



MURRAY **FUTURES**

Lower Lakes & Coorong Recovery

Community Consultation (Stage 2) Report
APPENDICES

The Coorong, Lower Lakes and Murray Mouth:
Managing for a Healthy Future



Appendices

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Appendix 1

Promotion - Distribution Points

Councils:

Alexandrina Council
Coorong District Council
Strathalbyn Council Office
Taillem Bend Office of Coorong District Council
Tintinara Office of Coorong District Council
Mount Barker District Council
Rural City of Murray Bridge

Libraries:

Coomandook Community Library
Department of Environment, Water, Heritage and the Arts Library
Goolwa Public Library
Meningie Community Library
Mount Barker Community Library
Mt Compass Library
Murray Bridge Library
National Library of Australia
Australian Capital Territory Library
Port Elliot Library
South Australian Parliamentary Library
State Library Adelaide
Strathalbyn Community Library
Taillem Bend Community Library
Tintinara & Coonalpyn Community Library
Victor Harbor Public Library
Resource & Community Centres
Milang Old Schoolhouse Community Centre
Mount Barker Natural Resource Centre
Murray Bridge Natural Resource Centre
Strathalbyn Natural Resource Centre
Victor Harbor Natural Resource Centre
Willunga Environment Centre

DEH - CLLMM Team & Regional Offices:

Coorong, Lower Lakes and Murray Mouth Project Team
Mapland
Department for Environment and Heritage (Meningie Office)
Department for Environment and Heritage (Victor Harbor Office)
Department for Environment and Heritage (Berri Office)

SA Ministers:

Hon Mike Rann MP, Premier, Minister for Economic Development, Minister for Sustainability and Climate Change
Hon Paul Holloway MLC, Minister for Urban Development and Planning
Hon Jay Weatherill MP, Minister for Environment and Conservation
Hon Paul Caica MP, Minister for Agriculture, Food and Fisheries, Minister for Regional Development
Hon Gail Gago MLC, Minister for State/Local Government Relations
Hon Michael O'Brien MP, Minister for Employment, Training and Further Education
Hon Tom Koutsantonis MP, Minister for Correctional Services
Hon Jennifer Rankine MP, Minister for Families and Communities

Hon Michael Atkinson, Attorney-General
Hon Michael Wright MP, Minister for Police
Hon John Hill MP, Minister for Health
Hon Kevin Foley MP, Treasurer, Minister for Federal/State Relations
Hon Jane Lomax-Smith MP, Minister for Tourism
Hon Patrick Conlon MP, Minister for Transport, Energy and Infrastructure
Hon Karlene Maywald MP, Minister for the River Murray, Minister for Water Security

Australian Government Ministers:

Senator the Hon Penny Wong, Minister for Climate Change and Water
The Hon Peter Garrett AM MP, Minister for the Environment, Heritage and the Arts

Shadow Ministers

Isobell Redman MP, Leader of the Opposition, State Member for Heysen
Adrian Pederick MP JP, Member for Hammond
Mitch Williams MP, Shadow Minister for Water Security

SA Parliamentarians:

Mark Parnell MLC Parliamentary Leader SA Greens
Hon David Winderlich MLC Parliamentary Leader SA Democrats

Chief Executives:

Allan Holmes, Chief Executive, Department for Environment and Heritage
Helen Fulcher, Chief Executive, Environmental Protection Authority
Scott Ashby, Chief Executive, Department for Water, Land and Biodiversity
Brian Cunningham, Chief Executive, Department for Trade and Economic Development
Jim Hallion, Chief Executive, Department for Transport Energy and Infrastructure
Anne Howe, Chief Executive, SA Water
Chris Eccles, Chief Executive, Department of Premier and Cabinet
Ian Nightingale, Chief Executive, Department of Planning and Local Government
Geoff Knight, Chief Executive, Primary Industries and Resources SA

Non - Government Organisations:

Rob Freeman, Chief Executive, Murray Darling Basin Authority
Dr Tony Sherbon, Chief Executive, Department of Health
Mr Dean Brown, Manager Community Liaison
Mr Simon Stretton, Crown Solicitors Office
Mr Shaun Berg, Principle Lawyer, Berg Lawyers

Other:

Conservation Council of South Australia
Camp Coorong
Coorong Wilderness Lodge
Victor Harbour R-7 School
Murray Bridge High School
Monash University
University of Canberra
Australian Catholic University
Charles Sturt University
Griffith University
Wellington Court House Bed & Breakfast
Raukkan Community Council Inc

Appendix 2

Promotion - Media Coverage

News Releases:

Sunday, 16 August 2009

Long-Term Plan for Coorong and Lakes at Murray Mouth Nears Completion

Hon Jay Weatherill

Minister for Environment & Conservation

Friday, 4 September 2009

Still time to comment on Coorong and Lower Lakes plan

Department of Environment & Heritage

Community Updates:

Monday, 24th August 2009

8th long-term plan community update

- Consultation update
- Emergency response actions update
- Diatoms research
- Possibly feedback so far

Monday 31st August 2009

9th long-term plan community update

- Consultation closing date reminder
- Brief feedback summary
- What we do with feedback
- Emergency response projects update
- What happens next?

Monday 7th September 2009

10th long-term plan community update

- Consultation period closed
- Thanks for feedback
- Brief feedback summary
- What happens next?

Monday 21st September 2009

11th long-term plan community update

- Preliminary plan feedback detailed summary
- Process for finalising Long-Term Plan
- Submitting final plan in October for funding
- Update on emergency response actions

Newspaper:

Options grow for restoring Lower Lakes

Adelaide Advertiser, 17/08/09, General News, Page 15

Bioremediation Bus Trip on Lower Lakes

Lakeland, 14/08/09, General News, Page 1

Sea will reclaim lakes

Mount Barker Courier, 19/08/09, Letters, Page 6

Solutions to assist the Lower Lakes

Murray Valley Standard, 20/08/09, General News, Page 8

Government acts on water and Lower Lakes

Southern Argus, 20/08/09, General News, Page 1

Lake options released

Times Victor Harbor, 20/08/09, General News, Page 5

Council responds to plan

Times Victor Harbor, 10/09/09, General News, Page 3

Your last chance to comment on Lakes

Times Victor Harbor, 10/09/09, General News, Page 3

Council responds to plan

Times Victor Harbor, 10/09/09, General News, Page 3

Your last chance to comment on Lakes

Times Victor Harbor, 10/09/09, General News, Page 3

Radio:

ABC News (Weekend) - 16/08/2009 7:02 PM

Interviewees: Jay Weatherill, SA Minister for Environment

ABC 891 Adelaide (Adelaide) 07:00 News - 18/08/2009 7:02 AM

Interviewees: Tim Drew, CEO, Coorong District Council

ABC North & West SA (Port Pirie) 12:30 News - 17/08/2009 12:30 PM

Interviewees: Peter Croft, Environment Department

ABC South East SA (Mt Gambier) Limestone Coast Mornings - 17/08/2009 8:47 AM

Interviewees: Peter Croft, Director, Coorong Lower Lakes and Murray

ABC South East SA (Mt Gambier) 06:30 News - 18/08/2009 6:30 AM

Interviewees: Tim Drew, CEO, Coorong District Council

Cruise (Adelaide) 10:00, 12:00, 14:00 News - 17/08/2009 10:01 AM

Interviewees: Jay Weatherill, SA Environment Minister

MIX FM (Adelaide) 10:00, 14:00 News - 17/08/2009 10:01 AM

Interviewees: Jay Weatherill, SA Environment Minister

ABC 891 Adelaide (Adelaide) 07:45 News - 18/08/2009 7:49 AM

Interviewees: Tim Drew, Coorong District Council

ABC 891 Adelaide (Adelaide) 07:45 News - 18/08/2009 7:50 AM

ABC North & West SA (Port Pirie) 12:30 News - 18/08/2009 12:31 PM

Interviewees: Adrian Pederick, Oppositions River Murray Spokesman

ABC South East SA (Mt Gambier) 07:30, 8:30 News - 18/08/2009 7:31 AM

Interviewees: Tim Drew, CEO, Coorong District Council

ABC South East SA (Mt Gambier) Limestone Coast Mornings - 18/08/2009 8:37 AM

Interviewees: Adrian Pederick, Shadow Minister for the River Murray

ABC North and West SA (Port Pirie)

Late Afternoons - 21/08/2009 4:15 PM

Television:

Seven News (Weekend) - 16/08/2009 6:05 PM

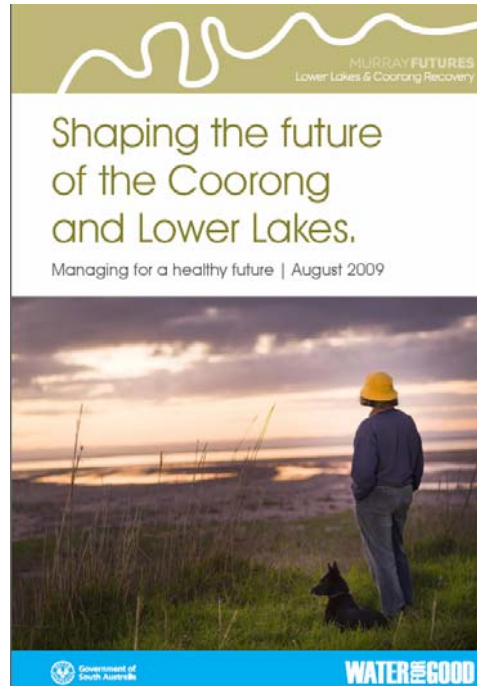
Interviewees: Jay Weatherill, SA Minister for Environment and Conservation

Appendix 3

Promotion – Printed Materials and Web Copy

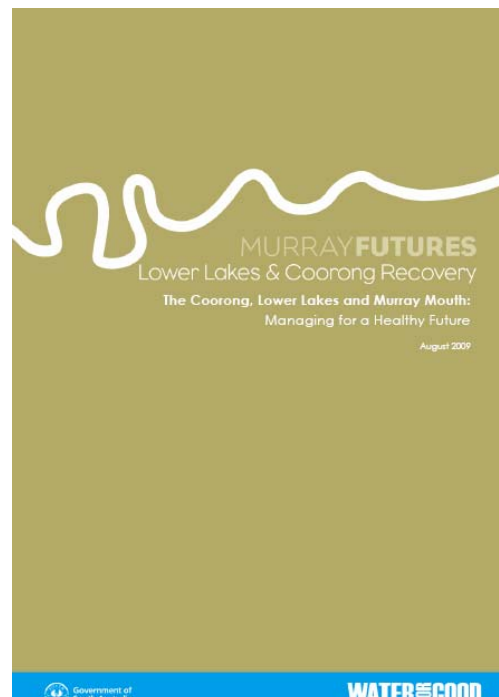
Shaping the future of the Coorong and Lower Lakes: *Managing for a Healthy Future* summary brochure

Released Monday 17th August 2009



The Coorong, Lower Lakes and Murray Mouth: *Managing for a Healthy Future* full document

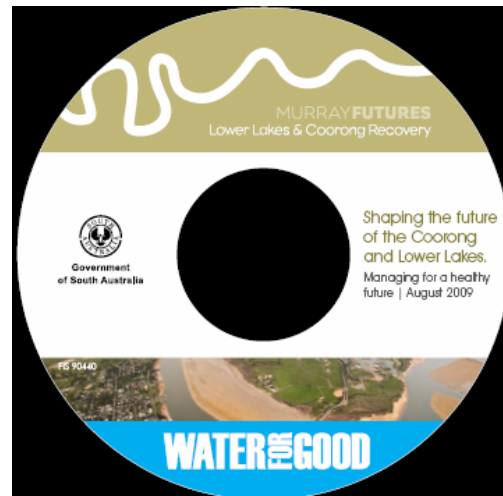
Released Monday 17th August 2009



The Coorong, Lower Lakes and Murray Mouth: *Managing for a Healthy Future* CD

Released Monday 17th August 2009

Content: *Managing for a Healthy Future* full document, *Managing for a Healthy Future* summary brochure, Management Actions Feedback Table



DEH - Coorong, Lower Lakes and Murray Mouth Projects

(<http://www.environment.sa.gov.au/clmm/murray-futures.html>)

Launched Sunday 16th August 2009

Murray Futures Lower Lakes and Coorong Recovery is a section within the CLLMM Projects site that focuses on the long-term plan. It includes:

- information on the region - geographical, its Ramsar listing and the community
- details on the environmental issues facing the region and the socio-economic issues facing local communities

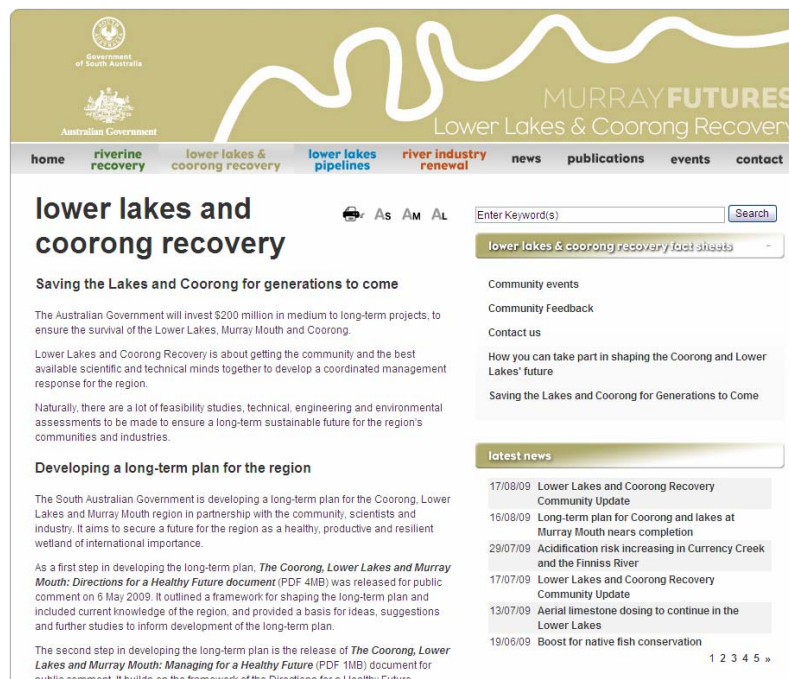
- details of the Managing for a Healthy Future document and brochure and how they link with the Directions for a Healthy Future document
- How the community can find out more and give their feedback on the document to feed in to the final plan
- Results of community feedback from the Directions for a Healthy Future consultation
- What actions the community, state government and Australian Government have already taken to address the issues
- The Long-Term Plan Reference Group and governance arrangements for the project
- Links to scientific publications used to develop the long-term plan, educational resources, maps and useful weblinks
- Fact sheets and FAQs on technical issues relating to developing the plan including acid sulfate soils, the effect of sea level rise, bioremediation works etc
- A photo gallery with images of the region and work underway to address environmental issues.
- The website also includes information on the temporary weir near Pomanda Island, the sea water proposal and the Goolwa Channel Project.

