

# Renmark to the Border Local Action Planning Association

## Community News

Winter 2008



## Welcome

Science is heading to Renmark. The South Australian Murray Darling Basin NRM Board is holding a science forum at the McCormick centre on August 21st. This will be a very interesting forum. For more information see inside. Don't forget that there is also going to be a drought information session in Renmark on August 7th.

This is my final edition of community news as my time with the Renmark LAP is coming to a close. I would like to take this opportunity to thank all the LAP members, past and present for their support during my time as project manager.

Over the last 2 years I have seen what can be achieved in trying times by a community which is committed to the environment, and is dedicated to seeing results occur on the ground. I wish all involved great success in the future.

Mardi Miles

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**RENMARK  
TO THE  
BORDER**  
LOCAL ACTION PLANNING  
ASSOCIATION INC.

# Community Science Forums In the South Australian Murray-Darling Basin

## “Connecting the Community with Science”

The South Australian Murray-Darling Basin Natural Resources Management Board is holding a series of free Community Science Forums across the Murray-Darling Basin region for the community to hear about the latest scientific research on the natural resources of the region. These Community Science Forums will be held during Science Week, 19th – 24th August 2008, and are being hosted by the Natural Resources Management Groups. Come along and participate in the debate on what this science means for your community!

### Renmark - Thursday 21 August, 2pm - 5pm, McCormick Centre for the Environment

#### Presentation

Environmental flows: Assessing the benefits  
A healthy river supports healthy communities  
Current status of fish in the River  
Irrigation and salinity management for permanent horticulture  
Vegetable irrigation with saline water  
The impact of a highly regulated river on iconic fish species

#### Presented by

Dr Rod Oliver, CSIRO  
Prof Wayne Meyer, University of Adelaide  
Mr Mike Hammer, University of Adelaide  
Dr Tapas Biswas, SARDI  
Dr Rob Stevens, SARDI  
Sandra Leigh, SARDI

The Community Science Forums are free and all are welcome, however seats are limited so please RSVP to Miranda Leckie on 08 8532 1432. For more information, visit the South Australian Murray-Darling Basin Natural Resources Management Board website: [www.samdbnrm.sa.gov.au](http://www.samdbnrm.sa.gov.au)

## Malleefowl mounds inactive

Malleefowl monitoring in the SA Murray Darling Basin is undertaken by volunteers and coordinated by the Conservation Programs Unit, DEH in Berri. The Malleefowl are monitored by walking grids in the mallee and locating Malleefowl mounds (where they incubate their eggs). The breeding activity of the mounds is recorded and this information is entered into a national database.

Over the 2007/08 season 18 grids were monitoring, including 7 on Gluepot station. The numbers of active Malleefowl mounds is down on previous years (or remaining at zero). This is probably due to the drought, as like many birds, they tend not to breed in dry conditions with little food resources. No breeding at all was recorded north of the Murray River in SA. This is most likely due to drought.

Results did show that the birds are breeding at Peebinga and Karte. Thirteen active mounds were recorded here out of a total of 16 active mounds recorded in the entire survey. Good winter rains in 2007 are likely to have caused the favourable breeding conditions there. Further work is continuing in assembling fox baiting data for the monitored areas as well as rainfall data.



304 volunteer hours were generously given to do this monitoring, plus 120 hours spent resurveying two grids at Gluepot. More volunteers are needed for the surveys for 2008/09, and to keep rainfall measurements in the vicinity of Malleefowl grids. If you would like to be involved in Malleefowl monitoring or recording rainfall measurements within the grids contact the Bush Management Advisor Chris Grant in Berri 8595 2174.



**River Murray Drought  
Public Information Sessions**

**NOTICE OF PUBLIC  
MEETINGS**

Public Information Sessions of interest to River Murray communities will be held at:

**GOOLWA**

Monday 4 August 2008  
7pm – 9pm  
Centenary Hall, Cadell Street

**MURRAY BRIDGE**

Tuesday 5 August 2008  
9.30am – 11.30am  
Murray Bridge Racing Club, Maurice Road

**LANGHORNE CREEK**

Tuesday 5 August 2008  
2pm – 4pm  
Football Clubrooms

**MENINGIE**

Wednesday 6 August 2008  
11am – 1pm  
Meningie Bowling Club

**WAIKERIE**

Thursday 7 August 2008  
10am – 12pm  
Waikerie Club, Crush Terrace

**RENMARK**

Thursday 7 August 2008  
2.30pm – 4.30pm

(as part of the Riverland Development Corporation's Climate Change Forum)  
Renmark Sport Club, Paringa Street

These meetings will provide River Murray communities with the latest information about the drought and water security measures. They will include information about recently announced Murray Futures projects. The Minister for the River Murray, Karlene Maywald, and other speakers will be at the meetings to provide advice and information and answer questions.

