
SAVE THE RIVER MURRAY FUND

ANNUAL REPORT 2010 – 11



Government of South Australia

Department for Water

Prepared for the South Australian Parliament by the Minister for Water and the River Murray November 2011.

Photos appearing on page 6 and 16 are courtesy of Greg Rinder, CSIRO.

ISSN 1832 – 7869

Printed January 2012

For further information about the Save the River Murray Fund, or the achievements listed in this Annual Report, please contact the Department for Water on 08 8463 6800 or visit www.waterforgood.sa.gov.au



Australian Recycled Paper

CONTENTS

RETURNING WATER TO THE RIVER	4
SECURING WATER RIGHTS	5
PROTECTING THE RIVER	9
ENHANCING THE ENVIRONMENT	14
BUILDING CAPACITY	17
PROGRAM STATEMENT FOR THE PERIOD ENDED 30 JUNE 2011	18

INTRODUCTION

THE SAVE THE RIVER MURRAY FUND WAS ESTABLISHED UNDER THE WATERWORKS ACT 1932 ON 24 JULY 2003. THE FUND IS HELD BY THE MINISTER FOR WATER AND THE RIVER MURRAY AND ADMINISTERED BY THE DEPARTMENT FOR WATER ON BEHALF OF THE MINISTER.

THE SAVE THE RIVER MURRAY LEVY WAS INTRODUCED ON 1 OCTOBER 2003 UNDER THE WATERWORKS (SAVE THE RIVER MURRAY LEVY) AMENDMENT BILL. THE LEVY IS CHARGED TO ALL SA WATER CUSTOMERS ACROSS SOUTH AUSTRALIA, BOTH RESIDENTIAL AND NON-RESIDENTIAL, AND IS INDEXED ANNUALLY.

The levy contributes to a program of works and measures to address the health of the River Murray in South Australia and increasing community demands for a high security of water, of an acceptable quality, for urban and irrigation purposes. The program, known as the River Murray Improvement Program (RMIP), is integrated within a larger Murray-Darling Basin program of works and measures, the South Australian River Murray Salinity Strategy and the South Australian Environmental Flows Strategy for the River Murray.

The RMIP contributes to the delivery of three high-level outcomes:

- Improved environmental health of the River Murray system in South Australia
- High security of water of an acceptable quality for irrigation in South Australia at an appropriate price
- High security of water quality for urban water supplies.

It also contributes to a range of targets identified in South Australia's Strategic Plan (as at 30 June 2011), including:

- Increase environmental flows by 500 gigalitres (GL) in the River Murray by 2009 as the first step towards improving sustainability in the Murray-Darling Basin, with a longer-term target of 1500 GL by 2018 (T3.10)
- South Australia maintains a positive balance on the Murray-Darling Basin Commission salinity register (T3.11)
- South Australia's water resources are managed within sustainable limits by 2018 (T3.9).

In 2006–07 the River Murray and southern Murray-Darling Basin experienced the lowest inflows in recorded history. Less severe but significant drought conditions and low inflows continued until September 2010. A sequence of substantial rainfall events across the River Murray, Murrumbidgee River, northern New South Wales and southern Queensland in late 2010 and early 2011 resulted in high inflows to the Murray-Darling and high River Murray flow to South Australia and significantly increased the volume of water in the major public storages.

In early 2011 the high River Murray flow to South Australia resulted in some low-lying homes and businesses being inundated, but there was no threat to towns along the river. Flow at the border peaked on 13 February 2011 at 93,800 megalitres (ML) per day before steadily declining.

Due to significantly improved flow and water storage volumes, South Australia was allocated its full 1850 GL entitlement flow under the Murray-Darling Basin Agreement in October 2010 (for the first time since 2006) and guaranteed its full 1850 GL entitlement flow for 2011–12 before the start of the year. The total flow to South Australia in 2010–11 was 15,140 GL, the highest flow since 1975–76, when 20,660 GL flowed to South Australia.

Additional flow to Lake Alexandrina in September 2010 allowed the partial removal of the Narrung bund and the regulator at Clayton, constructed during the drought to reduce the risk of acidification in the Lower Lakes. This reconnected Lakes Alexandrina and Albert and the Goolwa Channel. Removal of the remainder of the Narrung bund commenced on 29 March 2011 and was completed in July 2011. Planning for the full removal of the regulator at Clayton commenced.

Improved flow from September 2010 also enabled the barrages to be opened for the first time since 2006. Barrage operations were used to lower and raise water levels in Lake Alexandrina to reduce salinity in Lake Albert and remove salt from the Lower Lakes.

Extensive areas of previously drought-affected floodplains throughout the Murray-Darling Basin became inundated in early 2011. This provided substantial ecological benefits but also led to an influx of organic material into the river system, resulting in very low levels of oxygen in the water and discolouration, known as blackwater. More than 1400 kilometres of the River Murray was affected by this natural phenomenon, including the entire length of the river in South Australia.

The Save the River Murray Fund contributes to a range of River Murray projects in South Australia and more broadly in the Murray-Darling Basin. As part of the requirements under the Murray-Darling Basin Agreement, all states must contribute to the Murray-Darling Basin Authority each year. South Australia contributed \$27.667 million to the Murray-Darling Basin Authority (MDBA) in 2010–11, of which \$4.055 million was sourced from the Save the River Murray Fund.

Murray-Darling Basin Reform

A key element of reform is the preparation by the Murray-Darling Basin Authority (MDBA) of a Basin Plan for the management of surface water and groundwater resources. With the final Basin plan due in 2012, this represents a significant opportunity to address over-allocation of resources, manage salinity issues and improve environmental and water security outcomes. It will set new sustainable diversion limits on extractions from surface water and groundwater sources in the Murray-Darling Basin. South Australia has provided technical, scientific and policy advice and associated data.

