**	12,635
BY MATURITY		
Commitments receivable		
Net GST recoverable on commitments		
Within 1 year	**(1,161)**	(636)
Between 1 to 5 years	**(864)**	(627)
Total GST recoverable on commitments	**(2,025)**	(1,263)
Other commitments receivable		
Within 1 year	**(1,268)**	-
Total other commitments receivable	**(1,268)**	-
Total commitments receivable	**(3,293)**	(1,263)
Commitments Payable		
Capital commitments		
Within 1 year	**133**	-
Total capital commitments	**133**	-
Operating lease commitments		
Within 1 year	**2,429**	2,428
Between 1 to 5 years	**2,559**	4,548
Total operating lease commitments	**4,988**	6,976
Other Commitments		
Within 1 year	**15,148**	4,575
Between 1 to 5 years	**6,875**	2,347
Total other commitments	**22,023**	6,922
Total commitments payable	**27,144**	13,898
Net commitments by maturity	**23,851**	12,635

Note: Commitments are GST inclusive where relevant.

1. The MDBA in its capacity as a lessee held the following Leases:

Canberra, ACT

Commencing on 1 January 2007 a 10 year and 3 months lease was initiated in respect of premises at 51 Allara Street. Lease payments are subject to fixed annual increases of 3.5% on review date (January each year).

Commencing on 1 May 2011 a 5 year and 11 months lease was initiated in respect of premises at 40 Allara Street. Lease payments are subject to fixed annual increases of 4% on review date (May each year).

Operating leases held by the MDBA are effectively non-cancellable.

2. Other commitments are for suppliers and grants. For 2014-15 these commitments include the South Australian Riverland Floodplains Integrated Infrastructure Project. Refer to note 1.1.

Administered Schedule of Comprehensive Income
for the period ended 30 June 2015

	Notes	2015 $'000	2014 $'000
NET COST OF SERVICES			
EXPENSES			
Grants	15	-	3,000
Total expenses		-	3,000
Net cost of services		-	3,000
Total comprehensive loss		-	3,000

The above schedule should be read in conjunction with the accompanying notes.

Refer to note 1.18

Administered Schedule of Assets and Liabilities
as at 30 June 2015

There are no assets or liabilities administered by the Authority as at 30 June 2015.

Administered Reconciliation Schedule
as at 30 June 2015

	2015 $'000	2014 $'000
Opening assets less liabilities as at 1 July	**-**	-
Net cost of services		
Expenses		
Payments to Non-CAC Act bodies	**-**	(3,000)
Transfers from the Australian Government:		
Appropriation transfers from Official Public Account		
Annual appropriations		
Payments to Non-CAC Act bodies	**-**	3,000
Closing assets less liabilities as at 30 June	**-**	-

The above schedule should be read in conjunction with the accompanying notes.

Refer to note 1.18

Administered Cash Flow Statement
for the period ended 30 June 2015

	Notes	2015 $'000	2014 $'000
OPERATING ACTIVITIES			
Cash used			
Grants	16	-	3,000
Total cash used		-	3,000
Net cash used by operating activities		-	(3,000)
Net decrease in Cash Held		-	(3,000)
Cash and cash equivalents at the beginning of the reporting period		-	-
Cash from Official Public Account			
Appropriations		-	3,000
Total cash from official public account		-	3,000
Cash and cash equivalents at the end of the reporting period		-	-

This schedule should be read in conjunction with the accompanying notes.

Refer to note 1.18

Schedule of Administered Commitments
as at 30 June 2015

	2015 $'000	2014 $'000
BY TYPE		
Commitments payable		
Other commitments		
Other	-	9,365
Total other commitments	-	9,365
Total commitments payable	-	9,365
Net commitments by type	-	9,365
BY MATURITY		
Commitments payable		
Other commitments		
Within 1 year	-	7,000
Between 1 to 5 years	-	2,365
Total other commitments	-	9,365
Total commitments payable	-	9,365
Net commitments by maturity	-	9,365

Note: Commitments are GST inclusive where relevant.
The above schedule should be read in conjunction with the accompanying notes.

Refer to note 1.18

Note 1: Summary of Significant Accounting Policies

1.1 Objectives of the Murray-Darling Basin Authority

The Murray-Darling Basin Authority (the Authority) is an Australian Government controlled corporate Commonwealth entity established by the *Water Act, 2007*. It is a not-for-profit entity. The principal objective of the Authority is to manage the Basin's water resources in the national interest so that there may be an equitable and sustainable use of the Basin's resources.

The Authority is structured to meet the following outcome:

Outcome 1*: Equitable and sustainable use of the Murray-Darling Basin by governments and the community including through the development and implementation of a Basin Plan, operation of the River Murray system, shared natural resource management programs, research, information and advice*.

The continued existence of the Authority in its present form and with its present programs is dependent on:

- funding contributions from Basin jurisdictions towards meeting the cost of Murray-Darling Basin Agreement functions; and
- Government policy and on continuing funding by Parliament for the Authority's administration and programs relating to the Basin Plan and Murray-Darling Basin Agreement functions.

Authority activities contributing toward these outcomes are classified as departmental. Departmental activities involve the use of assets, liabilities, income and expenses controlled or incurred by the Authority in its own right.

From 1 July 2013, the Authority became responsible for administered activities in respect of the South Australian Riverland Floodplains Integrated Infrastructure Project (SARFIIP). SARFIIP aims to enhance the effectiveness of improved environmental flows to South Australia in particular at the Pike and Katarapko - Eckert's Creek (Katfish Reach) Floodplains and is expected to extend over 7 years, with an estimated cost of $155 million. While these activities are not controlled by the Authority it exercises effective project oversight and funding on behalf of the Commonwealth.

From 1 July 2014, resulting from the introduction of the *Public Governance, Performance and Accountability Act, 2013*; SARFIIP funding is recorded as revenue from government and expenses are recorded as a grant expense in the Authority's Statement of Comprehensive Income. The project was previously recorded as an Administered item. Administered schedules are provided for comparative purposes and show no transactions for the 2014-15 financial year.

1.2 Basis of Preparation of the Financial Statements

The financial statements are general-purpose financial statements and are required by section 42 of the *Public Governance, Performance and Accountability Act, 2013.*

The financial statements have been prepared in accordance with:

a) Financial Reporting Rule (FRR) for reporting periods ending on or after 1 July 2014; and
b) Australian Accounting Standards and Interpretations issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

Note 1: Summary of Significant Accounting Policies - continued

The financial statements have been prepared on an accrual basis and in accordance with the historical cost convention except for the certain assets and liabilities at fair value. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position.

The financial statements are presented in Australian dollars and values are rounded to the nearest thousand dollars unless otherwise specified.

Unless an alternative treatment is specifically required by an accounting standard or the FRRs, assets and liabilities are recognised in the statement of financial position when and only when it is probable that future economic benefits will flow to the Authority, or a future sacrifice of economic benefits will be required and the amounts of the assets or liabilities can be reliably measured. However, assets and liabilities arising under executor contracts are not recognised unless required by an accounting standard. Liabilities and assets that are unrecognised are reported in the schedule of commitments or the schedule of contingencies.

Unless alternative treatment is specifically required by an accounting standard, income and expenses are recognised in the Statement of Comprehensive Income, when and only when the flow, consumption or loss of economic benefits has occurred and can be reliably measured.

1.3 Significant Accounting Judgements and Estimates

In the process of applying the accounting policies listed in this note, the Authority has not made any significant judgements that will have a significant impact on the amounts recorded in the financial statements, other than:

- employee provisions have been calculated based on the short-hand method as prescribed by the FRRs and have been discounted using the 10-year government bond rate as at 30 June 2015;
- the fair value of non-financial assets. Leasehold improvements have been revalued by Australian Valuation Services as at 30 June 2015.

Further, there are no accounting assumptions and estimates that have been identified that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next reporting period.

1.4 New Australian Accounting Standards

Consistent with section 19 of the FRRs, the MDBA has decided to adopt the amendments to AASB13 – *Fair Value Measurement* for the 2015 financial year. These amendments reduce fair value measurement of property, plant and equipment assets required disclosure, which was previously required for assets primarily held for internal or policy use, rather than to earn revenue. More specifically, the disclosure is no longer required for quantitative information regarding the significant unobservable inputs used in fair value measurements and the sensitivity of certain fair value measurements to changes in unobservable inputs.

Adoption of New Australian Accounting Standard Requirements

Revised standards that were issued prior to the sign-off date and are applicable to the current reporting period did not have a material effect, and are not expected to have a future material effect, on the Authority's financial statements.

No accounting standard has been adopted earlier than the application date as stated in the standard. For this financial year, AASB1055 *Budgetary Reporting* was applied for the first time.

Note 1: Summary of Significant Accounting Policies - continued

Future Australian Accounting Standard Requirements

The following new, revised or amending standards were issued by the Australian Accounting Standards Board prior to the sign-off date, and are expected to have a financial impact on the Authority for future reporting periods:

AASB 9 Financial Instruments

AASB 15 Revenue from Contracts with Customers

AASB 2015-6 Amendments to Australian Accounting Standards – Extending Related Party Disclosures to Not-for-Profit Public Sector Entities (arising from AASB 10, AASB 124 & AASB 1049)

1.5 Revenue

Revenue from rendering of services is recognised by reference to the stage of completion of contracts at the reporting date. The revenue is recognised when:

- the amount of revenue, stage of completion and transaction costs incurred can be reliably measured; and
- the probable economic benefits associated with the transaction will flow to the Authority.

The stage of completion of contracts at the reporting date is determined by reference to the proportion that costs incurred to date bear to the estimated total costs of the transaction.

Receivables for goods and services, which have 30 day terms, are recognised at the nominal amounts due less any impairment allowance account. Collectability of debts is reviewed at end of the reporting period. Allowances are made when collectability of the debt is no longer probable.

Interest revenue is recognised using the effective interest method as set out in AASB 139 *Financial Instruments: Recognition and Measurement*.

Resources Received Free of Charge

Resources received free of charge are recognised as gains when, and only when, a fair value can be reliably determined and the services would have been purchased if they had not been donated. Use of those resources is recognised as an expense. Resources received free of charge are recorded as either revenue or gains depending on their nature.

Revenue from Government

Funding received or receivable from non-corporate Commonwealth entities (appropriated to the Authority as a corporate Commonwealth entity payment item for payment to the Authority) is recognised as Revenue from Government unless they are in the nature of an equity injection or a loan.

In 2014-15, resulting from the introduction of the *Public Governance, Performance and Accountability Act, 2013*, revenue from government includes funding for the SARFIIP. This was previously recorded as an administered item.

Contributions from Jurisdictions

The Authority receives contributions from jurisdictions based on an agreed contributions model (the model). The model, which has been carried forward from the Authority's predecessor agency, the Murray-Darling Basin Commission, is based on a number of different requirements including specific provisions under the Murray-Darling Basin Agreement. The jurisdictions and

Note 1: Summary of Significant Accounting Policies - continued

the Australian Government are reviewing the model with a view to settling a longer-term arrangement.

1.6 Employee Benefits

Liabilities for 'short-term employee benefits' (as defined in AASB 119 *Employee Benefits*) and termination benefits due within twelve months of the end of reporting period are measured at their nominal amounts.

The nominal amount is calculated with regard to the rates expected to be paid on settlement of the liability.

Other long-term employee benefits are measured as the net total of the present value of the defined benefit obligation at the end of the reporting period minus the fair value at the end of the reporting period of plan assets (if any) out of which the obligations are to be settled directly.

Leave

The liability for employee benefits includes provision for annual leave and long service leave. No provision has been made for sick leave as all sick leave is non-vesting and the average sick leave taken in future years by employees of the Authority is estimated to be less than the annual entitlement for sick leave.

The leave liabilities are calculated on the basis of employees' remuneration at the estimated salary rates that will be applied at the time the leave is taken, including the Authority's employer superannuation contribution rates to the extent that the leave is likely to be taken during service rather than paid out on termination.

The liability for long service leave is recognised and measured at the present value of the estimated future cash flow to be made in respect of all employees at 30 June 2015. The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

Separation and Redundancy

Provision is made for separation and redundancy benefit payments. The Authority recognises a provision for termination when it has developed a detailed formal plan for the terminations and has informed those employees affected that it will carry out the terminations.

Superannuation

The Authority's staff are members of the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS), the PSS accumulation plan (PSSap) or other employee nominated superannuation funds.

The CSS and PSS are defined benefit schemes for the Australian Government. The PSSap is a defined contribution scheme.

The liability for defined benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course. This liability is reported in the Department of Finance's administered schedules and notes.

The Authority makes employer contributions to the employees' superannuation scheme at rates determined by an actuary to be sufficient to meet the current cost to the Government. The Authority accounts for the contributions as if they were contributions to defined contribution plans.

Note 1: Summary of Significant Accounting Policies - continued

The liability for superannuation recognised as at 30 June represents outstanding contributions for the final fortnight of the year.

The Authority also contributes to a number of complying funds to discharge the Authority's liability in regard to individual employees and the *Superannuation Guarantee (Administration) Act* 1992 as well as to facilitate the salary sacrifice options of employees.

1.7 Leases

Operating lease payments are expensed on a straight-line basis which is representative of the pattern of benefits derived from the leased assets.

1.8 Cash

Cash is recognised at its nominal amount. Cash and cash equivalents include:

- cash on hand;
- demand deposits in bank accounts with an original maturity of 3 months or less that are readily convertible to known amounts of cash and subject to insignificant risk of changes in value.

One of the outcomes associated with the introduction of the *Public Governance, Performance and Accountability Act, 2013*; was that on 30 June 2014 the MDBA elected to fully draw-down the $91.427m Special Account balance and transfer these monies to 'Cash At Bank'. This was to facilitate the subsequent transfer of these funds on 1 July 2014 to a new, interest bearing, operating bank account that functions outside of the Official Public Account.

As of 1 July 2014 the Murray-Darling Basin Special Account (established under the *Water Act 2007*, section 209) for the purposes of the *Financial Management and Accountability Act 1997* (FMA) ceased to exist.

1.9 Financial Assets

The Authority classifies its financial assets as the loan and receivables.

The classification depends on the nature and purpose of the financial assets and is determined at the time of initial recognition. Financial assets are recognised and derecognised upon trade date.

Effective Interest Method

The effective interest method is a method of calculating the amortised cost of a financial asset and of allocating interest income over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset, or, where appropriate, a shorter period.

Income is recognised on an effective interest rate basis except for financial assets that are recognised at fair value through profit or loss.

Loans and Receivables

Trade receivables, loans and other receivables that have fixed or determinable payments that are not quoted in an active market are classified as 'loans and receivables'. Loans and receivables are measured at amortised cost using the effective interest method less impairment. Interest is recognised by applying the effective interest rate.

Note 1: Summary of Significant Accounting Policies - continued

Impairment of Financial Assets

Financial assets are assessed for impairment at the end of each reporting period.

1.10 Jointly Controlled Entities

The Murray-Darling Freshwater Research Centre Joint Venture (MDFRC JV) was wound up in October 2014. The Authority transferred its right, title and interest in the MDFRC JV for no consideration to MDFRC Pty Limited (refer Note 6B). The Authority will have an ongoing but different role in the new Joint Venture supported by a Collaboration Agreement.

1.11 Financial Liabilities

Financial liabilities are classified as either financial liabilities 'at fair value through profit or loss' or other financial liabilities. Financial liabilities are recognised and derecognised upon 'trade date'.

Other Financial Liabilities

Other financial liabilities, including borrowings, are initially measured at fair value, net of transaction costs. These liabilities are subsequently measured at amortised cost using the effective interest method, with interest expense recognised on an effective yield basis. `

The effective interest method is a method of calculating the amortised cost of a financial liability and of allocating interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments through the expected life of the financial liability, or, where appropriate, a shorter period.

Supplier and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

1.12 Contingent Liabilities and Contingent Assets

Contingent liabilities and contingent assets are not recognised in the statement of financial position but are reported in the notes. They may arise from uncertainty as to the existence of a liability or asset or represent an asset or liability in respect of which the amount cannot be reliably measured. Contingent assets are disclosed when settlement is probable but not virtually certain and contingent liabilities are disclosed when settlement is greater than remote.

1.13 Acquisition of Assets

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken. Financial assets are initially measured at their fair value plus transaction costs where appropriate.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and income at their fair value at the date of acquisition, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor's accounts immediately prior to the restructuring.

Note 1: Summary of Significant Accounting Policies - continued

1.14 Property, Plant and Equipment

Asset Recognition Threshold

Purchases of property, plant and equipment are recognised initially at cost in the statement of financial position, except for purchases costing less than $2,000, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total).

The initial cost of an asset includes an estimate of the cost of dismantling and removing the item and restoring the site on which it is located. This is particularly relevant to 'make good' provisions in property leases taken up by the Authority where there exists an obligation to restore the property to its original condition.

These costs are included in the value of the Authority's leasehold improvements with a corresponding provision for the 'make good' recognised.

