



Murray Darling Association Inc.

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Region 7 (Adelaide Metro) Ordinary Meeting No. 103

Date: Thursday 23rd November 2017, Time: 6pm for 6.30pm

Location: City of Campbelltown

Address: Council Chamber, 172 Montacute Road, Rostrevor
(Enter through main entrance facing Montacute Road)

AGENDA

Refreshments will be available from 6pm. Meeting commences at 6.30pm.

1. **ATTENDANCE**
 - 1.1 Present:
 - 1.2 Apologies:
2. **WELCOME**
 - 2.1 Cr David Shetliffe, Chair, Region 7
3. **MINUTES**
 - 3.1 Minutes of the previous meeting held on 24 August 2017 at Walkerville Council.
4. **BUSINESS ARISING**
5. **PRESENTATION**
 - 5.1 Presentation by Henry Haavisto, Campbelltown Council on 'Floods and the Woody Weed Removal Program'.
 - 5.2 Presentation by Monique White, Regional Engagement Officer, MDBA, on 'Her role, SDL adjustment, compliance review and basin plan evaluation with an emphasis on why Adelaide councils should be involved'.
6. **REPORTS**
 - 6.1 Report from Chair of Region 7, Cr David Shetliffe
7. **GENERAL BUSINESS**

(Reports attached)

 - 7.1 MDA Conference at Renmark
 - 7.2 MDA AGM draft minutes
 - 7.3 Regional Plan Framework update
 - 7.4 SA Regional forum Murray Bridge in February
 - 7.5 Other business

8. NEXT MEETINGS

Thursday 22 February 2018 – Holdfast Bay (tbc)

Thursday 24 May 2018

Thursday 23 August 2018

9. CLOSE

Secretary Lynda Yates lyates@holdfast.sa.gov.au ; Mob 0417 484 717

*The Murray Darling Association acknowledges and thanks
Campbelltown Council for their support in
hosting this meeting of Region 7.*

6.1 Report from Region 7 Chair

Since our last meeting I have attended two meetings of the board. A brief summary of matters discussed is set out below. Once approved by the board, minutes are available on the MDA web site.

The MDA has been rejected in its effort to obtain representation on the Ministerial Council or the Basin Officials Committee. The reason given is that the legislation does not permit such a position. However, we have been strongly encouraged to nominate for the Basin Community Committee. The Board has resolved to nominate Cr David Thurley.

In relation to the 4 Corners program on alleged non-compliance in the northern Rivers, the Board resolved that the MDA

1. Maintains its support for the Basin Plan and the fair and equitable implementation of it
2. Maintain its call for an independent judicial inquiry in response to allegations of non-compliance and possible corruption
3. Accept and opportunity to participate in the MDBA review if it is offered.

This resolution was reflected in a motion passed at the AGM.

It was reported that there had been mixed responses to the MDBA Regional Engagement Officer program and the Board authorized the CEO to help facilitate better outcomes if invited to do so. Thus I am delighted that Monique White is joining us at this meeting.

A submission was made to the Victorian Parliament's inquiry into environmental water. A copy is available on the MDA web site.

A process has been put in place for the annual performance review of the CEO. All members of the Board are to be consulted as part of the process.

The President and CEO attended a peak bodies representatives meeting hosted by the MDBA in Canberra. The CEO also made a submission to the Ernst and Young independent analysis of the Basin Plan.

Whilst the financial position is healthy at this time of year with membership income greater than budgeted (ie members have paid on time), the balance between income and expenditure remains tight and the organization does not need any shocks. MGR Accountants have been reappointed auditors.

Whilst the Annual Report was endorsed by the Board and the AGM, I raised some concerns at the Board meeting about both the content of the report and the timing

it was presented to the Board. I will press for change for next year's report.

A strategic planning workshop is planned for January or February next year in Albury. I encourage members to let me know if they have any ideas about how the organization can perform better.

The 2018 conference and AGM will be held in Leeton. The Board is examining whether the 2019 event will be in Canberra or Toowoomba.

I have been arguing for some time that one of the great contributions that the MDA can make to an equitable sharing of water in the Basin and to healthy environmental flows is to increase understanding of issues across the Basin. The MDA is uniquely placed to do this.

To this end members will be aware that I have been trying to put together the narrative of Adelaide's water supply. My first draft of this is included later in these papers.

The issue of regional plans has been on the organisation's planning for some time, however the plans have not been developed. I will continue to press for this to be given priority at Board meetings and at the strategic planning workshop early next year.