This website was updated on Sunday 16 August 2009 with the release of the Managing for a Healthy Future document for public consultation and is constantly being updated as new information becomes available.

Murray Futures - Lower Lakes and Coorong Recovery

(<http://www.murrayfutures.sa.gov.au/lower.php>)

Launched Sunday 16th August 2009



This site consists of an overview of how the long-term plan is being developed i.e. 1st step - Directions for a Healthy Future document, 2nd step - Managing for a Healthy Futures document, final long-term plan due for completion in October 2009. It highlights the Australian Government has set aside \$200 million of funding for the plan and how community input is vital to ensure the best possible plan is developed.

There is also information on community events and how people can give feedback and get involved in the Managing for a Healthy Future consultation, results of Directions for a Healthy Future consultation, latest news and a fact sheet on developing the plan. There is also a photo gallery showing the team's work.

This information was updated on Sunday 16 August 2009 with the release of the Managing for a Healthy Future document for public consultation.

Fact sheets

Available from the DEH - Coorong, Lower Lakes and Murray Mouth Projects website:

<http://www.environment.sa.gov.au/cllmm/fact-sheets.html>

Acid sulfate soils
Bioremediation and community involvement
Coorong and Lower Lakes Community Eco-Action Project
Revegetation works in the Lower Lakes - autumn 2009
Wind erosion
Fresh water future
Water for the Future - Coorong and Lakes Alexandrina and Albert Ramsar Wetland
Sea water proposal for the Lower Lakes
Goolwa Channel Project
Limestone trials in Currency Creek and Finniss River
Finding the best way to manage acid sulfate soils in the Lower Lakes
Tubeworms in the Lower Lakes and Goolwa Channel
Salinity in the Coorong and Lower Lakes
Blue Green Algae
Biodiversity loss
Sea level rise
Wind seiching

Frequently Asked Questions (FAQs)

Available from the DEH - Coorong, Lower Lakes and Murray Mouth Projects website:

<http://www.environment.sa.gov.au/cllmm/fact-sheets.html>

Temporary weir
Environmental impacts of the temporary weir
Environment Protection and Biodiversity Conservation Act and Environmental Impact Statements (EIS)
Sea water proposal
Fresh water levels in the Lower Lakes
Revegetation works in the Lower Lakes - Autumn 2009
Limestone trials in Currency Creek and Finniss River
Management options already considered

Appendix 4

Targeted Meetings - Notes

Long Term Plan Reference Group #7

26th June 2009

The Monastery, 15 Cross Rd, Glen Osmond

10:00am – 14:00pm

Key themes:

- The importance of engagement with Traditional Owners, the Ngarrindjeri and enquiry into how they might be engaged
- The need to consider all upstream influences (e.g. allocation, management actions and a 'whole of basin' approach)
- The need for effective links with the Murray Darling Basin Authority and basin allocation planning
- Natural versus engineering solutions to environmental management
- The need to incorporate scientific knowledge with local expertise
- The importance of bioremediation and re-vegetation
- Links with / alignment to the Ramsar Agreement

Scientific Advisory Group

30th June 2009

NEPC Building, Level 5 Boardroom, 81 Flinders St

2:00pm – 5:00pm

Key Themes:

- Information regarding the Long Term Plan, climatic scenarios and acid sulfate soils was presented by DEH staff. A discussion regarding the role of the Science Advisory Group within the context of the development of the Long Term Plan ensued, with a decision made to continue convening as necessary.

Icon Site Community Reference Committee

21st July 2009

Langhorne Creek Bowling Club

9.30am -12.00noon

Key Themes:

- The major impact of a fish kill in Lake Albert when water recedes. Gary Hera Singh indicates that it will be impossible to manage it – given the low water and the mud. Carp will be the survivors.
- There will be a major social, health and economic impacts for Meningie.
- Involvement of Long Term Planners with Barrage Operations in future (PB progressing). Long Term Plan Governance/coordination
- Managing communications across the region and across agencies: discussion paper being written (PB)
- (related to) Governance of the CLLMM area.

The meeting was purposeful and sharing of information was open and cooperative. Useful conversations often emerged, which Bill Paterson encourages and facilitates quietly and skilfully. Some group members reported personal suffering as a result of tensions in the community about the

regulators. Others reported that there is great tension and unhappiness.

Long Term Plan Reference Group #8

22nd July 2009

Mount Lofty House, Crafers

10.00am – 2.00pm

Key Themes:

- Acid Sulfate soils are posing a real great risk to the region and in particular to tributaries. DEH are bioremediating the area to help mitigate the issue and stop its spread into the Goolwa Channel.
- The Clayton Bay regulator is nearing completion. Mud waves were to be expected. The regulator will sink around 2m before it stabilizes.
- Long Term Plan consultation likely to commence late mid August. Socio Economic consultation has commenced and will be complete mid August. The study will support the Business Case.

Lake Albert discussion:

Paper addressed 2 scenarios for Lake Albert

1. Freshwater/delay seawater approach
 2. Advance seawater approach
- Under each scenario is a timeframe indicating what the issues are likely to be in 2009/2010 as well as how long the recovery for the system would be.

Lower River Murray Drought Reference Group

29th July 2009

Local Government Centre

2 Seventh Street, Murray Bridge

2:00pm – 5:00pm

Key Themes:

- Update on the Long Term Plan and Community Engagement: Feedback received was that public meetings have been exhausted. Consultation will focus on targeted meetings with key industry groups and associations.
- Regulators: Advice received is that the primary means of dealing with acidification is saturation methods and the addition of limestone. Clayton Regulator is in the process of being constructed and will be completed within the next 2 weeks.
- The rains from the last couple of months has mobilised acid not diluted it. Readings indicate there has been major acid coming down Currency Creek and Finniss.
- Community need to be kept informed of what is happening to the Lake Bed. They need to understand the implications of seawater being let in.
- Had request from community to look into why people who have sold water for River Murray Buy Back Scheme have not yet received the money from Government.
- Have had a few questions arising from the community with regards to the construction of the Point Sturt Pipeline – people are asking if it will or won't be commissioned. There has been a lot of confusion about the pipeline connection and costs.

Long Term Plan Reference Group #9

6th August 2009

The Monastery

10.00am – 1.00pm

Key Themes:

- Need to include provisos for 3500GL. If we get 3500 GL, this is what we get for it in Wet, Dry, Median and Extreme-dry periods
- The working draft of the plan with an explanation of how we got to a number of points will be presented at the next meeting.
- General consensus reached that the plan should set a figure for water entering South Australia to be calculated on an outflow of 3,500 gl, plus river system losses. Vital human and environmental needs, plus an index of the amount of water in the system need to be treated separately. In times when the water flows are low, then the environmental aspects could be indexed to available water in the system.

Socio Economic Impacts Study Workshop (Coorong Council)

18th August 2009

Coorong District Council

Key Themes:

1. Current indicators of social and economic impacts of low water levels:

- Two thirds of dairies have been lost
- Decrease in catches for fishing industry
- Real estate slowdown with properties not selling, with many having their retirement plans invested in property.
- Concern of the loss of young families in the town.
- Significant downturn on tourism (no water they don't stay)
- Narrung School closed and now Raukkan school at risk.
- Empty houses at Narrung and Raukkan.
- Town businesses struggling.
- Farming land value plummeted 40-60% due to decrease in production.

Economic downturns and changes in agriculture occur everywhere but the changes here have been so quick.

2. Response to Management Actions:

- Support the core elements of the Long Term Plan.
- The removal of the bund will make the Meningie community feel that they are not so isolated from the rest of the system. (Trigger points for removal?)
- Like to see something that says freshwater can be delivered.
- Pipelines saved this area – agriculture is no longer relying on the lakes for production and they now have better quality water which has a positive impact on stock.

3. Other issues:

- Meningie (Coorong Council) needs assistance to assist business with change, attract alternative economic development and develop tourism opportunities.

Community Governance:

- Community needs to be involved very early in the decision making process.
- Need to develop mechanisms to involve the broader community – they want to hear information directly not just through Council.
- Works best when meetings are managed and driven locally, leads to ownership and partnership in the planning.
- Recent Lake Albert planning meeting show that a partnership process can work.
- Having the Leaders (Ministers/ Heads of Government Departments) come to the area is of great importance to the local community.

Lower River Murray Drought Reference Group

20th August 2009

Murray Bridge Local Government Centre

2:00pm – 3:00pm

Key Themes:

- Introduction of seawater would actually increase concentrations of salt if put on top of hyper saline water – need method to pump out salts prior to adding saltwater to reduce this. Would not be seawater introduction but saltwater from the north lagoon
- Climate and flow – no link as they are broken by extraction therefore it should be Wet climate = strong flow, Dry climate = weak flow
- Crash grazing – will stock be allowed to graze the lake bed in the summer months? Issues around fencing – DEH to take the lead
- 4WD on exposed lake soils – disturbing natural regeneration – need for signage and compliance (DEH to take the lead)
- Concern around Lake Albert – we should be warning people about what they are facing i.e. fish kills
- Confusion in Meningie community – whole community meeting needed in 2-3 weeks to raise awareness

Murray Darling Basin Natural Resource Management Board

20th August 2009

Mount Barker

4:00pm – 5:30pm

Key Themes:

- Ngarrindjeri input in the report – important to engage Ngarrindjeri in this. KNY Agreement signed – weekly meetings held between DEH and Ng since July
- Ground water seepage into Lake Albert – will that effect bore use in the Lake Albert Region?
- Pipelines supply water to stock as the GW is depleted in the area, the whole of Lake Albert is supplied through the pipelines
- Loveday Bay went acidic – 200 Ha of pH2 – muscles are disintegrating – good indication of what we are to expect

Boat Owners Association

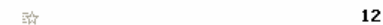
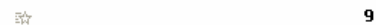
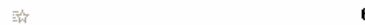
27th July 2009

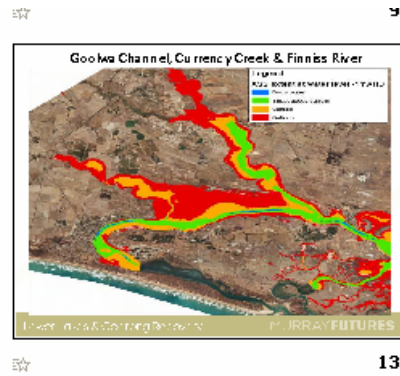
Hindmarsh Island

9.30am – 11.30am

Key Themes:

- Managing the Murray Mouth with a breakwater was one of the key issues that emerged from this meeting. The Association also presented a list of 13 “boating projects” that they would like to be considered under Murray Futures. Finally, they expressed their support for the core elements of the LTP, as well as the construction of a permanent weir.





Appendix 6

Community Meetings by Request

Angas Bremer Water Catchment Management Group (Annual General Meeting) Monday 24 th August 2009 Langhorne Creek	DEH attendees: Peter Croft Gemma Cunningham
Business Development Managers Conference Friday 4 th September 2009 Victor Harbour	DEH attendees: Piers Brissenden
Lake Albert Community Meeting Wednesday 8 July Meningie Bowling Club	DEH attendees: Peter Croft Rowena Brown Allan Holmes John Howard
Community Information Session: Propagation and Nursery Works (Eco Action Planning Group) Thursday 6 August Wyndate, Hindmarsh Island	DEH attendees: Grant Ebert Piers Brissenden Simon Oster Clare Manning Sheila Brown
Meningie Community Representatives Tuesday 25 August Meningie Bowling Club	DEH attendees: John Howard Allan Holmes Peter Croft

Appendix 7

Focus Groups

Focus Group 1 (Peak Groups)

Friday 31st July
3:00pm - 5:00pm
L3, 100 Pirie Street, Adelaide

Participant Organisations: Conservation Council of SA, Greening Australia, Conservation Volunteers Australia

Summary:

This meeting was the first for CLLMM with peak environmental organisations. It didn't yield ideas etc as could be expected from a focus group. Rather it served as an introduction to CLLMM projects and an orientation to the long term plan. The management action flash cards provided a ready tool for the group participants to become familiar with CLLMM possibilities. The cards also provoked a lot of questions and the DEH Ecological Investigations Manager engaged energetically with participants.

- Are sea level rises at Murray Mouth predictable and what is the likely impact?
- Is there a regulator at Boggy Creek?
- Is there any risk of over-liming?
- Which is the greater threat – acid sulphate soils or (hyper) salinity?
- How much rain has flowed into the Lower Lakes in recent weeks?
- What are the trigger points for what actions?

