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MURRAY FUTURE

Lower Lakes & Coorong Recovery

Community update

August 2012

This email newsletter is published by the Department of Environment, Water and Natural Resources (DEWNR) to update the community about work being done to secure the future of the Coorong, Lower Lakes and Murray Mouth (CLLMM) region as a healthy, productive and resilient wetland of international importance.

Highlights

- 2012 community revegetation program nearing completion
- Water cycling to reduce salinity
- Have you seen *Velesunio ambiguus*?
- Surveying "cryptic" and colonial-nesting birds
- KNYA delivers outcomes for Ngarrindjeri community
- 2011-12 key ecological and ASS monitoring findings

2012 community revegetation program nearing completion

The Coorong, Lower Lakes and Murray Mouth (CLLMM) Program-funded community revegetation work has almost been completed for another year, with 30 community groups planting more than 330,000 native plants at 13 sites across the region.

The community planting projects, co-ordinated by the Goolwa to Wellington Local Action Planning group, are expected to be completed by the end of this month.

Among the highlights of this year's programming has been the planting work undertaken by the Milang Historical Society at Pobbybonk Reserve at Milang. While planting, the group discovered the boiler from the old Landseer Flour Mill – one of the first major industries in the region. The Society sought permission to excavate and remove the boiler from the reserve, which will result in some of the recently planted seedlings being relocated.

This year 10 community nurseries, including the nurseries operated by Ngarrindjeri Ruwe Contracting, propagated many of the plants necessary for the revegetation work.

Propagation is already underway for next year's revegetation projects, with a number of rare and uncommon species added to the planting list for 2013. The rare species will help to increase the biodiversity of the local landscape.

Revegetation is central to the Coorong, Lower Lakes and Murray Mouth region's recovery from drought, as it helps to stabilise the soil, and adds carbon to the soil to tackle the serious threat of acidification.



Community members and landholders are encouraged to take photographs of the revegetation work so they can keep a record of the changing landscape. Information about photo-points located throughout the region is available at the Lakes Hubs. Commercial planting work also funded through the CLLMM Program is continuing in the region.

Water cycling to reduce salinity

The South Australian Government is continuing manipulation or “cycling” of water levels in Lakes Alexandrina and Albert to target high salinity levels in Lake Albert.

Lake level cycling is a process of raising and lowering water levels in Lake Albert to export saline water accumulated over many years of drought and replace it with fresh water from River Murray flows.



Salt remains in the system as a result of the extended drought period, and to date has hindered the ecological recovery of the site. Adaptive management to further reduce salinity levels will greatly assist ecological recovery targets as set by DEWNR’s environmental programs - *The Living Murray* and CLLMM *Murray Futures*. Lake level cycling is part of an on-going management decision to manipulate water levels in the Lakes using the barrages.

During the last year, the average salinity in Lake Albert has been reduced from 6,400 EC (Electrical Conductivity) to its current level of around 3,500 EC. The current water level in Lake Alexandrina has now been raised and held at 0.8m AHD (Australian Height Datum) for several weeks taking advantage of unregulated flow to South Australia. The aim is now to reduce the Lake Alexandrina level towards 0.55m over a period of two to three weeks with a targeted reduction rate of approximately 20-30mm per day.

This operation is being monitored regularly in conjunction with environmental conditions and flow regimes upstream. After reaching the set water level target, a refilling process will be undertaken to raise water levels back to normal pool level (0.75m AHD). Water levels and barrage operations are monitored closely by various agencies of the South Australian Government, Murray-Darling Basin Authority, and Commonwealth Environmental Water.

The Australian Government is currently considering a submission from DEWNR for funding of a study into a long-term approach to manage water quality issues in Lake Albert and the Narrung Narrows. The study will undertake a detailed investigation of management issues including ideas suggested by the local community as part of their five point plan.

Have you seen *Velesunio ambiguus*?