In 2010–11 the South Australian Government developed a response to the MDBA's *Guide to the proposed Basin Plan* (the Guide), which was informed by scientists, policy makers, irrigators and the broader community. It addressed environmental water requirements, environmental assets, catchment risks, socio-economic issues, water quality and salinity issues, critical human water needs and state water resource plan requirements.

The State Government also worked with the South Australian Goyder Institute for Water Research to undertake a high-level scientific review of the Guide, and in particular the implications of the environmental water recovery scenarios for South Australia.

Murray-Darling Basin Agreement

The Murray-Darling Basin Agreement sets out arrangements for the sharing and management of the Basin's water resources, particularly of the River Murray system. The agreement is being reviewed on two fronts: through statutory reviews to ensure consistency with the Basin Plan and through states' input to an issues-based review stemming from a First Ministers' agreement on contingency water sharing arrangements in 2009–10.

The Department for Water is leading South Australia's involvement in the latter review to examine options for improving the management of water resources in the Basin, in particular the shared water resources of the River Murray system, to better meet future needs. Stage 1 was completed in April 2010 and focused on scoping the various jurisdictional issues with the Agreement. Stage 2 will document existing operations, rules and procedures; address issues raised in Stage 1; and commence the development of a revised, or new, agreement.

INTRODUCTION



Environmental Watering

Ecological assets of the River Murray in South Australia have access to two main sources of environmental water – The Living Murray (TLM) and the Commonwealth Environmental Water Holder (CEWH). Each year environmental assets that meet the criteria for receiving water from these sources are identified.

During 2010–11 South Australia received 305,511 ML from TLM, the CEWH, private donations, return flows from Victorian watering actions and water from a South Australian environmental reserve for the Lower Lakes. This water was allocated to River Murray wetlands, floodplains and the Lower Lakes, Coorong and Murray Mouth.

Financial summary

In 2010–11 a total of \$25.0 million was received into the fund and \$26.4 million was expended from the fund on works and measures under the River Murray Improvement Program.

Annual report framework

The annual report framework is presented to highlight achievements in the following five key outcome areas:

- Returning water to the river
- Securing water rights
- Protecting the river
- Enhancing the environment
- Building capacity.

01 RETURNING WATER TO THE RIVER

THE LIVING MURRAY (TLM) INITIATIVE WAS ESTABLISHED IN 2002 IN RESPONSE TO SUBSTANTIAL EVIDENCE THAT THE RIVER MURRAY SYSTEM WAS DEGRADED, AND A CONCERN THAT ITS DEGRADATION THREATENED THE MURRAY-DARLING BASIN'S AGRICULTURAL INDUSTRIES, COMMUNITIES, NATURAL AND CULTURAL VALUES, AND NATIONAL PROSPERITY.

The Living Murray Water Recovery

The initiative focuses on improving and maintaining the health of six icon sites along the river, chosen for their environmental, cultural and international significance. These sites include the River Murray channel, the Chowilla floodplain, the Lower Lakes, Coorong and Murray Mouth. The program aims to achieve improved outcomes for the River Murray through:

- Recovering water for the environment
- Building infrastructure to deliver water efficiently
- Delivering environmental water to the icon sites as it becomes available
- Monitoring the impacts of environmental water at the icon sites, and
- Consulting with the community to ensure its input into achieving these outcomes.

Under The Living Murray Initiative the Australian, New South Wales, Victorian, South Australian and Australian Capital Territory Governments agreed to recover an average of 500 GL per year for environmental purposes. South Australia had dual targets – recovery of 35 GL (long-term average) of water from within the state, and expenditure of \$65 million on water recovery initiatives.

South Australia was the first state to meet these targets (through acquiring government-owned water and purchases from willing sellers).

During 2010–11 South Australia added to its water recovery contribution by purchasing a further 1.11 GL of water from SA Water and providing this to The Living Murray Initiative.

Funds from the Save the River Murray Levy have also allowed the state to invest in water recovery projects put forward by other Basin jurisdictions. Investment in upstream measures contributed to increasing the amount of water recovered for environmental purposes and will benefit South Australia through increased environmental flows.

SA River Murray Environmental Water Management

During 2010–11 the Department for Water worked with other government agencies, the South Australian Murray-Darling Basin Natural Resources Management Board (SA MDB NRM Board) and the community to identify priority sites that met the TLM and CEWH criteria and secured environmental water and funding.

An annual watering plan was developed for the River Murray in South Australia and an annual report on the use of environmental water received during 2009–10 was prepared. The highest River Murray flows since 1993 led to significant barrage outflows and the inundation of the majority of the state's River Murray wetlands and floodplains. Early in 2011, South Australia undertook a consultative process including a workshop of key stakeholders and scientific advisers to develop the bids for 2011–12. The bids were completed and submitted for consideration by the environmental water holders. All sites that were identified as priority sites for environmental watering within The Living Murray and the Commonwealth Environmental Water Holder water bids were inundated during the 2010 – 11 high flow event.

Key Achievements

- South Australia negotiated the allocation and delivery of 305,511 ML of environmental water to the South Australian River Murray.
- The government purchased 1.11 GL of water to increase its contribution to The Living Murray Initiative.

02 SECURING WATER RIGHTS

SECURING THE WATER RIGHTS OF THE RIVER MURRAY AND MURRAY-DARLING BASIN IS IMPORTANT FOR LICENSED WATER USERS AND THE WIDER SOUTH AUSTRALIAN COMMUNITY IN ECONOMIC, SOCIAL AND CULTURAL TERMS.

Water Planning Policy in the SA Murray-Darling Basin

The water planning policy program for the South Australian Murray-Darling Basin was developed to influence the national water reform agenda, provide strategic policy direction for water planning policy and to ensure that water plans in South Australia meet the Basin Plan's water resource plan requirements.