The general public is welcome to attend these meetings.

For further information, contact the SA Murray-Darling Basin Natural Resources Management (NRM) Board on 8532 1432.



**Government of  
South Australia**

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# River Murray Forest

The River Murray Forest (RMF) project is now open to private land owners to tender for funding. The RMF aims to permanently reforest public and private land with 2.5 million trees, using regionally native species. Once established, conservative estimates suggest the forest will sequester over 3,500 tonnes of carbon annually.

During the 2008 season plantings were continued at the projects 2007 launch site at Cadell by Correctional Services and direct seeding of approximately 80ha was carried out on crown land at Pike River. There were also 3 trial sites on private land carried out in the Waikerie and Renmark regions.

In the RMF project, the total direct investment by government will be up to 2/3 of the cost of trees to be planted. In order to comply with international greenhouse abatement standards, it is intended that much of the forest plantings will comply with the requirements of the Kyoto Protocol. For the RMF plantings to be Kyoto compliant, and also meet Australia's national approach for eligible forest sink activities, plantings in the RMF project must be:

- New plantings on land that was clear of trees at 31 December 1989.
- Contain trees with a potential height of greater than two metres and a crown cover of at least 20%.
- In patches greater than 0.2 hectares in area and a minimum width of 10 metres.
- Established by direct human induced methods.

For more information contact Janet Kuys on 0408 677 521.



# Airborne Salinity Mapping Project

A survey will be conducted in Calperum, Pike Floodplain and Bookpurnong area between mid July and August 2008, to map salinity along both sides of the River Murray using an airborne electromagnetic (AEM) mapping system.

## What is AEM?

AEM is an airborne geophysical technology that was developed for use in the mining industry to locate and map conductive ore bodies. It works by measuring variations in the electrical conductivity of the ground.

In this project, electrical conductivity will be measured using a helicopter carrying a torpedo shaped 'bird', which houses an electromagnetic transmitter and receiver system. The transmitter sends out electromagnetic signals to the ground. The signals returned to the receiver indicate the electrical conductivity of the ground. Variations in the strength of the signal can be interpreted to identify salt stores and other underground geological features.

The helicopter will be travelling at approximately 110km per hour, at about 60 metres above the ground, with the 'bird' about 30 metres above the ground.

## Landowners with livestock and horses

The technology causes no ill effects to livestock and horses, but because a low flying helicopter is involved, there is the potential for livestock to be alarmed, including during horse riding activity. To minimise the likelihood of disturbance to livestock, landholders and riders are asked to email [emily.slatter@brs.gov.au](mailto:emily.slatter@brs.gov.au) to advise of any circumstance that may require careful scheduling of data collection.



## Is it safe technology?

AEM is used throughout the world in mineral exploration and in the management of natural resources. In Australia, AEM surveys are flown by specialist contractors who have many decades of experience collecting AEM data. Previously AEM surveys have been flown locally over the Chowilla floodplain, the Riverland area and Bookpurnong.

## Where and when will the helicopter fly?

Surveying in the Murtho – Lyrup – Bookpurnong area will take place between mid July and August 2008.

The South Australian Government are working in partnership with the Australian Government Department of the Environment, Water Heritage and the Arts and the Department of Agriculture, Fisheries and Forestry, through the Bureau of Rural Sciences (BRS).

This project is joint funded by the Australian Government and the South Australian Government.

# Paringa's Lock 5 to close for repairs, upgrade

Murray River users will not be able to pass through Lock 5 at Paringa in South Australia for about three months from July 14 while vital maintenance work is undertaken by SA Water on behalf of the Murray Darling Basin Commission (MDBC).

MDBC Chief Executive Dr Wendy Craik AM said the lock would be closed until the beginning of October as part of a six-year maintenance program on all of the locks along the river.

"The only other lock to be closed during the next few months is Lock 10 at Wentworth, New South Wales, which closed in May and will re-open in September," Dr Craik said.