Discussion about environmental groups (nature conservators) now turning their attention to not only buying land but buying water for the environment.

What the timeline is for the long term plan. Greening Australia makes plans out as far as 100 years.

Argues the case for an average target flow into the Lower Lakes which can become prominently publicised and which can be 'sold' to the public and to water managers. What would it be? (suggests 3500 through the Murray Mouth)

Argues that water sharing plans must change – and the MDBA must improve allocations to the River especially in drought years. Indicates a favour for a move away from private water rights to public water rights with a no cost allocation guaranteed for the River.

Indicates Basin Plan has 40% for the environment.

A site visit was offered

Suggests the book Water Politics in the Murray Darling Basin David Connell, Federation Press 2007

Focus Group 2 (Mixed)

Tuesday 4th August

10.30am - 12.30pm

The Wellington Hotel, Wellington

Participant Organisations: Goolwa to Wellington LAP, Meningie Narrung Lakes Irrigator Association

Summary:

Part 1. (Management Actions)

1. MDB Authority should be headquartered in Goolwa. We need national consensus on outflows. Regulators have caused outrage in the region. People feel they have been lied to.
3. If we have seawater incursion, how far will the water flow upstream? What studies have been done on the impact on the marine life on the sea side of the mouth? 11,700GL outflow from the Murray Mouth pre-settlement. What do you do with the fish kill?
2. Following fresh water inflows down the Coorong in the 1960s and 1970s there were major fish kill in the Lower Lakes at the junction of the fresh and sea water mixing.
3. Restore water inflows into the Coorong from the South/East rather than rely on Murray flows.
3. Sees brilliant eco-tourism capacity with management action A1.
3. Regarding Management Action A10 - Prefers to see pumping into the South Lagoon from the sea then run it down to the mouth. Managing the Coorong as seawater and the water from the South East will flush through.
1. Regarding A10 – could accept but has concerns with the release of hyper saline water and its affect on marine life.
3. We still need South East water for the Coorong.
3. Wants to see all allocations as a % of inflows. All keyed to rainfall/climate change. Wants to see a resilient river system managed as a whole system, and then have a debate re the % for human, environment and irrigation. Need 2000GL flowing through the mouth as a priority. Potential for holding water in Lakes Albert and Alexander to pre-barrages levels is less due to silt filling in holes.
1. Loss of trust in what we are doing and this is a massive issue. We are not communicating the fact that we don't want to build them. We appear to be saying that we want to build the regulators regardless of science. Questions re inflows from Finnis.
3. We keep getting half the information only. We keep the information to ourselves.
2. What size do we want the Lake to be? The bed of the Lake is higher than before settlement.
2. Questions Bathymetric maps. How were they done? Questions what the real levels are. Map showed 6m of water but this wasn't true.
3. Management Action B7 needs a better/clearer explanation.
2. Has concerns with allowing sea water into Lakes Albert and Alexandrina and then the silting up of the Murray Mouth.

Focus Group 3 (Water and Land)

Tuesday 4th August

2.30pm - 5:00pm

Old Strathalbyn Council Chambers, Strathalbyn

Participant Organisations: Angas Bremer Water Management Group, Wetland Habitat Trust, Bremer Barker Catchment Group, Goolwa to Wellington LAP

Summary:

Part 1. (Management Actions)

Comments from participants:

2. Change perceptions upstream, to think of the Lower Lakes in a different way. We need to sell our ideas upstream.

1. There is a minimal amount of water needed for a healthy system.

4. We need to manage the river as requiring variable water flows.

5. Due to the Lower Murray Swamps and rewetting of soils we will need more inflows than anticipated.

2. Confirmed that 10ML/hectare is required in soils when dry. Acid Sulphate soils at greater depth.

1. Variability of river. It needs medium floods every five years to mimic nature and keep river healthy. Plus minimum flows for the other four years. Fifth year needs to be quarantined from upstream irrigators.

2. We need five year rolling averages and to be able to store the water. Stop the cowboys from stealing water via diversions.

1. Artificial flooding of the Lakes gets rid of drought tolerant species.

5. Keep Murray Mouth open with natural processes not with dredging. Dredging only as fallback.

4. Barrages needed until large inflows, sufficient to push sand outwards. Minimal dredging to allow water in from the sea while waiting for inflows.

5. An oral history of the Lower Lakes – videos and journal entries/farm records. Will be on the Internet in a month or two.

4. Lakes have been Freshwater for 7000 years.

1. Between 1902 – 1940 The Lower Lakes did get saline because of irrigation extractions. Then the barrages were built.

2. There is a strong need to understand engineering solutions better.

1. Environmental problems of water from the South Lagoon into the marine environment.

4. Concern with dredging to increase the channel dimensions with more sand inside the mouth.

5. True adaptive management. Lack of flexibility in government. We need a structure that can be adaptive.

1. Water market not working.

5. Concerned that large disturbance of sediment in the regulator wasn't planned for. Happy that Revegetation trials have worked, we can now go forward with using reeds in the revegetation efforts.

1. Shouldn't be choosing natives when the area is going to be submerged. Variability of Lake levels and how this impacts on choice of plants.

Part 2. Science Communication

4. Seen to be dishonest re acid sulphate. We need to acknowledge the disagreement amongst scientists.

3. Which scientists? Level of mistrust was developed in the early stages of our efforts. More information needed re river levels. Open access to reports needed. Information is hidden. There is a lack of transparency. Where are the reports mentioned in the EPBC referral on acid sulphate soils that were left out of the report?

1. Seeding of lake Albert. Meeting at Meningie – no notice was given and this set the initial tone to follow.

Event DEH workshop, Wine Centre Monday 7 th September 2009					
Question	Agree	Mostly Agree	Unsure	Mostly Disagree	Do Not Agree
The presentation increased my understanding of the issues	9	6			
The presentation answered all of the questions I had	1	11	3		
The presentation was too scientific/technical for me				2	13
The presentation did not allow for two-way information sharing			2	3	10
The presentation was not relevant to the issues	1			2	12
The presentation had just the right balance of facts and figures.	1	12	1	1	
The most satisfying aspects of the presentation?	<ul style="list-style-type: none"> • Explaining the overall project • Greater understanding of reasons for proposed management actions • Talking to CLLMM guys about different management actions • Feedback forms and personal interaction with project officers • The various methods of presentation and open discussion • Q and A discussions in small groups • Two opening presentations provided an excellent context to the workshop • General discussion arising from the management scenario exercise • Clear explanation of the issues (Peter) and plan of attack (Piers) • Providing input into plan • Questions answered • Learnt more options and information for saving the CLLMM • Information sharing • Advocating for whole of system reform 				
The least satisfying aspects of the presentation?	<ul style="list-style-type: none"> • Whole group discussion would be good • Would be best to go through management actions in your own time so more research could be completed • Need more time to digest the information • Whilst necessary, the first half prior to discussions was a little slow • I hadn't done enough preparation to provide useful feedback • Personally not having the knowledge to be able to make a significant comment in the management scenario exercise • The scenarios/cards. I did not have enough information/knowledge to 				

	<p>fully understand the management actions. But an interesting tool for engagement</p> <ul style="list-style-type: none"> • Too much asked of us in a short period of time • Time constraints
<p>What else can you tell us that will assist with developing a long-term plan for the Coorong, Lower Lakes and Murray Mouth region?</p>	<ul style="list-style-type: none"> • Spreading of information re plans/project and continuing with collaboration with stakeholders • Coordination of communication methods across other projects in DEH/SA Government – sharing our experience and services • 45 minutes was not long enough to go through the cards • Not to underestimate the social importance of these issues. Ultimately, people vote not the environment • Plan is very comprehensive, nothing further to add • Whole of River approach is needed • Environmental flows should come first above economic allocations, tourism etc
Surveys Completed	15

Appendix 8

Field Visits and Landholder Interviews

Field visit to the Region

23rd June 2009

9:00am – 5:00pm

DEH: Gemma Cunningham, Sharon Wachtel

Participants: Clayton Bay Boat Club, Langhorne Creek Irrigator, Milang Caravan Park

Summary

- Supportive of freshwater long term management option
- Business is impacted by water and global financial crisis however some are adapting better than others
- Regulators are not accepted amongst community members and are very bad for Milang
- Concern about division among communities wish to support others
- Happy to talk to us but feel that we are not the decision makers and worried that the real decision makers do not want to hear what the community has to say and nothing will eventuate from these discussions

Field visit to the Region

24th June 2009

9:00am – 5:00pm

DEH: Gemma Cunningham, Sharon Wachtel

Participants: Milang farmer, Milang Progress Association, Milang General Store, Milang Regatta Club

Summary

- ASS – scepticism of this being such a big issue
- General understanding of the benefits of freshwater and support the freshwater solution
- Regulators seen as a response of Government to the Goolwa lobby
- MDBA – lots of interest in how this works and their influence on the system
- Many examples of over allocation and non-sustainable water use in the past in the local area which has had an impact on the problems they are seeing today – cant always blame upstream and the over allocations because we have not been sustainable in the past, however we have adapted well and the people upstream too need to adapt to better, more sustainable farming practices
- Why should SA be hurting? We should reduce allocations all the way upstream and let the whole system hurt a little bit rather than letting just the bottom end hurt a lot – the river is not NSW's or Vic's or SA's, it's a whole system and should be treated as such and all should suffer the same amount

Field visit to the Region

25th June 2009

9:00am – 5:00pm

DEH: Gemma Cunningham, Sharon Wachtel

Participants: Goolwa Community Centre, Point Sturt

Summary

- Sea water incursion – We are not going to get increased river flows so the only realistic position would be to allow sea water incursion. Yet the position of our LTP is freshwater only – so it all may well come to nothing.
- Goolwa residents are reporting health impacts from dust – respiratory conditions.
- Lakes residents are experiencing a great sense of loss and grief over the environmental degradation and loss of spiritual connection with the place they knew. This loss will be shared at an upcoming vigil at the Clayton regulator site in a couple of weeks.
- Point Sturt pipeline-seen as an example of the little people (small landholdings) not having the voice of other major landholders and therefore being overlooked.
- Science communication – Seen as the domain of the experts only. Experts tell the community what their interpretation and decisions are from their data but do not provide the data itself. Need to get better at creating a transparent and open mechanism of sharing the findings.

Community Tour of Bioremediation and Revegetation Sites of the Lower Lakes

Monday 10th August 2009

9:00am – 5:00pm

Attendees: DEH Representatives, 49 community members

Media: Landline

Itinerary

9am Pickup at Clayton by the shelter shed (Freshwater Embassy). Jump on 57 seater bus with Russell and Wayne and Greg

10am Wellington Crossing and travel to Poltalloch to meet with Chris Cowan and Greg Butler to speak about the cropping on the foreshore. We also picked up tortoises to travel to Milang.

12:15pm Lunch at Meningie on the Foreshore Park

12:45pm Waltowa swamp to review the replanting, natural regeneration and other issues – rubber boots were required for this part of the journey.

2:20pm Wellington crossing and return to Clayton Bay dropping off tortoises the MOSCH site for release

Summary

This was a successful day with Russell, Wayne and Greg leading a large and diverse group of interested community on a lengthy tour of relevant sites.

All participants were most appreciative of the opportunity to see the projects first hand and to have people with the scientific expertise available to answer questions. There was an understanding at the end of the day of the enormity of the project and the thinking, planning and understanding that had gone into the project to date.

It was a relaxed informative tour with no particular issues raised. Everyone went home happy.

I would recommend the bus from Rufus Bus & Coach; Bus & Coach Charters & Tours - Strathalbyn, SA. The driver was most obliging and understanding about the mud in the coach.

The group was well catered for with water, juice morning tea and lunch sourced locally from the Meningie Bakery.

Appendix 9

Socio Economic Impact Assessments

CLLMM SOCIO-ECONOMIC IMPACT ASSESSMENTS

INDUSTRY: BOATING

Contributors:

- Boating Industry Meeting
- Boating Industry Association of South Australia
- Houseboat Hirer's Association (HHA)
- Release and Retrieve Boat Latch Pty Ltd
- Clayton Bay Boat Club
- Friends of the Fleurieu Peninsula Waterways
- Milang Regatta Club
- Southern Alexandrina Business Association

DO NOTHING - *Impacts of situation at present and consequences if the situation remained similar to now*

The boating industry estimates that up to \$1 million dollars per day is spent on tourism, recreation and boating below Lock 1. Approximately 800 boats have left the Goolwa region due to low water levels. There are 8 marinas in the region. Each mooring brings in \$50 per week and thus there is a loss of \$2 million per year to marinas and to the local economy. The Hindmarsh Island Marina's business is down 19% this year with a 50% loss from the year before.

The Southern Alexandrina Business Association report that businesses directly connected to water and water tourism have had up to 80% reduction in sales. (boat repairers & builders, marina operators) Some businesses have diversified or changed their marketing focus. Businesses who are at the 'discretionary purchase' end of the spectrum are reporting significantly lower sales. This has resulted in loss of jobs. The estimated loss to the local economy is \$20,000 per boat per annum. The boating industry is trying to promote recreation and boating on the River Murray to the general public, allaying fears that people are unable to boat below Lock 1.

There are 169 commercial houseboats from Murray Bridge to Renmark listed with the Houseboat Hirer's Association. Businesses of the leisure, tourism and recreational industry are being severely impacted by the drought, in particular those located in the Lower Murray and Lower Lakes. The respondents state that media coverage increases community perception there is no water in the Murray and therefore tourists are not holidaying on houseboats. The downturn on houseboat operators also impacts allied businesses such as cleaners, mechanics, the food industry, accommodation and retail. With the exception of Long Island Marina, all houseboats are now sited at emergency temporary moorings. Current figures from the HHA show a 31% downturn in bookings over the past 2 years and a total decrease in excess of 50% since the drought started having an impact 5 years ago.