Cr David Shetliffe
Chair, Adelaide Metro Region

7.1 MDA Conference 11-13 October 2017 at Renmark

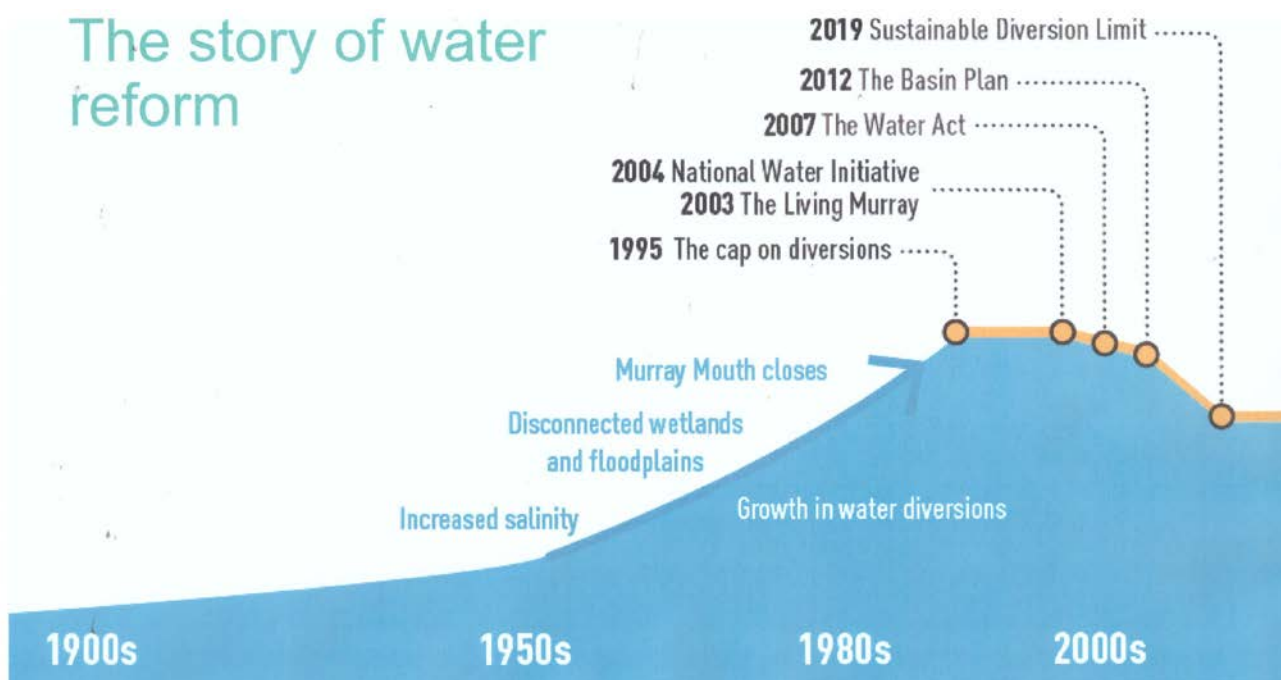
I have included here a short report I have prepared about the conference and a much more detailed report by our secretary Cr Lynda Yates.

Murray Darling Association **Annual Conference and AGM at Renmark** **12-13 October 2017**

I attended a board meeting, the conference and AGM in Renmark on 11, 12 and 13 October. The conference was attended by around 100 delegates and was a well run event with some excellent speakers. The full program is on the MDA web site as are the power point presentations from most of the speakers. Therefore I will confine my comments to the key issues covered without specific reference to particular speakers.

However, it is important to have some understanding of the overall strategic issues of the basin to appreciate the significance of the conference and of the resolutions dealt with at the AGM (the draft minutes of the AGM are attached).

The key policy driver is the Murray Darling Basin Plan. Its impact can be seen from the graph below which clearly shows the reduction in water diversion initiated in 2007 and to be fully implemented by 2019.



The reduction to date has been 2,100 GI out of the 2,700 required. Much of this has been achieved through the Commonwealth buying back water from irrigators – including from some very large ones.

However, this has negatively impacted some communities where the loss of viable farms (eg dairy) has resulted in loss of economic activity and employment. The current strategy is, through a series of regional sustainable diversion limits, to improve the efficiency of both on farm and off farm irrigation infrastructure. Thus, a number of the sessions at the conference were highlighting how these schemes are being developed, the consultations involved and buy in by industry and government. It was particularly pleasing to hear of the very constructive work being undertaken in South Australia and I felt the speakers from the SA government were professional and knowledgeable. Many of the process they are adopting are quite similar to the collaborative approaches suggested at the ICTC conference that I have also recently attended.

The second more contentious background to the conference was the recent 4 Corners television program which drew attention to alleged water theft in the northern basin. Without canvassing the issues involved, the debate centres around what sort of inquiry should be conducted.

The SA Government through Minister Ian Hunter has been calling for a royal commission. The Commonwealth Government, through Minister Anne Ruston, has taken a position that says there are currently 5 inquiries underway, including one by NSW ICAC, and that we should wait until these are completed before instigating yet another one. The MDA has publicly called for an ‘independent’ inquiry. It strikes me that much of this debate is party political and one of the targets of the Labour governments is Minister Joyce as Water Minister.

This issue was debated at the start of the conference and re-emerged in a number of resolutions at the AGM.

A third issue aired at the conference was the feasibility study into the removal of carp from the rivers of the basin (and elsewhere). Carp reduce the numbers of native fish and, through their feeding habits, make the waters very muddy. There is a \$15mill feasibility study underway to be completed in 2019. The eradication method is a species specific herpes virus. One of the major challenges will be the clean-up of millions of dead fish.