"This is the first time we have planned to empty the lock chambers at Lock 5 since 1965 when the wooden gates were replaced with steel. The empty locks will allow SA Water to do a comprehensive inspection of the underwater components, Dr Craik said.

"Although users will not be able to travel the full length of the river at times during this period, they will still be able to enjoy using the river either upstream or downstream of Lock 5."

SA Water's Head of Regional Operations Rob Dowling said that during the works, people would still be able to travel upstream from Renmark and downstream from Berri, but will not be able to travel between the two towns. "The grounds and facilities around the lock will also be closed to the general public and will reopen once work is finished," Mr Dowling said.

Works to be carried out on Lock 5 include:

- constructing temporary dams on the upstream and downstream ends of the lock chamber
- de-watering the lock chamber
- inspecting and repainting the lock chamber gates
- replacing the 12 large valves which control the flow of water into and out of the lock chamber
- inspection of the chamber floor and undertaking any repairs on components which would normally be submerged

"We have consulted with River Murray tourism operators to develop the works program to ensure we avoid the peak boating season and we will be working as quickly as possible to minimise the interruption," Mr Dowling said.

"We will notify the community when the work at each lock is complete and the lock chamber is back in operation. The lock and weirs have been in service for over 80 years now and this work will ensure that they continue to operate for a long time to come."

The next lock scheduled for maintenance is Lock 1 at Blanchetown. It is expected that work will begin at the end of January 2009. The public will be notified before closure of the lock.

For more information on the locks, weirs and dams of the Murray system go to [www.mdbc.gov.au/rmw/dam\\_and\\_weirs\\_menu](http://www.mdbc.gov.au/rmw/dam_and_weirs_menu)



## Contact Us

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## Committee

Bruce Hewett - acting chair

Teresa ter Bogt

Caroly DuRieu

Renee Fielke

Caren Martin

John Rover

Mark Stoeckel

Peter Teakle

If undeliverable, return to:  
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117 Ral Ral Ave, Renmark, 5341

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## What's Happening

National Science Week ..... 16th to 24th August  
Biodiversity month ..... all September  
Landcare week ..... 1st to 7th September  
National Threatened Species Day ..... 7th September  
National Water Week ..... 19th to 25th October



South Australian Murray Darling  
Basin Natural Resources  
Management Board  
Department of Land, Water and  
Biodiversity Conservation  
Department of Environment and  
Heritage  
Department of Primary  
Industries of South Australia



Australian Government

**Renmark to the Border LAP has a new web address  
Find us at [www.rblap.org.au](http://www.rblap.org.au)**

# Fish and the Chowilla Creek Environmental Regulator Investigations at the Chowilla Icon Site



As part of the Chowilla Icon Site project being coordinated by the SA MDB NRM Board, a significant amount of investigation has been focussed on fish. The level of investigation reflects the limited documented knowledge of fish in the area and the desire to ensure appropriate long-term management. This summary is intended to provide a short description of (1) the investigations undertaken to date, (2) assessment of the proposed Chowilla Creek Environmental Regulator, and (3) work and investigations in progress. Much of what is presented here is based on the findings of work conducted by SARDI Aquatic Sciences for the SA MDB NRM Board.

## **Fish abundance, distribution and recruitment**

Since 2004, 16 sites have been monitored by SARDI Aquatic Sciences annually in the Chowilla anabranch and adjacent River Murray to determine the diversity and abundance

of fish species and their respective habitat preferences. Sampling via electrofishing has targeted fast flowing anabranches, slow flowing anabranches, backwaters, and the Murray River main channel. Surveys are undertaken in March each year to enable young-of-year fish from the preceding spring/summer spawning season to be detected.

Fourteen species of freshwater fish have been recorded including three species that are considered threatened within the Murray Darling Basin – namely, the Murray cod (*Maccullochella peelii peelii*), silver perch (*Bidyanus bidyanus*) and freshwater catfish (*Tandanus tandanus*). Small to medium-bodied generalist species are the most abundant, namely bony herring (*Nematalosa erebi*), unspotted hardyhead (*Craterocephalus stercusmuscarum fulvus*) and Australian smelt (*Retropinna semoni*). All species have been collected in similar abundances each year with the exception of Murray rainbowfish, which has declined slightly each year since 2005.

Most species were widespread throughout available aquatic macrohabitats. Murray cod, however, were only captured from fast flowing sites (every year) and the Murray River (2007).