Revaluation

The Authority's leasehold improvements are recorded at fair value in accordance with AASB 116 *Property, Plant and Equipment* and AASB 13 *Fair Value Measurement*.

Fair value of leasehold improvement has been measured using the depreciated replacement cost approach, which is based on the amount that would be required to replace the service potential of an asset.

The Authority's property, plant and equipment is measured using the cost approach or the assets depreciated cost less any accumulated depreciation or impairment.

The Authority undertook an independent valuation of its leasehold improvements, property, plant and equipment as at 30 June 2015.

The Authority's intangible assets comprise internally developed software, data-sets acquired for internal use, and software licenses. There are no active markets for these assets, so in accordance with AASB 138 and FRRs the Authority measures these assets using the cost approach or the assets' amortised cost less any accumulated impairment losses.

Depreciation

Depreciable property, plant and equipment assets are written-off to their estimated residual values over their estimated useful lives to the Authority using, in all cases, the straight-line method of depreciation.

Depreciation rates (useful lives), residual values and methods are reviewed at each reporting date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate.

Depreciation and/ or Amortisation rates applying to each class of asset are based on the following useful lives:

	2014-15		2013-14	
	Years	**% pa**	Years	% pa
Computers and IT equipment	**3-4**	**25-33**	3-4	25-33

Note 1: Summary of Significant Accounting Policies - continued

Office equipment	**2-5**	**20-50**	2-5	20-50
Leasehold improvements	**Length of lease but within range of 6-10**	**11-15**	Length of lease but within range of 6-10	11-15
Data sets	**3-10**	**10-33**	3- indefinite	33-ind
Software applications	**3-4**	**25-33**	3- indefinite	0-33
Software licences	**Length of licence but within range of 1-4**	**25-100**	Length of licence but within range of 1-3	33-100

All assets were assessed for impairment at 30 June 2015. Where indications of impairment exist, the asset's recoverable amount is estimated and an impairment adjustment made if the asset's recoverable amount is less than its carrying amount.

The recoverable amount of an asset is the higher of its fair value less costs to sell and its value in use. Value in use is the present value of the future cash flows expected to be derived from the asset. Where the future economic benefit of an asset is not primarily dependent on the asset's ability to generate future cash flows, and the asset would be replaced if the Authority were deprived of the asset, its value in use is taken to be its depreciated replacement cost.

Derecognition

An item of property, plant and equipment is derecognised upon disposal or when no further future economic benefits are expected from its use or disposal.

1.15 Investment Properties

The Authority does not hold any investment properties.

It does, however, receive economic benefits in the form of cottage rents, which form part of the revenues of the Authority (refer Note 4C). The assets which deliver these rents are jointly controlled by the jurisdictions and the Commonwealth, but the revenues earned from these assets have been assigned to the Authority.

1.16 Intangibles

The Authority's intangibles comprise internally developed software; acquired data-sets for internal use and software licences. These assets are carried at cost less accumulated amortisation and accumulated impairment losses.

Software is amortised on a straight-line basis over its anticipated useful life. All software assets were assessed for indications of impairment as at 30 June 2015.

1.17 Taxation/Competitive Neutrality

The Authority is exempt from all forms of taxation except Fringe Benefits Tax (FBT) and the Goods and Services Tax (GST).

Revenues, expenses and assets are recognised net of GST except:

- where the amount of GST incurred is not recoverable from the Australian Taxation Office; and
- for receivables and payables.

Note 1: Summary of Significant Accounting Policies - continued

1.18 Reporting of Administered Activities

The Authority administers one program on behalf of the Government, being the 'South Australian Riverland Floodplains Integrated Infrastructure Project' (SARFIIP).

From 1 July 2014, resulting from the introduction of the *Public Governance, Performance and Accountability Act, 2013*; SARFIIP is recorded as revenue from government and a grant expense in the Authority's Statement of Comprehensive Income. The project was previously recorded as an Administered item. Administered schedules are provided for comparative purposes and show no transactions for the 2014-15 financial year.

Administered revenues, expenses, assets, liabilities and cash flows are disclosed in the schedule of administered items and related notes.

Except where otherwise stated below, administered items are accounted for on the same basis and using the same policies as for departmental items, including the application of Australian Accounting Standards.

Administered Cash Transfers to and from the Official Public Account

Revenue collected by the Authority for use by the Government rather than the Authority is administered revenue. Collections are transferred to the Official Public Account (OPA) maintained by the Department of Finance. Conversely, cash is drawn from the OPA to make payments under Parliamentary appropriation on behalf of Government. These transfers to and from the OPA are adjustments to the administered cash held by the Authority on behalf of the Government and reported as such in the statement of cash flows in the schedule of administered items and in the administered reconciliation schedule.

Grants

Grant liabilities are recognised to the extent that

(i) the services required to be performed by the grantee have been performed or
(ii) the grant eligibility criteria have been satisfied, but payments due have not been made.

A commitment is recorded when the Government enters into an agreement to make these grants but services have not been performed or criteria satisfied.

Note 2: Events After the Reporting Period

On 21 August 2015 an Administrative Arrangements Order was signed by the Governor-General transferring the responsibilities for water policy and resources, including the administration of the *Water Act 2007* (to the extent that it was administered by the Minister for the Environment), to the Department of Agriculture and Water Resources. The MDBA now reports directly to the Minister for Agriculture and Water Resources.

Note 3: Expenses

	2015 $'000	2014 $'000
Note 3A: Employee Benefits		
Wages and salaries	**26,016**	26,676
Superannuation		
Defined contribution plans	**2,591**	2,595
Defined benefit plans	**2,724**	3,056
Leave and other entitlements	**5,372**	4,734
Separation and redundancies	**968**	473
Total employee benefits	**37,671**	37,534
Note 3B: Suppliers		
Goods and services supplied or rendered		
Expenditure by State Constructing Authorities	**59,718**	97,705
Water licence fee	**3,396**	2,034
Consultants and contractors	**11,088**	10,199
Communication & IT services	**1,560**	1,809
Other employment expenses	**1,278**	1,438
Committee expenses	**1,200**	1,452
Travel	**1,274**	1,635
Other provision of goods & services	**1,178**	1,240
Goods and services supplied or rendered	**80,692**	117,512
Goods and services are made up of:		
Provision of goods - government entities	**-**	8
Provision of goods - external parties	**1,407**	478
Rendering of services - government entities	**4,788**	2,569
Rendering of services - external parties	**74,497**	114,457
Total goods and services supplied or rendered	**80,692**	117,512
Other suppliers		
Operating lease rentals		
Minimum lease payments - external parties	**1,789**	1,819
Workers compensation expenses - government entity	**1,009**	1,008
Total other suppliers	**2,798**	2,827
Total supplier expense	**83,490**	120,339
Note 3C: Grants		
Grants		
State and Territory Governments[1]	**12,345**	7,702
Private sector		
Educational Institutions	**1,893**	401
Community Organisations	**1,027**	1,282
Other	**27**	342
Total Grants	**15,292**	9,727

[1] Includes $7m for South Australian Riverland Floodplains Integrated Infrastructure Program - previously recorded as an Administered item. Refer to note 1.1.

Note 3: Expenses - continued

Note 3D: Write-Down and Impairment of Assets	2015 $'000	2014 $'000
Impairment of property, plant and equipment	-	3
Revaluation decrement of leasehold improvements	**27**	-
Total write-down and impairment of assets	**27**	3

Note 4: Own-Source Income

Own-Source Revenue	2015 $'000	2014 $'000
Note 4A: Contributions from Jurisdictions		
Australian Government	**11,300**	18,772
New South Wales	**18,900**	13,706
Victoria	**18,000**	27,451
South Australia	**15,500**	23,976
Queensland	**100**	100
Australian Capital Territory	**298**	298
Total contributions from jurisdictions	**64,098**	84,303
Note 4B: Grants Received		
South Australian River Murray Constraints grant	**411**	-
South Australia Barrage Fishways grant	**754**	-
Total Grants Received	**1,165**	-
Note 4C: Other Revenue		
Hydropower generation	**1,365**	2,504
Contributions by States - Salinity program	**736**	941
Land and cottage rents	**363**	370
Other	**1,025**	1,421
Resources received free of charge - ANAO audit fees[1]	**80**	69
Total other revenue	**3,569**	5,305
Note 4D: Interest		
Deposits[2]	**2,167**	-
Total Interest	**2,167**	-
Note 4E: Other Gains		
Gain on movement in provisions	**490**	-
Total Other Gains	**490**	-

1. Refer to note 1.5
2. Refer to note 1.8

Note 5: Fair Value Measurements

The following tables provide an analysis of assets and liabilities that are measured at fair value.
The different levels of the fair value hierarchy are defined below.

Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at measurement date.
Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.
Level 3: Unobservable inputs for the asset or liability.

Note 5A: Fair Value Measurements, Valuation Techniques and Inputs Used

	Fair value measurements at the end of the reporting period			For Levels 2 and 3 fair value measurements			
	2015 $'000	2014 $'000	**Category (Level 1, 2 or 3[4])**	**Valuation technique(s)[2]**	**Inputs used**	**Range (weighted average)**	**Sensitivity of the fair value measurement to changes in unobservable inputs**
Non-financial assets[3]							
Leasehold improvements	**960**	1,585	Level 3	Depreciated Replacement Cost (DRC)	Replacement Cost New (price per square metre)		
Other property, plant and equipment	**129**	-	Level 2	Market Approach	Adjusted market transactions		
Other property, plant and equipment	**578**	-	Level 3	Depreciated Replacement Cost (DRC)	Replacement Cost New		
Total non-financial assets	**1,667**	1,585					
Total fair value measurements of assets in the statement of financial position	**1,667**	1,585					
Assets not measured at fair value in the statement of financial position							
Leasehold Improvement - Work in progress	**42**	-					
Other property, plant and equipment - Work in progress	**334**	-					
Total assets not measured at fair value in the statement of financial position	**376**	-					
Total assets stated in the statement of financial position	**2,043**	1,585					

1. The Authority did not measure any non-financial assets at fair value on a non-recurring basis as at 30 June 2015 (2014:Nil).
2. There were no changes in valuation technique from the previous reporting period (2014:Nil).
3. The future economic benefits of the Authority's property, plant and equipment assets are not primarily dependent on their ability to generate cash flows. The authority has not disclosed quantitative information about the significant unobservable inputs for the level 3 measurements in those classes.
4. Fair value measurements - highest and best use differs from current use for non-financial assets (NFAs)
The Authority's assets are held for operational purposes and not held for the purposes of deriving a profit. The current use of all NFAs is considered their highest and best use.
5. Recurring and non-recurring Level 3 fair value measurements - valuation processes

Note 5: Fair Value Measurements - continued

The Authority tests the procedures of the valuation model as an internal management review / asset materiality review at least once every 12 months. If a particular asset class experiences significant and volatile changes in fair value (i.e. where indicators suggest that the value of the class has changed materially since the previous reporting period), that class is subject to specific valuation in the reporting period, where practicable, regardless of the timing of the last specific valuation. The Authority engaged an independent Valuer to undertake a full revaluation at 30 June 2015 and confirm that the models developed comply with AASB 13.

There have been no transfers between level 1 and level 2 of the hierarchy during the year.

Significant Level 3 inputs utilised by the entity are derived and evaluated as follows:

Leasehold Improvement & Property, Plant and Equipment - Physical Depreciation and Obsolescence

Assets that do not transact with enough frequency or transparency to develop objective opinions of value from observable market evidence have been measured utilising the cost (Depreciated Replacement Cost or DRC) approach. Under the DRC approach the estimated cost to replace the asset is calculated and then adjusted to take into account physical depreciation and obsolescence. Physical depreciation and obsolescence has been determined based on professional judgement regarding physical, economic and external obsolescence factors relevant to the asset under consideration.

Note 5B: Reconciliation for Recurring Level 3 Fair Value Measurements

Recurring Level 3 fair value measurements - reconciliation for assets

	Non-financial assets					
	Leashold Improvements		Property plant and equipment		Total	
	2015	2014	**2015**	2014	**2015**	2014
	$'000	$'000	**$'000**	$'000	**$'000**	$'000
As at 1 July	**1,585**	2,185	**-**	-	**1,585**	2,185
Total gains/(losses) recognised in net cost of services[1]	**(625)**	(600)	**-**	-	**(625)**	(600)
Transfers into Level 3[2]	**-**	-	**577**	-	**577**	-
Total as at 30 June	**960**	1,585	**577**	-	**1,537**	1,585

1. These gains/(losses) are presented in the Statement of Comprehensive Income.
2. There have been transfers of property, plant and equipment assets into level 3 during the year due to a change in accounting policy from the Cost to Revaluation model for the class. There have been no transfers out of level 3 during the year.

The authority deems transfers between levels of the fair value hierarchy to have occurred at the end of the reporting period.

Note 6: Financial Assets

	2015 $'000	2014 $'000
Note 6A: Trade and Other Receivables		
Trade Receivables - government entities	**114**	93
Trade Receivables - external parties	**416**	207
GST receivable from the Australian Taxation Office	**2,095**	2,455
Other Receivables - government entities	**86**	58
Other Receivables - external parties	**1,385**	2,650
Total trade and other receivables (gross)	**4,096**	5,463
Less impairment allowance		
Goods and services	**30**	9
Total impairment allowance	**30**	9
Total trade and other receivables (net)	**4,066**	5,454
Trade and other receivables (net) expected to be recovered		
No more than 12 months	**4,066**	5,454
Total trade and other receivables (net)	**4,066**	5,454
Trade and other receivables (gross) aged as follows		
Not overdue	**3,565**	5,223
Overdue by		
0 to 30 days	**-**	224
31 to 60 days	**479**	2
61 to 60 days	**27**	-
More than 60 days	**25**	14
Total trade and other receivables (gross)	**4,096**	5,463
Impairment allowance aged as follows		
31 to 60 days	**7**	-
More than 60 days	**23**	9
Total impairment allowance	**30**	9

Credit terms for goods and services were within 30 days (2014: 30 days).
The Authority has not provided any loans (2014: no loans)

Note 6: Financial Assets - continued

Reconciliation of the Impairment Allowance

Movements in relation to 2015

	Goods and services	Other receivables	Total
	$'000	$'000	$'000
As at 1 July 2014	**9**	**-**	**9**
Amounts written off	-	-	-
Amounts recovered and reversed	-	-	-
Increase/(Decrease) recognised in net cost of services	**21**	**-**	**21**
Total as at 30 June 2015	**30**	**-**	**30**

Movements in relation to 2014

	Goods and services	Other receivables	Total
	$'000	$'000	$'000
As at 1 July 2013	19	-	19
Increase/(Decrease) recognised in net cost of services	(10)	-	(10)
Total as at 30 June 2014	9	-	9

Note 6B: Investments Accounted for Using the Equity Method

Investments in joint ventures		
Murray-Darling Freshwater Research Centre	**-**	310
Total investments accounted for using the equity method	**-**	310
Investments accounted for using the equity method expected to be recovered		
More than 12 months	**-**	310
Total investments accounted for using the equity method	**-**	310

Details of investments accounted for using the equity method

		Ownership	
	Principal	**2015**	2014
Name of entity	**activity**	**%**	**%**
Joint ventures			
Murray-Darling Freshwater Research Centre	**-**	**Nil**	**33.33%**

Note 6: Financial Assets - continued

Summarised financial information of joint ventures

	2015 $'000	2014 $'000
Statement of financial position		
Current assets	-	2,704
Non-current assets	-	740
Current liabilities	-	2,298
Non-current liabilities	-	2,218
Statement of comprehensive income		
Revenue	-	5,966
Expense		6,076
Net surplus/(deficit) from continuing operations	-	(110)
Share of jointly controlled entities' net deficit:		
Share of net deficit before tax	-	(36)
Income tax expense		-
Share of jointly controlled entities' net deficit after tax	-	(36)

Dividends received from jointly controlled entities: **Nil** (2014: Nil).

The Murray-Darling Freshwater Research Centre Joint Venture (MDFRC JV) was wound up in October 2014. The Authority transferred its right, title and interest in the MDFRC JV for no consideration to MDFRC Pty Limited, which will hold this in trust for the new JV between CSIRO and La Trobe University, that will replace the existing MDFRC JV. The Authority will have an ongoing but different role in the new Joint Venture supported by a Collaboration Agreement.

Note 7: Non-Financial Assets

	2015 $'000	2014 $'000
Note 7A: Land and Buildings		
Leasehold improvements - in use		
Fair value	**960**	3,452
Accumulated depreciation	**-**	(1,867)
Total leasehold improvements	**960**	1,585
Total land and buildings - in use	**960**	1,585
Work in Progress		
Fit out	**42**	-
Total Land and Buildings - Work in Progress	**42**	-
Total Land and Buildings	**1,002**	1,585
Note 7B: Property, Plant and Equipment		
Other property, plant and equipment - in use		
Fair value	**707**	2,047
Accumulated depreciation	**-**	(1,295)
Total other property, plant and equipment - in use	**707**	752
Work in Progress		
Computer	**334**	-
Total Other property Plant and Equipment - Work in Progress	**334**	-
Total property, plant and equipment	**1,041**	752

A revaluation of leashold improvements, property, plant and equpitment was undertaken as at 30 June 2015. This resulted in a decrement recognised in net cost of services.
No leasehold improvements, property, plant or equipment are expected to be sold or disposed of within the next 12 months.