The Milang Regatta Club has 12 members, down from 50 at its peak. There has been no racing since Easter 2008. The Milang to Goolwa race, organised by the Milang Regatta Club has not been held for two years. This race brought up to 500 boats into the town and provided a huge economic boost for local business. The club is almost dead and will not build again unless there is increase in lake levels allowing boating. In contrast, the Clayton Boat Club has 120 members even though currently there are no boats in the water due to low lake levels. Club membership has been maintained through an increase in social activities such as bbq's and bocce.

SUPPORT FOR THE CORE ELEMENTS OF THE LONG TERM PLAN

The boating industry is supportive of the core elements of the Long Term Plan and is concerned for the environmental degradation to the Lower Lakes environment. There is general support for the Long Term Plan, however, they advocate for the need to address the impact on the tourism and recreation industry to ensure ongoing viability of businesses and support for the regional economy. There is also concern that the impacts on boating, tourism and businesses on the River Murray below Lock 1 are not considered in the overall plan.

Within the boat clubs, members views are mixed but there is a general view that freshwater is the best option. However, there is concern that not enough freshwater will be able to be delivered to the lakes to enable recreational boating and therefore seawater would need to be considered as an alternative. There is support for a connected system and an open Murray Mouth as it would also enable boating between areas.

FUTURE IDEAS - *Identification of opportunities for involvement and cooperative ventures*

The boating industry believes that media coverage on the water crisis in the Lower Lakes is impacting negatively and the public perception is that there is no water for boating in the River Murray. They suggest that an extensive marketing campaign to address this misconception immediately. Projects may include a tri-state marketing campaign, celebrity ambassador program, a TV documentary and a national familiarisation program.

The boating industry supports the Pomanda Weir but also supports the building of a permanent weir. The industry advocates strongly for a permanent breakwater and opening at the Murray Mouth. Other initiatives to be considered include; opening the Goolwa Lock, beacons to Wellington, relocation of the Mundoo boat ramp, new boat ramps, improvements to the Goolwa pump out station, destination jetties, introduction of small islands, improvements to the Goolwa wharf, a crane pad at the Clayton regulator and Pomanda Weir, a Rat Island channel and improvements to the Milang Boat Harbour.

MANAGEMENT ACTIONS RESPONSE

A4 – Dredging-existing strategy and A7 – Channel dredging with River Mouth Training **WaLower Lakes** not supported. The boating industry supports an open Murray Mouth; however, they feel that the ongoing expense of dredging the Murray Mouth cannot be justified. They believe that a permanent long term solution needs to be considered with a permanent fixture/ breakwater. This would be economically viable due to the saving of \$6-7 million per year on dredging. The potential cost of a permanent breakwater is \$40 million.

B1 – Increase freshwater provided from upstream in the Murray Darling Basin (Basin plan, Water for the Future, buy backs etc). Supported

D4 – Installation of regulators to achieve soil saturation in creeks to address Acid Sulfate Soils (and removal in Year 5). The Milang Regatta Club does not support the regulators as they disconnect the system and prevent boat passage. The Clayton Bay Boat Club is generally supportive as it will enable boating in the Goolwa Channel; but they are also concerned of the environmental impacts due to the lack of wind seiching. The boating industry supports the regulators as temporary measure but they are not supported as a long term option.

SUMMARY

- The boating, tourism and recreation industry has been severely impacted by the low water levels, in some cases with 80% loss of business with subsequent business closure and loss of employment.
- There is general support for the Long Term Plan, however, there are concerns whether enough freshwater can be delivered and that the plan does not directly address the impact on tourism, boating and recreation on the River Murray below Lock 1.
- General support for the Goolwa Channel regulators but they are seen as a temporary measure only.
- An open Murray Mouth is seen as a priority and many in the industry would prefer to see an investment in a permanent breakwater rather than an ongoing dredging scheme.

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CLLMM SOCIO-ECONOMIC IMPACT ASSESSMENTS

INDUSTRY: FISHING

Contributors:

- Southern Fisherman's Association
- Goolwa Pipi Harvesters Association
- Lower Lakes and Coorong Infrastructure Committee
- EconSearch analysis (2008)

DO NOTHING - *Impacts of situation at present and consequences if the situation remained similar to now*

The Lakes and Coorong Fishery is comprised of 36 licences held by 33 licence holders, mainly family businesses. Some fisheries employ up to 8 people. Total catch for 2008 is over 2,500 tonnes with a total value of over \$7.5 million. The gross value of output from the region has been maintained by the fishers' ability to shift effort between environments and species. However, the low lake levels are causing difficulties for boat access and manoeuvrability and this has resulted in smaller catches. High salinity is perceived as having a significant impact on fish stocks. The change in environmental factors has seen an increase in predators (seals) that are eating fish in nets. There is a view that low water levels are impacting Pipi stocks but scientific evidence is inconclusive. Community tension is rising over debates about the best solution.

The region has been commercially fished since 1846, with a number of generational fishing families (some going back 5 generations), still conducting their activities in the area. When low water levels in Lake Albert prevent fishing, fishers identify that this will result in a halving of their income and lay-off of staff. In the short term this will be prevented by increased income through the Fish Down proposal. The objective of the Fish Down is to remove all regulation and provide assistance for fisherman to catch as many fish before a fishkill occurs. This generates income and minimises the extent and volume of the fishkill. The threat to the future of fishing in Lake Albert has had significant impacts on fishing families with teachers reporting children exhibiting distress over their families' future.

SUPPORT FOR THE CORE ELEMENTS OF THE LONG TERM PLAN

There is strong support for a healthy freshwater system that protects ecology and maintains fish stocks with the Murray Mouth open and system connected. In the short term, fishers do not support either the sea water incursion or drying down of Lake Albert but would prefer maintenance of freshwater flows similar to the proposed management of Lake Alexandrina.

Managing local threats for Lake Albert with reduction in water levels- seawater or freshwater will result in the end of fish stocks and commercial fishing in Lake Albert.

FUTURE INITIATIVES – *Identification of opportunities for involvement and cooperative ventures*

Commercial fishers advocate that those disadvantaged by the solution need to be financially compensated, to enable net fishing industries to exit their industry with dignity. They believe that industry meetings should be held directly with decision makers (Minister) and that the industry be involved in designing the buy-out program.

MANAGEMENT ACTIONS RESPONSE

A3 - Connect Lake Albert to the North lagoon of the Coorong. Commercial Fishers do not support the pumping of salty water into and out of the Coorong to Lake Albert to minimise acidification due to the risk of impacts on the Coorong.

A5 - Dredging-increase channel dimensions. There is strong support for the Murray Mouth being kept open to maintain a healthy system and maintain fish stocks.

A9 - Fish passages through to the Coorong at Goolwa. Fish passages are strongly supported and are seen as an absolute necessity in all barrages. Fish passages also need to be operative at much lower lake levels.

A10 - Pumping out of the South Lagoon. There is strong support for the pumping out of the South Lagoon in order to increase the health of the Coorong and prevent further impact on fish stocks in the Coorong.

SUMMARY

- When low water levels in Lake Albert prevent fishing, fishers state that this will result in a halving of their income and could result in layoff of staff. In the short term this will be prevented by increased income through the Fish Down proposal.
- However, the industry is advocating for a compensation initiative to be introduced and that they are involved in shaping it.
- There is support for the Long Term Plan in delivering a healthy and productive wetland system that supports local economies and communities.
- Concerns about the impacts on the ecology and health of the Coorong if there is an exchange of saline water between the Coorong and Lake Albert.

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CLLMM SOCIO-ECONOMIC IMPACT ASSESSMENTS

INDUSTRY: HEALTH

Contributors:

- Mallee Coorong Health Service
- Meningie Medical Centre
- Meningie Hospital and Community Health Service
- Additional community representatives raising issues regarding health impacts

DO NOTHING - *Impacts of situation at present and consequences if situation remained similar to now*

The health industry contributors state that current drought and economic impacts are resulting in an increased incidence of mental health issues, stress and anxiety. This is attributed to job losses in the dairy and agricultural industry and a decrease in property values.

Physical health impacts noted include an increased incidence of gastro-enteritis, skin and eye infections. As these health impacts have increased in the last three years and are not visible in Tintinara and Coonalpyn, they are seen as a direct impact of lake water issues and are attributed to declining water levels and declining water quality. The Medical centre has advised the community to avoid contact with all lake water.

Numerous community members expressed concern regarding the impacts of a fish kill in Lake Albert which will result in the stench of rotting fish, increased mosquito and fly numbers and the potential for unhealthy bacteria to breed. The community is concerned about severe dust storms causing respiratory distress. There is a fear of the threat of toxic dust and impact of poisonous gases on health should there be a major acidic event.

The community believes that if nothing is done about the water issues, Lake Albert will be left to die and the population will decrease.

The population decrease will impact on GP services (there are currently 15 jobs in the Medical Centre) and there is a risk that Doctors will leave without much likelihood of replacement. If this occurs, the hospital will be under threat of closure.

The Meningie hospital provides hospital and community health services to Meningie, Raukkan, Tintinara and Coonalpyn. Due to the drought there has been an increase in drought support services and other grant funded programs but there is very little coordination between the programs. However, hospital staffs have not noted significant impacts on the aged community.

The Director of the Mallee Coorong Health Service indicated that future planning would support maintenance or development of health services provided to Meningie and Raukkan.

The Meningie Medical centre provides a service to the Raukkan Indigenous Community. Low water levels and the closure of the Community Development Employment Projects (CDEP) program have had an impact on this community. It is reported that residents feel they have no job opportunities and have been 'left and dumped.'

Medical Practitioners reported there is a sense of dejection in the Indigenous community and an increase in dysfunction with an increase in incidents related to alcohol and violence. Pipeline construction provided short term employment but the community needs long term employment opportunities.

The Meningie Community Health Service Aboriginal health worker reported that the older Indigenous community feels sad that the bird life is leaving. Generally, there is community anger that the water issues are a man made problem.

SUPPORT FOR THE LONG TERM PLAN

There is partial support for the core elements of the Long Term Plan. Health and welfare workers emphasised the importance of engaging with the Ngarrindjeri community as a key group who will be significantly impacted by the degradation to the environment.

As a priority, the implementation of the Long Term Plan should support local employment opportunities and income maintenance for Indigenous communities as this is seen as the best measure of minimising psychological health impacts.

The restoration of freshwater levels to minimise the risk of health issues from excess dust and poor water quality is the preferred option. However, if adequate levels of freshwater can not be provided, full incursion of seawater is described as the best alternative from a health perspective.

FUTURE IDEAS - *Identification of opportunities for involvement and cooperative ventures*

Improved coordination between health and drought support services is required to ensure appropriate referrals and more effective use of resources.

Identified need for monitoring of epidemiology and health impacts to ensure that health services respond to emerging health issues. Currently there is planning for a partnership with the "Inner Country" working practice and Division of GPs Regional Co-ordination Network. The aim is to improve data collection so that evidence can support future health program planning decisions.

Communities have requested that dust monitoring occurs at Meningie, Milang, Goolwa and Clayton to test for toxic dust and risk to public health.

MANAGEMENT ACTIONS RESPONSE

B9 "Bioremediation Basin" – There is concern from Meningie health workers that bioremediation and drying down of Lake Albert will result in significant issues with dust resulting in health problems. In addition, it is viewed that the economic impact from loss of tourism and downturn for town businesses will dramatically increase the incidence of mental health issues of stress, anxiety and depression.

SUMMARY

- Increase in mental health issues due to economic impacts of low water levels.
- Increase in physical health complaints (skin and eye irritation) due to contact with lake water.
- Concern about increasing health complaints and prevalence of disease due to low water levels and water pooling with increased mosquitoes.
- Indigenous community identified at risk by medical practitioners with an increase in abuse of alcohol and incidence of violence which is attributed to loss of employment and income as well as impact of degradation of natural environment.
- General community concern regarding impacts of increase in dust storms with bioremediation approach and risk of toxic dust.
- Increased water levels - preference is for freshwater, but seawater also acceptable as the best option to minimise health impacts.

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CLLMM SOCIO-ECONOMIC IMPACT ASSESSMENTS

ALEXANDRINA COUNCIL

DO NOTHING - *Impacts of situation at present and consequences if the situation remained similar to now*

The failure of a sustainable water allocation system for the Murray Darling Basin and the apparent majority view that climate change will result in future extended droughts leaves Alexandrina Council with great concern that there will not be an improvement in sustainable flows reaching the Murray Mouth unless the *Murray Darling Authority Basin Plan* successfully locks in sustainable flows that ensure a median flow of 3,300 GL's flows over the barrages out to the Murray Mouth (*CSIRO Sustainable Yields Project*).

The economic impacts of no action would result in business closure, loss of fishing, increased unemployment, loss of tourism and recreational pursuits. The region would continue to see further reduction in property values, increases in costs to deliver water supplies, increased costs to maintain infrastructure and an increase in prices for the community due to a reduction in critical mass and reduction in purchasing power. In addition, there would be loss of local knowledge and skills, volunteers and an increase in applications for financial support.

It stated that social impacts are already being seen; with increased access to support/counselling services, increases in individual case management support for welfare and mental health issues, loss of younger people (causing disruption to families), increased anger, resentment/distrust/depression and a risk of suicides.