A consolidated analysis and response to the water resource plan requirements in the *Guide to the proposed Basin Plan* was delivered and expert advice provided in relation to the risks for South Australia.

A draft policy and guide for transfers in an unbundled water rights system were developed, and the feasibility and benefits of unbundling were further investigated for water resources other than regulated rivers. An extension to the transitional regulations was completed to enable completion of water allocation plans that do not explicitly provide for unbundling, such as Mallee and Eastern Mount Lofty Ranges.

A draft policy for the implementation of unbundling water rights in South Australia was developed to be released for consultation with the regional NRM Boards in 2011–2012.

Early and constructive engagement with the National Water Commission occurred to ensure a fair and positive assessment of South Australia's progress in the implementation of the National Water Initiative in the third biennial assessment to be released in September 2011.

A draft risk management framework for water planning and management and draft guidelines for a risk-based approach to water allocation planning were developed, ensuring that South Australia is at the forefront of responding to the national water reform agenda. These will be finalised in late 2011.

South Australia was instrumental in ensuring that climate change and cultural water were recognised as key policy priorities by the Water Reform Committee and a research proposal for climate change and water allocation planning has been developed and provided to the Goyder Institute for Water Research for consideration.

Eastern Mount Lofty Ranges Catchment

The SA MDB NRM Board is developing a draft water allocation plan for the Eastern Mount Lofty Ranges Prescribed Water Resources Area.

The assessment of existing water user reasonable requirements was significantly progressed during the year, with numerous site visits and authorisation holder contacts made. The Department for Water worked closely with key stakeholder groups to share information regarding the licensing process and provide clarity around sometimes-complex processes and concepts.

Information regarding the existing user water licensing process was presented at five public consultation meetings arranged by the SA MDB NRM Board. The department also provided support for 10 smaller meetings targeting specific industries and affected groups, which proved to be an effective forum for valuable two-way exchange of information.



River Murray Prescribed Watercourse Water Allocation Planning, Licensing and Compliance

Implementation of the River Murray Water Allocation Plan, the *Natural Resource Management Act 2004* and the *River Murray Act 2003* continued as significant programs of the South Australian Government in 2010–11.

Preliminary work and project planning continued in preparation for the amended River Murray Water Allocation Plan being managed by the SA MDB NRM Board.

Administration of the River Murray salinity zoning policy supported South Australia's Murray-Darling Basin salinity reporting obligations. Licensing programs were administered to ensure that effective water allocation and entitlement transfers, water use monitoring and reporting, and implementation of South Australia's metered water use policy continued as a primary focus.

In support of ongoing allocation restrictions, programs to provide quarterly consumption advice, drought top-up water trading and administration of carryover allocations continued in 2010–11.

The allocation restrictions resulted in a focus on compliance with metering conditions and allocations. All licensed water use meters along the River Murray Prescribed Watercourse were read monthly. Quarterly consumption advice letters were also mailed to River Murray licence holders advising them of the water usage in comparison to authorised volumes on their water accounts and maximum volumes on site-use approvals.

Angas Bremer/Mallee/Marne Saunders Water Allocation Planning, Licensing and Compliance

Implementation of existing water allocation plans within the Murray-Darling Basin in South Australia continued, in particular the Angas Bremer and Mallee Prescribed Wells Areas. The primary focus was the continued provision of efficient water licensing and trading approvals and administration, water use monitoring and reporting, in support of the SA MDB NRM Board's review of these plans.

In response to increased water extraction demands and concerns for ongoing sustainability, a number of additional water resources within the South Australian Murray-Darling Basin have been prescribed in recent years. The resources of the Marne and Saunders Rivers were prescribed on 20 March 2003. Following adoption of the Marne Saunders Water Allocation Plan, licences were issued to existing users on 30 June 2010. The focus for 2010–11 was the administration of licences and meter reading and consumption advice programs aimed at informing licence holders of their compliance responsibilities.

During 2005 additional areas of the Mallee, including the Hundreds of Peake, Roby and Sherlock, were prescribed. Water licences were issued to existing users in December 2010 and the water allocation plan for Peake, Roby and Sherlock was adopted on 2 March 2011.

02 SECURING WATER RIGHTS

Water Trade

The number of individual trades in 2010–11 was 53 per cent lower than in 2009–10. This is considered to be due to higher allocations as a result of improved inflows.

The increase in allocations to 67 per cent, together with 228 GL carried over from 2009–10, took South Australia to its 650 GL cap under the River Murray Water Allocation Plan.

A summary of water allocation transfer activity is detailed in the table below:

	2008–09		2009–10		2010–11	
	No.	Volume (GL)	No.	Volume (GL)	No.	Volume (GL)
Trade into SA						
NSW	2262	317.4	434	210.2	75	191.1
VIC	300	22.5	478	64.4	38	213.1
Trade from SA						
NSW	10	0.3	24	4.2	27	16.9
VIC	63	4.7	71	17.8	214	317.9
Trade within SA						
Temporary	789	409.61	491	223.7	359	143.4

A 100 per cent reconciliation of SA interstate trades was achieved for 2009–10 in the Murray Darling Basin Authority's audit of interstate trades. Interstate water trade operated very effectively during 2010–11. South

Australia worked with other states in the successful implementation of an automated electronic status exchange project for processing interstate water allocation transfer applications.

Permanent water entitlement transfers were lower in 2010–11, reflecting the cessation of the Australian Government program of purchasing water under the Irrigators' Exit Grant Package.

A summary of water allocation transfer activity is detailed in the table below:

	2008–09		2009–10		2010–11	
	No.	Volume (GL)	No.	Unit Shares	No.	Unit Shares
Entitlement Trade						
Permanent	233	49.9	472	84,182,012	278	30,439,635
* Temporary	789	409.61	21	1,020,880	12	1,831,340

* Temporary entitlement trade statistics is the same as the allocation trade statistic as licences were still bundled in 2008-09 and delineation cannot be made between allocation trade and temporary entitlement trade.