Note 7C: Reconciliation of the Opening and Closing Balances of Property, Plant and Equipment

Reconciliation of the opening and closing balances of property, plant and equipment for 2015

	Buildings $'000	Total land and buildings $'000	Other property, plant & equipment $'000	Total $'000
As at 1 July 2014				
Gross book value	**3,452**	**3,452**	**2,047**	**5,499**
Accumulated depreciation and impairment	**(1,867)**	**(1,867)**	**(1,295)**	**(3,162)**
Total as at 1 July 2014	**1,585**	**1,585**	**752**	**2,337**
Additions				
Purchased	**42**	**42**	**546**	**588**
Revaluation increment recognised in other comprehensive income	**-**	**-**	**11**	**11**
Revaluation decrement recognised in net cost of services	**(27)**	**(27)**	**-**	**(27)**
Depreciation	**(598)**	**(598)**	**(219)**	**(817)**
Disposals	**-**	**-**	**(49)**	**(49)**
Total as at 30 June 2015	**1,002**	**1,002**	**1,041**	**2,043**
Total as at 30 June 2015 represented by				
Gross book value	**1,002**	**1,002**	**1,041**	**2,043**
Accumulated depreciation	**-**	**-**	**-**	**-**
Total as at 30 June 2015	**1,002**	**1,002**	**1,041**	**2,043**

Note 7: Non-Financial Assets - continued

Reconciliation of the opening and closing balances of property, plant and equipment for 2014

	Buildings $'000	Total land and buildings $'000	Other property, plant & equipment $'000	Total $'000
As at 1 July 2013				
Gross book value	3,452	3,452	1,902	5,354
Accumulated depreciation and impairment	(1,267)	(1,267)	(1,053)	(2,320)
Total as at 1 July 2013	2,185	2,185	849	3,034
Additions				
By Purchase	-	-	240	240
Impairments recognised in net cost of services	-	-	(3)	(3)
Depreciation	(600)	(600)	(320)	(920)
Disposals	-	-	(14)	(14)
Total as at 30 June 2014	1,585	1,585	752	2,337
Total as at 30 June 2014 represented by				
Gross book value	3,452	3,452	2,047	5,499
Accumulated depreciation and impairment	(1,867)	(1,867)	(1,295)	(3,162)
Total as at 30 June 2014	1,585	1,585	752	2,337

Note 7: Non-Financial Assets - continued

Note 7D: Intangibles	2015	2014
Assets in-use	**$'000**	$'000
Computer software purchased	**896**	1,334
Accumulated amortisation and impairment	**(851)**	(982)
Total computer software	**45**	352
Computer software internally developed	**4,858**	4,827
Accumulated amortisation and impairment	**(4,250)**	(3,974)
Total computer software internally developed in use	**608**	853
Total intangibles in use	**653**	1,205
Work in Progress		
Software applications	**237**	22
Data Sets	**8,371**	7,001
Total Intangibles - Work in Progress	**8,608**	7,023
Total Intangibles	**9,261**	8,228

No indicators of impairment were found for intangible assets

No intangibles are expected to be sold or disposed of within the next 12 months

Note 7E: Reconciliation of the Opening and Closing Balances of Intangibles

Reconciliation of the opening and closing balances of intangibles for 2015

	Computer software internally developed $'000	Computer software purchased $'000	Total $'000
As at 1 July 2014			
Gross book value	**11,828**	**1,356**	**13,184**
Accumulated amortisation and impairment	**(3,974)**	**(982)**	**(4,956)**
Total as at 1 July 2014	**7,854**	**374**	**8,228**
Additions			
Purchase or internally developed	**1,450**	**232**	**1,682**
Amortisation	**(276)**	**(313)**	**(589)**
Disposals	**(49)**	**(11)**	**(60)**
Total as at 30 June 2015	**8,979**	**282**	**9,261**
Total as at 30 June 2015 represented by			
Gross book value	**13,229**	**1,133**	**14,362**
Accumulated amortisation and impairment	**(4,250)**	**(851)**	**(5,101)**
Total as at 30 June 2015	**8,979**	**282**	**9,261**

Reconciliation of the opening and closing balances of intangibles for 2014

	Computer software internally developed $'000	Computer software purchased $'000	Total intangibles purchased $'000
As at 1 July 2013			
Gross book value	11,793	1,336	13,129
Accumulated amortisation and impairment	(3,609)	(645)	(4,254)
Total as at 1 July 2013	8,184	691	8,875
Additions			
Purchase or internally developed	35	22	57
Amortisation	(365)	(337)	-
Disposals	-	(2)	(2)
Total as at 30 June 2014	7,854	374	8,930
Total as at 30 June 2014 represented by			
Gross book value	11,828	1,356	13,184
Accumulated amortisation and impairment	(3,974)	(982)	(4,956)
Total as at 30 June 2014	7,854	374	8,228

Note 7: Non-Financial Assets - continued

	2015 $'000	2014 $'000
Note 7F: Other Non-Financial Assets		
Prepayments	**54**	282
Total other non-financial assets	**54**	282
Other non-financial assets expected to be recovered		
No more than 12 months	**54**	279
More than 12 months	**-**	3
Total other non-financial assets	**54**	282

No indicators of impairment were found for other non-financial assets.

Note 8: Payables

	2015 $'000	2014 $'000
Note 8A: Suppliers		
Trade creditors and accruals	**15,616**	14,108
Operating lease rentals	**230**	262
Total suppliers	**15,846**	14,370
Suppliers expected to be settled		
No more than 12 months	**15,846**	14,370
Total suppliers	**15,846**	14,370
Suppliers in connection with		
Related parties	**73**	90
External parties	**15,773**	14,280
Total suppliers	**15,846**	14,370

Settlement was usually made within 30 days.

Note 8B: Other Payables		
Wages and salaries	**1,099**	980
Superannuation	**181**	169
Lease incentive	**306**	482
Prepayments received/unearned income	**4,968**	7,637
Total other payables	**6,554**	9,268
Other payables expected to be settled		
No more than 12 months	**6,423**	9,268
More than 12 months	**131**	-
Total other payables	**6,554**	9,268

Note 9: Provisions

	2015 $'000	2014 $'000
Note 9A: Employee Provisions		
Leave	**10,424**	9,461
Separations and redundancies	**570**	-
Total employee provisions	**10,994**	9,461
Employee provisions expected to be settled		
No more than 12 months	**3,932**	3,208
More than 12 months	**7,062**	6,253
Total employee provisions	**10,994**	9,461
Note 9B: Other Provisions		
Provision for restoration	**217**	669
Total other provisions	**217**	669
Other provisions expected to be settled		
More than 12 months	**217**	669
Total other provisions	**217**	669

	Provision for restoration	Total
	$'000	**$'000**
As at 1 July 2014	**669**	**669**
Unwinding of discount or change in discount rate	**38**	**38**
Amounts reversed	**(490)**	**(490)**
Total as at 30 June 2015	**217**	**217**

	Provision for restoration	Total
	$'000	$'000
Carrying amount 1 July 2013	633	633
Unwinding of discount or change in discount rate	36	36
Closing balance 2014	669	669

The Authority currently has 2 (2013-2014: 2) agreements for the leasing of premises which have provisions requiring the Authority to restore the premises at the conclusion of the lease. The Authority has made a provision to reflect the present value of this obligation.

Note 10: Cash Flow Reconciliation

	2015 $'000	2014 $'000
Reconciliation of cash and cash equivalents as per statement of financial position to cash flow statement		
Cash and cash equivalents as per		
Cash flow statement	**81,271**	91,427
Statement of financial position	**81,271**	91,427
Discrepancy	-	-
Reconciliation of net cost of services to net cash from/(used by) operating activities		
Net (cost of)/contribution by services	**(66,456)**	(79,666)
Revenue from Government	**55,569**	47,826
Share of deficit in joint venture	**(310)**	(36)
Adjustments for non-cash items		
Depreciation/amortisation	**1,408**	1,622
Net write down of non-financial assets	**27**	3
Loss on disposal of assets	**19**	13
Other non-cash items	**11**	-
Movements in assets and liabilities		
Assets		
(Increase)/Decrease in net receivables	**1,388**	131,131
(Increase)/Decrease in share in joint ventures	**310**	36
(Increase)/Decrease in prepayments	**228**	14
Liabilities		
Increase/(Decrease) in employee provisions	**1,533**	238
Increase/(Decrease) in supplier payables	**1,476**	(18,762)
Increase/(Decrease) in other payable	**(2,714)**	3,947
Increase/(Decrease) in other provisions	**(452)**	36
Net cash from/(used by) operating activities	**(7,963)**	86,402

Note 11: Contingent Assets and Liabilities

	Claims for damages or costs		Total	
	2015	2014	**2015**	2014
	$'000	$'000	**$'000**	$'000
Contingent liabilities				
Balance from previous period	**-**	5,200	**-**	5,200
Re-measurement	**-**	8,586	**-**	8,586
Liabilities realised	**-**	(13,786)	**-**	(13,786)
Total contingent liabilities	**-**	-	**-**	-

Quantifiable Contingencies

Claims:
There were no estimated contingent liabilities as at 30 June 2015.

Environmental water flows
The MDBA received a letter during the previous financial year (2013-14) claiming damages as a consequence of environmental water flows. The MDBA has denied any liability and continues to defend itself in terms of any potential costs arising from this matter. The information usually required by AASB137 Provisions, Contingent Liabilities and Contingent Assets has not been disclosed on the grounds that it may be expected to prejudice the outcome of the litigation.

Unquantifiable Contingencies
In addition, to the above matters there are a number of unquantifiable contingencies where it is not possible to estimate the amounts of any eventual payments.

These pertain to the former Murray-Darling Basin Commission (the Commission); under Section 239F of the *Water Act 2007,* the liabilities of the Commission became liabilities of the Authority.

This included any liability, duty or obligation, whether contingent or prospective; but does not include a liability, duty or obligation imposed by:

- an Act; or
- regulations or other subordinate legislation made under an Act; or
- the *Murray-Darling Basin Act 1992* of New South Wales; or
- the *Murray-Darling Basin Act 1993* of Victoria; or
- the *Murray-Darling Basin Act 1996* of Queensland; or
- the *Murray-Darling Basin Act 1993* of South Australia; or
- the former Murray-Darling Basin Agreement.

A claim has been received by a State Constructing Authority (SCA), which the MDBA has indemnified. This claim is regarding the use of land. The SCA has denied any liability and will defend itself in terms of any potential costs arising from this matter.

Native Title Claims
Currently, there are no Native Title Claims to which the MDBA is a party.

Significant Remote Contingencies

The Authority had no significant remote contingencies.

Note 12: Senior Management Personnel Remuneration

	2015 $	2014 $
Short-term employee benefits		
Salary	**2,887,809**	2,910,214
Motor vehicle and other allowances	**43,994**	74,201
Total short-term employee benefits	**2,931,803**	2,984,415
Post-employment benefits		
Superannuation	**545,489**	522,303
Total post-employment benefits	**545,489**	522,303
Other long-term employee benefits		
Annual leave accrued	**221,218**	227,937
Long-service leave	**72,298**	73,579
Total other long-term employee benefits	**293,516**	301,516
Termination benefits		
Voluntary redundancy payments	**-**	64,328
Total termination benefits	**-**	64,328
Total senior executive remuneration expenses	**3,770,808**	3,872,562

Note 12 is prepared on an accrual basis.

The total number of senior management personnel that are included in the above table are 14 individuals (2014: 13 individuals).

Note 13: Financial Instruments

	2015 $'000	2014 $'000
Note 13A: Categories of Financial Instruments		
Financial Assets		
Loans and receivables		
Cash and cash equivalents	**81,271**	91,427
Trade and other receivables	**1,971**	2,999
Total loans and receivables	**83,242**	94,426
Total financial assets	**83,242**	94,426
Financial Liabilities		
Financial liabilities measured at amortised cost		
Trade creditors and accruals	**15,616**	14,108
Total financial liabilities measured at amortised cost	**15,616**	14,108

Note 13B: Fair Value of Financial Instruments

All financial instruments are held at fair value.

Note 13C: Credit Risk

MDBA was exposed to minimal credit risk as loans and receivables were cash and trade and other receivables. The maximum exposure to credit risk was the risk that arises from potential default of a debtor. This amount was equal to the total amount of trade receivables (2015: $2,001,000 and 2014: $3,008,000).The entity had assessed the risk of the default on payment and had allocated $30,000 in 2015 (2014: $9,000) to an impairment allowance account. The entity managed its credit risk by undertaking background and credit checks prior to allowing a debtor relationship. In addition, the entity had policies and procedures that guided employees debt recovery techniques that were to be applied. The MDBA held no collateral to mitigate against credit risk.

Note 13: Financial Instruments - continued

Note 13C: Credit Risk - continued

Credit quality of financial assets not past due or individually determined as impaired

	Not past due nor impaired 2015 $'000	Not past due nor impaired 2014 $'000	**Past due or impaired 2015 $'000**	Past due or impaired 2014 $'000
Cash and cash equivalents	**81,271**	91,427	**-**	-
Trade and other receivables	**1,440**	2,759	**531**	240
Total	**82,711**	94,186	**531**	240

Ageing of financial assets that were past due but not impaired in 2015

	0 to 30 days $'000	**31 to 60 days $'000**	**61 to 90 days $'000**	**90+ days $'000**	**Total $'000**
Trade and other receivables	**-**	**479**	**27**	**25**	**531**
Total	**-**	**479**	**27**	**25**	**531**

Ageing of financial assets that were past due but not impaired in 2014

	0 to 30 days $'000	31 to 60 days $'000	61 to 90 days $'000	90+ days $'000	Total $'000
Trade and other receivables	224	2	-	14	240
Total	224	2	-	14	240

Note 13D: Liquidity Risk

The Authority is appropriated funding from the Australian Government and jurisdictions and the Authority manages its budgeted funds to ensure it has adequate funds to meet payments as they fall due. In addition, the Authority has policies in place to ensure timely payments are made when due and has no past experience of default. The Authority had no derivative financial liabilities in either 2015 or 2014.

Note 13E: Market Risk

The Authority holds basic financial instruments that do not expose the Authority to certain market risks. The Authority is not exposed to 'Currency risk' or 'Other past due' financial risks.

The Authority does not have any interest bearing liabilities at the period end.

Note 14: Financial Assets Reconciliation

	Notes	2015 $'000	2014 $'000
Total financial assets as per statement of financial position		**85,337**	97,191
Less: Non-financial instrument components			
GST receivable from the Australian Taxation Office	6A	**2,095**	2,455
Investments Accounted for Using the Equity Method		**-**	310
Total non-financial instrument components		**2,095**	2,765
Total financial assets as per financial instruments note		**83,242**	94,426

Note 15: Administered - Expenses

	2015 $'000	2014 $'000
Note 15: Grants		
Public sector		
State and Territory Governments	-	3,000
Total grants	-	3,000

Refer to note 1.18

Note 16: Administered - Cash Flow Reconciliation

	2015 $'000	2014 $'000
Reconciliation of cash and cash equivalents as per administered schedule of assets and liabilities to administered cash flow statement		
Cash and cash equivalents as per		
Schedule of administered cash flows	-	-
Schedule of administered assets and liabilities	-	-
Discrepancy	-	-
Reconciliation of net cost of services to net cash from/(used by) operating activities		
Net cost of services	-	(3,000)
Net cash from/(used by) operating activities	-	(3,000)

Refer to note 1.18

Note 17: Appropriations

Note 17A: Annual Appropriations ('Recoverable GST exclusive')

Annual Appropriations for 2015

	Appropriation Act[1]		*PGPA Act*					
	Annual Appropriation[2] $'000	AFM $'000	Section 74 $'000	Section 75 $'000	Total appropriation $'000	Appropriation applied in 2015 (current and prior years) $'000	Variance[3] $'000	Section 51 determinations $'000
Departmental								
Ordinary annual services	**48,608**	**-**	**-**	**-**	**48,608**	**48,569**	**39**	**-**
Total departmental	**48,608**	**-**	**-**	**-**	**48,608**	**48,569**	**39**	**-**
Administered[4]								
Ordinary annual services								
Administered items	**7,000**	**-**	**-**	**-**	**7,000**	**7,000**	**-**	**-**
Total administered	**7,000**	**-**	**-**	**-**	**7,000**	**7,000**	**-**	**-**

1. As at 30 June 2015, the Appropriations Receivable balance was Nil. (2014: Nil)
2. In 2014-15, there were no appropriations that have been quarantined.
3. In 2014-15, there was a formal reduction in revenue under the Financial Reporting Rule Part 6 Div 3, but at law the appropriations had not been amended before the end of the reporting period. The reduction was a targeted saving measure for Communications and Public Affairs Functions of $0.039m, which accounts for the variance.
4. Due to the transition of the MDBA from an Agency under the FMA Act 1997 to a corporate Commonwealth entity, for the purposes of the *Public Governance, Performance and Accountability (PGPA)* Act 2013, the administered item 'South Australian Riverland Floodplains Integrated Infrastructure Project' (SARFIIP) is recorded in the Authority's Statement of Comprehensive Income. Refer to note 1.1.