The size distribution of the two most abundant large bodied species, namely golden perch and common carp, and the threatened Murray cod have been examined as an indicator of breeding success or recruitment. A broad size range of Murray cod has been collected in the anabranch system (120 mm – 1.3 m). Nevertheless, the number of fish <400 mm appears to have decreased post 2005, potentially indicating lower recruitment of Murray Cod in this period.



Murray Cod

Golden perch length-frequency data indicate a low number of 0+ recruits in 2006 that later appear as a strong mode of 1+ fish in 2007 (these fish were aged). Also in 2006, a large number of small (80 – 150 mm) common carp were captured. The abundance of small individuals for both of these species may be attributed to increased discharge into South Australia during the spring/summer 2005

The size distribution for small bodied species namely Australian smelt, unspotted hardyhead and bony herring is consistent for all years and suggests that these species are successfully recruiting each year.

From the annual fish research program, fish ecologists have been able to conclude that Chowilla provides a flow-habitat mosaic that is rare in SA and supports a diverse, healthy native fish community including one of the

most important Murray cod populations in the lower Murray; equivalent in conservation value to the population in Mullaroo Creek.

Chowilla boasts a significant population of Murray cod and golden perch and it is believed that these species are in relatively high abundance in Chowilla, principally due to the diversity of habitat and high velocity creek systems that have become a permanent artifact at Chowilla since the construction and operation of Lock and Weir 6.

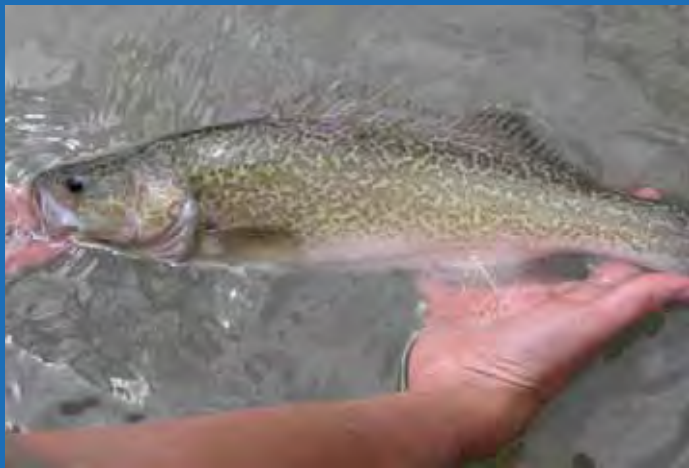
## The Chowilla Creek Environmental Regulator

The SA MDB NRM Board is proposing to construct and operate an environmental regulator in lower Chowilla Creek. This will enable regular inundation of up to 50% of the floodplain and provide significant benefit to the floodplain and wetlands and the fauna and flora they support. Assessment by CSIRO has shown that operation of the regulator can maintain or improve up to 70% of the River Red Gum community on Chowilla and provide water to all the major wetlands.

It is intended that the regulator will be used on average 1 year in 3 for approximately 3 months, and will be operable at flows up to a maximum of 50,000 ML/day. The regulator will enable a maximum water level increase of 3.5m. Continuous flow will be maintained through the anabranch during operation to avoid the stagnation of water. The regulator will also be constructed with a vertical slot and a denil fishway to provide fish passage when the structure is in operation

An initial expert panel assessment of the regulator concept (Brookes et al. 2006) concluded there was potential for a wide range of significant benefits including increased connectivity between riverine and floodplain habitats, improved soil condition, rejuvenation of existing vegetation, establishment of new floodplain and wetland plant communities, enhanced regional biodiversity, increased zooplankton abundance, and additional habitat for small bodied native fish. Brookes et al. (2006) also recognised operation of the environmental regulator would not be without risks that require management including an increased potential for cyanobacterial blooms,

by weeds, reduced lotic or flowing water habitats, interrupted fish passage, decrease in large-bodied native fish populations and increases in populations of common carp. The panel also advised that the do nothing approach is clearly unacceptable for the Chowilla floodplain and that a pragmatic solution must therefore be sought using small flows to best effect.



Tagged Murray Cod

A series of investigations have now been concluded or are in progress including assessments of water quality, weeds, fish, geomorphology, vegetation, birds and frogs. The outcomes of these investigations will inform the development of operating strategies for the Chowilla Creek environmental regulator and the Icon Site.