MDB Cap on Diversions

In June 1995, in response to an audit of water use in the Murray-Darling Basin, the Murray-Darling Basin Ministerial Council agreed to cap surface water diversions in the Murray-Darling Basin and an interim cap on diversions was introduced. Reporting on cap compliance began in the 1997–98 water year. The Independent Audit Group (IAG) reviews cap compliance in each state as required under Schedule E (Cap on Diversions) of the Murray-Darling Basin Agreement.

Historically, South Australia has conservatively managed its River Murray water resources. In response to declining water quality and quantity in the 1960s, the South Australian Government implemented its own cap in 1969 to avert increases in water use. The state then enacted the first integrated water resources management legislation in Australia, the *Water Resources Act 1976* (SA). This supported the management of state water resources and preservation of water quality and provided for the sharing of available water on a fair basis. A further reduction in diversions was made in 1979 as licences were revised based on their actual use between 1976 and 1979.

The MDBA is responsible for managing the implementation of the cap for each designated river valley in the Basin as specified in Schedule E.

In South Australia there are four river valleys with designated caps; described as follows:

- A total of 650 GL over any five-year period for River Murray water delivered to Metropolitan Adelaide and Associated Country Areas
- 50 GL per year to supply water to Country Towns
- 94.2 GL per year for the Lower Murray Swamps, and
- A long-term average diversion for 'All Other Purposes' of Water from the River Murray' of 449.9 GL/year.

The 2009–10 independent audit determined that all diversions in South Australia remained within cap targets. The 2010–11 independent audit will be undertaken in September 2011.

Development and finalisation of Schedules G and H to the MDB Agreement

South Australia was closely involved in the development and finalisation of Schedule G (Accounting for South Australia's Storage Right) and Schedule H (Water Sharing During Tiers 2 and 3) to the Murray-Darling Basin Agreement. The Schedules give effect to the state's right to carry over and store entitlement water for future Critical Human Water Needs and private carryover in the major upstream storages, and to implement a new reserves policy and tiered system for water-sharing during dry periods. They provide South Australia with greater flexibility in managing the timing of the delivery of its water entitlements.

The formal storage right provided under Schedule G gives South Australia the opportunity to develop a long-term carryover policy for water entitlement holders.

Key Achievements

- Identification, refinement and mapping of the existing user demand against the consumptive use limits for the Eastern Mount Lofty Ranges.
- South Australia achieved full compliance with the service standards for processing allocation and entitlement trade applications.
- Endorsement of new Schedules to the Murray-Darling Basin Agreement.
- Development of a draft risk management framework for water planning and management.
- South Australian diversions from the River Murray remain within the established cap targets.

03 PROTECTING THE RIVER

THE RIVER MURRAY AND THE ACTIVITIES IT SUPPORTS ARE CRITICAL TO THE SOCIO-ECONOMIC AND BIO-PHYSICAL WELLBEING OF SOUTH AUSTRALIA. THE RIVER IS THE PRINCIPAL SOURCE OF WATER FOR SUPPLIES IN GREATER ADELAIDE AND REGIONAL SOUTH AUSTRALIA; IT UNDERPINS SUBSTANTIAL IRRIGATION DEVELOPMENT ALONG THE RIVER CORRIDOR AND IN OTHER AREAS; IT PROVIDES ESSENTIAL ENVIRONMENTAL SERVICES TO THE HEALTH OF THE RIVER SYSTEM, THE LOWER LAKES AND THE COORONG AND IT IS UTILISED EXTENSIVELY FOR TOURISM AND RECREATIONAL ACTIVITIES.

MDB Policy and Strategy Program

The program has been leading the Government's response to key reforms, in particular the response to the MDBA's Basin Plan. This represents a significant opportunity to address over-allocation of resources across the Basin, manage salinity issues and achieve enhanced environmental and water security outcomes. The quality and security of water that all water users need can only be met from a healthy river.

Due in 2012, the Basin Plan will set new sustainable diversion limits on water extractions from surface water and groundwater sources in the Basin. The South Australian Government has provided technical advice, data and information to inform the development of the proposed Basin Plan and has represented the interests of the state in inter-jurisdictional forums.

In 2010–11 the Government submitted its response to the MDBA's *Guide to the proposed Basin Plan*. It addressed environmental water requirements, key environmental assets, catchment risks, socio-economic issues, water quality and salinity issues, critical human water needs and state water resource plan requirements.

The Government also worked with the Goyder Institute for Water Research to undertake a high-level scientific review of the Guide, and in particular, the implications of the three environmental water recovery scenarios (3000 GL, 3500 GL and 4000 GL) for South Australia. The Goyder science review synthesis report was provided to the MDBA and will be used by the South Australian Government in formulating its response to the proposed Basin Plan.

The Department for Water provided extensive policy analysis and advice to support the Minister for the River Murray, in his role as the South Australian representative on the Murray-Darling Basin Ministerial Council, and the Chief Executive of the Department for Water as the South Australian representative on the Basin Officials Committee.

River Murray System Operations Review

The River Murray System Operations Review began in late 2007–08 with the objective of ensuring the operations of the system deliver the objectives of the Water Act 2007, the Murray-Darling Basin Agreement and associated intergovernmental agreements (such as the 2008 Intergovernmental Agreement on Murray-Darling Basin Reform) in an effective and efficient manner. This includes evaluating the operational rules and practices the authority follows when managing the system.

The review will improve management through the evolution of better operating strategies, rules, assessments and planning to:

- Conserve water resources
- Mitigate flooding
- Prevent infrastructure damage
- Maximise environmental outcomes from bulk water transfers and storage operations, and
- Maintain suitable water quality throughout the River Murray system to meet the Basin's critical human water needs (CHWN).