Note 17: Appropriations - continued

Annual Appropriations for 2014

	Appropriation Act			*FMA Act*					
	Annual Appropriation $'000	Appropriations reduced [1] $'000	AFM[2] $'000	Section 30 $'000	Section 31 $'000	Section 32 $'000	Total appropriation $'000	Appropriation applied in 2014 (current and prior years) $'000	Variance $'000
DEPARTMENTAL									
Ordinary annual services	47,913	-	-	-	357	-	48,270	48,240	30
Total departmental	47,913	-	-	-	357	-	48,270	48,240	30
ADMINISTERED									
Ordinary annual services									
Administered items	3,000	-	-	-		-	3,000	3,000	-
Total administered	3,000	-	-	-		-	3,000	3,000	-

Notes:

1. Appropriations reduced under Appropriation Acts (Nos. 1,3 & 5) 2013-14: sections 10, 11, and 12 and under Appropriation Acts (Nos. 2, 4 & 6) 2013-14: sections 12,13, and 14. Departmental appropriations do not lapse at financial year-end. However, the responsible Minister may decide that part or all of a departmental appropriation is not required and request the Finance Minister to reduce that appropriation. The reduction in the appropriation is effected by the Finance Minister's determination and is disallowable by Parliament. During the 2013-14 Budget round, the Public Services Efficiencies Measure was announced, this was for $0.087m. The remaining balance of the variance is attributable to GST receivable.

As with departmental appropriations, the responsible Minister may decide that part or all of an administered appropriation is not required and request that the Finance Minister reduce that appropriation. For administered appropriations reduced under section 11 of Appropriation Acts (Nos. 1,3 & 5) 2013-14 and section 12 of Appropriation Acts (Nos. 2,4 & 6) 2013-14, the appropriation is taken to be reduced to the required amount specified in Note 37F of this note once the annual report is tabled in Parliament. All administered appropriations may be adjusted by a Finance Minister's determination, which is disallowable by Parliament. In 2014, there was no reduction in Administered appropriations.

2. As at 30 June 2014, the Appropriations Receivable balance was Nil.

Note 18: Special Accounts

Departmental - Murray-Darling Basin Authority	2015 $'000	2014 $'000
Balance brought forward from previous period	-	136,638
Increases		
Appropriation credited to special account	-	47,826
Contributions from jurisdictions	-	88,519
Other receipts	-	5,217
Total increases	-	141,562
Available for payments	-	278,200
Decreases		
Departmental		
Payments made to employees	-	37,193
Payments made to suppliers	-	149,580
Total departmental	-	186,773
Total decreases	-	186,773
Total balance carried to the next period	-	91,427

Departmental - Murray-Darling Special Account

Appropriation: *Financial Management and Accountability Act 1997*, (FMA Act) Section 21.
Establishing Instrument: *Water Act 2007*, Section 209.
Purpose:

i) in payment or discharge of the costs, expenses and other obligations incurred by the Authority in the performance of the Authority's functions;

ii) in payment of any remuneration and allowances payable to any person under the *Water Act 2007*; and

iii) meeting the expenses of administering the Account.

$91.427 million disclosed as 'Total balance carried to the next period' represents 'Cash At Bank' at 30 June 2014.

On 1 July 2014, the Authority ceased to be an Agency under the FMA Act and became a corporate Commonwealth entity for the purposes of the *Public Governance, Performance and Accountability Act, 2013* (PGPA Act).

One of the outcomes associated with this change was that the MDBA elected to fully draw-down the $91.427 million and transfer these monies to 'Cash At Bank'. This was to facilitate the subsequent transfer of these funds on 1 July 2014 to a new operating account that functions outside of the Official Public Account.

As of 1 July 2014 the Murray-Darling Basin Special Account for the purposes of the FMA Act ceased to exist.

Note 19: Reporting of Outcomes

Note 19A: Net Cost of Outcome Delivery

	Outcome 1		Total	
	2015	2014	**2015**	2014
	$'000	$'000	**$'000**	$'000
Departmental				
Expenses	**137,945**	169,274	**137,945**	169,274
Own-source income	**70,999**	89,608	**70,999**	89,608
Net cost of outcome delivery	**66,946**	79,666	**66,946**	79,666
Administered				
Expenses[1]	**-**	3,000	**-**	3,000
Net cost of outcome delivery	**-**	3,000	**-**	3,000

1. See note 1.1

Note 20: Net Cash Appropriation Arrangements

	2015 **$'000**	2014 $'000
Total comprehensive loss less depreciation/amortisation expenses previously funded through revenue appropriations	**(11,197)**	(31,876)
Plus: depreciation/amortisation expenses previously funded through revenue appropriation[1]	**-**	-
Total comprehensive income/(loss) - as per the Statement of Comprehensive Income	**(11,197)**	(31,876)

1. MDBA does not currently have a departmental capital budget and has no depreciation expenses previously funded through revenue appropriation.

Note 21A: Budgetary Reports and Explanations of Major Variances

The following tables provide a comparison of the original budget as presented in the 2014-15 Portfolio Budget Statements to the 2014-15 final outcome as presented in accordance with Australian Accounting Standards. The budget is not audited.

Variances are considered to be 'major' if they are core to MDBA activities and based on the following criteria:
• the variance between budget and actual is greater than +/- 10% of the original budget for a line item; or
• the variance between budget and actual is greater than +/- 2% of the relevant sub-total (i.e. total expenses, total income, total assets or total liabilities); or
• an item below this threshold but is considered important for the reader's understanding or is relevant to an assessment of the discharge of accountability and to an analysis of performance of MDBA.

Note 21A: Departmental Budgetary Reports

Statement of Comprehensive Income
for the period ended 30 June 2015

	Actual	Budget estimate Original[1]	Variance[2]	Ref Note 21G
	2014-15 $'000	**2014-15 $'000**	**2014-15 $'000**	
NET COST OF SERVICES				
EXPENSES				
Employee benefits	37,671	39,379	(1,708)	
Suppliers	83,490	101,911	(18,421)	2a, 3a
Grants	15,292	6,793	8,499	1c
Depreciation and amortisation	1,408	2,869	(1,461)	
Write-down and impairment of assets	27	-	27	
Finance Costs	38	-	38	
Losses from asset sales	19	-	19	
Total expenses	**137,945**	**150,952**	**(13,007)**	
OWN-SOURCE INCOME				
Own-source revenue				
Contributions from jurisdictions	64,098	72,491	(8,393)	2a
Grants	1,165	-	1,165	5a
Interest	2,167	-	2,167	1b
Other revenue	3,569	2,321	1,248	6a
Total own-source revenue	**70,999**	**74,812**	**(3,813)**	
Gains				
Other Gains	**490**	**-**	490	
Total gains	**490**	**-**	490	
Total own-source income	**71,489**	**74,812**	**(3,323)**	
Net cost of services	**(66,456)**	**(76,140)**	**9,684**	
Revenue from Government	**55,569**	**48,608**	6,961	1c
Share of deficit of joint ventures accounted for using the equity method	**(310)**	**-**	(310)	7a
Deficit attributable to the Australian Government	**(11,197)**	**(27,532)**	**16,335**	
OTHER COMPREHENSIVE INCOME				
Changes in asset revaluation surplus	**11**	-	11	
Total comprehensive loss attributable to the Australian Government	**(11,186)**	**(27,532)**	**16,346**	

1. The entity's original budgeted financial statement that was first presented to parliament in respect of the reporting period (i.e. from the entity's 2014-15 Portfolio Budget Statements (PBS)).

2. Between the actual and original budgeted amounts for 2014-15. Explanations of major variances are provided below. (Note 21G)

Note 21B: Budgetary Reports and Explanations of Major Variances - Continued

Statement of Financial Position
for the period ended 30 June 2015

	Actual	Budget estimate Original[1]	Variance[2]	Ref Note 21G
	2014-15 $'000	**2014-15 $'000**	**2014-15 $'000**	
ASSETS				
Financial Assets				
Cash and cash equivalents	81,271	5,320	75,951	
Trade and other receivables	4,066	48,331	(44,265)	
Other financial assets	-	459	(459)	
Total financial assets	**85,337**	**54,110**	**31,227**	1a
Non-Financial Assets				
Land and buildings	1,002	1,085	(83)	
Property, plant and equipment	1,041	1,128	(87)	
Intangibles	9,261	8,277	984	
Other non-financial assets	54	475	(421)	
Total non-financial assets	**11,358**	**10,965**	**393**	
Total Assets	**96,695**	**65,075**	**31,620**	
LIABILITIES				
Payables				
Suppliers	15,846	33,439	(17,593)	
Other payables	6,554	3,643	2,911	
Total payables	**22,400**	**37,082**	**(14,682)**	4a
Other interest bearing liabilities	**-**	**306**	**(306)**	
Provisions				
Employee provisions	10,994	10,425	569	
Other provisions	217	632	(415)	
Total provisions	**11,211**	**11,057**	**154**	
Total liabilities	**33,611**	**48,445**	**(14,834)**	
Net assets	**63,084**	**16,630**	**46,454**	
EQUITY				
Contributed equity	(11,199)	(11,199)	-	
Reserves	11	87	(76)	
Retained surplus	74,272	27,742	46,530	
Total equity	**63,084**	**16,630**	**46,454**	

1. The entity's original budgeted financial statement that was first presented to parliament in respect of the reporting period (i.e. from the entity's 2014-15 Portfolio Budget Statements (PBS)).

2. Between the actual and original budgeted amounts for 2014-15. Explanations of major variances are provided below. (Note 21G)

Note 21C: Departmental Budgetary Reports
Statement of Changes in Equity
for the period ended 30 June 2015

	Retained earnings			Asset revaluation surplus			Contributed equity/capital			Total equity		
	Actual	Budget estimate		Actual	Budget estimate		Actual	Budget estimate		Actual	Budget estimate	
		Original[1]	Variance[2]		Original[1]	Variance[2]		Original[1]	Variance[2]		Original[1]	Variance[2]
	2015	**2015**	2015	**2015**	**2015**	2015	**2015**	**2015**	2015	**2015**	**2015**	2015
	$'000	**$'000**	$'000	**$'000**	**$'000**	$'000	**$'000**	**$'000**	$'000	**$'000**	**$'000**	$'000
Opening balance												
Balance carried forward from previous period	**85,469**	**55,274**	30,195	**-**	**87**	(87)	**(11,199)**	**(11,199)**	-	**74,270**	**44,162**	30,108
Adjusted opening balance	**85,469**	**55,274**	30,195	**-**	**87**	(87)	**(11,199)**	**(11,199)**	-	**74,270**	**44,162**	30,108
Comprehensive income												
Surplus/(Deficit) for the period	**(11,197)**	**(27,532)**	16,335							**(11,197)**	**(27,532)**	16,335
Other comprehensive income	**-**	**-**	-	**11**	**-**	**11**				**11**	**-**	11
Total comprehensive income	**(11,197)**	**(27,532)**	16,335	**11**	**-**	**11**				**(11,186)**	**(27,532)**	16,346
Total comprehensive income attributable to Australian Government	**(11,197)**	**(27,532)**	16,335							**(11,186)**	**(27,532)**	16,346
Closing balance as at 30 June	**74,272**	**27,742**	46,530	**11**	**87**	(76)	**(11,199)**	**(11,199)**	-	**63,084**	**16,630**	46,454
Less: Non-controlling interests	**-**	**-**	-	**-**	**-**	-	**-**	**-**	-	**-**	**-**	-
Closing balance attributable to Australian Government	**74,272**	**27,742**	46,530	**11**	**87**	(76)	**(11,199)**	**(11,199)**	-	**63,084**	**16,630**	46,454

1. The entity's original budgeted financial statement that was first presented to parliament in respect of the reporting period (i.e. from the entity's 2014-15 Portfolio Budget Statements (PBS)).

2. Between the actual and original budgeted amounts for 2014-15. Explanations of major variances are provided below. (Note 21G)

Note 21D: Budgetary Reports and Explanations of Major Variances - Continued

Cash Flow Statement for not-for-profit Reporting Entities
for the period ended 30 June 2015

	Actual	Budget estimate		
		Original[1]	Variance[2]	Ref Note 21G
	2015	**2015**	2015	
	$'000	**$'000**	$'000	
OPERATING ACTIVITIES				
Cash received				
Appropriations	**55,569**	**48,608**	6,961	1c
Cash from Official Public Account	**-**	**26,673**	(26,673)	1a
Contributions from Jurisdictions	**64,098**	**72,491**	(8,393)	2a
Interest	**2,167**	**-**	2,167	1b
Grants	**1,710**	**-**	1,710	5a
Net GST received	**7,477**	**11,342**	(3,865)	
Other	**4,434**	**2,321**	2,113	6a
Total cash received	**135,455**	**161,435**	(25,980)	
Cash used				
Employees	**36,007**	**39,344**	(3,337)	
Suppliers	**93,046**	**113,288**	(20,242)	2a, 3a, 4a, 5a
Grants	**14,365**	**6,793**	7,572	1c
Total cash used	**143,418**	**159,425**	(16,007)	
Net cash from/(used by) operating activities	**(7,963)**	**2,010**	(9,973)	
INVESTING ACTIVITIES				
Cash used				
Purchase of property, plant and equipment	**544**	**425**	119	
Purchase of intangible assets	**1,649**	**1,585**	64	
Total cash used	**2,193**	**2,010**	183	
Net cash from/(used by) investing activities	**(2,193)**	**(2,010)**	(183)	
Net increase/(decrease) in cash held	**(10,156)**	**-**	(10,156)	4a
Cash and cash equivalents at the beginning of the reporting period	**91,427**	**5,320**	86,107	
Cash and cash equivalents at the end of the reporting period	**81,271**	**5,320**	75,951	1a

1. The entity's original budgeted financial statement that was first presented to parliament in respect of the reporting period (i.e. from the entity's 2014-15 Portfolio Budget Statements (PBS)).

2. Between the actual and original budgeted amounts for 2014-15. Explanations of major variances are provided below. (Note 21G)

Note 21E: Budgetary Reports and Explanations of Major Variances - continued

Administered Schedule of Comprehensive Income

for the period ended 30 June 2015

	Actual	Budget estimate Original[1]	Variance[2]	Ref Note 21G
NET COST OF SERVICES				
EXPENSES				
Grants	-	7,000	(7,000)	1c
Total expenses	-	7,000	(7,000)	
Net cost of services	-	7,000	(7,000)	
Total comprehensive loss	-	7,000	(7,000)	

1. The entity's original budgeted financial statement that was first presented to parliament in respect of the reporting period (i.e. from the entity's 2014-15 Portfolio Budget Statements (PBS)).