### Influence of Regulator Operation on Fish

In 2007, a team of fish biologists were engaged by DWLBC to evaluate the potential risks to native fish populations in the Chowilla anabranch associated with the operation of the regulator. The panel advised that operation of the regulator could have a range of positive and negative impacts for fish depending on the operating regime. It was concluded that small and medium-bodied native fish (e.g. carp gudgeons and bony herring) and exotic species (i.e. common carp) would benefit from regulator operation but that high frequency use at full operating height during low flows may result in decreased abundance of Murray cod and callop. Nevertheless, the potential negative impacts of a managed

flood may be largely mitigated if the Chowilla Creek regulator is used in a way that maintains the mosaic of fast-and slow flowing habitats that currently exist at Chowilla.

The panel highlighted the importance of maintaining the fast flowing creek systems (Slaney Creek, Swifty's Creek, Boat Creek, Pipeclay Creek and the upper section of Chowilla Creek) during operation in order to avoid reducing habitat quality for large bodied native fish species.

### Further Assessment of Fish requirements

The initial assessment of the regulator was focussed on a relatively simple operating regimes without consideration of variable regulator heights, differing operating duration or through flow volumes etc. The panel recommended further assessment of more detailed strategies to support the development of operating strategies.



Catfish Larvae

Various strategies under consideration include

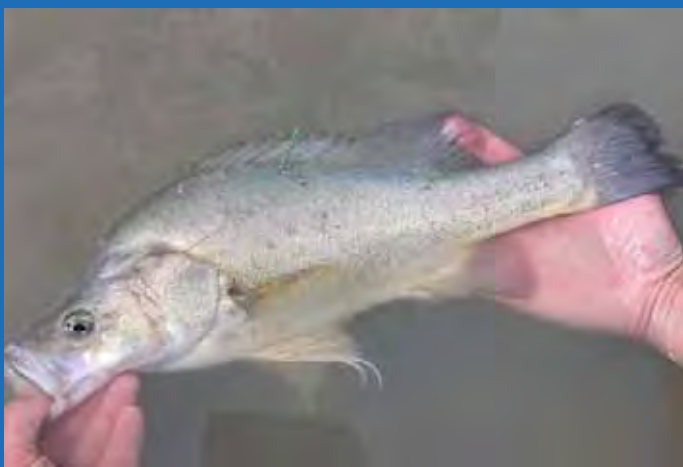
- Operating at an elevation less than maximum capacity in order to maintain a sufficient hydraulic gradient (and velocity) through the anabranch system under lower flow conditions. This inundates less floodplain, but may maintain preferred flow velocity throughout the anabranch system.
- Constantly varying levels during operation, and varying flow velocity rather than maintaining stable conditions throughout each event.

- Changing the duration of operation to minimise periods of lower velocity.
- Potentially delaying operation of the regulator until higher inflows can be utilised. This has obvious implications for vegetation health and other flood dependent biota.

The SAMDB NRM Board has now commenced further hydraulic modelling of a range of operating strategies to provide a more detailed understanding of changing hydraulic habitat conditions and better understand potential risk and benefits. Fish biologists will also assess the outputs of this modelling to advise on appropriate long-term management strategies for fish.

### Fish Investigations in Progress

Radio tracking of Murray Cod and callop is currently being undertaken by SARDI Aquatic Sciences. Approximately 40 Murray cod now have radio transmitters and will be monitored to determine how various habitats in Chowilla are utilised and how fish respond to changing river/anabranch conditions.



Tagged Callop

Tracking these fish over the current drought and periods of lower than normal flow velocity may provide greater clarity about the likely response to low flow, low velocity events. An investigation is also underway to assess responses to low velocity conditions during construction work on Slaney Weir. This will provide valuable information relating to the long-term operation of the Weir and the Chowilla Creek environmental regulator.

Although the radio tracking work is at an early stage, there has been considerable movement of Murray cod within the anabranch but no apparent movement of fish away from Chowilla.

### Complementary Works

In addition to the proposed regulator, a number of other works are completed or underway. Bank E (impervious to fish) has been replaced with a rock ramp fishway. Detailed designs for new gates and fishways at Pipeclay and Slaney Weirs are well advanced and construction work is scheduled for early 2009. Operating strategies for these structures are also being developed. The Boat Creek bridge has been replaced enabling the removal of existing blockages to fish passage.



Bank E Fishway

### For further Information

If you require any further information on the proposed Chowilla Creek environmental regulator and the detailed ecological investigations contact Tony Herbert or Brad Hollis on (08) 8582 4477.