Intergovernmental Relations

A key focus is South Australia's effective participation in the Murray-Darling Basin Ministerial Council, Basin Officials Committee and MDBA high-level committees, ensuring it identifies and addresses key management issues and requirements emerging from the Murray-Darling Basin governance and planning arrangements.

Significant activities (excluding work on the Basin Plan) in 2010–11 included;

- Finalisation of new Schedules to the Murray-Darling Basin Agreement
- A comprehensive review to determine the most effective and efficient delivery mechanism for the joint natural resource management and River Murray operations programs managed on behalf of the jurisdictions by the MDBA
- Finalisation of the Acid Sulfate Soils Risk Assessment Project which determined the spatial occurrence of, and risk posed by, acid sulfate soils at priority wetlands and other key environmental sites in the River Murray system, and
- Water recovered and listed on The Living Murray Environmental Water Register, which now totals 478 GL.

Salinity Management – including Salt Interception Schemes (SIS)

Management of River Murray salinity remains a significant issue for South Australia due to:

- Its location on the lower reach of the river
- The natural geological structure of the Murray-Darling Basin in which the River Murray acts as a drain for salt out of the landscape
- The influence of human development in mobilising salt to the river, and
- The ultimate implications of salinity in terms of water quality for all uses, including critical human water needs.

South Australia is committed to delivering salinity management obligations under the MDBA's Basin Salinity Management Strategy (BSMS) and also recognises the importance of salinity management through actions and targets in key state-level strategies and plans, including the *Water for Good* plan (Action 56) and South Australia's Strategic Plan (SASP) Target T3.11 on River Murray salinity.

Continued effort will be required from South Australia to manage the risk of increased salt loads due to past actions, continued irrigation development and increased mobilisation of salt that may result from higher flows and environmental watering. In 2010–11 funds from the Save the River Murray

Levy were used to develop a new salinity program to enable the state to address these risks and continue to meet its BSMS obligations, the SASP target and deliver against the related *Water for Good* action.

Work on groundwater models to support the annual update of entries on the BSMS Salinity Registers included completion of a peer review, enabling accreditation of South Australian models. A project quantifying the local risk of floodplain salinity to the River Murray was completed, identifying mitigation strategies that could ensure water quality remains within target levels.

An initial salinity assessment of the operation of the Chowilla environmental regulator was completed. Further work is being undertaken to update the groundwater model to inform a more reliable salinity assessment.

Effort continues to be directed to working with the MDBA and environmental water managers to develop the accounting framework for assessment of the salinity impacts of environmental watering actions.

There will also be a focus on seeking efficiencies in the operation of salt interception scheme infrastructure, completing the five-year review of the Morgan to Waikerie groundwater model and providing input to the revision of the River Murray Water Allocation Plan.

03 PROTECTING THE RIVER

MDB Hydrological Modelling

In response to the high flow event in the River Murray in early 2011, hydrological modelling of the river was undertaken to determine likely extents of inundation. This led to the production of a series of maps overlaid on aerial photographs, which were used to support emergency response planning. The maps were also made available to the public on the WaterConnect website.

Hydrological analysis and interpretation was provided to support negotiations regarding the new Schedule G (Schedule for South Australia's Storage Right) and Schedule H (Schedule for Water Sharing).

River Murray Act

The *River Murray Act 2003 (SA)* was enacted after recognition of the need for improved policy frameworks and integration of activities between agencies to ensure adequate protection of the River Murray.

The current focus of implementation of the Act is on refining the referral process, in line with Government policy, to reduce unnecessary red tape. In consultation with relevant development and planning agencies, the Department for Water identified opportunities to streamline and reduce referrals under the Act. This has mandated referral reductions through two primary reform processes that are subject to final approvals and regulatory frameworks being put in place. These initiatives are to:

- Explore opportunities to exempt specific areas and activities from the requirement to refer development applications under Schedule 8 of the *Development Regulations 2008* to the Minister for Water and the River Murray as part of the whole-of-government review of development referrals.

- Review referrals under other related operational Acts and seek to exempt referrals where assessment under the *River Murray Act 2003* adds no value.

The focus of the compliance program continues to be on negotiation and education, delivering results through avoiding harm to the River Murray. In the administration of the Act, 403 mandatory referrals under Schedule 8 of the *Development Regulations 2008* were assessed during 2010–11 against the objects of the Act and the objectives for a healthy river. Referrals related to buildings, river structures, earthworks within the floodplain, activities requiring River Murray water (such as irrigation or feedlots) and land divisions.

A comprehensive review of the River Murray Act Implementation Strategy was conducted during 2010–11 and incorporated a review of the powers and functions of the Act. More than 100 stakeholder groups were included in the consultation process.

A new implementation strategy will be developed, commencing in 2011–12. Additional investigations will also be undertaken, including the development of annual reporting indicators.

Riverland Drainage Disposal Systems and Waste Disposal Stations

There are 13 River Vessel Waste Disposal Stations along the River Murray in South Australia. They accept black water, grey water and solid waste free of charge. A station upgrade program continued during 2010–11 to meet increased houseboat traffic, adhere to recent legislative changes requiring the acceptance of grey water and to modernise ageing facilities nearing the end of their useful life.

Refurbishment of the Blanchetown station was completed in September 2010. The Goolwa Waste Disposal facility was integrated with Alexandrina Council's short-term mooring facility just south of Signal Point as part of a jointly funded and managed undertaking with the Alexandrina Council and the South Australian Boating Facility Advisory Committee. Work was completed in February 2011.

The Walker Flat Waste Disposal Station remained out of service during 2010–11 due to a high risk of riverbank collapse. Remedial investigations to determine whether the station could be reopened continued.