Andrew Nolan from Snowy Hydro Ltd spoke about the feasibility study being undertaken to increase the electricity capacity of the Snowy hydro system. His main message was that, should the project go ahead it will have no impact on water flows into the Murray.

However, for me the most valuable session was the debate around the benefit of the barrages at the lakes around Goolwa. Professor Bruce Thom, an eminent coastal scientist from Sydney University, gave a detailed account of the impact the millennium drought in 2007 had on the lower lakes and, most significantly, on Adelaide's water supply.

Professor Thom spoke of the geology of the soils in the lakes and how acidic they become when exposed to air, as occurred at that time. This acidity moves upstream and, had it reached Murray Bridge and Mannum it would have resulted in Adelaide having no potable water. It this same issue, of course, that drove the construction of Adelaide's desalination plant and ERA Water.

It was powerful that an expert from outside South Australia spoke of this. I was struck by a number of delegates for other States saying to me that they are having to rethink their attitude towards South Australia and the Murray.

At the end of the day this is the major reason for Adelaide councils to be actively involved in the MDA. If we are not successful in increasing flows down the Murray the future of Adelaide is threatened and, for this to occur, we need to win the support of communities in other States who are being asked to reduce the amount of water they are allowed to take. Adelaide, as a community, needs to demonstrate that it is water conscious because the noisy political rhetoric that has characterised debates about water use for many decades has not always been helpful. Good information of what SA in general and Adelaide in particular is doing to conserve water in my view can only be helpful.

Cr David Shetliffe
November 2017

Murray Darling Association Conference 2017 Renmark, SA

11-13 Oct 2017

Conference Theme "Our Plan - Our Future"

Some presentations are downloadable from the MDA website – <http://www.mda.asn.au> and follow the link

Day One

Welcome to Country by First Nation Elder

Welcome to Renmark Paringa Council by Mayor Neil Martinson

Welcome and Overview by Cr David Thurley, MDA National President

David said there must be compliance and accountability with the Murray Basin Plan. The Four Corners program aired 24th July raised concerns and Prime Minister Malcolm Turnbull announced an investigation on 30th July. Allegations of prior knowledge of water theft a year ago require a transparent independent process to review them. Local Government should have more input into the Plan as it knows local matters.

Opening Address by Hon Anne Ruston Senator for SA, Assistant Minister for Agriculture and Water Resources

2100GL have been reclaimed so far. The balance between the environment, the community and business is necessary. The Senator said a judicial review was not needed nor should the plan implementation be paused, in case it is then halted permanently. There are other reviews already proceeding and a Royal Commission should only be made if these fail to work.

Introduction by Hon Ian Hunter MLC Minister for Water and the River Murray

The supply measures will provide 2750GL environmental water in 2018 and the efficiency measures a further 450GL by 2024. Constraint projects will also save an as-yet-undetermined amount of water. Taxpayers have put \$10bn into the Basin Plan so need a full investigation into allegations, possibly a Royal Commission. There are several separate enquiries and these will have separate results which a Royal Commission could unite to give the big picture. NSW is trying to fudge by blaming SA for not putting all environmental water down the river. It is accepted that SA takes 90% of its critical human needs water from the Murray. Water from the Mt Lofty Ranges only flows for 4 months of the year. Therefore, it is a clear priority that SA uses water for critical human needs. 35GL of drinking water and 10GL of private water produces 45GL of water saved in dams and reservoirs. This is not comparable with complaints that NSW cotton farmers have been illegally taking water with no working meters. The Basin Plan is progressing well and is on track to get the water target by 2019. It requires management to stop undermining of the Basin Plan and any non-compliance.

Planning for Change Challenges for Local Government Basin Plan 2017-20 - Mayor David O'Loughlin President of Australian Local Government Association

There needs to be confidence in the Basin Plan so an investigation is important. David is a member of COAG and other boards but, as local government is not a signatory to the Basin Plan, he is not on any Basin Plan Boards.

Local Government require funding, infrastructure and sustainability to operate. The unfreezing of the Federal Assistance Grants (FAGs) and restoration of indexation this year means the status quo is maintained, but it is not enough. Twenty years ago FAGs were 1%, now they are half that and more money is needed. Some councils rely on up to 70% costs from these grants but there has been a decrease of 45% in real money. This is not good for road maintenance. Rate capping in some states does not help either.

Alignment of Regional Development Australia boundaries with council boundaries is required for better regional decision-making in states other than SA.

ALGA accepts input from local government associations so can represent them to Government. With 537 council members, ALGA is the peak body. The ALGA Board is made up of the State and Territory LGAs. 167 councils are in the Murray Basin and nearly 100 are members of the MDA. Member councils should each endorse the Basin Plan so that their State and territory LGAs can then support it on the ALGA Board.

One recent show of solidarity was that 64 out of 68 councils contested pensioner concession cuts and subsequently won.

