SAVE THE RIVER MURRAY FUND

ANNUAL REPORT 2009-10

Government of South Australia
Department for Water

WATER FOR GOOD

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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 the website at www.sa.gov.au

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INTRODUCTION

The Save the River Murray Fund (the Fund) was established under the *Waterworks Act 1932* (SA) on 24 July 2003. The Fund is held by the Minister for 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 2003. The levy is charged to all SA Water customers across South Australia, both residential and non-residential and is indexed annually.

The Save the River Murray Levy contributes to a program of works and measures to address the declining health of the River Murray in South Australia and increasing community demands for a high security of water of 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 acceptable quality for irrigation in South Australia at an appropriate price; and
- high security of water quality for urban water supplies.

It also contributes to a range of targets identified in South Australia's Strategic Plan 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 Authority salinity register (T3.11); and
- South Australia's water resources are managed within sustainable limits by 2018 (T3.9).

The River Murray and the southern part of the Murray-Darling Basin continued to experience low inflows in 2009-10. Although access to floodwaters from Queensland and New South Wales early in 2010 improved the overall water resource position, the total volume of water held in major public storages and the water levels below Lock 1 (Blanchetown) remained well below average.

During the 2009-10 Murray-Darling Basin Authority water year (June to May) the River Murray System inflows were approximately 3210 GL, which represented 36% of the long-term average of 8790 GL.

At the start of 2009-10, the total storage volume in Hume, Dartmouth, Lake Victoria and Menindee Lakes was 1321 GL (14% capacity). On 31 May 2010 storages were 3476 GL (37% capacity), including approximately 1500 GL for critical human water needs and private carryover for South Australia, New South Wales and Victoria.

As a result of last season water availability improvements, South Australian irrigators received a final allocation of 62% compared to 18% in 2008-09 and 32% in 2007-08.

The Fund contributes to a range of River Murray projects in South Australia and more broadly in the Murray-Darling Basin. The State contributed $24.388 million to the Murray-Darling Basin Authority (MDBA) in 2009-10, of which $4.264 million was sourced from the Save the River Murray Fund.

Drought Measures

Funding was provided through the Murray-Darling Basin Authority (MDBA) to support the following emergency drought management measures required to reduce the risk of greater environmental damage to important River Murray lakes and wetlands:

- Pumping water from Lake Alexandrina to Lake Albert to maintain the water level in Lake Albert;
- The Lake Albert Spoil Treatment and Channel Preparation Project to remove and safely dispose of around 65,000 cubic metres of sediment to a submerged disposal site in Lake Alexandrina and dredging of the Narrung Channel to enable up to 1 GL of water per day to be reliably pumped from Lake Alexandrina to Lake Albert;
- Ongoing dredging at the Murray Mouth, which has ensured a hydrological link between the Coorong and the sea; and
- The Goolwa Channel Water Level Management Project, jointly funded by the MDBA and the Commonwealth Government has minimised the risk of acidification in the Goolwa Channel and the ecologically important wetlands in the Finniss River and Currency Creek estuaries.

Murray-Darling Basin Reform

During 2009-10, the MDBA has been preparing a Basin Plan for the integrated and sustainable management of surface water and groundwater resources in the Murray-Darling Basin. The Plan represents a significant opportunity to address over-allocation of resources across the Basin, manage salinity issues and achieve enhanced environmental and water security outcomes.

South Australia has provided technical advice, data and information to inform the development of the proposed Basin Plan. This included a formal State Government submission in response to the MDBA's issues paper: *Development of Sustainable Diversion Limits for the Murray-Darling Basin*.

In addition, the Fund supported South Australia's participation in reforms under the Murray-Darling Basin Agreement including the preparation of draft schedules for water sharing under dry conditions and to enable South Australia to exercise its right to store water in upstream storages, a review of the Agreement and the River Murray System Operations Review.

Environmental Watering

The 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 2009-10, South Australia received 52,835 megalitres from TLM and 29,767 megalitres from the CEWH, allowing environmental water to be allocated to 22 sites.

In 2009-10 a total of $32.6 million was received into the Fund and $28.1 million was expended from the Fund on works and measures under the River Murray Improvement Program.

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; and
- 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 Initiative aims to "create a healthy working river that assures continued prosperity, clean water and a flourishing environment". The program aims to achieve this outcome through:

- recovering water for the environment;
- building infrastructure to deliver water efficiently;
- delivering environmental water to the icon sites as water becomes available;
- monitoring the impacts of environmental water at the icon sites; and
- consulting with the community to ensure their input into achieving these outcomes.

The Living Murray Initiative included a national water recovery target of an average of 500 gigalitres (GL) per year for environmental purposes. The Murray-Darling Basin Authority, and the New South Wales, Victorian, South Australian, Australian Capital Territory and Commonwealth Governments contributed to the recovery of this volume of water.

During 2009-10, South Australia finalised the listing of 35 GL of recovered water on the Living Murray Environmental Water Register. This listing confirms that the water is made available for environmental purposes in perpetuity. To date, South Australia is the only state to have met its water recovery target.

In addition to investing in water recovery projects within South Australia, funds from the Save the River Murray Levy have allowed the state to invest in water recovery projects put forward by other Murray-Darling Basin jurisdictions. Investment in upstream measures contributes to increasing the total amount of water recovered for environmental purposes and will benefit South Australia through the provision of increased environmental flows.