The Department for Water operates and maintains 17 drainage disposal basins in the Riverland. Ongoing operation and maintenance of each disposal basin has been undertaken and tasks such as rabbit and weed control will continue. The high flow experienced this year meant that most of these basins were flushed for the first time in many years, assisting in the export of salt from the Murray-Darling Basin.

Repair work began on structures at the Loveday Basin.

The department completed negotiations with the landowners surrounding the Noora Drainage Basin for the purchase of an additional 546 hectares to become part of a buffer zone for the Basin. Revegetation Plans for the 'buffer zone' and internal areas of the Basin have been completed and will be used in future revegetation programs.

Water Quality Improvement

The Environment Protection Authority's focus for the River Murray is to identify and manage activities that could present a risk to water quality. Activity in 2010–11 included:

- Weekly assessment of water quality for the Lower River Murray and the Lower Lakes
- Providing advice on development approvals to planning authorities to minimise the potential impact of developments on water quality. The EPA commented on 40 development applications in the River Murray Protection Area
- Continued work with commercial vehicle operators to ensure compliance with new regulations for grey water management systems. By 30 June 2011 about half the commercial fleet had complied
- Supported the commercialisation of two grey water treatment products for river vessels
- Development and implementation of an industry accreditation program for private vessels on the River Murray. Two independent operators were accredited to inspect vessels for wastewater compliance and inspected 48 private vessels in the first six months of the program

- Conducted random audits of black water systems on 720 vessels in the Goolwa, Mannum and Murray Bridge regions, and
- Undertook technical assessments of acid drainage in the Lower Murray Reclaimed Irrigation Area.

Wetland Management

Annual monitoring of wetlands managed by the Department of Environment and Natural Resources in accordance with its Hydrological Management Plan was completed. Monitoring of water quality, waterbird abundance and species richness, fish presence/absence, frogs and tree condition occurred at the following wetlands; Morgan CP Lagoons, Carpark Lagoons, Ngak Indau Wetland, Little Duck and Causeway Lagoon, Winding Creek, Pilby Creek and Pilby Lagoon, Werta Wert Lagoons and Lake Littra, Coppermine Waterhole, Lock 6 wetland and Pipeclay Lagoon.

Reports on hydrological management and ecological and hydrological monitoring outcomes of 14 River Murray wetlands were completed.

Lower Murray Levee Banks

Severe cracking caused by recent drought conditions was repaired in the Mypolonga and Neeta levees during the year. This work involved filling the cracks with a low-strength cement dry slurry followed by top dressing, and proved to be very successful.

Routine maintenance consisting of fox baiting, rabbit control, weed spraying and minor earthworks continued.

Salt Interception Schemes Operations and Maintenance

South Australia continued to fund its component of the ongoing operation maintenance of the MDBA and South Australian shared Salt Interception Schemes.

03 PROTECTING THE RIVER



Key Achievements

- Completed a review of the *River Murray Act 2003* Implementation Strategy and presented on the review to the Natural Resources Committee of Parliament.
- Responded to the *Guide to the proposed Basin Plan*, and reviewed the science that underpinned it.
- Completed the triennial review of the *River Murray Act 2003* including a review of powers and functions under the Act.
- The 2010–11 annual reports on hydrological management and ecological and hydrological monitoring outcomes of thirteen River Murray wetlands and wetland complexes on Crown owned land were completed
- The Living Murray program contributed 157,347 ML delivered to wetlands within the Chowilla floodplain and the Lower Lakes

- The Commonwealth Environmental Water Holder contributed 139,191 ML for Carpark Lagoons on the Katarapko floodplain and the Lower Lakes
- Private donations contributed 100 ML for priority wetlands within the Pike floodplain
- 8,873 ML of return flows from Victorian environmental watering actions flowed to South Australia and were delivered to the Lower Lakes, and
- Approximately 92,000 ML were delivered to the Lower Lakes from the South Australian River Murray Drought Allocation Framework.

Further planning and the development of watering proposals occurred to ensure that the benefits of the 2010–11 high flows are consolidated by follow-up watering, which will provide multiple environmental benefits including:

- Improved health of floodplain vegetation, particularly River Red Gum and Black Box
- Increased abundance of invertebrates
- Seed germination and dispersal of important species including River red gums
- Breeding cues for native fish such as Murray cod, and
- Feeding and breeding habitat for many species of water birds.

Future environmental water management will also be guided by work undertaken in 2010–11 to determine the environmental water requirements for River Murray ecosystems in South Australia. This will inform South Australia's input to the development of a strategic environmental water management framework, the Murray-Darling Basin Plan process, and water allocation planning for the River Murray Prescribed Watercourse.

THE WATER YEAR BEGAN IN DROUGHT BUT SIGNIFICANT HIGH RAINFALL IN THE UPPER CATCHMENTS OF THE MURRAY-DARLING BASIN LED TO RIVER MURRAY FLOWS IN SOUTH AUSTRALIA PEAKING IN FEBRUARY 2011 AT 93,800 ML PER DAY. CONSIDERABLE VOLUMES OF ENVIRONMENTAL WATER WERE ALSO DELIVERED AND CONTRIBUTED TO THE START OF THE WETLAND AND FLOODPLAIN RECOVERY PROCESS. THE FOLLOWING ENVIRONMENTAL WATER WAS RECEIVED FOR THE RIVER IN SOUTH AUSTRALIA:

Chowilla Floodplain Icon site

The Chowilla floodplain contains a high diversity of both terrestrial and aquatic habitats, supporting populations of rare, endangered and nationally threatened species, and has many sites of cultural significance. Before the 2010–11 high flow event, numerous temporary watering banks were decommissioned to ensure they did not restrict the inflow of water to wetlands. All of the wetlands that had been maintained as refuges throughout the drought were watered during the high river flows. Initial surveys following the high flow event indicated an increase in bird and frog numbers and positive vegetation responses.