Snowy 2.0 Presentation – Charlie Lichfield, Snowy Hydro

A feasibility study is due by the end of the year to decide if this project should go ahead. It involves Red Energy and LUMO Energy among others. The aim is to drill a new tunnel between the existing Tantagara and Talbingo Reservoirs and to build an underground powerhouse for a 2000MW power station using hydroelectric power from a 680m gross head of water. This will cost \$2-4bn but will be paid for by the company with no taxpayer funding.

Riverlinx Camps - Kingston on Murray Primary School

The school has run 19 camps over 9 years for other schools so as to spread knowledge of the River Murray and its environment to schoolchildren, plus have fun!

Basin Plan Implementation and 2017 Assessment – Neil Andrew, Chair of MDBA and Colin Mues, Chief Economist

Neil said the MDBA will deliver the results of a basin-wide compliance review in December. When one person does something wrong, others suffer from suspicion of similar behaviour but the MDBA doesn't want another review or Royal Commission. The BSW ICAC has the same power as a Royal Commission would have and is a lot cheaper (a RC would cost \$120m) and faster. There are also two Senate enquiries so that should be enough.

Colin reminded us of the history of the Murray – 1995 Cap on diversions, 2003 The Living Murray, 2004 National Water Initiative, 2007 Water Act, 2012 Basin Plan, 2019 Sustainable Diversion Limit. Since the 1950s with increasing water diversions, there has been increased salinity, disconnected wetlands and floodplains with the Murray Mouth closing in the 1980s.

The SDL adjustment mechanism has been added to the Basin Plan at the request of the states to better meet state water requirements. The aim is to use efficiency measures that will give the equivalent environmental outcomes with less environmental water. The MDBA has assessed that 605GL (+ or – 5%) can be recovered. No further water recovery is necessary in the southern connected basin. Efficiency measure offsets are required. The public have until the end of October to comment on the review.

In 2017 there has been an interim evaluation with a further one due for 2020 and beyond. 3 questions were asked – is the implementation on track, what are the impacts and benefits so far and can the implementation be improved? There will not be any further alteration of SDLs other than via the SDL adjustment mechanism. There is no scope for slippage and water resource plans need to be got in place urgently. The evaluation report is due mid-December and will be updated mid-April.

Early environmental findings are:

- Planning, prioritisation and coordination of delivery are OK but could be better
- Water is being delivered where wanted but operational constraints need removing – there have been 600 water-providing events so far
- Ecological responses are generally aligned as expected 5 years into the Plan implementation (but too early yet to draw conclusions)

The Basin economy is growing as expected but influenced by regional and industry factors – dairy, rice, horticulture stable but cotton is increasing. Dairying has had to change how it operates to survive in recent years. Drivers of change are important. The impacts of the Basin Plan will be unevenly distributed. 2100GL water has been recovered to date – 1400GL from the Southern Basin (of which half is from efficiency measures) and 700GL from the Northern. On- and off-farm infrastructure investment is around 20% of southern water and conveyance water previously held by IIOs is 10% of it. The gross value of agricultural productivity is increasing as is the gross value of irrigated agricultural productivity. Tourism has increased by \$1.5bn over the last 5 years.

Water quality is improving. Basin-wide governance is in place but requires regional review. \$13bn was provided for the Basin Plan and \$7bn has been spent so far. The sustainable diversion limit adjustment mechanism will itself cost more than \$1.5bn.

On-Farm Efficiencies Infrastructure and Technologies – Paul Morris, Department of Agriculture and Water Resources

The Sunraysia Modernisation Project aimed to improve the efficiency and quality of irrigation water, replacing open channels with pipelines and

automated pumping stations. It began in 2014 and was completed in 2016 at the cost of \$120m. It originally provided improved irrigation to 5912ha (49% total) but was expanded to improve irrigation for 7858ha (65% total). It saves 7GL water a year.

A Tomato Industry case study was done on 700ha sub-surface irrigation and 200ha of other type irrigation, showing the benefits of better irrigation.

64% of the Basin is irrigated. 605GL water will be saved with the SDL adjustment mechanism and a further 450GL of up-water. 2750GL environmental water is on top of Howard's original Living Murray Plan.

National Carp Control Plan - Matt Barwick, Coordinator for NCCP, Fisheries and Development Corp.

Key points:

- In many rivers 80% up to 97% of the total fish biomass is carp
- Carp numbers have trebled in the last 10 years despite efforts to reduce them
- Carp reduce insects, native fish, vegetation and water quality
- Carp suck up mud while feeding, muddying water and blocking sunlight
- Carp increase algal blooms
- No decision has yet been made to implement the proposed program
- \$15m allocation for a feasibility study and community consultation
- A herpes virus is proposed – it occurs in 33 countries now and has caused 70-100% carp mortality
- It is stable and species specific – kills only carp, no effect on other species
- Major problem if use virus is removing dead carp else oxygen loss will kill
- Dams and weirs may allow selective carp kill, one area at a time
- Clean up operations will be funded but councils could be involved in these programs
- The benefits include clear water and increased native fish populations
- To eradicate 100% carp, the virus could be used in conjunction with eg. Daughterless carp genetic modification
- Carp removal will leave a vacuum so need to improve river habitat and water quality to increase native fish, not other pest species

Almond Insights 2015-16 – Neale Bennett, Chair of Almond Board of Australia

www.australionalmonds.co.au

Almonds were grown in the early 1900s in Marion and Edwardstown, moving to McLaren Vale as Adelaide grew into the suburbs, then into Sunraysia. There are 200 growers with currently 35,886ha of almond orchards. 69% of growers have less than 30ha of land. Sunraysia now has 61% of growers, Riverland 20%, Riverina 15%, Swan River WA 2% and Adelaide 2%.