2. Between the actual and original budgeted amounts for 2014-15. Explanations of major variances are provided below. (Note 21G)

Refer to note 1.18

Note 21F: Budgetary Reports and Explanations of Major Variances - continued

Administered Schedule of Assets and Liabilities

as at 30 June 2015

There are no assets or liabilities administered by the Authority as at 30 June 2015 (2014: Nil)

Refer to note 1.18

Note 21G Budgetary Reports and Explanations of Major Variances

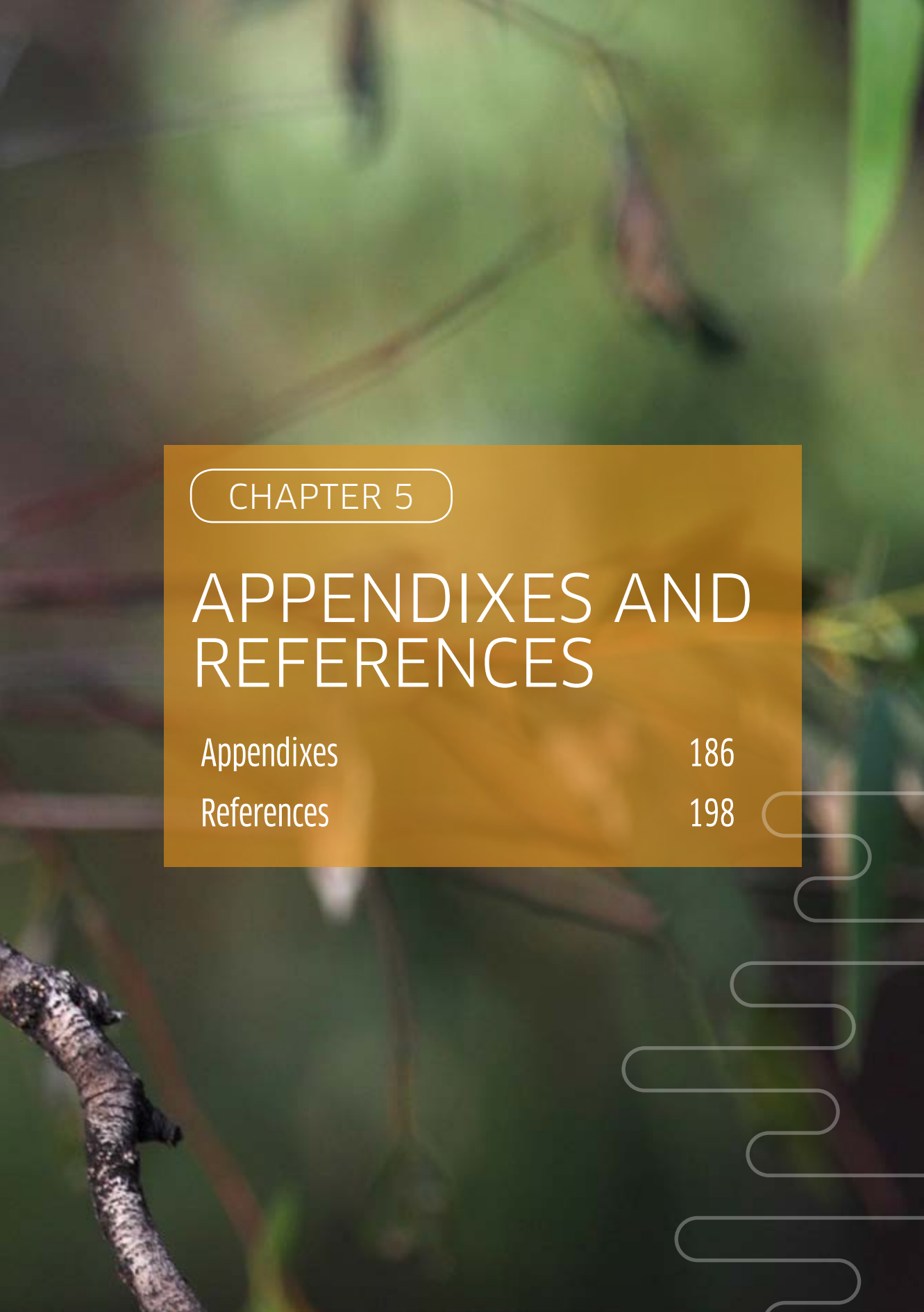
Note 21G: Departmental Major Budget Variances for 2014-15

Event	Variance
1. Introduction of the *Public Governance, Performance and Accountability Act* 2013 (PGPA Act)	
On 1 July 2014, the Authority ceased to be an Agency under the FMA Act and became a corporate Commonwealth entity for the purposes of the PGPA Act.	
a) One of the outcomes associated with this change was that the MDBA elected to fully draw-down the balance of the Special Account (that ceased) and transfer these monies to 'Cash At Bank' - a new operating account that functions outside of the Official Public Account.	Cash and cash equivalents Trade and other receivables
b) The new operating account is held with the RBA and is interest bearing. This was not considered at the time of preparing the Portfolio Budget Statements (PBS).	Own-source revenue - Interest
c) The Authority administers one program on behalf of the Government, being the 'South Australian Riverland Floodplains Integrated Infrastructure Project' (SARFIIP). Under the PGPA Act this is recorded as revenue from government and a grant expense in the Authority's Statement of Comprehensive Income. The project was previously recorded as an Administered item.	Expenses – Grants Revenue from Government
2. Approval of the joint-program budget by the Murray-Darling Basin Ministerial Council in August 2014	
a) Subsequent to the preparation of the PBS, the Ministerial Council approved a budget that was $8.4m less than previously estimated (in May 2014).	Own-source revenue - Contributions from jurisdictions Expenses - Suppliers
3. Reduced spending on joint funded programs	
a) The Authority has experienced significant fluctuations in its spending against budget due to the impact of the complex nature of joint programs, which reflect a high level of inherent risk associated with capital construction and environmental projects. For example, work at the major dam sites is only possible at certain points of the year; many other works are also impacted by the levels in the rivers; accessibility of the terrain around construction sites (e.g. wetlands) may be restricted at points in the year and cultural heritage issues (e.g. preservation of cultural sites which may require complex and lengthy approvals), may lead to further delays.	Expenses – Suppliers
4. Payment of outstanding creditors	
a) The MDBA settled more outstanding creditors than estimated (in May 2014).	Payables – Suppliers Cash and cash equivalents
5. New grant agreements	
a) Two grant agreements were entered into after the original budget estimate was issued.	Own-source revenue - Grants

Note 21G Budgetary Reports and Explanations of Major Variances

6.	<u>The Living Murray - Lake Mokoan water recovery package was completed and unspent funds returned to the MDBA</u>	
a)	The MDBA contributed 11% of funding towards the project. Following an audit it was determined that the project underspent, and in accordance with the funding agreement the MDBA received its share in 2014-15. The surplus was not anticipated at the time of original budget preparation.	Other revenue
7.	<u>Wind up of Murray-Darling Freshwater Research Centre Joint Venture</u>	
a)	The Murray-Darling Freshwater Research Centre Joint Venture (MDFRC JV) was wound up in October 2014. The Authority transferred its right, title and interest in the MDFRC JV for no consideration to MDFRC Pty Limited, which will hold this in trust for the new JV between CSIRO and La Trobe University. This will replace the existing MDFRC JV. The Authority will have an ongoing role in the new Joint Venture supported by a Collaboration Agreement.	Share of deficit of joint ventures accounted for using the equity method

Numbers of the azure kingfisher could be in decline due to river pollution and increased water turbidity (photo by David Kleinert).



CHAPTER 5

APPENDIXES AND REFERENCES

Appendixes 186

References 198

APPENDIXES

A Governance bodies meetings and outcomes p. 186

B Agency resource statement and resources for outcome 1 p. 192

C Advertising and market research p. 194

D Ecologically sustainable development and environmental performance p. 195

E Communication products p. 197

Nardoo – an important wetland plant

APPENDIX A
Governance bodies meetings and outcomes

The Authority

The six member Authority met 11 times during 2014–15 focusing mainly on the implementation of the Basin Plan. Key priorities included developing a process for the assessment and accreditation of water resource plans across the Basin, social and economic analysis work relating to the impacts of the Basin Plan, undertaking extensive community consultation and engagement work across the Basin, and understating the constraints that could be an impediment to delivering environmental water.

Other key areas of work included managing the assets of the River Murray, negotiating joint program funding with the states and Australian Capital Territory, working with Aboriginal people to increase their involvement in the Basin Plan process and amending the Basin Plan when required due to independent scientific advice or jurisdictional concern.

Significant outcomes included:

- approving the MDBA's 2014–15 to 2017–18 corporate plan
- providing advice on the sustainable diversion limit adjustment mechanism and the efficiency measures program
- approving the Basin-wide environmental watering strategy
- providing advice on social and economic work programs in the Basin
- providing advice on the water resource plan accreditation process under the Basin Plan
- providing advice on the constraints management strategy and the prerequisite policy measures
- endorsing the finalisation of the constraints management strategy annual progress report
- providing advice on the Basin Plan annual effectiveness report
- endorsing the preparation of amendments to the Basin Plan in relation to groundwater

- providing advice on the northern Basin review
- providing advice on the 2015–16 environmental watering priorities and environmental watering outlook
- providing advice on the Aboriginal Partnerships work program
- providing advice on the MDBA's reconciliation action plan.

Murray–Darling Basin Ministerial Council

The Murray-Darling Basin Ministerial Council is comprised of the Australian Government Parliamentary Secretary to the Minister for the Environment, the Hon Bob Baldwin MP, and the Basin state ministers with responsibility for the Murray–Darling Basin. The Hon. Bob Baldwin, MP replaced the Hon. Senator Simon Birmingham as Parliamentary Secretary in February 2015. At 30 June 2015 Basin state ministers comprised:

- The Hon. Niall Blair MP (New South Wales)
- The Hon. Lisa Neville MP (Victoria)
- The Hon. Ian Hunter MLC (South Australia)
- The Hon. Anthony Lynham MP (Queensland)
- Mr Simon Corbell MLA (Australian Capital Territory).

The ministers for New South Wales, Victoria and Queensland are new members of the Ministerial Council following the state elections.

Meetings and outcomes

The Murray–Darling Basin Ministerial Council met twice in 2014–15: October 2014 in Brisbane, and May 2015 in Melbourne. The communiqués from these meetings are available on our website. The Ministerial Council achieved a number of significant outcomes during 2014–15, both in and out of session, these include:

Corporate plan matters

- agreed to apply the historic cost-sharing formula for long-standing jointly-funded programs in the Basin
- approved the 2015–16 budget for the Murray–Darling Basin joint programs, which are undertaken by the MDBA on behalf of all Basin governments
- noted the significant cost savings and efficiencies achieved over the past three years across all joint programs.

Other activities

- requested that advice be prepared on the treatment of future Environmental Works and Measures Program operations and maintenance costs
- confirmed the importance of stable multi-year funding arrangements for the proper management of joint assets
- were briefed on the draft findings of the review into the cost efficiency of River Murray Operations
- agreed to establish a new River Murray Operations Committee representing all southern Basin jurisdictions
- agreed to improve the coordination of watering activities in the southern-connected Basin in order to streamline environmental watering
- agreed to look at opportunities to better integrate environmental monitoring and evaluation activities across the Basin to avoid duplication and to meet regional, state, Basin and national reporting obligations
- noted progress with implementing the Basin Plan and in particular the importance of ensuring that the program of work to support the northern Basin review was delivered on schedule
- noted the forward work program for the sustainable diversion limit adjustment process, emphasising the need for all agencies to meet the timeframes for the operation of the sustainable diversion limit adjustment in 2016
- were briefed on how the connection between the Coorong and the sea is progressively declining and agreed to an additional $4 million for dredging to keep the Murray Mouth open
- reaffirmed their governments' commitments to work cooperatively to deliver the environmental outcomes of the Basin Plan while minimising adverse effects on Basin communities and industries
- emphasised the importance of implementing the sustainable diversion limit adjustment mechanism and reiterated the need for it to be based on robust science

- agreed to commission a stocktake of progress on government projects for the sustainable diversion limit adjustment process
- the ministers initiated a process, for the coming year, to increase confidence around the key planning assumptions the states will use to develop their water resource plans
- noted the ongoing research and investigations by jurisdictions and the MDBA into river constraints and the merits of exploring opportunities to derive further benefits from these projects
- instructed their officials to drive the adjustment process as hard and as fast as possible
- discussed the work to date on the three proposed groundwater reviews required under the Basin Plan
- agreed that all Basin governments would work with the MDBA in regard to progressing any proposed amendments arising from the expert review panel recommendations
- noted the introduction of the Water Amendment Bill 2015 into the Commonwealth Parliament.

Basin Officials Committee

The Murray–Darling Basin Officials Committee is established by the Murray–Darling Basin Agreement, Schedule 1 to the Water Act. The committee facilitates cooperation and coordination between the Australian Government, the MDBA and the Basin states in funding works and managing the Basin' water resources.

Membership of the committee comprises officials from the six Basin governments, and the committee is chaired by the Commonwealth committee member. The Authority Chair and MDBA Chief Executive are non-voting members of the committee.

The committee is responsible for providing advice to the Murray–Darling Basin Ministerial Council, and for implementing policy and decisions of the council on matters such as state water shares and coordination of environmental watering.

The committee has high-level decision-making responsibilities for river operations, including setting objectives and outcomes to be achieved by the MDBA in River Murray Operations and providing advice to the Ministerial Council on the joint programs component of the corporate plan. As at 30 June 2015, committee membership comprised:

- Chair, Mr David Parker (Australian Government)
- Mr Gavin Hanlon (New South Wales)
- Dr Emily Phillips (Victoria)
- Mr Tim Goodes (South Australia)
- Mr Lyall Hinrichsen (Queensland)
- Ms Dorte Ekelund (ACT).

Mr Gavin Hanlon replaced Mr Michael Bullen as the New South Wales representative on the Basin Officials Committee in 2014–15.

Meetings and outcomes

The Basin Officials Committee held six meetings during 2014–15, and achieved the following significant outcomes:

Corporate plan

- reviewed the budget for the Review of Joint Assets Taskforce in relation to investigating institutional and management options for addressing future cost spikes
- endorsed the service level agreement between the MDBA and the Ministerial Council
- endorsed amendments to the joint programs component of the 2015–16 to 2018–19 MDBA corporate plan.
- endorsed the cost efficiency review of River Murray Operations.

Program and river management

- reviewed the sustainable diversion limit adjustment mechanism trial release strategy and supporting communication documents
- reviewed the proposed groundwater amendments to the Basin Plan
- agreed to the new water trade amendments
- agreed to longer-term actions to address recommendations from the independent review of the Koondrook–Perricoota Forest Flood Enancement Project
- provided advice on the integrated monitoring and evaluation plan.

Reviews and reports

- reviewed objectives and outcomes for river operations and endorsed River Murray increased flows
- provided advice on the salinity management priorities
- provided advice on the development of the constraints management strategy and prerequisite measures.

Basin Plan Implementation Committee

In August 2013 the finalised implementation agreement established the new Basin Plan Implementation Committee as a high-level forum to monitor, review and make decisions relevant to implementing the agreement. The MDBA chairs the committee which has members from the Basin state agencies responsible for water resource management and environmental watering, the Commonwealth Environmental Water Holder, and the Australian Government Department of the Environment.

Four Basin Plan Implementation Committee working groups were also established – water resource planning, environmental watering, trade rules, and monitoring and evaluation. These four technical working groups also have Basin government representatives and have been set up to progress the tasks outlined in the implementation agreement. The MDBA also chairs each working group and provides secretarial support.

Meetings and outcomes

The committee met four times in 2014–15. The terms of reference, work programs and working groups were developed and agreed to. Arrangements to share information on community engagement were also established and are working well. The committee provided a progress report on Basin Plan implementation to the Ministerial Council in May. It highlighted the work on the groundwater reviews, environmental watering and the northern Basin review.

The four working groups have met more frequently to progress the many tasks under the implementation agreement in a collaborative manner. These tasks have included:

- implementing the new water trading rules
- forming the Southern-Connected Environmental Water Coordination Forum
- working through the implementation of the Schedule 12 reporting guidelines
- water resource planning and sustainable diversion limit implementation issues
- compliance under the Basin Plan
- progressing the 2014–15 Basin annual watering priorities and the Basin-wide environmental watering strategy
- developing a general approach on how the MDBA and the Basin states progress water resource plans which are consistent with the Basin Plan, including Aboriginal involvement in water resource planning.

These arrangements have aided collaboration with Basin governments on implementing the Basin Plan.

River Murray Operations Committee

The River Murray Operations Committee was established to provide support and advice to the Basin Officials Committee on responsibilities with regards to River Murray Operations. It met three times in Canberra in 2014–15.

The committee provides formal oversight of River Murray Operations which are managed by the MDBA on behalf of the relevant contracting governments in accordance with the provisions of the Agreement including:

- providing advice to the relevant contracting governments, through the Basin Officials Committee, on:
  - policy matters with regard to asset use, construction and planned maintenance
  - policy matters relating to the delivery of, and accounting for, the water available to the relevant contacting governments under the Agreement's water sharing arrangements
  - cost sharing arrangements to meet the costs of constructing, managing, controlling, operating, using, maintaining, repairing and renewing River Murray Operations assets
  - advising the relevant contracting governments of any associated issues and risks, and potential actions to address those issues and risks

  - proposals for the future development of River Murray Operations
- providing advice to the MDBA on:
  - preparation of corporate plans in relation to River Murray Operations
  - preparation of the asset management plan and any amendments to the asset management plan
  - coordination of waterway management functions of New South Wales, Victoria and South Australia in relation to the River Murray system.

The members of the committee are:

- Tony Slatyer (Chair) (Department of the Environment)
- Stephen Elliott (New South Wales)
- Adrian Langdon (New South Wales)
- Phil Heaphy (Victoria)
- Ben Bruce (South Australia)
- Mark Gobbie (South Australia).

Basin Community Committee

The role of the Basin Community Committee includes providing advice to the MDBA about the performance of its functions, including:

- engaging the community in the implementation of the Basin Plan
- community matters relating to the Basin water resources
- matters referred to the committee by the Authority.

The Basin Community Committee advises the Murray–Darling Basin Ministerial Council on the Murray–Darling Basin and its functions under the Murray–Darling Basin Agreement, which may include matters such as delivery of natural resource management programs.

The committee liaises with the broader Basin community by convening meetings with regional Basin stakeholders during the implementation process for the Basin Plan and to help provide advice to the Authority and the Murray–Darling Basin Ministerial Council. At 30 June 2015, the 10 member committee comprised:

- Rory Treweeke (Chair), Lightning Ridge (New South Wales)
- Paul Harvey, Adelaide (South Australia)
- Karen Hutchinson, Hanwood (New South Wales)
- Howard Jones, Dareton (New South Wales)
- Christopher Joseph, Dalby (Queensland)
- Anthony Martin, Merbein (Victoria)
- Russell Pell, Wyuna (Victoria)
- Joanne Pfeiffer, Murray Bridge (South Australia)
- Grant Rigney, Meningie (South Australia)
- Jason Wilson, Dubbo (New South Wales).