Construction of the Chowilla Creek environmental regulator temporarily ceased in October 2010 due to the high flows in the river and is not expected to recommence until early 2012. A further 18 months of construction activity remains at Chowilla to complete the regulator and ancillary works. Operation of the environmental regulator will enable up to 50 per cent of the Chowilla floodplain to be inundated at low flows.

A range of other activities and investigation are in progress at Chowilla. Numerous ecological investigations have been undertaken to inform the operation of the Chowilla Creek regulator and to ensure comprehensive monitoring and risk management plans are developed. Community engagement and communication activities have also continued throughout 2010–11. In addition, a revision of the Chowilla Icon Site Environmental Water Management Plan commenced.

Lower Lakes, Coorong and Murray Mouth Icon Site

The return of significant volumes of water to the Lower Lakes enabled the system to begin to recover. Connectivity between the Lower Lakes and Coorong was re-established and the management of salinity became a key focus.

The Lower Lakes, Coorong and Murray Mouth Icon Site program is directed by the results of condition monitoring, which aims to inform progress against a set of ecological targets in the environmental management plan. Results of the monitoring program have guided priorities for environmental watering.

The rapid shift in salinities at the site and extended high water levels over mudflats in the Coorong have provided little feeding habitat for migratory birds, leading to a reduction in numbers and a better understanding of the need to ensure suitable mudflat habitat in summer if possible.

The Murray Mouth dredging program ceased in December 2010 as high barrage flows ensured an open Murray Mouth. Fish monitoring in the Coorong showed a shift in species composition from predominantly marine species to a combination of freshwater, estuarine and marine.

Overall, there are positive signs for future recovery of this site provided secure and sufficient environmental flows are delivered to meet the site's environmental water requirements.

04 ENHANCING THE ENVIRONMENT

Adaptive Floodplain/Wetland Management for Biodiversity Outcomes

The Department of Environment and Natural Resources works with the community, the SA MDB NRM Board and the Department for Water to manage a floodplain and wetland program that addresses impacts on wetlands in the River Murray corridor. This program implements a range of projects to help conserve and enhance the biodiversity of wetland habitats along the river.

A significant Murray hardyhead population of the nationally threatened native fish was discovered in the Gurra Gurra Lakes system in September 2010. This newly discovered population complements the two other Riverland populations located in the Berri and Disher Creek Saline Water Disposal Basins. A captive bred population of Murray hardyhead were translocated into the Causeway Lagoon upstream of Lock 4 in October 2010. Monthly water quality monitoring and six-weekly fish monitoring has been undertaken at the site for the past year.

In addition to the Gurra Gurra population, four populations of Murray hardyhead fish have been confirmed in South Australia; two are near Berri (Berri saline water disposal basin and Disher Creek saline water disposal basin), one wetland near Murray Bridge (Rocky Gully) and at least one site within the Lower Lakes region of the Murray River (Boggy Creek).

MDBA Native Fish Strategy funding of \$200,000 for demonstration reaches for native fish projects was received to support the Katfish Reach community engagement activities and native fish monitoring.

Environmental Water for the Lower Lakes

In 2009 the South Australian Government made a commitment to provide 170 GL of water to the Lower Lakes in 2009–10 to maintain water levels in Lake Alexandrina in order to delay and mitigate the impacts of acidification, salinity and infrastructure damage. The full amount was delivered between December 2009 and March 2010. In March 2010 the Government committed a further 170 GL to the Lower Lakes during 2010–11. This volume was supplemented by substantial volumes of unregulated flow from September 2010, negating the risk of acidification in the Lower Lakes.

The reconnection of Lake Alexandrina, Lake Albert and the Goolwa Channel, following the partial removal of the Narrung Bund and the temporary environmental regulator at Clayton, allowed the release of water through the barrages into the Coorong, reducing salinity in Lake Alexandrina, providing fish passage to the Coorong and slowly transitioning the Coorong from marine to estuarine condition.

Key Achievements

- The provision of environmental water to the Lower Lakes, Coorong and Murray Mouth, and partial removal of the Narrung bund and regulator at Clayton Bay, contributed to the site's recovery through the restoration of flows through the Mouth, and restoration of connectivity between the Lakes and the ocean and with the Coorong.
- A significant Murray hardyhead population of the nationally threatened native fish was discovered in the Gurra Gurra Lakes system in September 2010, and four Murray hardyhead populations were confirmed.
- MDBA Native Fish Strategy funding of \$200,000 for demonstration reaches for native fish projects was received to support the Katfish Reach community engagement activities and native fish monitoring.

Investing in River Murray Ecology

During 2010–11 South Australia supported the evaluation and adoption of eWater Cooperative Research Centres' (CRC) modelling products. The investment included modelling the river and the catchments of the Mount Lofty Ranges. The eWater CRC also funded work by the Department for Water to assist in the development of the River Murray model using eWater's product, Source Rivers.

The Save the River Murray Fund will also continue to support the improvement and adoption of eWater CRC products through investment in the National Hydrological Modelling Strategy (NHMS) from 2011–12. This four-year commitment will further consolidate the adoption of a single, consistent water modelling platform across the Murray-Darling Basin.

Irrigation Research, Technology Diffusion and Education

Major research on the impacts of reduced irrigation on winegrapes, almonds and citrus continues to yield valuable results which will lead to the development of a framework to better manage the risk of drought. The third season of monitoring at trial sites is complete and has provided data from a second season of reduced water along with the initial recovery season. A package of irrigation management and crop husbandry strategies will be prepared with the aim of minimising damage to permanent horticulture under extreme water restrictions, and future work will also focus on the recovery of plantings.