The social impact already evident in the dairy industry over the past 4 years of drought is seen as an appropriate indicator to show what the wider negative effects across the region might be in the form of unemployment, lack of self esteem, broken families and mental health disorders. The negative cultural/spiritual impact on our Ngarrindjeri community is of great concern to Council.

SUPPORT FOR THE CORE ELEMENTS OF THE LONG TERM PLAN

Council supports the core elements of the Long Term Plan. Council does not support the opening of the Goolwa Barrage to allow the free flow of seawater into the Goolwa Channel nor does it support seawater intrusion into Lake Alexandrina unless sea level rises turn it into a long term natural environment. In such a circumstance, every effort should still be made to isolate the Goolwa Channel to ensure the Finnis River and Currency Creek remain freshwater systems.

FUTURE IDEAS - *Identification of opportunities for involvement and cooperative ventures*

Council is very concerned that the freshwater aquifers through the Langhorne Creek region are not only failing but are at risk of increased salinity, including the groundwater in the Upper Bremer Catchments. Council implores the authorities to resist any consideration of allowing seawater into the lakes which it is believed will cause enormous long term ecological damage.

Council supports the *Shoreline Proposal* put forward to DEH by members of the Milang, Langhorne Creek and Clayton communities to tackle the social, environmental and economic impacts of low water levels for the lakes and rivers. The objective is to build partnerships with the community, agencies and industry and to use good science to educate/train (and retrain), then deliver on ground actions to restore the health of the lakes, Coorong and Murray Mouth environment. The *Shoreline Proposal* is about combining economic benefit (job creation), and social benefit (self esteem building/mental health) to improve the environment (not just mitigation). This will be achieved through community engagement, education/ retraining and funding allocations to the broader community. Council recommends that DEH give due consideration to this approach.

MANAGEMENT ACTIONS RESPONSE

C1 – Increased freshwater provided from upstream in the Murray darling basin (Basin plan, Water for the future, buy backs etc).

Council strongly advocates on behalf of its community that adequate freshwater flows be returned to the SA Murray Darling Basin through a strong Murray Darling Authority *Basin Plan* that ensures median flows over the barrages. This stance is based on the CSIRO's Sustainable Yields Project estimate of 3,300GL that allows for a healthy environment, including recreational benefits such as water craft passage through the barrages to access the Coorong.

A7 – Channel dredging with River Mouth Training Walls.

A8 – Sand bypassing with River Mouth Training Walls.

Dredging of the Murray Mouth and moving towards hard training walls is supported; provided sand flows are modelled carefully.

A9 – Fish passages through to the Coorong at Goolwa.

Fish Passages are supported and are seen as essential and positive.

B4 – Reduce reliance upon Lakes for extractive uses – i.e. installation of pipeline and/or rainwater tanks etc (note that this action does NOT include the irrigation pipeline to Langhorne Creek, which is an existing action).

Reduce reliance on lakes for irrigation is supported, given pipeline access.

B10 – Revegetation for Acid Sulfate Soil remediation around Lake edges.

Revegetation/Bioremediation around lake edges is supported; provided indigenous species are utilised over the medium to longer term; provided there is good science that sits behind the activities; and that the broader community is included, not just one agency and their commercial arm.

B12 – “NRM” activities (weed control, fencing, rabbit control to ensure success of revegetation and cropping)

NRM Activities are totally supported.

D4 – Installation of regulators to achieve soil saturation in creeks to address Acid Sulfate Soils (and removal in Year 5).

Council has very reluctantly supported the temporary regulators, believing that this short term solution may mitigate acid sulfate levels causing an environmental catastrophe. However, Council will lobby hard to ensure adequate freshwater flows return to the lakes and Goolwa Channel sufficient to flow over the Goolwa and other barrages. Council will demand the removal of the regulators as well as any weir that may be constructed at Wellington. Pumping from Lake Alexandrina is only supported if flows from the Finnis River and Currency Creek cannot fill the Goolwa channel.

SUMMARY

- Alexandrina Council has identified numerous social and economic impacts due to low water levels and has raised further concerns should no action be undertaken to resolve the situation.
- Council advocates strongly for increased freshwater flows as the main priority.
- Council recommends that CLLMM give further consideration to the *Shorelines Proposal* as a mechanism for building community partnerships leading to local employment and training .
- Alexandrina Council strongly advocates for the removal of temporary regulators as soon as there are sufficient freshwater flows.

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CLLMM SOCIO-ECONOMIC IMPACT ASSESSMENTS

INDUSTRY: COMMUNITY - SOCIAL, RECREATION AND ACTION.

Contributors:

- River, Lakes and Coorong Action Group
- Lakes Need Water
- Milang Progress Association
- Meningie Progress Association
- Milang Old School House Community Centre (MOSHCC)
- Port Milang Shack Owner's Association
- Lower Lakes and Coorong Infrastructure Committee
- Individual community members

DO NOTHING - *Impacts of situation at present and consequences if the situation remained similar to now*

Various community groups link low water levels with economic loss and subsequent social issues such as impacts on health and wellbeing, stress and anxiety, demand on volunteering and support services, and breakdown of social networks. This loss of tourism income has had a significant impact on town communities with the loss of family run micro-businesses and loss of families from the district. If this continues, there is the potential for the community to become unbalanced with an ageing population comprising the bulk of the community.

MOSHCC is a provider of community support services such as counselling, emergency assistance, community consultation and education. They have noted an increased demand for individual case management support services in the past year which places significant pressure on providers and volunteers. Land prices have dropped to half of the surrounding area in the Fleurieu region. This is an incentive for families of low socio-economic status to move to Milang due to low cost housing. These families often have high social needs and there are limited employment opportunities in Milang. There is concern that the community will reach a tipping point leading to increased family breakdown, violence, social isolation and suicide, which would result in burnout for staff and volunteers.

Community groups have expressed sense of loss and grief over the degradation of the environment. Community members describe it as a physical pain as well as a sense of despair and hopelessness. The "Freshwater Embassy" at Clayton, in addition to being a site of protest, was equally developed as an opportunity to share this sense of loss and grief and gain strength from others. There is a belief that this support may have reduced the risk of suicide in the community and has increased the connections between people. This grief is often interconnected with mounting anger in the community in response to the perceived lack of action.

There appears to be increasing tension between community groups, with some feeling left out and some perceived as having a bigger lobby voice. Generally, it is said that Alexandrina Council has a good relationship with its community. However, there is increasing tension between community groups who see some groups coming out of the process as "winners" at the expense of others who are perceived as "losers" in the process.

Despite the significant pressure, there are also numerous indicators of community strength; social capital and resilience; the emergence of community leaders; the involvement of community members in taking action; the maintenance of community programs; and the sustainability of community networks. It is these factors that the community refer to that will enable them to come through this crisis and create a viable future.

SUPPORT FOR THE CORE ELEMENTS OF THE LONG TERM PLAN

This summary of community views represents the wide ranging community views that are represented from diverse groups in the community. The majority of community groups contacted support the core elements of the Long Term Plan. A number of groups indicate that short term interventions are not consistent with the core elements, so they question the Government's commitment. However, there are other groups that strongly oppose the plan (e.g. Lakes Need Water) who support the introduction of seawater.

FUTURE IDEAS - Identification of opportunities for involvement and cooperative ventures

The community had a range of ideas for initiatives and structures that encourage community involvement and participation. The development of social enterprises was put forward to provide increased employment and includes training opportunities, increased small business start ups and improved access to support services. A social enterprise could provide environmental services such as seed collection, plant propagation, fencing, planting, acid sulfate soil and revegetation monitoring, community education and training. These businesses, once developed, would be able to tender for work and apply for grants.

Other community groups identified positives and negatives of existing community involvement structures. "Lakes Needs Water" questioned the membership of the Long Term Plan Reference Group as not having the expertise or will to explore inundation of the Lower Lakes with sea water. Other community representatives spoke highly of the Long Term Plan Reference Group and the Lake Albert Planning meetings as supporting partnership with the community and commitment to community dialogue on the issues. It was reported that this commitment to successful community engagement and communication was not evident in decision-making on the decision to build the regulators, Narrung bund, and ceasing pumping at Lake Albert.

MANAGEMENT ACTIONS RESPONSE

D4 – Installation of regulators to achieve soil saturation in creeks to address Acid Sulfate Soils (and removal in Year 5). There is a strong community view that the Acid Sulfate Soil risk mitigation measures could have been undertaken without the regulators and that the lobbying of Goolwa businesses, and the boating and tourism industry also had an impact in this decision at the expense of other community needs. This has been viewed as very damaging to the trust and relationships between numerous community groups and Government.

B7 – Prevention of Acidification

B8 – Hot spot Acid Sulfate Soil mitigation

B9 – "Bioremediation Basin"

C7 – Bioremediation wetlands for areas that disconnect from main water body of lake Alexandrina. There is general support for the range of bioremediation activities and this, in particular, is where there is much scope for community involvement, employment and training. However, the sea water advocacy group see this as a waste of time and resources and potentially may fail with significant negative community impacts that would be resolved with seawater incursion.

A2 – Coorong and Murray Mouth - Increased freshwater provided from upstream in the Murray Darling Basin.

B1 – Lake Albert- Increased freshwater provided from upstream in the Murray Darling Basin.

C1 Lake Alexandrina - Increased freshwater provided from upstream in the Murray Darling Basin

D1 – Finniss River and Currency Creek - Increased freshwater provided from upstream in the Murray Darling Basin.

Sea water advocates view that an increase in freshwater is not realistic and certainly unachievable in the time required to minimise impacts on communities.

SUMMARY

- Communities identified numerous impacts of low water levels on community wellbeing which included health issues, increasing demand on community services, tensions and conflicts between community groups with competing interests and changes to the demographics of communities.
- Support of the Long Term Plan was varied with some strongly supporting a freshwater future and others strongly opposed to it. However, all strongly supported a connected system and open Murray Mouth.
- The community has responded very strongly over the development of regulators (D4). Besides the environmental concerns, the general perception is that the regulators were undertaken to appease the tourism, recreation and boating lobby groups at the expense of the environment of the Lower Lakes.
- All community groups advocate strongly for the development of strong partnerships between community and Government to enable a wide variety of community groups to be involved in decision-making and leading community engagement activities.

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CLLMM SOCIO-ECONOMIC IMPACT ASSESSMENTS

INDUSTRY: EDUCATION

Contributors:

- Meningie Area School
- Raukkan School
- Milang Primary School

DO NOTHING - *Impacts of situation at present and consequences if the situation remained similar to now*

School enrolments have dropped significantly since 2005, due to the loss of dairy businesses and subsequent loss of employment. Between 2005 and 2008 families moved out of the district and the Meningie Area School lost 5-10 students per year. In 2007 the Narrung Primary School closed. A decrease in enrolment numbers meant that teachers were not replaced when they left the school (23 Meningie teaching staff is now 18).

The result is combining of year levels in one class which some parents do not like and have sought alternative education options. Over 25% of the school population is Indigenous. This number has been maintained due to low housing prices in Narrung. This percentage has increased as non-Indigenous families move away. However, DECS only re-evaluates school socio-economic status every 5 years, so in the short term there is no increase in resources.

The Meningie School has a high level of success in SACE results and students' transition to jobs, further study and traineeships. The school has a number of employment pathways programs to assist with this. They stated that current school families have now switched off to activism and are burned out. They have moved on from anger, involvement and grief disillusionment. The children are sad about losing their aquatic and sailing program and that they cannot swim in the lake. The school has not been able to water the school oval for three years.

The Primary school is considered to be an integral part of the Raukkan community. Enrolment at the school has dropped to 13 students (25 students are required to ensure the school is considered viable). The closure of the CDEP program has resulted in a significant loss of jobs and families having to move from the area. The Principal reports that there are a number of families wishing to move to Raukkan but much of the housing requires significant repairs which is currently unfunded. The construction of the pipeline provided short term employment. Many families do not have a car or driver's licence. Students are concerned about the loss of water in Lake Alexandrina and have wondered if Lake Albert is taking it all. They have written a letter to the Prime Minister on the lack of water for the lakes environment.

There has been a minimal drop in enrolment at Milang R-6 in recent years with enrolment now at 56 students. The Playgroup is doing very well with 16 children. Affordable housing results in low income families being attracted to the area; hence 50% of school population has a school card. The formation of the Eastern Fleurieu School 13 years ago has secured the Milang School's viability. The parent advisory committee has 14 members and is very active. There are many indicators of strong social capital at the school. The school has been proactive in engaging school children in environmental action through its turtle program. This has served to counter community and family anxiety over water issues and support children in positive action and optimism for the future.

SUPPORT FOR THE CORE ELEMENTS OF THE LONG TERM PLAN - SUPPORT

The schools in the CLLMM region seem generally supportive of the goal and core elements of the Long Term Plan and have been involved in a number of environmental action, classroom learning, and community environment projects as well as involvement in bioremediation and acid sulfate soil monitoring opportunities.

FUTURE IDEAS - *Identification of opportunities for involvement and cooperative ventures*

Any opportunities for the Raukkan community to be involved in the implementation of the Long Term Plan would be welcomed, particularly opportunities for training and employment. Provision of employment would develop the Raukkan community and retain essential services such as the school.

Meningie Area School is interested in any youth employment pathways programs that may connect in with bioremediation and eco-tourism opportunities.

The Milang School turtle program has been very successful in engaging students in their schooling and learning. They have been active in educating other children and have had communication with people all over the world. Media and political interest has provided the students numerous opportunities to gain confidence in public speaking and advocacy for the environment. The school is now seeking to develop the sustainability of their environmental learning and action program and is eager to gain further support and opportunities for involvement in local environmental issues and management.