South Australian River Murray Environmental Manager

The River Murray Environmental Manager function initially resided in the South Australian Murray-Darling Basin Natural Resources Management Board (SA MDB NRM Board). To optimise South Australia's commitment to negotiating improved outcomes from the sharing and management of Murray-Darling Basin resources, it was identified that the development of environmental water policy should be fully integrated into the broader resource management policy development processes. Also, there was a need to develop broader environmental water management policies for inclusion in resource management plans and water allocation plans across the state and to participate at a national level in developing environmental water policy. To this end the function was transferred to the former Department of Water, Land and Biodiversity Conservation (now the Department for Water).

As the drought continued, it was essential to provide environmental water to key drought refuges to ensure the survival of a diverse range of species, especially those identified as threatened or at risk. The Environmental Water Management Program worked with other government agencies, the SA MDB NRM Board and the community to identify priority sites that met the TLM and CEWH criteria and secured environmental water and funding in 2009-10. The development of the Strategic and Annual Watering Plans commenced during this period.

During 2009-10 additional environmental flows of 36000 ML were allocated to the River Murray through increased flows in the River Murray channel. This water was allocated to a number of sites to improve ecological health in the River Murray system.

Key Achievements

- South Australia is the only jurisdiction to meet The Living Murray Initiative water recovery target.
- An additional 36000 ML of environmental water was allocated during 2009-10 through increased flows.

02

SECURING WATER RIGHTS

Securing the water rights of the River Murray and Murray-Darling Basin is important for licenced water users and the wider South Australian community in economic, social and cultural terms.

Eastern Mount Lofty Ranges Catchment

Water resources in the Eastern Mount Lofty Ranges were prescribed on 8 September 2005 and the area is under a Notice of Prohibition until October 2011. The Notice of Prohibition prohibits any new or additional water use during the notice period. Existing users have been issued with a temporary authorisation to take water at existing levels of use.

The SA MDB NRM Board is in the process of developing a water allocation plan for the area. Extensive scientific investigation into the capacity of the resource plus community and industry consultation is being undertaken as part of this process. It is anticipated that the water allocation plan will be adopted during 2011.

River Murray Prescribed Watercourse Water Allocation Planning, Licensing and Compliance

Implementation of the River Murray Water Allocation Plan, the *Natural Resources Management Act 2004* (SA) and the *River Murray Act 2003* (SA) continued as a significant Government program in 2009-10 ensuring security of water rights for River Murray water users was protected during ongoing drought conditions, and that transfer of these rights, where appropriate occurred efficiently.

Preliminary work commenced in preparation of the River Murray Water Allocation Plan amendment process being managed by the SA MDB NRM Board under the *Natural Resources Management Act* 2004 (SA).

From 1 July 2009 an amendment act, the *Natural Resources Management Act (Water Resources and Other Matters) Amendment Act 2007* (SA), enabled the separation of existing water licences along the River Murray in South Australia. The separation of approvals to take and use water from dealings in water access entitlements and allocations has increased efficiency.

Additional Programs

Other programs of significance continued throughout 2009-10 including the administration of the River Murray salinity zoning policy, support of South Australia's Murray-Darling Basin salinity reporting obligations, ensuring effective water allocation transfers, water use monitoring and reporting and implementation of South Australia's metered water use policy.

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

Ongoing implementation of existing Water Allocation Plans within the Murray-Darling Basin in South Australia has also occurred, in particular the Angas Bremer and Mallee Prescribed Wells Areas. The primary focus for 2009-10 was on the 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 demands of users 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 water resources of the Marne and Saunders Rivers were prescribed on 20 March 2003. Following the adoption of the Marne Saunders Water Allocation Plan, licences were issued to existing users on 30 June 2010.

During 2005 additional areas of the Mallee, including the Hundreds of Peake, Roby and Sherlock were also prescribed. Existing users of the water resources are authorised to continue to take water at their existing levels of use. Officers from the Murraylands region of the Department for Water have been working with the SA MDB NRM Board in the development and review of draft water allocation plans for these areas.

Water Trade

Continued low inflow conditions across the Murray-Darling Basin, resulted in restricted allocations to River Murray irrigators. Individual transfer numbers were 56.2% lower than in 2008-09. This decrease was principally due to higher allocations than in 2008-09 as a result of an improvement of inflow conditions.

A summary of water allocation transfer activity in 2009-10 and comparison with 2008-09 are detailed in the table below:

	2008-09		2009-10	
	No.	Volume (GL)	No.	Volume (GL)
Trade into SA				
NSW	2262	317.4	434	210.2
VIC	300	22.5	478	64.4
Trade from SA				
NSW	10	0.3	24	4.2
VIC	63	4.7	71	17.8
Trade within SA				
Temporary	789	409.6	491	223.7

An increase in permanent water entitlement transfers within South Australia occurred in 2009-10, principally due to purchases by the Commonwealth Government under the Murray-Darling Basin Small Block Irrigators Exit Grant Package.

A summary of water allocation transfer activity in 2008-09 and comparison with 2007-08 is detailed in the table below.

Entitlement Trade	2008-09		2009-10	
	No.	Volume (GL)	No.	Unit Shares
Permanent	233	49.9	472	84,182,012
Temporary	789	409.61	21	1,020,880

Murray-Darling Basin 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 against the Murray-Darling Basin Annual Cap commenced in 1997.