SOUTH AUSTRALIA'S STRATEGIC PLAN PLACES A STRONG EMPHASIS ON BUILDING STRONG COMMUNITY NETWORKS AND ENHANCING INFORMATION TRANSFER. CAPACITY-BUILDING GENERATES KNOWLEDGE AND SKILLS THAT WILL BETTER EQUIP SOUTH AUSTRALIANS TO RESPONSIBLY MANAGE OUR NATURAL RESOURCES. THIS WILL ALLOW SOUTH AUSTRALIANS TO SHARE IN MAKING DECISIONS FOR THEIR SOCIAL, ECONOMIC AND ENVIRONMENTAL FUTURES.

A system was developed to study grapevine responses to the combined effect of reduced irrigation allocation and elevated temperature, which are expected more frequently under climate change predictions for South Australia. The first experiment tested the impact on Shiraz grapes and opportunities for vineyard adjustments have been proposed for growers.

Research into the impacts of reduced water allocation on Riverland crops has now shifted from assessing crop survival to crop recovery since returning to full water allocation. The results of this research will better prepare growers for drought periods. Research has shown that when protracted reductions in irrigation allocations are next forecast, a rotational system of water reduction across the entire vineyard, rather than significant reductions contained to specific varieties, would be the best strategy to minimise long-term impacts on vines.

Living Murray Icon Site Indigenous Facilitators

Chowilla Indigenous facilitation was provided through an arrangement with the Victorian Mallee Catchment Management Authority. Relationships were built with a range of Aboriginal groups. Presentations were made to key groups and liaison with key individuals was undertaken. A newsletter was produced and distributed, a training program was developed and delivered and links to the icon site planning and management were established.

The Lower Lakes, Coorong and Murray Mouth icon site program delivered the Indigenous facilitation through a partnership with the Ngarrindjeri Regional Authority (NRA). Members of the NRA assisted with condition monitoring and provided input to the revision of the icon site environmental watering plan.

Key Achievements

- Scientific evaluation of the *Guide to the Basin Plan* by the Goyder Institute led to improvements in eWater ecological modelling packages. During the evaluation process, eWater was consulted and asked to make changes and improvements to its modelling packages. As a result, an improved version of the Eflow Predictor product was developed and released.
- The development of cooperative arrangements for the delivery of the Indigenous facilitator role for The Living Murray icon sites.



PROGRAM STATEMENT FOR THE PERIOD ENDED 30 JUNE 2011

	2011	2010
	Note	
	\$'000	\$'000
Funds held at 1 July	6,266	1,788
RECEIPTS	1	
Recurrent Appropriation	25,000	22,100
Total Receipts	25,000	22,100
EXPENDITURE		
Implementation of River Murray Prescribed Watercourse Water Allocation Plan	2,065	1,617
Salinity Implementation and Accountability	416	378
River Murray Act	576	528
MDBC State Contribution	4,055	4,264
Environmental Water Management	629	703
Murray-Darling Basin Hydrological Modelling	262	226
Improvement Management of Eastern Mount Lofty Ranges	564	897
Investing in River Murray Ecology	167	155
Drainage Disposal Basins Management	13	31
Upgrade of River Murray Waste Disposal Stations	1,043	578
Salinity Policy	303	289
Water Acquisition for Environmental Flows	2	10,536
Lower Murray Embankments	260	142
Murray-Darling Basin Reform	1,660	933
Intergovernmental Relations	311	160
SA River Murray Operations System Review and Decision System	74	148
Separated Water Rights for the River Murray Prescribed Watercourse	0	124
Riverbank Collapse	0	100
Implementation of MDB WAP Angas Bremer/Mallee/Noora/Marne Saunders/Peake Roby Sherlock	751	854
River Murray Operations	262	0
Levee Bank Remediation Works	580	0
Water Planning Policy	334	0
Salt Interception Schemes – Operations & Maintenance	225	0
Wetland Management	173	265
Irrigation Research, Technology Diffusion and Education	890	800
Water Quality Improvement	309	346
Total Payments	26,458	17,622
Net Increase in Funds	(1,458)	4,478
Funds held at 30 June	4,808	6,266

NOTES TO AND FORMING PART OF THE PROGRAM STATEMENT

1. Fund Purpose and Funding

The Save the River Murray Fund (the Fund) is established under Section 100 of the *Waterworks Act 1932*. The major purpose of the Fund is to provide funds for programs and measures to improve and promote the environmental health of the River Murray and ensure the adequacy, security and quality of the State's water supply from the River Murray. The Fund contributes to the excess of the State's contribution to the Murray-Darling Basin Authority and may be used to provide rebates (including administration costs) in particular cases.

Revenue collected from the Save the River Murray levy is paid into the Fund through the provision of appropriation from the Consolidated Account. The Fund is not interest-bearing.

(a) Goods and Services Tax (GST)

Generally transactions through the Fund are included under the grouping provisions of the GST legislation. Under grouping provisions, the Department for Water is responsible for the collection of GST on sales and payment of GST on purchases. The department received and paid these monies to the Australia Tax Office.

2. Water Acquisition for Environmental Flows

\$10.536 million was paid to Department of Treasury and Finance in 2010–11 for 50 gigalitres of environmental water secured for the Lower Lakes.

3. Save the River Murray Contributions Fund

A separate fund, Save the River Murray Contributions Fund, has been established to receive contributions where there is no obligation to pay the Save the River Murray Levy. The separate fund was created because the legislation that established the Save the River Murray Fund only provided for revenue to be received from the Save the River Murray Levy.

The funds received in the Save the River Murray Contributions Fund will be applied for the same purpose as the Save the River Murray Fund.

The balance of funds held in the Save the River Murray Contributions Fund at 30 June 2011 was \$4,415.



Licensed under Creative Commons
Attribution 3.0 Australia License

<http://creativecommons.org/licenses/by/3.0/au>

Copyright Owner: Crown in right of
the State of South Australia 2011