The ABA represents 95% of the industry with 6 grower directors and 4 marketing directors on the Board. ABA Staff are at Mildura and Loxton. The latter is also a research centre with a new 60ha experimental farm, which has only just been planted with almond trees. There is a \$10m irrigation project which is a co-investment with SA State and Commonwealth grants. Research into efficient watering and new varieties such as better rootstocks and dwarf trees is occurring. 2m virus-tested buds are sent to nurseries each year for grafting and sale.

At least 1 bee hive per acre is required for almond pollination and 3 is best but the grower must pay the beekeeper \$100 a year to put their hives on his land. Prices for honey and demand for bees is increasing.

97% of almond trees are on drip irrigation, the remainder use under-tree sprinklers. Water type is split evenly as permanent, temporary and under forward contract. The Barmah Choke, a narrow stretch of the Murray, is being studied to see if more irrigation water can be provided in the summer peak as this would increase citrus and grape production as well as almond.

Crops are harvested Feb-April with a machine gripping the main trunk and shaking the almonds to the ground. Almonds are taken to factories for packaging. Some almonds are sold in-shell, the rest are hulled and sold as kernals, blanched or made into almond flour (9.9% of domestic sales) or almond milk. Demand is rising as almonds are a healthy food containing Vitamin E and are used for recovery diets. Studies show 30g almonds a day will reduce risk of death from heart disease by 29%, from respiratory disease by 24%, from diabetes 16%, from cancer 11%.

In 1982 there were only 5000 tonnes almonds produced but with irrigation schemes in the early 2000s production has now increased to 82,000 tonnes. For every tonne of almonds sold in Australia, 2.7 tonnes is exported. Almonds are Australia's most valuable horticultural export, selling \$464m to 46 countries, 43% to Europe, 42% to Asia-Pacific Oceania. India imports \$113m worth as an important protein for vegans. China and East Asia are emerging markets. Free Trade Agreements are opening up China, Japan and Korea with decreased or zero tariffs. California is the main producer with 2m tonnes a year. USA produces 80.3% almonds with Australia second – 7.7% of 2016 global production, followed by Spain 4.4%, Turkey 1.2% and Chile 1.1% with others totaling 5.2%. Obviously, the value of the Australian to US dollar is important for exports.

Opportunities for Structural Adjustment to Local Economies – Policy and Practice – 3 speakers

Garry Kerr, Economic Development coordinator, Balonne Shire Council

Structural adjustment is a basic change in the way a system or company is organized to make it more competitive. Drivers are either

- Government policy change

- Drought, change in market or environmental conditions
Non-policy change is usually slower than that caused by policy change.

Ben Fee, Manager Agribusiness Initiatives, Primary Industries and Regions SA

Water efficiency increases by 30% when irrigating via pipes rather than open channels. It increases by 30-50% when drip feeding is done instead of flood irrigation. SA grants and assistance has been provided for these changes. 3IP funding of \$177m will now be expanded to \$265m. 186 projects are currently being pursued and this will increase to 250. This has led to 40GL of water saved, 1500 new jobs and \$1bn extra economic activity. Loxton Research and Development Centre has also helped the town to recover.

Michael Cutting, Principal Project Officer – Land and Water Management, Natural Resources SA

The Commonwealth On-Farm Further Irrigation Efficiency (COFFIE) Pilot Program will cost \$15m and began in Sept 2016 with the NRM Board as partner. It will run for 3 years. The aim is to return SA Class 3a water access entitlements to the environment and so contribute 450GL water. Each purchase must return at least 2ML but the previous limit was 10ML so this will assist smaller farmers. The scheme is also more flexible now, with no funding rounds and it allows water to be retained until used by the Commonwealth Environmental Water Holder. It may also be leased back for up to 12 months for the next year's release. 30 projects are under way.

Day Two

Effective Stakeholder Engagement: Building a shared vision for the future of Basin communities – Robbie Sefton, Director of Seftons

Stakeholders have a vested interest in your activity and can collaborate with you whereas the target audience is who you want to impact by changing their opinion or behaviour - with stakeholder assistance.

Stakeholder engagement should be purposeful, inclusive (key messages to be shared with all stakeholders), timely, transparent and respectful.

Inform all, consult with a focus group, involve multi-stakeholder forums, collaborate with reference groups and empower by integrating all this into the governance policy.