Historically, South Australia has conservatively managed its water resources. In response to declining water quality and quantity levels in the 1960s, the South Australian Government set its own Cap in 1969 in order to avert increases in water use. South Australia then enacted the first integrated water resources management legislation in Australia, the *Water Resources Act 1976* (SA). This Act supported the management of the state water resources, 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 during the 1976 to 1979 period.

The MDBA is responsible for managing the implementation of the Cap for each designated river valley in the Basin as specified in schedule E of the Murray-Darling Basin Agreement.

In South Australia there are four designated Cap Valleys with their Cap 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 2008-09 Independent Audit Group Report on Cap compliance found that water use under the four Cap Valleys remained below the annual Cap targets. The 2009-10 Independent Audit will commence in September 2010.

Separation of Water Rights

The separation of water rights for the River Murray Prescribed Watercourse fulfilled a commitment made by the Premier to the Federal Minister for Climate Change and Water. It is one of the most significant reforms to the management of South Australia's water resources in the past three decades.
In particular, it has enabled the more efficient and effective processing of interstate and intrastate water trades. This has had several immediate benefits including significant 'red-tape' reduction and lower costs for licence and approval holders as well as reduced processing times. This project also set out the framework for the separation of water rights for the remainder of the state's prescribed water resources.

Key Achievements

- Maintained expanded programs addressing non-compliant water extraction, water course damage and metering.
- Facilitated increased aquifer storage and recovery of water in the Angas Bremer area as a significant drought response initiative for water users in the Lower Murray.
- Continued assessment of existing user applications in the Marne Saunders, Mallee (expansion Areas) and Peake Roby Sherlock Prescribed Water Resources.
- From 1 July 2009, an amendment to the *Natural Resources Management Act 2004* (SA) enabled the unbundling of existing water licences along the River Murray in South Australia.

03

PROTECTING THE RIVER

The Murray-Darling Basin Program led and coordinated strategic policy development for management of Murray-Darling Basin water resources and supported South Australia's interface with the MDBA and other jurisdictions on Murray-Darling Basin issues.

In particular, a key focus for the program was supporting South Australia's input to the development of the Basin Plan and reviews of River Murray System Operations and the Murray-Darling Basin Agreement to ensure improved water security and environmental outcomes for the River Murray System and South Australia.

Key activities of the Murray-Darling Basin Program included:

- supporting the successful negotiations of special water sharing arrangements for 2009-10 to enable scarce River Murray water to be shared amongst New South Wales, Victoria and South Australia to meet critical human water needs and restricted irrigation needs under the ongoing drought conditions;
- supporting the development of schedules to the Murray-Darling Basin Agreement for South Australia's Storage Right and Water Sharing;
- coordinating State Government agency input to the development of the proposed Basin Plan;
- providing policy input and coordination to the development and negotiation of a climate responsive annual metropolitan Adelaide Cap on diversions;
- providing the State's input into salinity policy, particularly the development of the MDBA's Water Quality and Salinity Management Plan;
- providing ongoing modelling, analysis and GIS data to inform and support River Murray decisions; and
- managing the delivery of onground projects to protect key environmental and physical assets to mitigate large scale impacts of ongoing low water availability.

Basin Plan

In 2009-10, the Program coordinated State Government agency input to the development of the proposed Basin Plan by the MDBA. This included preparing a formal State Government submission in response to the MDBA's issues paper: *Development of Sustainable Diversion Limits for the Murray-Darling Basin*; and providing advice, data and information about key environmental assets, environmental water requirements, catchment risks, socio-economic issues, water quality and salinity issues, critical human water needs and state water resource plans.

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

In 2010-11 the MDBA will release the proposed Basin Plan for consultation. The Program will lead an extensive review of the Plan and the development of a whole of Government response, including the implementation of processes to understand community and stakeholder issues and engage scientific expertise.

Murray-Darling Basin Agreement and River Murray System Operations Review

The Program supported South Australia's participation in a number of projects of strategic and operational importance to this state due to their implications for River Murray water sharing, delivery and accounting.

In 2009-10, special drought water sharing arrangements with other Basin States were negotiated and finalised to enable priority to be given to delivering critical human water needs from the River Murray system.

South Australia participated in a review of the Murray-Darling Basin Agreement commenced by the Basin jurisdictions. The review has examined options for improving the management of water resources in the Basin, in particular the operation of the River Murray System, to better meet the challenges of a drier future. The review will continue into 2010-11 but will not impact on the timing and development of the Basin Plan by the MDBA.

South Australia was closely involved in the drafting of new schedules under the Murray-Darling Basin Agreement to give effect to South Australia's right to carryover and store water for critical human water needs and private carryover and to implement a tiered system for water sharing during dry periods. The development of the schedules will reduce the need for special water sharing arrangements to be negotiated on an annual basis in the future. Schedule development will be finalised and ready for adoption by the MDB Ministerial Council in 2010-11.

River Murray System Operations are currently being reviewed in a major project being conducted by the MDBA that seeks to improve river operations through the evolution of better operating strategies, rules, assessments and planning. South Australia has actively participated in the review. The River Murray Systems Operations review will continue to 2010-11.

Salinity Management

Management of River Murray salinity remains a significant issue for South Australia because of its location on the lower reach of the River Murray; 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) [Schedule B, Schedule 1, *Water Act, 2007* (Cth)] and also recognises the importance of salinity management through actions and targets in key State level strategies and plans including the Water for Good Strategy (Action 56) and South Australia's Strategic Plan Target (T3.11) on River Murray salinity.