Meetings and outcomes

The Basin Community Committee held four meetings during 2014–15 and achieved the following significant outcomes:

- provided strategic advice to the MDBA on its engagement with communities
- provided advice and assistance to the MDBA engagement team with coordinating and facilitating community meetings
- provided written advice and feedback to the MDBA on river reach communications documents
- provided advice to the Ministerial Council on localism, and community engagement with the MDBA and water reform in the Basin.

The Basin Community Committee also advised the MDBA on the Basin Plan annual effectiveness report, the northern Basin review, the annual environmental watering priorities, Commonwealth Environmental Water Office activities, coordination of environmental watering, monitoring and evaluation, localism, the constraints management strategy, water trade guidelines and coal seam gas.

Northern Basin Advisory Committee

During 2014–15 the Northern Basin Advisory Committee continued providing valuable independent advice on how an adaptive Basin Plan can be implemented in the northern Basin. The main focus of the committee has been their northern Basin work program, which is guided by six key objectives:

- to achieve positive social and economic outcomes
- to achieve sensible water recovery and effective use
- to identify the best environmental science
- to ensure communities have confidence in the implementation of the Basin Plan
- to establish reliable monitoring and evaluation methods
- to recognise cultural flows.

Members of the committee are:

- Mal Peters (Chair), Ashford (New South Wales)
- John Clements, Wee Waa (New South Wales)
- Ed Fessey, Brewarrina (New South Wales)
- Katrina Humphries, Moree (New South Wales)
- Bruce McCollum Goondiwindi (Queensland)
- Sarah Moles, Goomburra (Queensland)
- Michelle Ramsay, Bonshaw (Queensland)
- Donna Stewart, St George (Queensland)
- Ian Todd, St George (Queensland)
- Jason Wilson, Dubbo (New South Wales)
- Geoff Wise, Bourke (New South Wales).

The committee met four times during the year: 18–19 September in Dirranbandi, 24–25 November in Canberra, 18–19 February in Brewarrina and 20–21 May in Texas.

The working groups that provide advice to the Northern Basin Advisory Committee are: social and economic; lower Balonne; environmental science; monitoring and evaluation; water recovery and use; and confident communities. The working groups met 24 times in 2014–15.

Advisory Committee on Social, Economic and Environmental Sciences

The MDBA established the Advisory Committee on Social, Economic and Environmental Sciences to provide high-level, strategic advice on a range of scientific matters relevant to implementing the Basin Plan. Members of the committee bring skills and eminence in the fields of economics, hydrology, ecology and resilience, water governance and law, sociology and sustainable systems. The committee members are:

- Dr Brian Walker (Chair)
- Professor Kate Auty
- Professor Stuart Bunn
- Dr David James
- Associate Professor Mike Stewardson
- Professor Poh-Ling Tan.

The diversity of the members' skills provides a valuable opportunity to integrate across the scientific disciplines and to help ensure that our work is based on the best possible scientific advice. Strategic advice from the committee is used in developing a coherent approach to identifying knowledge gaps, aligning collective efforts, and identifying new ways to connect and communicate the complex technical issues that underpin a healthy working Basin.

The committee met four times in 2014–15 in Canberra.

APPENDIX B

Agency resource statement and resources for outcome 1

The annual report must include an agency resource statement table providing information about the various funding sources that the agency may draw upon during the year.

The agency resource statement has been designed to allow agencies to reconcile the final usage of all resources in cash terms, by declaring the actual available appropriation for 2014–15 (including carried forward cash balances and further adjustments such as section 75 transfers under the *Public Governance, Performance and Accountability Act 2013* and advances to the Finance Minister), and comparing this to the actual payments made.

Additionally, for departmental appropriations and special accounts, information about any remaining balance that will be carried over to the next financial year must also be reported.

Outcome 1: *Equitable and sustainable use of the Murray–Darling Basin by governments and the community including through development and implementation of a Basin Plan, operation of the River Murray system, shared natural resource management programs, research, information and advice*

Table B.1 Resource statement 2014-15 (excluding GST)

	Actual available appropriation for 2014-15 $'000 (A)	Payments made 2014-15 $'000 (B)	Balance remaining 2014-15 $'000 (A)-(B)
Ordinary annual services[1] **Departmental appropriation**			
Transfer of Special Account balance[2]	91,427	10,156	81,271
Departmental appropriation[3]	48,569	48,569	-
Own-source income[4]	70,999	70,999	-
Total	**210,995**	**129,724**	**81,271**
Administered expenses			
Outcome 1[5]	7,000	7,000	-
Total	**7,000**	**7,000**	-
Total ordinary annual services	**217,995**	**136,724**	**81,271**
Total available annual appropriations	**217,995**	**136,724**	**81,271**
Total net resourcing for MDBA	**217,995**	**136,724**	**81,271**

1 Appropriation Bill (No.1) 2014–15.

2 $91.427 million disclosed as 'Transfer of Special Account balance' represents 'Cash At Bank' at 30 June 2014. On 1 July 2014, the Authority ceased to be an Agency under the FMA Act and became a corporate Commonwealth entity for the purposes of the *Public Governance, Performance and Accountability Act, 2013* as amended (PGPA Act).

One of the outcomes associated with this change was that the MDBA elected to fully draw-down the $91.427m and transfer these monies to 'Cash At Bank'. This was to facilitate the subsequent transfer of these funds on 1 July 2014 to a new operating account that functions outside of the Official Public Account.

3 MDBA did not receive a Departmental Capital Budget in 2014–15.

4 Own-source income comprises of mainly the jurisdictions contributions to the MDB Agreement functions.

5 MDBA does not receive the Administered Capital Budget in 2014–15

Table B.2 Budgeted expenses for outcome 1

	Budget 2014–15 $'000 (A)	Actual 2014–15 $'000 (B)	Variation 2014–15 $'000 (A)-(B)
Program 1.1 Equitable and sustainable use of the Murray-Darling Basin			
Revenue from Government			
Ordinary annual services (Appropriation Bill No. 1)	55,608	55,569	39*
Payment from related entities	11,300	11,300	-
Revenue from other independent sources [a]	79,813	71,076	8,737
Total for Program 1.1	**146,721**	**137,945**	**8,776**
Outcome 1 totals by resource type			
Revenue from Government			
Ordinary annual services (Appropriation Bill No. 1)	55,608	55,569	39
Payment from related entities	11,300	11,300	-
Revenue from other independent sources [a]	79,813	71,076	8,737
Total expenses for Outcome 1	**146,721**	**137,945**	**8,776**

a Revenue from other independent sources include contributions from jurisdictions for MDB Agreement functions, other miscellaneous revenue and funds drawn from Murray–Darling Basin special account. Murray-Darling Basin special account in not a Special Account for the purpose of the *Public Governance, Performance and Accountability Act 2013*.

* The reduction represents an amount for the targeted saving measure for communications and public affairs functions.

	2010–11	2011–12	2012–13	2013–14	2014–15
Average staff level (number)	295	295	305	295	289

APPENDIX C

Advertising and market research

This table of expenditure for 2014–15 is presented in accordance with the reporting requirements in s.311A of the *Commonwealth Electoral Act 1918*. Expenditure was in the media advertising category only.

Table C.1 MDBA media advertising for 2014–15

Agency	Purpose	Expenditure $ (excluding GST)
Australian Association of Graduate Employers	Recruitment advertising (graduate program)	300.00
Australian National University	Recruitment advertising (graduate program)	345.45
Australian Public Service Commission	Recruitment advertising	7,266.00
Careerhub	Recruitment advertising (graduate program)	163.64
Facebook	Recruitment advertising (graduate program)	82.22
Mitchells Adcorp Alliance	Press advertising for community meetings	3,424.45
Mitchell Communications Group	Press advertising for community meetings	1,128.21
National Farmers' Federation	Press advertising for community meetings	2,139.50
Dartmouth Progress Association	Press advertising for community meetings	72.72
Total		**$14,922.19**

APPENDIX D

Ecologically sustainable development and environmental performance.

Ecologically sustainable development is at the core of our activities and business. The *Water Act 2007* requires the MDBA to take into account the principles of ecologically sustainable development.

The principles of ecologically sustainable development

- decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations
- if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- the principle of intergenerational equity – that the present generation should ensure that the health, biodiversity and productivity of the environment is maintained or enhanced for the benefit of future generations
- the conservation of biodiversity and ecological integrity should be a fundamental consideration in decision making
- improved valuation, pricing and incentive mechanisms should be promoted.

We take into account these principles as part of our core business activities, which include:

- developing and implementing the Basin Plan, which will help to ensure that the environmental health of the Murray–Darling Basin is maintained for future generations. Decision-making processes have included extensive consultation to ensure that economic, environmental, social and equitable aspects are considered
- developing an environmental watering management plan and annual watering priorities which will help to maximise environmental outcomes and contribute to the conservation of biodiversity and ecological integrity within the Basin
- using The Living Murray's environmental water portfolio to meet the environmental objectives of the target sites, which includes Australia's largest river red gum forest, and internationally significant wetlands
- completing the construction of major water management structures to ensure that environmental water will be delivered more efficiently and effectively. All construction undertaken by the state constructing authorities conformed to approved construction environmental plans
- constructing and operating fishways, including the Sea to Hume Fishway Program, to allow for greater movement of native fish
- funding strategies to reduce pest fish species in the Basin
- salt interception schemes to divert salt from the River Murray.

Internal operations

We also follow the principles of ecologically sustainable development in our internal operations and we have implemented a number of initiatives, including:

Recycling by:

- operating a paper, cardboard, battery, co-mingled and organic waste recycling program
- using 100% recycled or partially recycled stock for all print publications
- recycling printer cartridges
- using recycled paper products in all bathrooms

Reducing by:

- minimising our paper and toner use by default setting printers to double-sided, black and white printing
- publishing only in electronic format unless a need for print copies is identified
- carefully planning print runs, which has significantly reduced our excess stock
- using water saving flushes in all bathrooms, and low flow taps where possible, to reduce water consumption

Reducing our power consumption by:

- implementing server virtualisation for our IT network to reduce power usage
- enabling computers to turn off automatically overnight to save power
- using power-efficient centralised multi-function devices instead of distributed desktop printing
- operating lighting through movement sensors in all work spaces, so that lights are switched off when areas are not in use
- purchasing energy-saving whitegoods and ICT equipment
- direct heating water where possible
- installing secondary glazing on windows where heat transference is significant

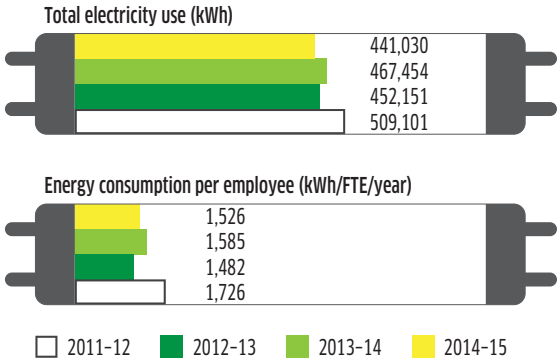


Figure D.1 MDBA energy use 2011 to 2015

Travel

- in 2014–15 we travelled 115,733 km by car (an average of 401 km per employee), and 1,475,751 km by plane (an average of 5,106 km per employee)
- interstate travel was reduced by utilising teleconferences, Skype and videoconferencing, where possible, although in 2014–15 there continued to be extensive travel throughout the Basin due to the importance of meeting face to face with community members
- the MDBA actively supports staff who cycle to work by providing secure bike storage, lockers and showers. Around 40% of staff regularly cycle to work
- we continue to look for further opportunities in our internal operations and in our premises to further minimise our impact on the environment.

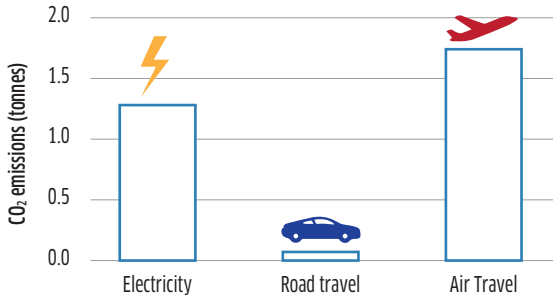


Figure D.2 Average greenhouse emissions per employee for 2014–15

APPENDIX E

Communication products

We produce a range of communication products each year, in printed and electronic formats.

Publications

2015–16 Basin annual watering priorities (09/15)

Basin-wide environmental watering strategy (20/14)

Basin environmental watering outlook for 2015–16 (01/15)

Basin Plan annual report 2013–14 see Towards a healthy, working Murray–Darling Basin

Basin salinity management strategy 2012–13 annual implementation report (03/14)

Constraints management strategy annual progress report 2013–14 (44/14)

Constraints management strategy pre-feasibility priority constraints analysis report

Costs estimates report – constraints management strategy pre-feasibility

Drought emergency framework for lakes Alexandrina and Albert June 2014 (23/14)

Flow inundation mapping and impact analysis – constraints management strategy

General review of salinity management in the Murray–Darling Basin (47/14)

Goulburn River reach report – constraints management strategy (33/14)

Gwydir region reach report – constraints management strategy (37/14)

Hume Dam to Yarrawonga reach report – constraints management strategy (39/14)

Lake Victoria annual compliance report 2013–14 (04/14)

Lower Darling reach report – constraints management strategy (36/14)

Murray–Darling Basin Authority annual report 2013–14 (34/14)

Murray–Darling Basin water reforms: framework for evaluating progress (09/14)

Murrumbidgee reach report – constraints management strategy (35/14)

Phase 1 Assessment guidelines for constraint and supply proposals

Phase 2 Assessment guidelines for supply and constraint measure business cases

River Murray system annual operating plan for 2014–15 (28/14)

South Australian River Murray reach report – constraints management plan (38/14)

The Basin Plan two years in

The Living Murray environmental watering plan 2014–15 (25/14)

The Living Murray 2013–14 environmental watering report (45/14)

Towards a healthy, working Murray–Darling Basin – Basin Plan annual report 2013–14 (46/14)

Yarrawonga to Wakool reach report – constraints management strategy (40/14)

Posters

Macquarie Marshes (5/14)

Brochures and fact sheets

Basin salinity management strategy 2012–13 summary (02/14)

Constraints management strategy (48/14)

Environmental equivalence test (26/14)

How the limits on take in the Murray–Darling Basin can change

Menindee Lakes (30/14)

The northern Basin review (49/14)

eNewsletters

The spillway (August, November, February, April)

The northern Basin newsletter (July, October, December, March)

REFERENCES

Abbreviations and acronyms p. 198
Scientific names of plants and animals p. 199
Glossary p. 200
List of requirements p. 204
Index p. 207

Yarra pygmy perch (photo by Gunther Schmida)

ABBREVIATIONS AND ACRONYMS

AHD	Australian height datum
CMA	catchment management authority
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EC	electrical conductivity unit
GL	gigalitre (a billion litres)
IRORG	Independent River Operations Review Group
KPI	key performance indicator
MDBA[1]/ the Authority[2]	[1]Murray–Darling Basin Authority: the agency; [2]the six member Authority
ML	megalitre (a million litres)
ML/d	megalitre per day
MLDRIN	Murray Lower Darling Rivers Indigenous Nations
Ministerial Council	Murray–Darling Basin Ministerial Council
NBAN	Northern Basin Aboriginal Nations
PBS	Portfolio Budget Statements
PSM	Public Service Medal
RMIF	River Murray Increased Flows
SDL	sustainable diversion limits
TLM	The Living Murray

SCIENTIFIC NAMES OF PLANTS AND ANIMALS

Australasian bittern	*Botaurus poiciloptilus*
Australian smelt	*Retropinna semoni*
Australian white ibis	*Threskiornis moluccus*
Azure kingfisher	*Ceyx azureus*
Black box	*Eucalyptus largiflorens*
Black-winged stilt	*Himantopus himantopus*
Brolga	*Grus rubicunda*
Carp	*Cyprinus carpio*
Carp gudgeons	*Hypseleotris spp.*
Common galaxias	*Galaxias maculatus*
Common waterweed	*Egeria densa*
Congolli	*Pseudaphritis urvillii*
Eastern great egret	*Ardea modesta*
Golden perch (or yellowbelly)	*Macquaria ambigua*
Great cormorant	*Phalacrocorax carbo*
Lignum	*Muehlenbeckia florulenta*
Macquarie perch	*Macquaria australasica*
Moira grass	*Pseudoraphis spinescens*
Murray cod	*Maccullochella peelii*
Murray hardyhead	*Craterocephalus fluviatilis*
Nardoo	*Marsilea drummondii*
Pelican	*Pelecanus conspicillatus*
Regent parrot	*Polytelis anthopeplus*
River blackfish	*Gadopsis marmoratus*
River red gum	*Eucalyptus camaldulensis*
Royal spoonbill	*Platalea regia*
Silver perch	*Bidyanus bidyanus*
Southern bell frog (or growling grass frog)	*Litoria raniformis*
Southern pygmy perch	*Nannoperca australis*
Straw-necked ibis	*Threskiornis spinicollis*
Tilapia	*Oreochromis spp.*
Trout cod	*Maccullochella macquariensis*
Two-spined blackfish	*Gadopsis bispinosus*
Yarra pygmy perch	*Nannoperca obscura*

GLOSSARY

Allocation
The water to which the holder of an access licence is entitled from time to time under licence, as recorded in the water allocation account for the licence.