Failure with stakeholders occurs due to an unclear purpose, differing stakeholder capacity, insufficient skills in team, unfocussed dialogue or failure to review and evaluate.

Success occurs by committing to success – set up to win; managing time and resources; mapping stakeholders and getting them together; agreeing rules of engagement; planning engagement and managing expectations; having a consistent coherent approach that is mixed or fit-for-purpose; being transparent and accountable; learning and using information collected; having the right to disagree; accepting there will be no overnight changes.

Barrages – Panel Session run by Ashley Bland, Senior Manager Environment, Skillset

Bruce Thom, Wentworth Group of Concerned Scientists

10 million years ago, the sea deposited salt in what is now the Murray Darling Basin before it receded. Sand created in the sea formed ranges that end at Hindmarsh Island – calcreted and carbonated ridges that constrain the river mouth. The Lower Lakes have been freshwater for eons with occasional saline periods but freshwater mussels continue to survive there. In 1930-40 when water extraction increased, the lakes became more saline and the barrages were eventually built to maintain a consistent level. Tidal exchange decreased as flow reduced so the system had lower energy and sand began to accumulate at the mouth, allowing Bird Island to form. Dredging has been required to keep the mouth open ever since. The drought increased salinity in the lower river and lakes. A flush in 2016-17 after good rains helped but dredging has begun again and a good water flow down the river is essential to reduce salinity.

Andrew Reynolds, Executive Director of River Management, MDBA

The barrages are not watertight so allow flow both ways. As sea level rises in the future, more frequent water transfer will occur and the height of the barrages may need to be raised until the maximum possible height is reached. Is there an alternative to dredging – no. Groynes cannot work when sand comes from both directions so building 15-20m high training walls a long way out on the calcreted ridges would be the only way to stop sand build-up - impracticable.

Andrew Beal, Executive Director of River Murray Operations, DEWNR

From Blanchetown down to the sea the water level is kept artificially at 0.75AHD (Australian Height Datum) – 0.2 or 0.3 would be more normal. However, this height allows gravity irrigation to occur for eg. Adelaide water extraction. Renmark's major development occurred with this deeper water level.

To maintain the Coorong as a RAMSAR site the barrages are essential. The Lower Lakes were up to 1.1m below the sea in the drought and the barrages had to be sealed to allow out saltwater but stop any entering. Life in the Lakes died and mudflats not seen in 7000 years were exposed and then sulphuric acid was generated from the acid sulphate accumulated in the mud. This further threatened the lakes as they might have become permanently acidified - there is no recovery. This fate was only narrowly avoided. The river dried up leaving the floodplain which had been used for dairy cattle also acidified. The soil profile remains very shallow over acid and riverbank collapse was a major issue at that time.

If the barrages were removed, saltwater would flow into the lakes, which have had a freshwater ecosystem over eons of time so it would die. Heavy metals from the soil would also be released and would increase the acidity so matters would become much worse.

Bruce mentioned that in the drought increased salinity in the lakes allowed parasitic bristle worms to grow so prolifically on the shells of turtles that they were drowning them. Local volunteers cut away the worms after soaking the

turtles in fresh water. As climate change increases evaporation in the Lower Lakes, salinity will become an issue again.

Tim Whetstone MP Member for Chaffey

Uninformed comments can be damaging. Upstream irrigators need to understand the complexity of the situation with the barrages and to support those lower down. This is a long-term issue and scientific opinion needs to be respected.

Emma Bradbury, CEO MDA

If the barrages were removed, there would be saltwater up to Lock 1 and most of the SA economy would disappear. 700,000ML water evaporates from the Lower Lakes but the water benefits the river as it flows down. River health and water quality depend on 700GL flowing down to Wellington.

If the lakes became saltwater, then evaporation would concentrate that to become hypersaline and would impact Adelaide drinking water. Rivers die from the mouth up and the salinity would travel upstream.

A NSW project for the SDL adjustment mechanism is to separate the 4 Menindie Lakes and deepen one to act as a proper reservoir that does not lose so much water through evaporation. As rain occurs mainly in winter and spring but is needed most in summer, there is a challenge. Water can only be released from the Menindie Lakes if above 640GL flows and stops if below 480GL.

There was a question about maintaining river heights for tourism and boating. It was explained that where possible boating is facilitated but it is not a priority – the order of importance is conveyance of water, critical human needs, industry and agriculture with tourism and boating at the bottom. Adaptive planning will be needed for the future as Renmark could have a different climate by 2030. Note must be taken of tipping points and more research stations are needed, yet many have been closed.

Barmera Primary School

The children, with the help of author Liz Frankel, wrote and illustrated a book “Upstream” about Pearl the callop (or golden perch, which can travel 1000km from its home) which is aimed at schoolchildren and shows how removal of obstructions to fish movement and installation of fishways is improving life for native fish.

Enabling Regional Adaptation in NSW: State and local government working together – Mellinda Hillery, Senior Project Officer – Climate Change Adaption, NSW Office of Environment and Heritage

Climate change is a magnifier of existing risks and opportunities. It can be a driver for changes that are already required. Grants have been given to build resilience. 89 projects were identified in the local government sector and 21 are being funded.