SUMMARY

- Low water levels have resulted in a loss of jobs and families moving out of the Meningie and Raukkan region. This results in a drop in school enrolment numbers and a reduction in teaching numbers.
- Schools are supportive of students taking an interest in environmental issues and are actively involved in a number of community programs and bioremediation activities.
- The community views maintenance of strong educational opportunities as an essential service in their community and is concerned about drops in enrolment numbers and losing families with young children from the district.
- School employment pathway programs have been very successful in assisting the transition for student's post- school and opportunities to develop new pathways with involvement in the Long Term Plan would be welcomed.
- School environmental action and involvement projects demonstrate the value of children and youth involvement in issues of vital importance in their community. Student involvement leads to opportunities for powerful learning and advocacy for the care of the environment for future generations.
- The implementation of the Long Term Plan should incorporate and support children and youth involvement in ongoing projects and initiatives.

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CLLMM SOCIO-ECONOMIC IMPACT ASSESSMENTS

INDUSTRY: VITICULTURE

Contributors:

- Langhorne Creek irrigator
- Langhorne Creek Wine Industry Council
- Currency Creek Irrigators Association
- Ballast Stone Estate Wines, Currency Creek
- SA Wine Industry Association

DO NOTHING - *Impacts of situation at present and consequences if the situation remained similar to now*

Water management issues have brought about emotional, physical and financial strain for the Langhorne Creek community. Financial strain has been exacerbated due to the global financial crisis and large wine corporations' not renewing grower's contracts. Irrigators are concerned for their children's future and their ability to continue to make a living from the land. There is acknowledgment that Langhorne Creek irrigators have not managed water in a sustainable way over the last 30 years with use of ground water, lake and tributary water.

There is significant concern regarding the retraction of the wine industry and resultant job losses, impacts on service providers, reduced resources for industry support, decreased economic activity, stranded assets in the long term and families moving from the region. One respondent's family employs 60 locals, with \$1.8 million in wages going into the local economy. There are also environmental concerns, if no action were taken, such as toxic dust which may impact on wine quality and infrastructure.

Producers are buying in water to keep vines alive until the pipeline comes into effect. Socially, this has had an impact on a once thriving community where people feel down and depressed, no longer bother coming to meetings and are just in survival mode.

Extraction from the tributaries ceased a couple of years ago. If a pipeline had not been implemented, they would now be out of business as there would be no capacity to produce grapes at all. The pipeline will alleviate some of this uncertainty about the future but the increased cost of water will increase costs of production. 50% of growers do not live in the region and a number of growers are part-timers. It is reported that if there were no pipeline, people would be pulling out their vines and selling land at huge losses for grazing. Contractors and workers employed in the vineyards do live locally, people have downsized and employment has been cut by a third.

SUPPORT FOR THE CORE ELEMENTS OF THE LONG TERM PLAN

There is a good level of support from the industry for a freshwater future, with more being generally supportive than not. However, there is concern by the industry representatives that freshwater for the environment would be sourced at the expense of upstream irrigators. The predominant view is that seawater incursion will cause hyper-salinity in the lakes that will lead to environmental degradation which may also impact on the vineyards. The wine industry views itself as having a strong record of environmental stewardship. Some view that that salt water is the most achievable solution to maintaining system connectivity.

FUTURE IDEAS - *Identification of opportunities for involvement and cooperative ventures*

Local irrigators have developed a proposal that a percentage of all water trading be allocated to the environment, for example, 30%. One Langhorne Creek irrigator feels there needs to be better management and regulation of the catchments and tributaries that feed into the Lower Lakes, (i.e. the Angas, Bremer, Finniss and Currency). He is also concerned that private storages are not monitored and regulated.

There is a support to keep the Murray Mouth operational. The suggestion is that it could be achieved by digging a channel between Wellington and the Murray Mouth that will help to maintain a positive head to the mouth and assist with flow.

MANAGEMENT ACTIONS RESPONSE

A1 – Increase diversion of the water from the South East Drainage system - The SA Wine Industry Association has concerns for the impact on the economy of SE region, including the wine and grape industry. They ask the question who will bear the costs for construction and management of drains and that the impact of diversion on both groundwater salinity and water table height in SE region must be considered.

A2 – Coorong and Murray Mouth - Increased freshwater provided from upstream in the Murray Darling Basin (Basin plan, Water for the Future, buy backs etc)

B1 – Lake Albert - Increased freshwater provided from upstream in the Murray Darling Basin (Basin plan, Water for the Future, buy backs etc)

C1 – Lake Alexandrina - Increased freshwater provided from upstream in the Murray Darling Basin (Basin plan, Water for the Future, buy backs etc)

D1 - Tributaries-Finiss River and Currency Creek Increased freshwater provided from upstream in the Murray Darling Basin (Basin plan, Water for the Future, buy backs etc)

The SA Wine Industry Association is concerned about the impacts on upstream communities - economic, social and depopulation. It questions where this water will come from and how it will impact on existing water allocation processes. They perceive this management action could be seen as shifting impacts of overuse from one region to another.

C3 – Reduce reliance upon Lakes for extractive uses – i.e. installation of pipeline and/or rainwater tanks etc.

Local irrigators are supportive of the pipeline as they see this as the 'saviour' of their wine growing area. However, there is concern from the Langhorne Creek Wine Industry Council that removing all direct water access from the Lower Lakes will open up the option of sea water incursion. The industry has committed vast resources into irrigation in the area. The existing Langhorne Creek pipeline was provided through a vast investment by growers. Converting all the licenses to the pipeline is cost prohibitive for many and they question whether financial assistance would be offered to remove reliance from the Lakes.

D4 – Installation of regulators to achieve soil saturation in creeks to address Acid Sulfate Soils (and removal in Year 5). This management action is not supported by one Currency Creek winery. They believe that the regulators are causing significant levels of social grief.

D2 – Reduce reliance upon Lakes for extractive uses-i.e. installation of pipeline and/or rainwater tanks etc.

D4 – – Installation of regulators to achieve soil saturation in creeks to address Acid Sulfate Soils (and removal in Year 5).

D5 – Revegetation (native) for ecosystem rehabilitation around the tributaries

D8 – Hot spot Acid Sulfate Soil mitigation (e.g. cracking clays, sand, Mono-sulfidic Black Oozes).

The Currency Creek Irrigators Association is supportive of all four Management Actions. They believe the provision of pipelines have saved their industry, providing certainty whereby people will be able to undertake capital expenditure and future business planning. Future vintages are expected to see significant improvement from 2011. However, they believe that the increased cost of water will result in increased costs of production and thus reduced returns, ultimately leading to a 20% decrease in production in inland irrigated areas.

SUMMARY

- Local growers and irrigators have experienced significant emotional, physical and financial strain with ongoing water management issues. There is a fear of further job losses in the industry if no action was taken. These impacts are coupled with those of an over supply of grapes and industry retraction.
- Local growers are also concerned about the management and regulation of the catchments and tributaries that feed into the Lower Lakes, including monitoring of private storages.
- Support for the Long Term Plan - There is a variety of opinions with most local growers supportive of lakes with freshwater whereas the Industry Association has concerns that the freshwater will be sourced at the expense of upstream irrigators. They are also concerned about potential impacts (salinity, water table) for South-East growers if water is diverted from the South East drainage system.
- The pipelines have been welcome as it has enabled a secure water source without extraction from the lakes and tributaries. However it is noted that not all growers are able to afford this investment and the increased costs of water has increased the costs of production.

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CLLMM SOCIO-ECONOMIC IMPACT ASSESSMENTS

INDUSTRY: LOCAL BUSINESS

Contributors:

- Southern Alexandrina Business Association (SABA)
- Meningie and Milang Progress Association
- All Land and Livestock
- Rural Engineering
- Meningie Veterinary Clinic
- Real Estate – Goolwa
- Milang General Store
- Lake Albert Caravan Park and Milang Caravan Park
- Meningie Business Counselling and Support
- Lower Lakes Coorong Infrastructure Committee
- Regional Development Boards

DO NOTHING - *Impacts of situation at present and consequences if the situation remained similar to now*

SABA reports that businesses directly connected to water and tourism have had up to a 80% loss of business and this has resulted in a loss of employment, businesses being sold and others on the market but not selling. A number of Goolwa main street businesses have sought up to 50% rent reduction in order to survive. Lakeside caravan parks have reported that they are working harder themselves and have reduced casual staff to minimise costs, as visitor numbers have dropped significantly, particularly during the busiest summer months. These businesses are reported as being barely viable and both caravan parks are for sale with no buyers. Businesses are also impacted by the economic downturn. In Goolwa some cafes, bakeries and service industries are doing relatively well, primarily due to maintenance of population growth.

In Goolwa it is reported that real estate sales are down by 70% with property values staying stable but there are minimal sales. In Meningie, Clayton and Milang, property values have been reported as dropping by as much as 30%, particularly waterfront properties. It is reported that discretionary purchases are down significantly as well as general tightening of regular supplies. In contrast, larger purchases related to machinery have been maintained, which could indicate long term confidence.

If there was no further action, it is suggested that town businesses would suffer huge economic loss through the lack of tourism income and lack of development; population and employment loss; and a reduction in human services. Local businesses are reporting significant stress from having to lay off staff for the first time. This has resulted in a drop in customer service and reduction in the amount of stock carried, which often results in people going elsewhere to shop and no longer buying local.

It is viewed that Meningie has strong social capital but there is anxiety about what is in store in the short term for Meningie. Drought counselling and business transition services are available. These services report the community's hesitancy to seek support and suggest that the full impact has not yet been realised.

SUPPORT FOR THE CORE ELEMENTS OF THE LONG TERM PLAN

Support for the Long Term Plan is mixed, with some business representatives supporting a freshwater future. Others, however, support seawater incursion as providing a more immediate measure to restore water levels, bring back tourism, reduce business uncertainty and thus minimise economic loss. There is concern about the tourism impacts of bioremediation on lake edges, varying lake levels and impacts of an 'ephemeral swamp'. Generally, people prefer to return to a freshwater system as long as they can be reassured that there will be enough water.

FUTURE IDEAS - *Identification of opportunities for involvement and cooperative ventures*

There was acknowledgement of the future planning being undertaken by Coorong Council and Meningie residents (foreshore planning and Meningie water park proposals). It was felt that the Council should be supported with resources to undertake this task but that community ownership of the process was vital. It was suggested that it is worthwhile promoting the available community and business support services available and that small business operators could be encouraged to avail themselves of this assistance.

Tourism marketing was identified to actively promote the good things to do in the region, in particular to counteract the negative media coverage that describes the area as dead and a wasteland. A number of people identified opportunities need to be developed to expand tourism that did not rely on water, such as eco-tourism (tourism drives and interpretive trails) This was identified as an opportunity to work in partnership with the Ngarrindjeri community.

MANAGEMENT ACTIONS RESPONSE

B1 - Lake Albert- Increase freshwater provided from upstream in the Murray Darling Basin (Basin plan, water for the Future, buy backs etc) and B9 - "Bioremediation Basin" .

Although a freshwater solution was preferred, there was concern that bioremediation would result in low water levels and large amounts of dust during the peak tourism time in summer.

D4 – Installation of regulators to achieve soil saturation in creeks to address Acid sulphate Soils (and removal in Year 5) Milang businesses did not support the regulators as they perceived it as a means to appease the boat and tourism lobby in Goolwa at the expense of tourism and business in Milang. Goolwa businesses, however, supported the regulators as enabling some increase in tourism and recreation and reducing further economic impacts on business.

C1 – Lake Alexandrina- Increase freshwater provided from upstream in the Murray Darling Basin (Basin plan, water for the Future, buy backs etc) and A1 – Increase diversion of the water from the South East Drainage system.

There was support for the increase in freshwater flows with a view that the State Government should actively lobby the Federal Government on this matter.

SUMMARY

- Small business and town businesses are reporting business downturn, economic and employment loss similar to the business impacts of low water levels on primary industries. This is particularly evident in businesses directly associated with water activities and tourism.
- Property values are reported as having decreased and numbers of sales reduced due to impact of low water levels, population loss and employment loss.
- There was concern that further impacts are yet to be realised particularly in Meningie and Milang.
- Support for the Long Term Plan was divided. Many preferred the restoration of a freshwater system; however it was felt in that opening the barrages and allowing incursion of seawater would provide a more immediate restoration of tourism, recreation and subsequently economic activity as well as ongoing business certainty for the future.
- It was felt that towns require support in developing strategic plans for a future with less water and small business also requires support in business transitions and decision making.
- Regulators , the Management Action D4 were strongly supported by Goolwa business in order to restore tourism and recreation, however, were strongly opposed as leaving other regional areas 'out in the cold'.

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CLLMM SOCIO-ECONOMIC IMPACT ASSESSMENTS

INDUSTRY: AGRICULTURE

Contributors:

- SA Dairy Farmers Association
- Dairy SA
- Lower Lakes & Coorong Infrastructure Committee
- Milang, Meningie, Point Sturt, Hindmarsh Island, Lake Albert and Narrung Landholders
- SA Farmers Federation (SAFF)
- Lower Murray Irrigators (based in Murray Bridge)
- Fleurieu Beef Group

DO NOTHING - *Impacts of situation at present and consequences if the situation remained similar to now*

The industry reported that in autumn 2007, farmers and irrigators in the Meningie /Narrung area were no longer able to gain water from the lakes for irrigation, stock and domestic water use. Irrigators were shut down overnight. Dairy farmers and graziers had to reduce their livestock which had been built up over 40 -50 years of genetic breeding. Other long term landholders have also reduced breeding cows from 110 to 50, feed lotted cattle, or have bought and carted water with no government subsidy.