Australian height datum
In 1971 the mean sea level for 1966–68 was assigned the value of zero on the Australian height datum at 30 tide gauges around the coast of the Australian continent.

The resulting datum surface, with minor modifications in two metropolitan areas, was termed the Australian height datum and was adopted by the National Mapping Council of Australia as the datum to which all vertical control for mapping is to be referred. Elevations quoted using this datum are normally followed with the acronym 'AHD'.

Australian National Committee on Large Dams
The Australian National Committee on Large Dams Incorporated is a voluntary association of organisations and individual professionals with an interest in dams in Australia.

Barmah Choke
A narrow section of the River Murray that constrains the volume of water that can pass during major floods. During floods, large volumes of water are temporarily banked up behind the Barmah Choke, flooding the Barmah–Millewa Forest wetland system.

Barrages
Five low and wide weirs built at the Murray Mouth in South Australia to reduce the amount of sea water flowing in and out of the mouth due to tidal movement, and to help control water levels in the Lower Lakes and River Murray below Lock 1 (Blanchetown, South Australia).

Baseline
Conditions regarded as a reference point for the purpose of comparison.

Basin states
For the purposes of the Basin Plan, the Basin states are defined in the Water Act as New South Wales, Victoria, Queensland, South Australia and the Australian Capital Territory.

Basin water resources
Under the *Water Act 2007*, Basin water resources are within or beneath the Murray–Darling Basin, but do not include water resources within or beneath the Basin that are prescribed by the regulations, or groundwater that forms part of the Great Artesian Basin.

Cap (the Cap on diversions)
A limit, implemented in 1997, on the volume of surface water that can be diverted from rivers for consumptive use. Under the Basin Plan, the Cap will be replaced by long-term average sustainable diversion limits.

Carryover
A way to manage water resources and allocations that allows irrigators to take a portion of unused water from one season into the new irrigation season.

Connectivity
Connections between natural habitats, such as a river channel and adjacent wetland areas. Connectivity is a measure or indicator of whether a water body (river, wetland, floodplain) has water connections or flow connections to another body.

Constraints
A constraint is anything that affects the delivery of environmental water. It can include physical aspects such as low lying bridges, or river channel capacity, but can also include operational aspects such as river rules or operating practices that impact on when and how much water can be delivered.

We can improve how effectively we manage and deliver environmental water by looking at how we can change some of these physical and operational constraints.

Consumptive use
Use of water for irrigation, industry, urban, stock and domestic use, or for other private consumptive purpose.

Critical human water needs
Under the Water Act, the minimum amount of water required to meet core requirements of communities dependent on Basin water

resources. The definition also includes non-human requirements that, if not met, would cause prohibitively high social, economic or national security costs.

Cultural flows (or cultural water flows)
Water entitlements legally and beneficially owned by the Aboriginal nations of the Murray–Darling Basin.

They are of sufficient and adequate quantity and quality to improve the spiritual, cultural, environmental, social and economic conditions of Aboriginal people.

EC
Water and soil salinity levels are measured by passing an electric current between the two electrodes of a salinity meter. Electrical current (EC) is influenced by the concentration and composition of dissolved salts.

Salts increase the ability of a solution to conduct an electric current, so a high EC indicates a high salinity level. Freshwater above 800 EC becomes marginal for drinking, above 1,600 EC it is brackish, and above 4,800 EC it is saline.

Efficiency measure
Provide more water for the environment by making water delivery systems for irrigation more efficient. This can include replacing or upgrading on-farm irrigation, or lining channels to reduce water losses within an irrigation network.

Entitlement (or water entitlement)
The volume of water authorised to be taken and used by an irrigator or water authority. It includes bulk entitlements, environmental entitlements, water rights, sales water and surface-water and groundwater licences.

Environmental flow
Any river flow pattern provided with the intention of maintaining or improving river health.

Environmental water
Water used to achieve environmental outcomes, including benefits to ecosystem functions, biodiversity, water quality and water resource health.

Environmental water requirements
The amount of water needed to meet an ecological or environmental objective.

Fishway
A structure that provides fish with passage past an obstruction in a stream.

Flood runner
A small anabranch which flows only during periods of high flow in the stream it branches from.

Flow
The movement of water – the rate of water discharged from a source, given in volume with respect to time.

Flow event
A single event of flow in a river, sometimes required to achieve one or more environmental targets. A series of flow events comprises a flow history.

Flow regime
The characteristic pattern of a river's flow quantity, timing and variability.

Groundwater
Water occurring naturally below ground level (in an aquifer or otherwise).

Held environmental water
Held environmental water is water that is available under a water access right, a water delivery right, or an irrigation right for the purpose of achieving environmental outcomes.

Inflow
Source of the water that flows into a specific body of water – for a lake, inflow could be a stream or river, and inflow for a stream or river could be rain.

Macro-invertebrate
An animal without a backbone that is large enough to be seen without magnification.

Modelling
Application of a mathematical process or simulation framework (such as a mathematical or econometric model) to describe various phenomena and analyse the effects of changes in some characteristics on others.

Murray Lower Darling Rivers Indigenous Nations (MLDRIN)

MLDRIN comprises Traditional Owner nominated representatives from the following Nations:

Barapa Barapa, Barkindji, Dhudhuroa, Dja Dja Wurrung, Latji Latji, Maraura, Mutti Mutti, Nari Nari, Ngarrindjeri, Ngintait, Nyeri Nyeri, Tatti Tatti, Taungurung, Wadi Wadi, Wamba Wamba, Waywurru, Wegi Wegi, Wergaia, Wiradjuri, Wolgalu, Wotjobaluk, Yaitmathang, Yita Yita, Yorta Yorta.

Northern Basin Aboriginal Nations (NBAN)

NBAN was formed in April 2010 and provides an Aboriginal perspective on natural resource management and cultural issues in the Basin. NBAN comprises Traditional Owner nominated representatives from the following Nations:

Barkindji (Paakintji), Barunggam, Bidjara, Bigambul, Budjiti, Euahlayi, Gamilaroi, Githabul, Gunggari, Gwamu (Kooma), Jarowair, Kambuwal, Kunja, Kwiambul, Maljangapa, Mandandanji, Mardigan, Murrawarri, Ngemba, Ngiyampaa, Wailwan and Wakka Wakka.

Ramsar Convention

The Convention on Wetlands of International Importance is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

Regulated

A water system in which water is stored or flow levels are controlled through the use of structures such as dams and weirs.

River Murray system

The River Murray system extends from Hume Dam, at Albury New South Wales, downstream to the Coorong, Lower Lakes and Murray Mouth in South Australia. It includes connected anabranches, creeks and major tributaries such as the Murrumbidgee, Edward–Wakool, Kiewa, Ovens, Goulburn, Broken, Campaspe, Loddon, Avoca and the lower Darling River (south of Menindee Lakes). The system is highly regulated and requires complex river management operations.

Salt interception scheme

Large-scale groundwater pumping and drainage projects that intercept saline groundwater inflowing to rivers, and dispose of the saline waters by evaporation and aquifer storage at more distant locations.

Southern-connected Murray–Darling Basin

The southern-connected Basin is a term used to describe the River Murray and regulated reaches of its major tributaries, which include Murrumbidgee, lower Darling, Kiewa, Ovens, Broken, Goulburn, Campaspe and Loddon rivers.

Supply measures

New ways to manage the Basin's rivers to more efficiently achieve outcomes for the environment. These can include: new river operating rules that make environmental water delivery more effective; smarter ways to use dams, locks and weirs to reduce evaporation losses; and building innovative water management structures that deliver water more efficiently.

Surface water

Includes water in a watercourse, lake or wetland, and any water flowing over or lying on the land after having precipitated naturally or after having risen to the surface naturally from underground.

Sustainable diversion limit

The maximum long-term annual average quantities of water that can be taken, on a sustainable basis, from the Basin water resources as a whole, and the water resources, or particular parts of the water resources, of each water resource plan area.

Sustainable diversion limit adjustment mechanism

Allows the sustainable diversion limit to be adjusted under certain circumstances.

Take

Take is the removal of water from, or the reduction in flow of water into, a water resource.

Water accounting

A systematic process of identifying, recognising, quantifying, reporting and assuring information

about water, the rights or other claims to water, and the obligations against water. Water accounting applies Australian Water Accounting Standards

Water allocation

The specific volume allocated to water entitlement holders in a given season, often quoted as a percentage of the volume of each entitlement. For example, a 20% allocation in a particular season allows a water user with a 100 ML entitlement to take 20 ML of water.

Water resource

Groundwater – water that occurs naturally beneath the ground level (whether in an aquifer or otherwise), or water that has been pumped, diverted or released to an aquifer for the purpose of being stored there. Murray–Darling Basin groundwater resources exclude groundwater in the Great Artesian Basin.

Of surface water – includes water in a watercourse, lake or wetland, and any water flowing over or lying on land after having precipitated naturally, or after having risen to the surface naturally from beneath the ground level.

Water resource plans

Statutory management plans developed for particular surface-water and groundwater systems, currently known by different names throughout the Murray–Darling Basin (such as 'water sharing plans' in New South Wales and 'water allocation plans' in South Australia).

Water trading rules

A set of overarching consistent rules enabling market participants to buy, sell and transfer tradeable water rights.

Water year (or hydrologic year)

A continuous 12-month period starting from July, or any other month as prescribed under the water regulation or a resource operations plan, but usually selected to begin and end during a relatively dry season. Used as a basis for processing streamflow and other hydrologic data.

LIST OF REQUIREMENTS

Significant revisions to these requirements are anticipated for 2015–16 with the commencement of the performance reporting model under the *Public Governance, Performance and Accountability Act 2013*. Under this Act the MDBA has become a corporate Commonwealth entity.

n/a denotes that the requirement was not applicable to the MDBA during 2014–15.

PART OF REPORT	
Letter of transmittal (mandatory)	4
Table of contents (mandatory)	1
Index (mandatory)	207
Glossary (mandatory)	200
Contact officer(s) (mandatory)	inside back cover
Internet addresses (mandatory)	back cover
REVIEW BY CHIEF EXECUTIVE (MANDATORY)	**16–18**
Summary of significant issues and developments (suggested)	8–9
Overview of department's performance and financial results (suggested)	19, 117–21, 126–27, 192–93
Significant issues and developments – portfolio (suggested for portfolio departments)	n/a
Outlook for following year (suggested)	26, 45, 63, 75, 100
AGENCY OVERVIEW (MANDATORY)	**5–7**
Role and functions (mandatory)	5
Organisational structure (mandatory)	18–19
Outcome and program structure (mandatory)	18, 44, 62, 74
Where outcome and program structures differ from PBS/PAES (mandatory)	n/a
Portfolio structure (mandatory for portfolio departments)	n/a
REPORT ON PERFORMANCE (MANDATORY)	**25–97**
Review of performance relating to programs and contribution to outcomes (mandatory)	25–97
Actual performances relating to deliverables and KPIs set out in PBS/PAES (mandatory)	42, 60, 73, 97
Where performance targets differ from the PBS/PAES (mandatory)	n/a
Narrative discussion and analysis of performance (mandatory)	25–97
Trend information (mandatory)	25–97
Significant changes in nature of principal functions/services (suggested)	n/a
Performance of purchaser/provider arrangements (suggested, if applicable)	122

Factors, events or trends influencing agency performance (suggested)	16, 25–97, 126
Contribution of risk management in achieving objectives (suggested)	40–41, 51, 61, 77, 79, 95, 103–4, 127
Performance against service charter customer service standards, complaints data, and the agency's response to complaints (mandatory, if applicable)	n/a
Discussion and analysis of the agency's financial performance (mandatory)	19, 126–27
Discussion of any significant changes in financial results from the prior year, from budget or anticipated to have a significant impact on future operations (mandatory)	19, 126–27
Agency resource statement and summary resource tables by outcome (mandatory)	192–93
MANAGEMENT AND ACCOUNTABILITY	**100–21**
Corporate governance	
Certification of compliance with the Commonwealth Fraud Control Guidelines (mandatory)	105
Statement of the main corporate governance practices in place (mandatory)	100–21
Names of the senior executive staff and their responsibilities (SES) (suggested)	22–23
Senior management committees and their roles (suggested)	100–3
Corporate and operational planning and associated performance reporting and review (suggested)	117–19
Internal audit arrangements including approach adopted to identify areas of significant operational or financial risk and arrangements to manage those risks (suggested)	104–5
Policy and practices on the establishment and maintenance of appropriate ethical standards (suggested)	104–6
How nature and the amount of remuneration for SES officers is determined (suggested)	111
External scrutiny	
Significant developments in external scrutiny (mandatory)	106
Judicial decisions and decisions of administrative tribunals and by the Australian Information Commissioner (mandatory)	106
Reports by the Auditor-General, a parliamentary committee, the Commonwealth Ombudsman or an agency capability review (mandatory)	106
Management of human resources	
Assessment of effectiveness in managing and developing staff to achieve agency objectives (mandatory)	108–9
Workforce planning, staff turnover and retention (suggested)	110–14
Impact and features of enterprise or collective agreements, individual flexibility arrangements (IFAs), determinations, common law contracts and Australian Workplace Agreements (AWAs) (suggested)	111

Training and development undertaken and its impact (suggested)	109
Work health and safety performance (suggested)	114–16
Productivity gains (suggested)	111
Statistics on staffing (mandatory)	111–14
Statistics on employees who identify as Indigenous (mandatory)	113–14
Enterprise or collective agreements, IFAs, determinations, common law contracts and AWAs (mandatory)	111
Performance pay (mandatory)	111
Assessment and effectiveness of assets management (mandatory, if applicable)	120
Assessment of purchasing against core policies and principles (mandatory)	122
Consultants, consultancy services and contracts (mandatory)	121
Absence of provisions in contracts allowing access by the Auditor-General (mandatory)	n/a
Contracts exempted from publication in AusTender (mandatory)	n/a
FINANCIAL STATEMENTS (MANDATORY)	**128–83**
OTHER MANDATORY INFORMATION	
Work health and safety (Schedule 2, Part 4 of the *Work Health and Safety Act 2011*)	114–16
Advertising and market research and statement on advertising campaigns	192
Ecologically sustainable development and environmental performance	195–96
Compliance with obligations under the *Carer Recognition Act 2010* (if applicable)	n/a
Grant programs	121
Disability reporting – explicit and transparent reference to agency level information available through other reporting mechanisms	114
Information Publication Scheme statement	106–7
Correction of material errors in previous annual report (if applicable)	n/a
List of requirements	204

INDEX

A

abbreviations 198

Aboriginal peoples

- Aboriginal Partnerships team 36
- Aboriginal Waterways Assessment Program 36–7
- Indigenous employment strategy 113–14
- The Living Murray Indigenous Partnerships Program 55–6
- Traditional Owners ii
- working with 36

accident statistics 117

accommodation 123

accountability
see management and accountability

acronyms 198

active storage 86

advertising 194

Advisory Committee on Social, Economic and Environmental Sciences 35, 191

agency resource statement 192–3

agency structure 7

agricultural production 13

Andrew, Neil (Chair) 18, 20

animals, scientific names of 199
see also birds; fish

assets (financial) 121

assets (physical)
see River Murray asset management

assurance 40–1

- statements 41

audit

- independent auditor's report 130–1
- internal audit 105

Audit Committee 102–3

Auditor-General reports 106

Australia Day achievement awards 110

Australian Bureau of Statistics 72

Authority members 20–1

- meetings and outcomes 186–7

B

bank erosion along the Mitta Mitta River 82

Barka River
see Darling (Barka) River

Barmah Choke, managing trade capacity through 40

Basin
see Murray–Darling Basin

Basin Community Committee 7, 35, 190–1
see also community engagement

Basin Officials Committee 7, 188–9

- meetings 188
- program and river management 188

Basin Plan
see Murray–Darling Basin Plan

Basin Plan Implementation Agreement 37

Basin Plan Implementation Committee 189

Basin states 18
see also community engagement; state water

Basin-wide environmental monitoring 48

Basin-wide environmental watering strategy 45–6

Basin-wide watering priorities 47

birds

- monitoring bush birds 55
- waterbird surveys 23, 48

Bourke, on the Darling (Barka) River 6

brochures 197

Budget and Reporting Committee 101

bush birds, monitoring 55

business cases 50

business continuity 104

business planning 117–18

C

Cap on surface water diversions 64
see also sustainable diversion limits

- accrediting the models used 64

transitioning from 64
carryover of state water allocations 87–8
case studies 33, 52–3
Chair
Craig Knowles 21
Neil Andrew 18, 20
Chief Executive review 16–18
see also Dickson, Rhondda
Chief Finance Officer's report 126–7
Chowilla floodplain case study 53
coaching program 109
collaboration
see community engagement; strategic alliances
Collings trophy 82–3
Comcare
investigations 116
premiums 116–17
Comcover 104
Commonwealth Environmental Water Holder 5, 40, 41, 51, 88, 189
Commonwealth Ombudsman 106
Commonwealth Water Minister 7
communications 66–8, 197
media and social media 66
peer reviewed journals 67
publications 67, 197
community engagement 5, 34–9, 186
see also Aboriginal peoples; Basin Community Committee
Chief Executive review 16–17
listening to communities 29, 38–9
social and economic analysis 33
sponsorship 69–70
working with Aboriginal Nations 36
compliance 40–1
reporting 105
Compliance Risk Management Framework 40–1
constraints management 49–50
developing business cases 50
pre-feasibility assessments 49–50
consultancy services 122
consultation
see community engagement; stakeholders; strategic alliances
contract administration 122–3
conveyance water 95
Coorong case study 53
Corporate Division 19
corporate plan 118
Basin Officials Committee 188
Murray–Darling Basin Ministerial Council meetings 187
critical human water needs 95
CSIRO 71
cycling to work 2