See the Adapt NSW website for documents like the Heat Guide, Urban Green Cover Guide and CC Assessment Checklist.

The aims are net zero emissions by 2050 and making NSW more resilient to change. There are maps of projected changes in number of hot days, heatwaves, rainfall. Seasonality of rainfall will alter and there will be decreased runoff in the mountains so fire outbreaks will be more common especially in the far west.

Priorities are, in decreasing order of importance, - energy, water and irrigation, communication, horticulture, agriculture and farming, tourism, land management, transport, economic development.

One project in Dubbo is to increase tree canopy cover by 300%.

The Science of Better Planning – Nicole Emara, Business Development Manager, CSIRO Land and Water Flagship Adaptive Social and Economic Systems Research Project

‘Those who fail to plan, plan to fail’ Winston Churchill

CSIRO – 5000 people (65% with degrees, 2000 with doctorates and 500 masters), 55 sites, 11 business units (staff work laterally across divisions on various projects), \$1.4bn budget, only some of which is Government funded.

CSIRO is one of the Top Ten applied research agencies globally and is in the top 1% of global research organisations.

CSIRO Land and Water is a \$120m a year business with 700 staff and 400 projects a year with 90% business for Government agencies. It collaborates with industry and sectors. Water availability, quality and sharing are issues. Government looks to companies to provide planning information for suggested projects but there is no framework given for many concepts eg. Smart Cities.

TRaNSIT is a tool that unlocks options for efficient logistics infrastructure in Australian agriculture. It was made to assist the beef industry move cattle around the country with input of data on supply chains, commodity modules, transport network and scenarios like infrastructure and regulations providing an output module of suggested routes and timetables. TRaNSIT was used in the NSW floods to justify major work required on roads in Forbes Shire.

Other programs are onPrime and onAccelerate which were used to suggest feral pigs in Cape Yorke, which cause major ecosystem damage annually including the cultural impact of 100% predation on endangered turtle rookeries, be culled and sent to a pig biomass plant to produce Feraliser and give aborigines job opportunities.

CSIRO ask questions about the Australian National Outlook:

How can we protect and enhance our most important national assets?

How can we boost economic growth and reduce inequalities?

How many cities will there be in Australia in 2050?

What are the biggest risks and opportunities?

Can we provide housing for all?

What jobs will exist in the future?

Can Australia thrive in a low carbon world and survive in a high carbon world?

What will provide liveable communities as our population doubles?

How can we unlock our potential?

There is an energy-food-water nexus. 20 scenarios have been drawn up for a balanced scorecard assessment of the ANO.

'Prediction is difficult, especially the future' Neils Bohr (Danish proverb)

Making Every Drop Count – Hilton Taylor, Commonwealth Environmental Water Holder

The CEWH aims to increase returning of entitlements and the long-term average annual yield. The average annual volume is 1,781GL with 80 entitlement types over 17 catchments.

Water is actively managed to either use, carryover or trade it. Naturally water flow increases in winter and early spring so carryover water is used to achieve this. Trading may be the best outcome if other environmental outcomes require work to be paid for in this way.

The aims are:

- River flows and connectivity (KPI - increase flow by 10% into Barwon-Darling, 30% into Murray, 30-40% to the mouth)
- Vegetation (KPI – maintain existing forest extents of river red gum, black box and coolabah)
- Waterbirds (KPI - increase population in 2024 by 20-25% from 2012)
- Fish (KPI – improve breeding success at 80% of key sites)

Natural cues - chart of aims depending on water availability:

With minimal water	Avoid damage to environment
With more water	Protect and ensure capacity for recovery
With increasing water	Maintain ecological health and resilience
With maximum water	Improve ecological health and resilience

The CEWH works with communities and forms partnerships eg. Renmark Irrigation Trust in Renmark, Nari Nari Tribal Council in Toogimbie IPA.

The CEWH is trying to turn around the declines of the last 100 years. Independent long-term monitoring is done at 7 sites and evaluated to encourage continuous improvement and innovation. The river is a complicated system with its rivers and tributaries and ever-changing flows. For instance, 123.8GL environmental water was put in the Goulburn River and total return flow recredited was 170GL.125GL of that water reached SA.

Results so far – over 7000GL environmental water applied since 2009, basin-scale coordination, increasing native fish numbers (the earbone in fish, the otolith, can be checked to detect where the fish has lived), increasing waterbirds and vegetation, improved water quality and less blackwater. The

aim is to connect the whole system including the Coorong. The environment is improving gradually.

AGM

The special motion for amendment to the constitution which altered the notification period for an AGM passed. However, the second amendment to the constitution which refused individual MDA membership to any serving councillor rather than only to a councillor from a member council was not passed. It was considered that the Board should carefully consider the implications of the change before putting it to members again.