The freshwater mussel – *Velesunio ambiguus* – hasn’t been detected in the Lower Lakes since the return of freshwater flows in 2010.

The mussel is an ecologically important species in the CLLMM region, as a potential food source for larger bird and fish species. However, monitoring and research undertaken for the CLLMM Program has indicated that their current occurrence and distribution is unknown.

They were previously found in freshwater habitats around



Source: EPA

the Lower Lakes before the drought increased salinity beyond the mussels' tolerance levels, water levels dropped, and large areas of acid sulfate soils were exposed.

Velesunio ambiguus adults can't directly move and are therefore unable to escape deteriorating environmental conditions. Past scientific work has indicated that they are tolerant of stable conditions, and may survive for periods of up to a year without surface water.

The CLLMM Program, with the help of the Environment Protection Authority (EPA) and CSIRO, will be undertaking field sampling and eco-toxicity testing to investigate the ongoing legacy of the drying and then rewetting of the acid sulfate soils on the Lower Lake's ecology.

The project will help us further understand how the Coorong, Lower Lakes and Murray Mouth system is recovering from the drought, and how we can help the recovery to continue.

As part of this project, the CLLMM Program would like to hear from community members who see any freshwater mussels in the Lower Lakes region.

If you spot any mussels, or if you would like more information, please contact Ann Marie Jolley at the CLLMM Program: ann_marie.jolley@sa.gov.au

“Listening to Ngarrindjeri Speaking” Agreement delivers outcomes for Ngarrindjeri community

In 2009, the Ngarrindjeri Regional Authority (NRA) and the South Australian Government entered into a *Kungun Ngarrindjeri Yunnan Agreement* - or KNYA, which translates to “Listening to Ngarrindjeri Speaking”.

The Agreement has become the new standard for Government-Indigenous partnerships across the state.

The KNYA seeks to support Ngarrindjeri participation in Natural and Cultural Resource Management (NCRM) in the Ngarrindjeri and Others Native Title claim area, and also acknowledges and supports Ngarrindjeri interests in employment and economic development.



The NRA meets on a monthly basis with State Government representatives as part of the KNYA Taskforce, with this forum providing a key consultation and negotiation process. It has helped to create new relationships, partnerships, and greater awareness of Ngarrindjeri and government interests in the CLLMM region.

The KNYA Taskforce has recently published a report detailing progress made in implementing the KNYA during 2010 and 2011. The report is available on line at:

<http://www.ngarrindjeri.org.au/wp-content/uploads/2012/08/KNYA-Taskforce-Report-2010-11.pdf>

The NRA has received national and international interest in the KNYA engagement strategy, and with the Flinders University is a partner in an Australian Research Council (ARC) Discovery Project which seeks to investigate the Ngarrindjeri use of negotiated agreements for making space for Ngarrindjeri perspectives within state processes.

The NRA, through its Research, Policy and Planning Unit based at the Yunggoendi First Nations Centre for Higher Education and Research at Flinders University, is also raising the KNYA innovation at national and international forums.

Locally, the KNYA is delivering outcomes for the Ngarrindjeri nation, in particular through the State Government's CLLMM Program, which is part of the Australian Government's *Water for Good* initiative.

Recently the State Government and the NRA signed off on a four-year, \$4.8 million funding agreement to support Ngarrindjeri participation in the CLLMM Program, in line with the intent of the KNYA.

Surveying "cryptic" and colonial-nesting birds around the Lower Lakes

A CLLMM Program-sponsored project is about to begin to determine the distribution and abundance of "cryptic" and colonial-nesting waterbirds in Lakes Alexandrina and Albert.

The major goal of the work is to gain a better understanding of the habitats and sites that are important to these birds.

"Cryptic" bird species are those that have a secretive nature and tend to hide in thick reed-beds. For this reason they are often undetected in regular surveys. The project will use new surveying methods, including bird call recording devices, to detect these birds.