D

dangerous occurrence statistics 117
Darling (Barka) River 6
Dartmouth Dam, improving the physical assets base 80
Davidson, Dianne 20
deliverables
integrated water management 42–3
knowledge into action 73
managing River Murray assets 97
restoring river and ecosystem health 60–1
delivering water 83–90
see also environmental water
active storage 86
agreed shares to states 83–6
delivering environmental water 88–9
flow to South Australia 89
Murray component of the Snowy Mountains Scheme 89–90
resource plans 29, 30
state water allocations, diversions and carryover 87–8
demonstration reaches 57–8
departmental appropriation 192–3
Dickson, Rhondda 19, 20, 22

final year as Chief Executive 18
letter of transmittal 4
disability strategy and action plan 114
diversity 113–14
dredging the Murray Mouth 78, 82
Dreverman, David 19, 22

E

ecologically sustainable development
see sustainability
economic analysis 33–4
ecosystem health
see restoring river and ecosystem health
education 67–8
see also training and development
education@MDBA 68
Employee Consultative Committee 102
employees
see staff
employment information
see staff; workforce
energy use 196
eNewsletters 197
engagement
see community engagement
engineering award for Hattah Lakes 76
enterprise agreements 111
enterprise information strategy 65
Environmental Management Division 19
environmental performance
see also sustainability
internal operations 195–6
Living Murray environmental monitoring 53–5
environmental water
see also restoring river and ecosystem health; sustainable diversion limits
Basin-wide environmental monitoring 48
Basin-wide environmental watering strategy 45–6
Basin-wide watering priorities 47
Chief Executive review 17
constraints management 49–50
coordinating in the southern-connected Basin 51
delivery 52–3, 88–9
effective use of 46
implementing the Basin Plan 28
monitoring responses to 54–5
recovering water for the environment 29
Environmental Works and Measures Program 76–7
complementary environmental works 77
construction progress 76
fish and 76, 77
equal employment opportunities 113–14
eWater, research partnerships 71
executive coaching 109
Executive Committee 101
executive team 22–3
work health and safety and 114
expenditure 120, 127
budgeted for outcome 1: 193
external scrutiny 106

F

fact sheets 197
finances
see also planning
assets and asset management 121
liabilities 121
managed assets: joint ventures 121
overview and challenges 18
total equity 121
financial management 120
financial performance 120, 121
financial position 120–1
financial overview 18
financial statements 128–83
fish 48, 55, 77
demonstration reaches 57–8
managing pest fish 57
Percy the silver perch 66, 78

restoring fish passage 76
flood inundation modelling 63
fraud control 104
investigations 104
freedom of information 107
documents held 107
lodgement of requests 107
funding sources 192–3
Basin states 18

G

gender, classification profile by 112
General Sir John Monash scholarship program 70
geographical locations, regional case studies 33
Geoscience Australia, collaboration with 72
geospatial services 65
Gibbs, Diana 21
glossary 200–3
governance bodies 7
meetings and outcomes 186–91
government
see also stakeholders
advice to 107–8
engaging with 34–8
graduate program 113
grants 123
Great Darling Anabranch 16
greenhouse emissions per employee 196
groundwater reviews 31–2
guiding principles 5
Gunbower Forest
case study 52
monitoring fish at 55

H

Hart, Barry 21
Hattah Lakes
case study 52
engineering award for 76
monitoring bush birds at 55
Health and Safety Committee 101–2
health of the Basin
see monitoring the health of the Basin; restoring river and ecosystem health
history 14–15
human resources 112
see also staff; workforce
human water needs, critical 95
Hume Dam, improvements to 77, 80
Hume to Yarrawonga reach 81–2
hydrological modelling for the Basin Plan 63

I

ICT disaster recovery plan 104
images, managing 64, 65
incidents, statistics on 117
independent auditor's report 130–31
Indigenous peoples
see Aboriginal peoples
industry case studies 33
inflows, annual 84, 85
information communication technology (ICT) 123
Information Management and Technology Committee 101
information on the Basin, providing 63–5
see also knowledge into action
information resources 123
Institute of Applied Ecology, University of Canberra 71
insurance cover
Comcare 116–17
Comcover 104
integrated water management (strategic goal 1) 8, 26–43
see also Murray–Darling Basin Plan
accrediting state water resource plans 30
challenges and the year ahead 26–7
deliverables 42–3
engagement 35–8
implementation work 27–9, 40

key performance indicators 42–3
monitoring and evaluation 41
overview 26
SDL adjustment mechanism 32–3
social and economic analysis 33–4
work in the northern Basin 34
interest groups 34–8
internal audit 105, 127
internal seminars 109
international engagement 69
inundation
see flood inundation modelling

J

James, Russell 19, 22
John Monash scholarship program 70
joint activities 118–19
managed assets 121
review 119
journals, peer reviewed 68
judicial decisions 106

K

key achievements 8–9
key performance indicators
integrated water management 42–3
knowledge into action 73
managing River Murray assets 97
restoring river and ecosystem health 60–1
knowledge into action
(Strategic goal 3) 9, 62–73
challenges and the year ahead 63
communications 66–8
deliverables 73
managing images, multi-media and publications 64
overview 62–3
providing information on the Basin 63–5
strategic alliances 69–72
Knowles, Craig 21
Koondrook–Perricoota Forest case study 52

L

Lake Victoria, improvements to 80
leadership 108–9
learning and development 108–9
legal services 106
legislation
see judicial decisions; Water Act 2007
letter of transmittal 4
liabilities 121
library and geospatial services 65
list of requirements 204–6
locations, regional case studies 33
locks and weirs, improvements 79, 80–1
Lower Lakes case study 53

M

managed assets 121
management and accountability 100–23
challenges and year ahead 100
information resources 123
overview 100
risk management 5
senior management committees 101–3
staff 108–9
work health and safety 114–17
workforce 110–14
managing River Murray assets
see River Murray asset management
maps, Murray–Darling Basin boundary 12
market research 194
media and social media 17, 66
media advertising 194
Mekong River Commission, delegation from hosted 69
ministerial business 107–8
Ministerial Council 7
meetings and outcomes 187–8
mission 5

Mitta Mitta River, reducing bank erosion 82
modelling the basin 63
monitoring the health of the Basin
coordinating Basin-wide and site monitoring 48
effectiveness of the Basin Plan 41
environmental responses to watering 54–5
surveying fish and waterbirds 23, 48, 55
sustainable rivers audit 2011–2013 48–9
water quality in the River Murray 56–7
Mues, Colin 19, 22
Mulcra Island case study 53
multi-media, management of 64
Murray Lower Darling Rivers Indigenous Nations ii, 35, 198, 202
Murray Mouth
case study 53
dredging 78, 82
Murray–Darling Basin
agricultural production in 13
boundary 12
history 14–15
northern *see* northern Basin
southern *see* southern Basin
statistics 13
Murray–Darling Basin Authority (MDBA) *see* also Authority members
about us 5–8
core functions 7
history 14–15
Murray–Darling Basin Futures 70–1
Murray–Darling Basin Ministerial Council 7
meetings and outcomes 187–8
Murray–Darling Basin Plan *see* also integrated water management
Basin-wide planning 45–7
Chief Executive review 17
hydrological modelling for 63
implementing 27–9
monitoring and evaluating 29, 41
overview 26
social and economic analysis 33–4
timeline 27
Murray–Darling Freshwater Research Centre 71

N

National Centre for Research and Groundwater Training 71–2
native title determinations 106
New South Wales, water shares for 87
newsletters 197
northern Basin 12, 18
Chief Executive review 18
environmental research 34
social and economic research 34
work in 34
Northern Basin Aboriginal Nations 35, 198, 202
Northern Basin Advisory Committee 190–1

O

occupational health and safety *see* work health and safety
offices 123
Ombudsman reports 106
operating deficit 18
organisational culture 9
organisational structure 19

P

parliamentary business 106, 107–8
partnerships *see* community engagement; stakeholders; strategic alliances
pay *see* remuneration
peer reviewed journals 67
people *see* staff
People, Communications and Culture Committee 101

performance management 109
performance outcomes 6
performance pay 111
performance reporting 119
performance summary 8–9
Perry, Darren ii
Personal Efficiency Program 109
pest fish, managing 57
physical assets, improving 77–83
see also River Murray asset management
physical constraint areas
see constraints management
planning 117–23
see also finances
assets and asset management 121
at a Basin-wide scale 45–7
business planning 117–18
corporate plan 118
highlights 117
key processes 118
performance reporting 119
procurement and grants 122–3
project management framework, 120
Resource Management Framework 120
review of the joint activities 118–19
plants, scientific names of 199
Policy and Planning Division 19
posters 197
power consumption 196
principles, guiding 5
privacy 106
procurement 122
project management framework, 120
Public Governance, Performance and Accountability Act 2013 (PGPA) 100
publications 64, 67, 197

R

rainfall deciles 84, 85
records management 123
recruitment 112
recycling 195
regional case studies 33
remuneration
see also enterprise agreements
pay and conditions 111
senior executive service 111
research partnerships 70–2
CSIRO 71
eWater 71
Murray–Darling Basin Futures 70–1
Murray–Darling Freshwater Research Centre 71
National Centre for Research and Groundwater Training 71–2
partnerships 72
University of Canberra – Institute of Applied Ecology 71
resource management framework 120
resource statement, agency 192–3
restoring river and ecosystem health (strategic goal 2) 8, 44–61
see also environmental water
assessing development proposals 57
challenges and the year ahead 45
constraints management 49–50
deliverables 60–1
demonstration reaches 57–8
highlights 44
key performance indicators 60–1
Living Murray program 51–6
managing pest fish 57
managing salinity 58–9, 96
monitoring the health of the Basin 48–9
monitoring water quality in the River Murray 56–7
other river management programs 56–8
overview 44–5
planning at a Basin-wide scale 45–7
showcasing river restoration 57–8
revenues 120, 127
risk management 6, 103–8

Compliance Risk Management Framework 40–1
river health *see* Living Murray program; restoring river and ecosystem health
River Management Division 19
River Murray asset management (strategic goal 4) 9, 74–97
challenges and the year ahead 75
critical human water needs 95
deliverables 97
delivering water 83–90
Environmental Works and Measures Program 76–7
key performance indicators 97
maintaining and improving assets 75–7
operating the River Murray system 90–5
overview 74–5
restoring fish passage 76
salt interception schemes 96
winner of the Senator Collings trophy 82–3
year on the River Murray feature 78–9
River Murray Operations Committee 189–90
River Murray system
business cases for constraints on 50
delivering information about 64–5
improving river operations 94–5
inflows 84, 85, 92
Lake Victoria 92–3
The Living Murray program 51–6
Lower Lakes and barrage operation in South Australia 93–4
mid-Murray 91–2
monitoring 55
Murray component of the Snowy Mountains Scheme 89–90
Murray Mouth 53, 78, 82
state diversions 88
upper Murray 90–1
River Murray Water Quality Monitoring Program 56–7
River Murray Waters Agreement, history 14
river restoration *see* restoring river and ecosystem health
roles 5

S

salinity, managing 58–9
planning for the next 15 years 59
registering the impacts of actions 58–9
salt interception schemes 58, 96
salt levels *see* salinity, managing
scholarships 70
Schumann, Jo 19, 22
scientific names of plants and animals 199
SDLs *see* sustainable diversion limits
Sea to Hume fishway 10, 76
Secretariat services 105
seminars, internal 109
Senate estimates questions 108
Senator Collings trophy 82–3
senior executive service, determining remuneration 111
senior management committees 101–3
site monitoring 48
small business procurement initiatives 122
Snowy Mountains Scheme, Murray component 89–90
social and economic analysis 33–4
social and environmental outcomes, improving 53–4
social media 17, 66
year at a glance (via tweets) 10–11
South Australia
flow to 89
water shares 87
southern Basin
boundary 12
coordinating environmental water in the southern-connected Basin 51
Southern-Connected Basin Environmental Water Committee 51

sponsorship 69–70
staff 9, 108–9
see also workforce
culture 9
cycling to work 2, 196
by equal opportunity group 113–14
greenhouse emissions per employee 196
home towns of in the Basin 115
pay and conditions 111
senior executive service remuneration 111
snapshots 59, 72
staffing profile 111–12
by age 112
by gender 112
ongoing and non-ongoing staff 112
stakeholders 32, 69, 117, 190
see also Basin Officials Committee; Commonwealth Environmental Water Holder; community engagement; strategic alliances
state water
see also delivering water; water trade
agreed shares 83–6
allocations, diversions and carryover 87–8
storage, active 86
strategic alliances
see also community engagement
international engagement 69
research partnerships 70–2
sponsorship 69–70
strategic goal 1
see integrated water management
strategic goal 2
see restoring river and ecosystem health
strategic goal 3
see knowledge into action
strategic goal 4
see River Murray asset management
strategic goals, key achievements 8–9
strategic planning and progress 6
superannuation 143–4
surface water 30–1
surveying fish and waterbirds 23, 48
sustainability 9
internal operations 195–6
key achievements 9
sustainable rivers audit 2011–2013 48–9
sustainable diversion limits (SDLs) 28
see also Cap on surface water diversions
adjustment mechanism 32–3
surface water 30–1

T

The Living Murray (TLM) program 51–6
prioritising and planning 52
river restoration program 51–6
social and environmental outcomes 53–4
working with Aboriginal communities 55–6
The Living Murray review 119
total equity 121
Traditional Owners
see Aboriginal peoples
training and development 108–9
see also education
travel 196
tribunals 106
tweets, year at a glance via 10–11

U

University of Canberra – Institute of Applied Ecology 71

V

Victoria, water shares for 87
vision 5

W

Warne, George 21
waste management 195
water
see delivering water; environmental water; state water
Water Act 2007 5
directions under section 175 107

water management
see Environmental Works and Measures Program; integrated water management; River Murray asset management

water resource plans 29, 30, 203

water trade 29, 40
see also state water

waterbird surveys 23, 48

watering priorities
see Basin-wide watering priorities

weirs, improvements 79, 80–1

wetlands

- Aboriginal waterways assessment 36–7
- environmental watering achievements 17

'whole of agency' information strategy
see enterprise information strategy

wildlife
see animals; birds; fish

work health and safety 114–17

- accident and dangerous occurrence statistics 117
- Comcare investigations 116
- Comcare premiums 116–17
- communication and consultation 115
- executive commitment 114
- initiatives 115
- outcomes achieved 116
- statistics comparison 116

workforce 110–14
see also staff

- Australia Day achievement awards 110
- disability 114
- diversity 113–14
- Enterprise Agreement 111
- graduate program 113
- individual terms and conditions 111
- performance pay 111
- recruitment 112
- senior executive service remuneration 111

Published by the Murray–Darling Basin Authority

Postal address:
GPO Box 1801
Canberra ACT 2601

Office location:
Level 4
51 Allara Street
Canberra City ACT

Telephone:
02 6279 0100
international + 61 2 6279 0100

Facsimile: 02 6248 8053
international + 61 2 6248 8053

email: engagement@mdba.gov.au

Internet: www.mdba.gov.au

Please address any requests and inquiries to the:
Executive Director
Corporate and Business Services
MDBA
GPO Box 1801
Canberra ACT 2601

Electronic copies
of this annual report are available at www.mdba.gov.au

MDBA publication No. 19/15

ISSN 1003-6745
ISBN 978-1-925221-36-7 (print)
978-1-925221-37-4 (online)

Contact us

ph: (02) 6279 0100
+61 2 6279 0100 (int)
email: engagement@mdba.gov.au

www.mdba.gov.au

Printed using vegetable-based inks.