There were eight motions put forward by the regions relating to - inclusion of local government in MD Basin decision-making; request for an independent public inquiry into compliance; independent auditing of MDBA compliance; sufficient river flows for boating and tourism at peak times eg. Easter; community notification of managed high flows; local government involvement in Water Resource Plan development; information to MDA on the NSW Menindee Lakes Project (part of the SDL adjustment mechanism); inform the public about the Wentworth-Broken Hill Water Pipeline and place a moratorium on this until the business case is proven. The motions all passed with a couple of minor amendments to some of them.

Day Three

Tour of Chowilla Regulator, a weir-like structure that allows water levels to be raised using minimal volumes of water so as to irrigate surrounding wetlands and floodplains (that were nearly permanently flooded by the 1968 Chowilla Dam Project despite it having the largest natural river red gum forest in the lower Murray), Calperum Station which manages the vast Bookmark Riverland Biosphere, Ral Ral Creek for a BBQ lunch on the riverbank, Renmark Irrigation Trust (re their partnership with the CEWH and the Renmark Paringa Council to deliver environmental water to local wetlands), Bert Dix Park (with its new regulators and fishways) and Lock 5 (with its weir pool raising/lowering so as to mimic variations in water levels and thus allow flooding or drying of riverbank vegetation, wetlands and floodplains).

Lynda Yates

7.2 AGM Draft Minutes

The draft minutes are attached separately to the distribution email.

7.3 Regional Plan Update

At the last Region 7 meeting it was resolved to adopt a framework for the role for the Region. A suggestion was made to more clearly identify Water Sensitive Urban Design as an issue. Therefore it is recommended we adopt the variation below. Only point 1 has been changed.

1. Encourage investment in water saving measures across Adelaide, including water sensitive urban design
2. Exchange information about water saving measures
3. Encourage efficiency in water use
4. Understand the water supply system and water sources across Adelaide
5. Share information about water saving and efficiency across the Murray Darling Basin
6. Publicly inform communities across the Basin of Adelaide's water supply system
7. Promote efficient use of water across the Basin
8. Seek to ensure adequate compliance and audit measures are in place
9. Promote understanding of water uses and environmental issues across Adelaide and the wider Basin
10. Promote the role of local government in being an integral part of water management across the basin

I have also developed an early draft of an overview of Adelaide's water supply. This is preliminary work and has not been tested with government official to ensure it accuracy. One of the difficulties in putting such an overview together is the great variation in usage over time as seasons vary considerably.

Anyway, the first attempt is include for comment.

Adelaide Water Supply - an Overview

Availability of water is a major determinant of the evolution and location of all towns and cities around the world. Adelaide was established as a new free settler colony in 1836 and Colonel Light chose the site largely because of the availability of water – the Torrens and other small rivers emanating from the Mount Lofty Ranges.

The Mount Lofty Ranges catchment still provides a significant amount of Adelaide's water supply through the 10 reservoirs linked to the greater Adelaide system. These reservoirs have a combined capacity of 100 GL. Water from the River Murray began being supplied to Adelaide in 1955 with a pipeline from Mannum to the northern part of Adelaide. A further pipeline from Murray Bridge to Onkaparinga in the South was completed in 1973.

The balance of supply between the Mt Lofty Ranges catchments and the River Murray depends on the amount of rainfall in the Mt Lofty ranges and the rate of flow in the river. The amount used from each source can vary significantly – as

can the total amount of water needed. On average around 50% of Adelaide's water supply comes from the Murray. However, the long term average annual yield from the Murray is 100 GL, less than 1% of the long term average annual yield from the total basin. The highest %age (3.808%) occurred in 2006-7 at the height of the drought. The lowest %age to 2014 was in 2014 (0.478%)

Recycled sewerage and stormwater aquifer recharge schemes had been developed in Adelaide over many years, however the severe drought in 2006-7 resulted in a significant investment by the Commonwealth, State and local governments to increase these schemes as part of water proofing Adelaide strategies – ie securing water supply. Currently waste water schemes produce approximately 30 GL per annum and storm water recharge schemes have a combined capacity of 22 GL per annum. These systems are used extensively to water public parks, gardens, ovals, golf courses etc. Local government is also active in investing in water sensitive urban design for its own infrastructure and in encouraging its use in other suitable developments. Adelaide is a world leader in many of these technologies.

Also as a result of the 2006-7 drought, the State Government invested in a desalination plant in the south of Adelaide with a capacity of 100GL per annum. Current policy is that full capacity of the plant will be used when the spot price of water from the River Murray is greater than the marginal cost of running the plant. It is currently kept running at around 10% of capacity.

A brief summary of Adelaide's water supply is set out below:

- **Adelaide takes, on average, less than 1% of the water off-take from the Murray Darling Basin**
- **On average, 50% of Adelaide's water supply comes from the River Murray**
- **Around 15% comes from recycled waste water**
- **Storm water recharge schemes have the capacity to supply 12%**

7.4 SA Regions Meeting in Murray Bridge

Region 6 is planning to host a South Australian regions forum in Murray Bridge in February. The date and who is invited are not determined yet, but members will be informed when they are known.

The objective is to identify the key issues facing each region in SA.