Some of the cryptic bird species to be the focus of the project include Australian Painted and Latham's snipes, Australasian and Australian Little bitterns, Australian Spotted and Spotless crakes, and Buff-banded and Lewin's rails.

Colonial-nesting birds are those that nest in groups. Pelicans and Terns regularly form nesting colonies in the Coorong. The project may find colonies of birds such as the Australian White Ibis and Royal Spoonbill nesting around the lakes.

If you spot any of these species, or if you would like more information, please contact Jody O'Connor at the DEWNR Science Resource Centre on (08) 8222 9326 or Jody.O'Connor@sa.gov.au

Surveying of the cryptic birds will be conducted from September to December. Aerial, ground, and boat surveying of colonial-nesting waterbirds will be conducted from October to January, depending on weather conditions.



Australasian Bittern
(Photo: BirdLife Australia website)



Australian Painted Snipe
(Photo: BirdLife Australia website)

2011-12 Key Ecological and Acid Sulfate Soils Monitoring Findings

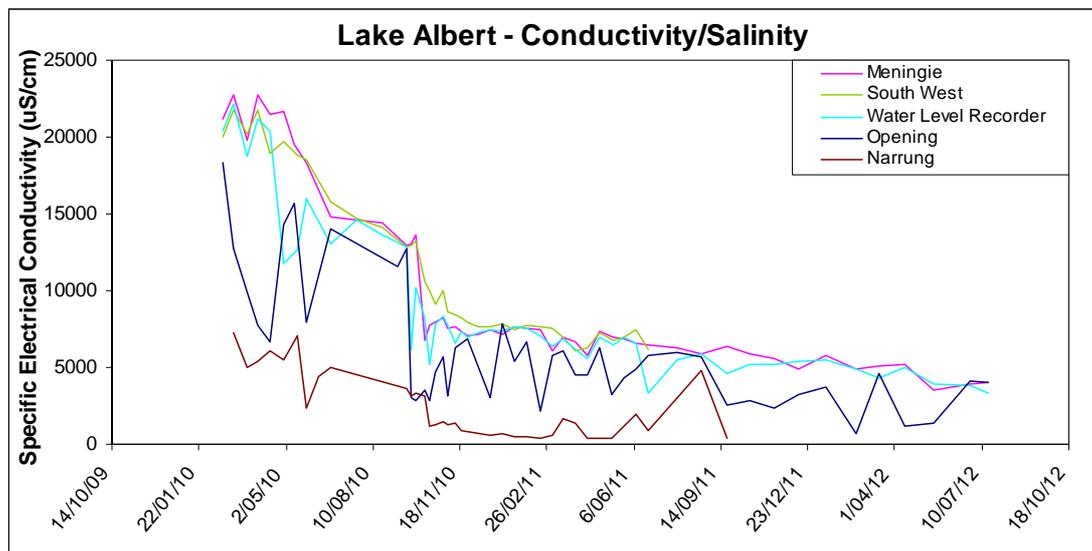
The CLLMM Program commissioned comprehensive monitoring throughout 2011-2012 to see how the CLLMM region was recovering from the impacts of drought.

Overall, there has been some ecological recovery, compared to the monitoring conducted during 2010-11, including:

- greater abundance of several macroinvertebrate species (such as worms and bivalves), and movement of those species further into the Murray Mouth and the North Lagoon of the Coorong
- significant increases in zooplankton species (microscopic species which can help to gauge the health of the lakes and Coorong system)
- an increase in bird numbers in the region, including fairy terns, red-necked stints, and sharp-tailed sandpipers, and an increase in the abundance and distribution of waders
- an increase in the abundance and diversity of freshwater and small-bodied fish species, including small-mouthed hardyhead, sandy sprat, Tamar goby, and Congolli.

While some recovery has been observed, the abundance and diversity of some species is still below pre-drought levels. Some species have not yet been rediscovered since the end of the drought.

The monitoring also shows that the water quality in Lake Alexandrina has stabilized, and salinity in Lake Albert is improving.