In 2009-10, a review of water quality and salinity for the River Murray in South Australia was completed. The review supported South Australia providing advice and information on water quality and salinity management issues in South Australia to the MDBA to assist in the development of the Water Quality and Salinity Management Plan under the Basin Plan.

Work continued on groundwater models to support the annual update of data entries on the BSMS Salinity Registers. Modelling support for salinity management in the River Murray is fundamental to meet South Australia's salinity management obligations within Schedule B and ensuring appropriate management action. A project examining the future risks to South Australia's entries on the BSMS Salinity Registers was completed. The outcomes are being used to inform the future program of modelling work necessary to ensure that South Australia's entries are based on best available information.

Work is progressing on the construction of the Murtho Salt Interception Scheme. Preliminary investigations for the proposed Pike Salt Interception Scheme also commenced.

Effort continues to be directed to working with irrigators and community groups through Land and Water Management Plans.

South Australian River Murray Decision Support System

The South Australian River Murray Decision Support System Project commenced in 2009-10. This project will review current South Australian River Murray water management decision making processes and develop an integrated decision framework to inform real time management of the River Murray in South Australia, to deliver quality water to key assets and users.

The initial stages of the project have focused on identifying existing decision making processes and key stakeholders, developing an issues paper to identify the scope of the project. Preliminary analysis of key business and decision making processes was completed.

Murray-Darling Basin Modelling and Assessment

Capacity building has continued through the development of a dedicated group focused on River Murray modelling and analysis. Technical input has been provided to inform policy decisions regarding Murray-Darling Basin policy reform on the schedule for South Australia's storage right, the schedule for water sharing and the Basin Plan.

A hydraulic (surface water) and salt transport modelling project has commenced for the River Murray which aims to provide a platform for improved definition and modelling of salt inflows to the river under future flow and management scenarios.

Ongoing modelling and analysis has been undertaken to support River Murray decisions including analysis of river flow and salinity, reviewing external reports relating to the hydrology and hydraulics of the River Murray and processing and provision of GIS data such as bathymetry and cross-sections.

Additional analysis has commenced on the Bookpurnong floodplain to assess the ecological response to the Salt Interception Scheme (SIS). The assessments will incorporate ecological modelling and remote sensing of vegetation as well as existing geophysical (AEM) data. This project aims to quantify the benefit to tree health from groundwater freshening as a result of the Bookpurnong SIS design and operation. This knowledge will help inform future floodplain management approaches.

Hydraulic modelling was undertaken to provide advice to the pumping operations at Lake Albert. A hydraulic model was created for the Narrung channel and used to develop recommended dredging profiles (depth, width) for ensuring an adequate supply of flow to the pumps, particularly when there is a low water level in Lake Alexandrina.

Lakes Alexandrina and Albert

In 2009-10 substantial investment was made by Government in the Coorong, Lower Lakes and Murray Mouth region to protect key environmental assets and mitigate large-scale impacts of the drought.

A number of key South Australian Government agencies and the MDBA have worked closely together to undertake a range of emergency interventions in the region. These have included the application of limestone to exposed lakebed sediments affected by acidification, the implementation of the Goolwa Channel Water Level Management Project and the Lake Albert Water Level Management Project.

The Goolwa Channel Water Level Management Project was implemented to mitigate the risk of acidification of the Goolwa Channel. Two earthen regulators were constructed, one across Currency Creek and another across the Goolwa Channel near Clayton. These structures enabled the pumping of water into a new pool created in the Goolwa Channel to ensure that acid sulfate sediments were inundated with water, minimising the movement of acid and related toxins into the watercourse.

In 2009-10 the Lake Albert Water Level Management Project (Part 2) and the Lake Albert Spoil Treatment and Channel Preparation Project were undertaken. These projects made use of the Narrung Embankment that was constructed as a temporary measure in 2008-09. The project ensured that the channel between Lakes Alexandrina and Albert has the capacity to reliably deliver enough water to enable the management of Lake Albert.

The Lake Albert Water Level Management Project (Part 2) was implemented to transfer water from Lake Alexandrina to Lake Albert. From January to June 2010, 90 GL was pumped into Lake Albert maintaining a critical water level in Lake Albert of above minus 0.5 m AHD to avert large-scale acidification in Lake Albert. Implementation of this project has ensured that acid sulfate sediments have remained submerged.

The ongoing Murray Mouth Sand Pumping Project continued in the Murray Mouth. The project ensures that there is constant exchange of water between the Southern Ocean and the Coorong. The exchange of water (in the absence of freshwater Barrage releases from the Lower Lakes) prevents salinity build-up in the Coorong and provides cooler, oxygenated ocean water to the Coorong which is critical for the ecosystem.

Riverbank Collapse

During 2009-10, Riverbank Collapse emerged as a new State Hazard below Lock 1 (Blanchetown), due to unprecedented low water levels.

A series of geotechnical investigations were undertaken at 13 high priority sites, which concluded that an emergency response was required.