The Fleurieu Beef Group reports that many farmers risk bankruptcy unless they significantly contain costs even though farming responsibilities such as weed control and erosion management still require action. While one farmer has sold all cattle and found other employment, others have taken on extra debt in order to survive. There are often new expenses with new farming techniques required to change production systems. Irrigators are unable to make use of current irrigation infrastructure and assets. There is now less direct employment on farms which negatively impacts town businesses. Millions of dollars of investment in dairying, horticulture and other irrigation, enhancing the viability of all businesses, have been lost to the area and the local economy. One business is reporting they will remove operations from the district as current costs have crippled business.

There is a great deal of stress and anxiety for livestock owners, dairy farmers and landholders who relied on lake water. Health and wellbeing is impacted by not being in control of external factors influencing their business. Increased work hours result in less time available for community activities and participation. Land managers are feeling a sense of loss as they are no longer able to manage land in a sustainable way. There is tension between various industry groups when one industry receives assistance and others do not. SAFF is concerned that not all water users are treated equitably (irrigators, stock, domestic and environment). There is a community perception that those who are able to lobby hardest "get what they want". One example of this is that Point Sturt landholders have no access to the pipeline. With no action on stabilisation of the lake bed, there would be large scale sand drift and erosion. If the lake bed remained unfenced, livestock would be impacted by acidic soil, heavy metal toxicity and they would damage cropped areas.

SUPPORT FOR THE CORE ELEMENTS OF THE LONG TERM PLAN

The agriculture community supports the core elements of the Long Term Plan. They support a freshwater solution for the lakes, although some in the community are unsure about the ability to deliver this outcome, particularly for Lake Albert. There needs to be greater community confidence in the ability to manage Acid Sulfate Soils and this management needs to extend to river locations above Wellington.

FUTURE IDEAS - *Identification of opportunities for involvement and cooperative ventures*

Many landholders have been very involved in various community representation groups and bioremediation activities. There were a number of views on meaningful, effective community involvement with Lower Lakes planning and action. It was suggested that the use of strong established community networks and identifying small representative groups of community members who can communicate with agency personnel and disseminate ideas and information back to the community and organisations such as SAFF.

Although the whole system is linked, consideration needs to be given to the individual needs of each community. The implementation of any project should maximise as much input from local businesses and people as possible. This could include the provision of physical services and expertise, materials and goods, earth moving, farming and transportation equipment, airstrip facilities, accommodation, meals etc. There is a need for research into adaptive production systems including alternative enterprises and constructive land management services that train and involve land managers in farm trialling, monitoring and

reporting opportunities. The community requires help to develop a plan for maintaining the aesthetically appealing area around the Meningie township and foreshore areas. The initiative requires an engineering and science approach.

The Lower Murray Irrigators support the building of a permanent lock at the bottom end of the river so that the pool level below Lock 1 is guaranteed and available for flood irrigation. This proposal would be strongly opposed by lakes landholders. There is support for investigating cloud seeding technology.

MANAGEMENT ACTIONS RESPONSE

A1 – Increase diversion of the water from the South East Drainage system

A3 – Connect Lake Albert to the North Lagoon of the Coorong

B4 – Reduce reliance upon Lakes for extractive uses-i.e. installation of pipeline and/or rainwater tanks etc (note that this action does NOT include the irrigation pipeline to Langhorne Creek, which is an existing action).

These above actions were not supported by one agricultural representative as they were perceived as having minimal value for the significant costs involved.

A2, A4, A10, A11, B3, B7, B8, B9, B10_ This wide range of proposed Management Actions was supported

B1 – Increase freshwater provided upstream in the Murray Darling Basin (Basin Plan, Water for the future, buy backs etc).

An alternative plan from a Meningie landholder proposes the introduction of seawater into the Lakes when flow from the Murray fall below 800 GL. This plan expressly opposes drying up Lake Albert.

B5 – Narrung Narrows remedial works (applies to wetter scenarios only) –remove bund, dredge narrows, undertake remedial works including modifications to ferry causeway to provide for natural flows through The Narrows.

B6 – Alternative to Narrung Narrows remedial works (applies to dry scenarios only) – Installation of permanent regulator at Narrung

A local landholder advocated for the immediate removal of the existing embankment when sufficient flows returned. The landholder also suggested immediately construction of regulators in the Narrows proper and under the existing causeway to manage the variable flow regime. Two way wind driven flows would be managed by regulators and there is a need to investigate the feasibility of a permanent vehicle crossing.

C3 – Reduce reliance upon lakes for extractive uses – i.e. installation of pipeline and/or rainwater tanks etc.

Point Sturt landholders are very concerned that they have been excluded from the current pipeline roll out.

C6 – “NRM” activities (weed control, fencing, rabbit control to ensure success of revegetation and cropping)

The SAFF supports the fencing of water frontage but feels that landholders need to receive financial assistance for this.

C10 – Introduction of minimal amounts of seawater to avert acidification of Lake Alexandrina.

A number of landholders are strongly opposed to the incursion of seawater due to the damage to the existing ecology. They have identified that there is more information required about this management action.

D4 – Installation of regulators to achieve soil saturation in creeks to address Acid Sulfate Soils (and removal in Year 5).

The Lower Murray irrigators support the use of regulators and suggest they should be made permanent. However, the majority of agricultural representatives and landholders are not supportive of engineering measures.

SUMMARY

- Dairy farmers and graziers have had to reduce their genetic breeding livestock, are feed lotting cattle, or have bought and carted water with no government subsidy. There is now less employment on farms which negatively impacts town businesses and essential services.
- Land managers are feeling a sense of loss and anger. Some have sold, while others have undergone major changes to adapt to decreased production.
- A freshwater solution for the lakes is favoured, although some in the community are unsure about the ability to deliver this outcome, particularly for Lake Albert.
- Landholders advocate for ongoing community involvement in the implementation process and advocate strongly for using local business and local people in carrying out the work.

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CLLMM SOCIO-ECONOMIC IMPACT ASSESSMENTS

COORONG COUNCIL

DO NOTHING - *Impacts of situation at present and consequences if the situation remained similar to now*

Coorong Council reports that over the last couple of years, two thirds of the dairies have closed. Currently, significant impacts are being felt by the fishing industry. Real estate is not selling and many people have their super and retirement funds tied up in property. Many people retire to Meningie because of the provision of essential services such as the health, aged care services and hospital, pharmacy, shops and schools. There is concern that if the situation stayed as it is now, those services would be at risk. Tourism has relied on the water of the lake. Without water being available, tourists may stop for a short break but not stay overnight. The Caravan Park is not a viable business.

Narrung School once had 30 students but closed some years ago and now Raukkan also has extremely low numbers. It is difficult to attract people to Raukkan as there is no employment. There are now empty houses due to a decline in population with the loss of the dairy industry. Income is down significantly for town businesses, particularly those who rely on Tourism.

Farming land values have plummeted 40-60% as production is down due to an inability to irrigate from the lake. The sudden halt to irrigation has resulted in a dramatic change to farming with some people leaving the district within a short period of time. Others have been able to sell their water licences to support their incomes whereas town businesses have not had this asset to fall back on.

Population loss has resulted in a decrease in council rates income and this is affecting the entire council region and council's ability to deliver the same level of service.

The announcement of the proposed Pomanda Weir was a shock to the community as they found out that perhaps the Government was prepared to cut them off from a freshwater supply.

SUPPORT FOR THE CORE ELEMENTS OF THE LONG TERM PLAN

Coorong Council supports the core elements of the Long Term Plan. They would like to see further specifics on how freshwater is to be delivered to Lake Albert.

FUTURE IDEAS - *Identification of opportunities for involvement and cooperative ventures*

Coorong Council has identified the need to gain assistance and resources to support business transition and economic development for the area as well as employing a project officer to work with the community to develop a tourism plan and strategy.

In terms of community governance and involvement in the implementation of the Long Term Plan, the Council identified the importance of involving the community in the early stages of planning prior to key decisions being made. They also identified a need to develop a structure that allows for the broader community to be involved in addition to the "select few" who are involved in closed meetings. The community also wants to hear information directly and not just through Council. The current Lake Albert planning meetings were viewed as a successful model that illustrates the ability to develop a partnership process. They are seen as successful as they are locally managed and organised and this results in community ownership and the formation of partnerships. It was also identified that it is very important to the community that leaders (Ministers and Heads of Government Departments) come to their area and meet with the community.

MANAGEMENT ACTIONS RESPONSE

B1 – Increase freshwater provided from upstream in the Murray Darling Basin (Basin Plan, Water for the future, buy backs etc).

Supported-Council would like to see more details on the mechanisms for water to be delivered from upstream.

B4 – Reduce reliance upon lakes for extractive uses – i.e. installation of pipeline and/or rainwater tanks etc (note that this action does NOT include the irrigation pipeline to Langhorne Creek, which is an existing action).

Supported-Landowners are no longer relying on the lake for land production, but this is not so with the town. The pipeline prevented massive economic loss for landholders and now is providing better quality water that supports livestock production. There may be opportunities for other industries to develop because of the availability of this water, e.g. fish farms and chicken sheds.

B5 – Narrung narrows remedial works (applies to wetter scenarios only) – remove bund, dredge narrow, undertake remedial works including modifications to ferry causeway to provide for natural flows through the narrows.

Supported.-Council would like to see trigger points as to when the bund will be removed. The removal of this bund will result in Meningie feeling less isolated from the rest of the system.

SUMMARY

- Dairy, Irrigation and Fishing industries have been severely impacted by low water levels with many businesses closing down and families moving away from the district or making significant changes with a loss of production and income.
- There is now much concern by the community of the viability of town businesses which are increasingly feeling the impacts of population loss and loss of tourism. In addition, there are concerns that if the situation continues as it is, there will be a risk to other essential town services.
- Coorong Council supports the Long Term Plan; however, they would like to see more detail regarding the Plan to increase freshwater supplies to Lake Albert.
- There is support to remove the bund so that Lake Albert is not disconnected from the rest of the lakes system.

Coorong Council has led the Lake Albert planning meetings and has been proactive in identifying a future for the region and township of Meningie. Council has significant insight and clear views on the importance and value of working directly with communities in the implementation of the Plan.

Disclaimer: The views and opinions expressed in this publication are those of the contributors and do not necessarily reflect those of the South Australian Government.

Appendix 10

Results of Phone Poll



Ehrenberg-Bass
Institute for Marketing Science

The South Australian Government's Long-term Plan for the Coorong & Lower Lakes Region – Research results

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Summary of Findings

Overview of Research

This report details key findings from the third stage of community research and consultation undertaken by the Ehrenberg-Bass Institute (the Institute) on behalf of the Department for Environment and Heritage (the DEH). The purpose of this project was to gain an understanding of how the broader South Australian community feels about the key issues and the long-term plan being developed for the Coorong, Lower Lakes and Murray Mouth (CLLMM) region.

Broadly speaking the objectives of this stage of the project were to:

- Gauge the level of awareness and knowledge of the plan amongst the community.
- Measure community support for the development of a long-term plan.
- Collect feedback from the community on the preliminary version of the long-term plan, including its goal, focus and identified values; the problems to be addressed as priority and planned management approach. And to;
- gather feedback on the community engagement activities for the development of the plan.

For this stage of the project, a phone poll was conducted with a random selection of residents from the CLLMM region (n=252). Residents from the broader Adelaide metropolitan area were also surveyed (n=153) to provide a basis for comparison. Conducting research with randomly selected respondents provided DEH with an understanding of what the broader community thinks about the issues, as well as their awareness of, and support for, the long-term plan being developed. This research took place in August 2009, just prior to the second public consultation period for the project.

Using a sample representative of the communities, this research was designed to build upon, and validate the findings of the previous project stages. For this reason, the survey structure and questions were very similar. The previous stages of the project aimed to engage interested stakeholders and community members and gather feedback on preliminary plans outlined in 'Directions for a Healthy Future'. Participants in these earlier stages were self-selected and tended to be more knowledgeable, opinionated, and engaged in issues relating to the plan/region than the general public. Whilst the feedback of these participants was immensely useful in formulating the 'Managing for a Healthy Future' plan, it was not representative of the broader community. The phone poll was designed to provide a representative snapshot of how the local and broader South Australian communities felt about the issues and the long-term plan being developed.

Methodology

A computer assisted telephone survey (CATI) was developed by the Institute, in consultation with the DEH CLLMM Project Team. The interviews were conducted by quality accredited staff from the Ehrenberg-Bass Institute's in-house phone room.

405 interviews were conducted between the Wednesday the 5th and Sunday the 9th of August 2009. The survey took an average of 11 minutes to administer over the telephone.

Findings

Awareness of the Plan

Awareness of the plan was quite high with six in 10 respondents indicating that they were aware of the long-term plan being developed for the CLLMM by the South Australian Government. Given that this research took place in August, before the 'Managing for a healthy future' document was released for public consultation and many months after the first public consultation phase, these results are particularly strong.

Community support for a plan

There was a high level of community support for the development of a long-term plan for the CLLMM region. About nine in 10 respondents agreed that a long-term plan for the region is needed. The mean, or average

rating of how much plan is needed was also very high at 8.9 out of 10 on a scale where '10' denoted 'absolutely essential' and '0' denoted 'not at all needed'.

Support for a long-term plan was high across both the regional and metropolitan group of respondents with around nine out of 10 agreeing that a long-term plan is needed for the region.

Goal of the long-term plan

Respondents were generally very supportive of the goal of 'securing a future for the CLLMM region as a healthy, productive and resilient wetland of international importance'. Overall, nine in 10 respondents supported the goal of the long-term plan. The mean, or average rating of support for the goal of the plan, was also high at 8.8 out of 10 on a scale where '10' indicated 'totally supportive' of the goal and '0' indicated 'not at all supportive'.