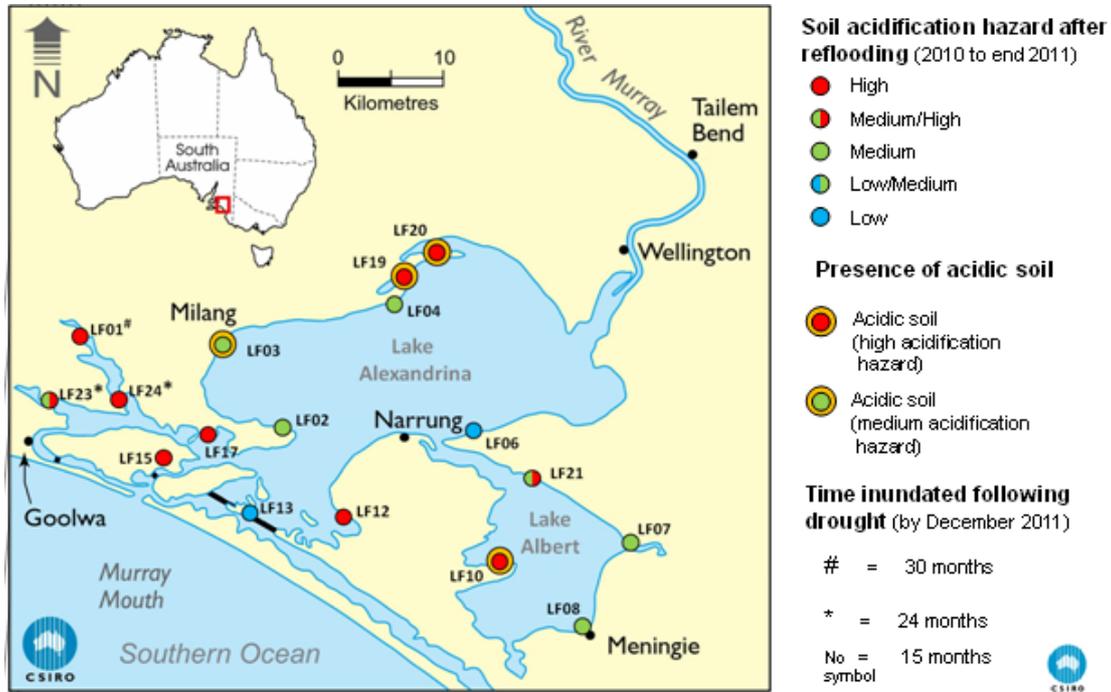
Lake Albert Salinity levels (Source EPA 2012)

The water quality in localised Acid Sulfate Soil (ASS) hotspot areas, including Boggy Lake and Hunters Creek, are still showing low levels of persistent acidity, despite neutral pH and alkalinity being present.

This is likely to be due to metal ions diffusing upward through the sediments, as there is still acidic sediment in many locations. Acidity is still being recorded in the shallow groundwater despite more than 18 months of inundation in Lakes Alexandrina and Albert.

The monitoring is also showing that the neutralisation rate of acidic soil is highly variable. At some sites, the sulfuric conditions have prevailed for less than five months, and other sites have remained sulfuric for more than 16 months.

Also, not all acidic soils have been neutralised, and the acidification hazard remains high in many parts of the lakes.



Map of study areas that summarises, soil acidification after reflooding, neutralisation of acidic soil and time inundated following drought conditions (Source CSIRO 2012)

More information

Funding

Developing and implementing the Long-Term Plan is part of the South Australian Government's *Murray Futures* program, which is funded by the Australian Government's *Water for the Future* initiative.

The Lakes Hubs have been funded through a grant made to the Milang and Districts Community Association as part of the CLLMM Program.

Find out more

To find out about the Department of Environment, Water and Natural Resources' work in the Coorong and Lower Lakes region, visit www.environment.sa.gov.au/cllmm or contact us at:

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