The State Emergency Management Committee (SEMC) convened an Extraordinary Meeting on 30 September 2009 and was briefed by the former Department of Water, Land and Biodiversity Conservation. This resulted in the formal elevation of the Riverbank Collapse Hazard to the status of a State Hazard, under the *Emergency Management Act 2004* (SA). The Department was identified as the Hazard Leader for Riverbank Collapse Hazard. A Riverbank Collapse Hazard Program has been established to coordinate all relevant aspects of hazard management. A Riverbank Collapse Hazard Plan has been prepared and endorsed by the SEMC. It identifies the roles and responsibilities of particular organisations in a framework of mitigation, prevention, preparedness, response, and recovery activities.

A Communications Plan has been prepared for Riverbank Collapse Hazard to provide relevant information to the public. It includes the establishment of a 24 hour seven days a week hotline number, for the public to report incidents and information about Riverbank Collapse Hazard.

Since February 2009, a total of 125 incidents associated with the Hazard have been reported and confirmed by the Riverbank Collapse Hazard Program. This includes 35 incidents of collapse, 55 incidents of riverbank cracking that may result in future collapse, and 35 tree related incidents that have either collapsed or may result in collapse.

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 focus of implementation of the Act is currently on technical advice for specific planning issues, such as riverbank collapse. Mapping of risks and actual occurrence of riverbank collapse and riverbank erosion assist the effectiveness of advice on development applications and other referrals under the Act. Other issues that benefited from the coordinated referral and compliance mechanisms under the Act were illegal sand dumping, branched broom rape eradication, protection of native vegetation, extension or construction of jetties and moorings and storage of chemicals on the floodplain.

During 2009-10, the Department developed and consulted on a draft best practice guide for users of watercraft on the River Murray. The guide will be finalised in 2010-11.

A review was undertaken on a number of developments that had been referred to the Minister for the River Murray and had conditions imposed to protect the River Murray. It was found that 70 % of all cases reviewed complied fully with conditions. The majority of the remaining 30 % can be resolved though informing, educating and negotiating with the proponents. The review demonstrates the value of the referral mechanism and the conditions imposed to protect the River Murray. The focus of the Act's compliance program continues to be on negotiation and education, delivering real results in avoidance of harm to the River Murray and its environment.

In the administration of the Act, 401 mandatory referrals under Schedule 8 of the Development Regulations were assessed during 2009-10 against the objects of the River Murray Act and the objectives for a healthy River Murray. Referrals relate to buildings, land divisions, land use, river and water use, activities in riparian zones and native vegetation.

Riverland Drainage Disposal Systems and Waste Disposal Stations

There are 13 River Vessel Waste Disposal Stations, originally built in the 1970's, sited along 650 kilometres of the River Murray in South Australia. These stations were originally designed to accept blackwater and solid waste free of charge.

Recent legislative changes now require the stations to also accept greywater. An upgrade program for the stations is underway to meet increased houseboat traffic, accept greywater under the new legislative requirements and to modernise ageing facilities nearing the end of their useful life.

The Murray Bridge station was completely refurbished and refurbishment at the Blanchetown station was largely completed during 2009-10.

Designs for a combined short term boat berthing and waste disposal facility were developed in conjunction with the Alexandrina Council. Construction of the facility is expected in 2010-11.

The Department operates and maintains 17 drainage disposal basins in the Riverland area. Individual asset management plans have been prepared for each drainage basin.

Infrastructure plans were also developed for the Disher Creek disposal basin in order to provide a sustainable habitat for the endangered fish species, Murray Hardyhead.

Water Quality Improvement

The Environment Protection Authority's (EPA) primary focus for the River Murray is to identify and manage activities that present a risk to water quality. In 2009-10, the following activities were undertaken:

- continued implementation of the EPA Code of Practice for Vessel and Facility Management (marine and inland waters), including the introduction of grey water management requirements for river vessels, which has stimulated the development of world first greywater treatment technology;
- evaluation of proposals for development where the EPA is a referral agency. Examples of assessments included applications for jetties, boat ramps, retaining walls, dwellings, land divisions, intensive animal keeping, dredging and wastewater treatment plants;
- implementation of a media and enforcement campaign to increase awareness and reduce the instance of importing and dumping sand along the banks of the River Murray for amenity;
- continued planning for the implementation of the National Water Quality Management Strategy in cooperation with the SA MDB NRM Board;
- conducted random audits of 475 private river vessels, ensuring compliance regarding the design and proper management required for on-board blackwater management systems;
- launched a Waterwise houseboat campaign in conjunction with Water for Good to inform water saving and pollution reduction best practice for vessels on the River Murray; and
- continued monitoring and enforcement of the Lower Murray Reclaimed Irrigation Area rehabilitation project, to ensure obligations from the program such as erecting fencing to prevent stock access have been met.

Management of Lower Lakes Turtles

Australian freshwater turtles are iconic inhabitants of the rivers and wetlands across the Murray-Darling Basin. Since 2008 the Department for Environment and Natural Heritage has supported community volunteers to rescue, rehabilitate and release turtles affected by the impacts of elevated salinities in the Lower Murray. Turtles have evolved to live in freshwater environments, but as the salinity of the Lower Murray has increased they have struggled to find refuges with suitable food resources, and have faced competition from migrating marine species such as the tubeworm. Management interventions have been necessary to rehabilitate these stranded and vulnerable animals.

Community volunteers have been instrumental in providing temporary, cost effective care for the turtles with the view to release them into a healthy wetland until such time that the water quality in the Lower River Murray improves. Assistance has been provided to volunteers so that they have the necessary infrastructure to house animals comfortably. 191 turtles were rescued in 2009-10.

Since the commencement of the Lower Lakes Turtle Project more than 2,000 freshwater turtles have been rescued, rehabilitated and released back into the wild. In June 2010, 44 individuals remained in captive care.

Lower Murray Levee Banks

The principal role of the embankments is to protect reclaimed floodplains and wetlands currently used for agricultural purposes. Ongoing maintenance activities continued, including weed slashing and spraying, vermin control and embankment crest trafficked area repairs.

Several government owned embankments are affected by severe cracking (up to 200m long, 0.5m wide, and more than 2m deep), and have been marked as 'not trafficable'. Public warning signs have been erected on the entrances and side roads of affected embankments, warning that severe cracking has occurred. Approximately 5 km of severely cracked levee banks have been successfully repaired.

Ongoing monitoring and mitigation options are being developed. Initial investigations to better understand the extent of the damage was completed in order to enable development of a future strategy for the embankments.

Key Achievements

- EPA awarded the 2009 Premiers Award for public sector excellence under the category of Fostering Creativity and Innovation for the project titled, "*Driving Innovation – World First Greywater Treatment Systems for River Vessels*".
- Completed construction of the Currency Creek and Goolwa Channel (near Clayton) Regulators to mitigate against the threat of large scale acidification and pumped 27.5 GL of water from Lake Alexandrina into the Goolwa Channel.
- Established Riverbank Collapse as a state hazard under the *Emergency Management Act 2004* (SA).
- Policy input into the development of the proposed Basin Plan by the Murray-Darling Basin Authority.
- The development of new schedules under the Murray-Darling Basin Agreement to give effect to South Australia's right to carryover and store water for critical human water needs and private carryover and to implement a tiered system for water sharing during dry periods.
- South Australia remains in positive balance on the BSMS Salinity Registers following Murray-Darling Basin Ministerial Council endorsement of the November 2009 BSMS Salinity Registers.
- Release of a significant number of healthy rehabilitated freshwater turtles back into suitable wetlands.

04

ENHANCING THE ENVIRONMENT

Significant environmental assets of the River Murray have continued to decline due to ongoing drought conditions. The Basin Plan is being developed by the Murray-Darling Basin Authority to manage water into the future and to help ensure the maintenance and restoration of the key ecological assets. The Department for Water and the Department of Environment and Natural Resources have been actively involved in the identification of key ecological assets and functions for the Basin Planning process. There has also been a large volume of work undertaken on documenting the environmental water requirements of the key ecological assets. Two of the key assets are the Riverland Ramsar site (including the Chowilla floodplain icon site) and the Coorong, Lower Lakes and Murray Mouth Ramsar icon site.

A total of 118,841 ML of environmental water was allocated to 34 sites (including Lake Albert) within South Australia in 2009-10. The various water sources and associated volumes for environmental purposes were:

- 29,767 ML from the Commonwealth Environmental Water Holder;
- 52,835 ML from The Living Murray;
- 54 ML donation from Non Government Organisations;
- 185 ML of Environmental Land Management Allocation;
- 10,000 ML from the South Australian 2009-10 River Murray Drought Water Allocation Decision Framework; and
- 26,000 ML of state water made available through increases in allocations.

Chowilla Environmental Watering

A total of 13.5 GL was allocated to ten wetland sites on the Chowilla floodplain during 2009-10. Lake Limbra and Coombool Swamp received water for the first time having not been watered since the floods of 1996 and 2000 respectively. Ecological response to watering has been positive, including improvement in vegetation health, and bird and frog breeding events. Seven frog species were recorded at six environmental watering sites including the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) listed Southern Bell Frog which was recorded in large numbers at all monitored sites. Numerous water birds have also been recorded comprising 30 species including the threatened Australasian Shoveler *(Anas rhynchotis)*, Blue Billed Duck *(Oxyura australis)* and Musk Duck *(Biziura lobata)*.

Environmental Watering at Lower Lakes Wetlands

During 2009-10, 285 ML of environmental water from The Living Murray was allocated to three Lower Lakes wetland sites: Boggy Creek, Narrung and Turveys Drain. The ecological benefits that were achieved by the watering include providing drought refuge for threatened fish species such as Murray Hardyhead *(Craterocephalus fluviatilis)* and Southern Pygmy Perch *(Nannoperca australis)* and enhancing the seedbank and growth of submerged aquatic vegetation.

Lake Albert

A total of 68,300 ML was allocated to Lake Albert during 2009-10 from The Living Murray (48,300 ML) and the Commonwealth Environmental Water Holder (20,000 ML). The main objectives were to maintain the water levels above the critical acidification trigger of minus 0.75m AHD, reduce the salinisation of surface water and support biota such as waterbirds and fish.

Water for Nature – Nature Foundation SA

In December 2009 Water for Nature launched its second watering of River Red Gums at Hogwash Bend to promote the growth of the trees. This was a joint community effort through the Riverland West Local Action Planning Association and landowners. This has now created a healthy habitat for the Regent Parrots. During the breeding season, September through to November these trees are home to the largest population of threatened Regent Parrots in South Australia. The birds require healthy River Red Gums, preferably with good foliage cover, to provide nesting hollows for the birds within 50 metres of the River's edge.

Water for Nature will continue to be involved in further River Murray watering projects in the future.

Chowilla Floodplain Icon Site

The Chowilla Floodplain Icon Site 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. A decade of low flows has caused serious decline in the health of the floodplain, and areas that have not been artificially watered or do not have access to permanent water are stressed or dead.

The Chowilla Icon Site Management Plan is currently being implemented and describes the requirements for the recovery and maintenance of Chowilla.

Construction on the Chowilla Creek regulator commenced in January 2010 and will be completed in 2012. Once operational, the environmental regulator will enable flooding of up to 50% of the floodplain and ensure the protection of significant areas of River Red Gum and Black Box vegetation. Over the next two years investigations, operation planning, community consultation and monitoring will continue, as will the environmental watering program. The watering program has seen the strong recovery of 28 sites and has ensured the protection of key refuge areas. These areas will be maintained until the larger watering infrastructure is operational.

Lower Lakes Coorong Murray Mouth (LLCMM) Ecological Monitoring

The LLCMM Icon Site program is directed by the results of condition monitoring, which aims to inform progress against a set of 17 ecological targets that are described in the LLCMM Icon Site Environmental Management Plan. Results of the monitoring program have guided priorities for environmental watering, and to date have focused on the protection of threatened small-bodied fish and aquatic plant populations in the Lower Lakes.

The condition monitoring program during 2009-10, focused on fish, vegetation, birds and invertebrates. In addition, intervention monitoring projects were completed to assess the benefits of environmental water delivery.

Environmental Works and Measures Program

Implementation of recommendations of wetland management plans, including Milang wetland stormwater diversion works and Boggy Creek fish-friendly culvert, through the MDBA's Environmental Works and Measures Program were undertaken in 2009-10.

Weir pool manipulation to promote ecological benefits from enhanced water level variation and floodplain connectivity is an important strategy contributing to the objectives for this Icon site. Work on the weir pool manipulation program in South Australia has been underway for a number of years. A Weir Pool Manipulation Operating Strategy for South Australia was prepared during 2009-10. It is intended that the strategy will be incrementally introduced as part of the drought recovery process.

Wetland Ecological Monitoring

The SA MDB NRM Board wetland monitoring staff continued to support wetland community groups and environmental watering projects through the implementation of monitoring programs at more than 30 wetland sites. The data collected has been essential for determining the water needs of wetlands and for the prioritisation of sites for watering in 2009-10.

The parameters monitored at the wetlands include: groundwater, surface water quality, frog calls, fish species and abundances, waterbird species and abundances, tree health, photopoints and quantitative vegetation surveys.

Adaptive Floodplain/Wetland Management for Biodiversity Outcomes

The Department of Environment and Natural Resources in partnership with the community, the SA MDB NRM Board and the Department for Water manages a floodplain and wetland program that actively manages the challenges of drought and climate change impacts on wetlands in the River Murray corridor. Threats such as the reduction (absence) of flooding, limited recharge of groundwater aquifers, and greater salinity impacts due to decreased flushing of salts from the soil, are more pervasive than ever before. This program implements a range of projects to help conserve and enhance the biodiversity of wetland habitats along the river.

The health of River Murray wetlands is positively influenced by actively managing the hydrology. This program funds the management of a suite of wetlands where structures are used to re-create a near natural wetting and drying cycle. Managed wetlands are actively monitored in accordance with their Hydrological Management Plan to provide optimal wetland health. In 2009-10 the following wetlands were actively monitored; Morgan CP Lagoons, Ngak Indau Wetland, Little Duck and Causeway Lagoons, Winding Creek, Pilby Creek and Lagoon, Werti Wert Lagoons and Lake Littra. All data has been entered into the Biological Databases of South Australasia (BDBSA).

Environmental Water for the Lower Lakes

The South Australian Government is committed to a freshwater future for the Lower Lakes and has actively secured water through purchase and gaining access to floodwaters from Queensland and New South Wales for this purpose.

During 2009-10 a total of 486.3 GL of additional water was delivered to Lake Alexandrina above the 350 GL of annual River Murray base dilution flow past Wellington into Lake Alexandrina, making a total of 836.3 gigalitres delivered to Lake Alexandrina in 2009-10.

Delivery of the 486.3 gigalitres of additional water temporarily mitigated some of the risks that affect the decision on whether to construct a temporary weir at Pomanda Island.

A total of 90 gigalitres was pumped from Lake Alexandrina to Lake Albert during 2009-10 to maintain the water level in Lake Albert above its whole of water body acidification trigger level.

Key Achievements

- Allocation of 118,841 ML of environmental water to 34 sites.
- Commencement of construction on the Chowilla regulator.
- Second environmental watering through Water for Nature at Hogwash Bend for River Red Gums.
- The additional 486.3 GL delivered to Lake Alexandrina in 2009-10 provided significant benefits in managing key risks and delaying the time at which certain critical trigger points in Lakes Alexandrina and Albert are reached and was sufficient to slow the rate, but not arrest or reverse the incremental escalation of key risks such as:
  - acid generation in the Lower Lakes and the River channel below Lock 1;
  - increased salinity in the Lower Lakes; and
  - deterioration in river bank, levee bank and floodplain cracking between Pomanda Island and Lock 1.
- The additional water also offset some evaporative loss from the Lakes and set up the Lakes for further recovery in 2010-11.

05

BUILDING CAPACITY

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 knowledge will allow South Australians to actively participate in making decisions for their individual and collective social, economic and environmental futures.

Significant capacity has been built by directly funding research and investigations. This generates new knowledge that is used to improve environmental management outcomes, inform water policy and strengthen the State's position in the Murray-Darling Initiative and the National Water Initiative.

Innovative management systems and technologies in areas such as environmental flows, water trade and water use efficiency continue to be pursued to enable irrigators and water and environmental managers to respond to challenges presented by climate change, salinity and water allocation policy.

Investing in River Murray Ecology

The eWater CRC progressed the development of a suite of decision tools to assist the improved management of freshwater resources and the environment. A prototype version of the River Murray modelling platform 'River Manager' was released. DWLBC and the eWater CRC continued to work together to develop a Basin-wide surface water hydrologic model for release in 2010-11

The eWater CRC is also working actively with the South Australian Government in revising hydrological, ecological and water quality modelling for the Mount Lofty Ranges watershed catchments.

In both cases, the models being developed and applied across the River Murray and the Mount Lofty Ranges will be adopted to assist in underpinning future sustainable water policies with the best available science.

Irrigation Research, Technology Diffusion and Education

Major research findings on the impacts of reduced irrigation on winegrapes, almonds and citrus have been presented to growers at industry workshops in the Riverland. These findings will help growers adapt to reduced rainfall, hotter temperatures and reduced water allocations. An on-farm monitoring program has provided invaluable information on these crop yields across a range of irrigation volumes and management practices. This, for the first time, has provided good estimation of the maximum yield possible at different seasonal water application volumes.

Important findings have also been made on the effects of restricted water allocations on the cultivation of specific crops. For example, two successive years of research have demonstrated a linear reduction in yield of mature vines (Chardonnay) to declining irrigation application. This relationship applies to the lower irrigation volumes that have been experienced by Riverland irrigators in recent times.

Research has highlighted the impact of reductions in water over two seasons on crop production and quality. For example, even at severely reduced irrigation applications a harvestable crop of Chardonnay grapes was produced from mature vines, and wines were of acceptable quality. Initial data indicated there is little carryover effect on productivity if vines are returned to normal irrigation after one year of severe reduction.

Living Murray Icon Site Indigenous Facilitators

Chowilla Floodplain

During 2009-10 a draft of the document: 'Through Aboriginal Eyes, Plants and Animals of Chowilla' was completed. This is the first book to document culturally significant species on the Chowilla floodplain and the first of its kind for the Riverland. As part of the research, Aboriginal and non-Aboriginal seniors with a wealth of knowledge and memories were interviewed about their experiences with plants and animals associated with Chowilla.

Lower Lakes, Coorong and Murray Mouth

During 2009-10, the Ngarrindjeri Regional Authority (NRA) and the State Government signed a Kungun Ngarrindjeri Yunnan (KNY) agreement, outlining the processes of engagement and consultation between both parties. The NRA meet to discuss issues relating to agreements, funding and activities in the LLCMM region.

The outcomes achieved from these consultations and negotiations allow the Ngarrindjeri to provide informed consent into all programs/projects at the Icon Site. It allows the Ngarrindjeri to be involved in monitoring, research, re-vegetation and bio-remediation works.

Key Achievements

- Completion of a draft document for the culturally significant species on the Chowilla floodplain.
- Greater involvement of the Ngarrindjeri in monitoring, research, re-vegetation and bio-remediation works within the CLLMM Icon Site.

PROGRAM STATEMENT FOR THE PERIOD ENDED 30 JUNE 2010

	Note	2010 $'000	2009 $'000
Funds held at 1 July		**1,788**	14,473
RECEIPTS	**1**		
Recurrent Appropriation		**22,100**	25,300
Total Receipts		**22,100**	25,300
EXPENDITURE			
Implementation of River Murray Prescribed Watercourse Water Allocation Plan		1,617	1,751
Salinity Implementation and Accountability		378	222
River Murray Act		528	635
MDBC State Contribution		4,264	3,971
Environmental Water Management		703	591
Murray-Darling Basin Hydrological Modelling		226	250
Improvement Management of Eastern Mount Lofty Ranges		897	859
Investing in River Murray Ecology		155	152
Drainage Disposal Basins Management		31	19
Upgrade of River Murray Waste Disposal Stations		578	613
Salinity Policy		289	320
Water Acquisition for Environmental Flows	**2**	4,084	26,407
MDBC Independent Commissioner		0	36
Lower Murray Embankments		142	145
Murray-Darling Basin Reform and Intergovernmental Relations		1,093	167
SA River Murray Operations System Review and Decision System		148	0
Separated Water Rights for the River Murray Prescribed Watercourse		124	59
Riverbank Collapse		100	172
Implementation of MDB WAP Angas Bremer/Mallee/Noora/Marne Saunders/ Peake Roby Sherlock		854	350
Lake Bonney Refill		0	120
Wetland Management		265	147
Irrigation Research, Technology Diffusion and Education		800	800
Water Quality Improvement		346	199
Total Payments		**17,622**	37,985
Net Increase in Fund		**4,478**	12,685
Funds held at 30 June		**6,266**	1,788

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 or 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 Commission 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 (DFW) is responsible for the collection of GST on sales and payment of GST on purchases. The DWLBC received and paid these monies to the Australia Tax Office.

2. Water Acquisition

Include funds transferred to The Living Murray for investment of $1.5 million and partial payment for the purchase of 50 GL of environmental water 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 2010 was $4,415.