Respondents local to the CLLMM region were slightly more supportive in their rating of the goal than respondents from the greater metropolitan area. The mean rating of support for the plan's goal was 9.0 out of 10 for regional respondents and 8.4 out of 10 for metropolitan respondents.

Primary focus: the environment

About nine in 10 respondents agreed that the primary focus of the plan should be ensuring a healthy environment in the region. Results were similar across both the regional and the metropolitan groups with around 9 in 10 respondents agreeing that the primary focus of the plan should be the environment and around 5% disagreeing.

What is at stake?

Broadly speaking the values outlined in the section 'What is at Stake' reflect what the community values about the region. Both the prompted and unprompted results confirm the community values a range of things about the region, validating those outlined in the Directions document.

What are the problems & management challenges?

Most respondents agreed that the six identified issues (reduced freshwater, acid sulfate soils, salinity, biodiversity loss, sea-level rise, and socio-economic impacts) are the issues which ought to be addressed as priorities in the plan. Across both regional and metropolitan groups, about eight in 10 respondents agreed that the six identified issues are the most important to address in the plan. Additionally, 10% of metropolitan and 17% of regional respondents agreed these problems need to be addressed as priorities, but felt something else ought to also be addressed in the plan. Very few respondents (2% overall) disagreed that the issues of reduced freshwater, acid sulfate soils, salinity, biodiversity loss, sea-level rise, and socio-economic impacts ought to be addressed as priorities.

How do we secure a healthy future?

Respondents were generally quite supportive of the 'core elements' approach of having six key objectives to guide future action. Nine in 10 respondents agreed with the approach, giving scores of between six and 10 on a scale where '10' denoted 'strong agreement', '0' indicated 'strong disagreement' and '5' was 'neutral'. Only a few respondents (less than 5%) indicated that they disagreed with the suggested approach. Overall the mean rating of agreement with the 'core elements' was high at 8.5 out of 10.

Engaging the Community

Awareness of engagement activities was higher amongst regional respondents than amongst respondents from the greater metropolitan area. Four in 10 respondents from the CLLMM region indicated they were aware of 'opportunities for the public to have input into the long term plan', whilst only a quarter of metro respondents claimed to be aware of such opportunities. Respondents were most commonly aware of the

community meetings and presentations held for the long-term plan and a few respondents indicated they had participated in these events.

The results also indicate that the DEH has quite a strong profile in this area. Almost three in 10 respondents mentioned the Department when asked to name any government departments they were aware of as being responsible for managing the Coorong and Lower Lakes. 27% of respondents mentioned DEH, the highest proportion of mentions for any single agency and a results par with the proportion of respondents mentioning 'state government' generally.

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INTRODUCTION

Objectives

This research forms the final step in a multi-stage research and engagement project conducted by the Ehrenberg-Bass Institute, at the University of South Australia (the Institute), on behalf of the Department for Environment and Heritage (the DEH). The objective of this research was to provide a representative snapshot of how the local Coorong, Lower Lakes and Murray Mouth (CLLMM) community and the broader South Australian community feel about the long-term plan being developed for the CLLMM region by the Department for Environment and Heritage (DEH). It also sought their opinions on associated issues. Using samples that were representative of the community, this research was designed to build upon and validate the findings from previous research and engagement activities, specifically online surveys with identified stakeholders and interested community members. For this reason, the objectives this research report addresses were similar to those of the previous stages.

Broadly speaking the objectives of this stage of research were to assess and evaluate:

Awareness & knowledge of the long-term plan for the CLLMM region

- Gauge the level of awareness and knowledge of the plan with the community.

Community support for a long-term plan

- Gauge the level of community support for the development of a long-term plan for the region
- Measure community perceptions of whether a long-term plan is needed.

Public feedback on 'Shaping the Future of the Coorong & Lower Lakes' documents

Gather feedback from the community on the preliminary documents 'The Coorong, Lower Lakes and Murray Mouth: Directions for a Healthy Future' (released May 2009) and 'Managing for a Healthy future' (released August 2009).

- Does the community support the goal of the plan and making the focus of the plan ensuring a healthy environment in the region?
- What does the community value about the CLLMM region and does it reflect the values outlined in the Directions document?
- Does the community agree the six problems identified in the Directions document (reduced freshwater, acid sulfate soils, salinity, biodiversity loss, sea-level rise and socio-economic impacts) ought to be addressed as priorities?
- How does the community feel about the planned management approach of having six key objectives (the 'core elements') to guide future action?

Community engagement activities

- Gather feedback from the community regarding the engagement activities- awareness, participation, reasons for not participating and willingness to assist with implementation of projects in the future.
- Awareness of government agencies involved in work in the region with the aim of understanding how DEH's involvement is perceived

A computer assisted telephone survey (CATI) was developed by the Institute, in consultation with the DEH CLLMM Project Team, to meet these objectives. The structure of the survey and the questions asked were similar to previous stages of the project to ensure comparability. This research took place just prior to the second public consultation period for the project in August 2009, to enable the findings to feed into subsequent stages of planning.

Methodology & Sampling

A telephone survey (poll) was conducted with residents from the CLLMM region and from around the Adelaide metropolitan area. Interviewers from the Ehrenberg-Bass Institute conducted 405 telephone interviews between the Wednesday the 5th and Sunday the 9th of August 2009.

Table 1: Sample statistics

	Sample size	Interview length Average mins
CLLMM Region ('Regional')	252	12
Greater Metropolitan Adelaide ('Metro')	153	10
Total	405	11

The previous stages of the project aimed to engage interested stakeholders and community members and gather feedback on preliminary plans outlined in 'Directions for a Healthy Future'. Participants in these stages were self-selected and tended to be more knowledgeable, opinionated, and engaged in issues relating to the plan/region than the general public. Whilst the feedback of these participants was immensely useful in formulating the 'Managing for a Healthy Future' plan, it was not representative of the broader community. This phase of the research was designed to provide a representative snapshot of how the local and the broader South Australian communities felt about the issues and the long-term plan being developed. Respondents were randomly selected from the White Pages, based on their postcodes.

The following areas and postcodes were included in the sampling:

Greater Metropolitan Adelaide

Respondents were selected at random from postcodes within 40km of the Adelaide CBD. The proportion of respondents coming from the northern, eastern, southern and western suburbs is reported in Table 18.

Coorong, Lower Lakes Murray Mouth Region

Respondents were selected at random from the following postcodes:

5210	Mt Magnificent, Mt Compass, Nangkita
5211	Around Victor Harbor, Inman Valley, Waitpinga, Willow Creek
5212	Port Elliot
5213	Middleton
5214	Goolwa, Hindmarsh & Mundoo Islands, Currency Ck, Mosquito Hill
5251	Mount Barker, Bugle Ranges, Wistow
5253	Around Murray Bridge, Ettrick, Greenbanks
5254	Murray Bridge, Monteith, Manarto, Callington, Petwood
5255	Langhorne Creek, Finnis, Strathalbyn, Mt Observation, Nalpa
5256	Milang, Clayton Bay, Nurragi, Pt Sturt, Tolderol
5259	Narrung, Poltalloch, Wellington, Raukkan, Tailem Bend, Pt McLeay
5260	Tailem Bend, Elwomple
5261	Cooke Plains, Coomandook, Yumali, Culburra, Ki Ki
5264	Meningie, Coorong, Policeman's Point, Salt Creek, Waltowa
5265	Coonalpyn, Field
5266	Bunbury, Colebatch, Deepwater, Tintinara
5301	Moorlands, Peake, Nethererton, Wilkawatt, Carcuma

The proportion of respondents coming from each of these postcodes is reported in Table 19 in Appendix 3.

Respondents from regional postcodes were also asked about their involvement with the CLLMM region (refer Table 2). Respondents who indicated they did not live, work, or own property in the region or use the river recreationally, were reassigned to the 'Metro' sample. These respondents

generally came from towns on the outer fringes of the region, such as Mt Barker, Strathalbyn, Murray Bridge, and Victor Harbor and behaviourally had few links to the CLLMM area. Their (relative) lack of involvement with the river also means their awareness of the issues, attitudes and beliefs will be more like the metro-based respondents than regional respondents who are more highly involved with the river due to their geographical proximity and usage of the river.

Table 2: Perspective/ involvement of respondents

	Regional Frequency	Regional %	Included in Metro* Frequency	Included in Metro %
I live in the Coorong / Lower-Lakes region	185	73	-	-
Use the river for recreational activities like boating, fishing or walking	131	52	-	-
I own or work for a business in the region	51	20	-	-
I own a farm, vineyard or property in the region	49	19	-	-
None of these	-	-	84	54
Total	252	>100%	84	<100%

* Question not asked of respondents from metro postcodes.

Three-quarters of the respondents from the CLLMM sample lived in the region, whilst half claimed to use the river for recreational activities. Around one in five regional respondents owned or worked for a business in the region and one in five owned a farm, vineyard or property in the region. 84 respondents from regional postcodes indicated they neither lived, worked, or owned a property in the region and neither did they use the river recreationally. These respondents were reassigned to the Metropolitan sample.

Interpreting Results

This research included both quantitative and qualitative elements. Tables are used to aid interpretation of the data and to illustrate trends and patterns. Quotes bring the reader closer to the research findings. Analysis of quantitative data has been performed using SPSS 17.

The structure of the tables for the majority of the report is as follows; the first column shows the possible responses for each question and the subsequent columns indicate the proportion of respondents who gave a particular response. Multiple response questions are indicated by '>100%' appearing in the Total row of the % column. The sample size ('n') is listed in the heading of each column and from this the number of respondents giving a particular response can be calculated. Some questions were answered on a 0-10 scale. Results of these questions are reported as percentages and as a mean (average) score. The closer to mean score is to 10, the more positive respondents were regarding that question. The mid point of 5 indicates a neutral response, and below this, a negatively skewed response.

FINDINGS

Awareness of the Plan

At the start of the interview, respondents were asked if they had 'heard about the long-term plan being developed for the Coorong, Lower Lakes & Murray Mouth by the South Australian Government.'

Table 3: Awareness of the long-term plan

	Regional n=252 %	Metro n=153 %	All n=405 %
Aware	62	56	59
Unaware	37	37	37
Unsure	1	7	4
Total	100	100	100

Overall, about six in 10 respondents indicated they were aware of the long-term plan being developed for the CLLMM by the South Australian Government. Almost four in 10 respondents indicated they were not aware of the plan. Given that this research took place in August before the 'Managing for a Healthy Future' document was released for public consultation, and many months after the first public consultation phase, these results are particularly strong.

Awareness of the plan was similarly high across both groups of respondents. 62% of respondents from the CLLMM region were aware of the plan and 56% of respondents from the greater metropolitan area. Whilst it appears regional respondents were slightly more likely to be aware of the plan, the difference was not statistically significant. The degree of similarity in awareness is somewhat surprising. Metropolitan residents were not the primary targets of communication and engagement efforts and we anticipated they would be aware and engaged in planning for the CLLMM area. However, the DEH's engagement activities and the media coverage have been state-wide, which perhaps explains why the results are the same.

These results are broadly similar to findings from prior stages of research, which used online surveys to collect feedback from the public. Of those respondents who visited the Murray Futures website and participated in the survey ('web'), 62% were aware of the long-term plan. Awareness of the plan was higher amongst project stakeholders, with 95% indicating they were aware of the long-term plan being developed. As these respondents had subscribed to receive updates from DEH on projects relating to the CLLMM area, it is expected that their awareness of the plan would be much higher than respondents who were randomly selected, as is the case in this stage of the research.

Community support for a plan

Respondents were informed 'the State Government is developing a long-term plan to address the environmental problems the region is facing'. They were then asked 'how much do you think a long-term plan for the Coorong, Lower Lakes region is needed'? The results are reported below.

Table 4: Community attitudes regarding the need for a long-term plan

	Regional n=252 %	Metro n=153 %	All n=405 %
Not at all needed (0-1/10)	3	1	2
Not needed (2-4/10)	2	3	2
Neutral (5/10)	6	7	6
Needed (6-8 /10)	26	32	28
Absolutely essential (9-10/10)	63	58	61
Total	100	101*	99*
Mean	9.0	8.7	8.9

* Does not sum to 100 because of rounding.

Overall, almost nine in 10 respondents agreed that a long-term plan for the region is needed. Six in 10 respondents felt that a plan 'is essential' for the region; giving a score of either nine or 10 on a scale where 0 was 'not at all needed' and 10 was 'absolutely essential'. Almost three in 10 gave a score of between six and eight, indicating they also thought a long-term plan is needed for the region. The mean, or average rating of how much a plan is needed was also very high at 8.9 out of 10. A few respondents (6%) gave a neutral response of five out of 10, and a (very) few (4%) felt that a plan is not needed.

Support for a long-term plan was similarly high across both the regional and metropolitan groups of respondents with around nine in 10 agreeing that a long-term plan is needed for the region. Slightly more regional than metropolitan respondents rated the need for a plan between 9 and 10 (corresponding with 'absolutely essential' on the scale). Consequently the average, or mean rating of how much a plan is needed was slightly higher amongst regional respondents (9.0 out of 10) than amongst respondents from the greater metropolitan area (8.7 out of 10). However, the small difference in mean ratings is not statistically significant.

These findings are similar to those found in previous stages of the research. In the online surveys, almost all (97%) respondents agreed that a long term-plan for the region is needed. Online survey respondents were slightly more positive in their ratings of how much a plan is needed. The mean rating of how much a plan is needed was higher for the online surveys at 9.4 out of 10 than for the phone poll (8.9 out of 10). As for the previous question, this difference is likely to be a function of the different sampling approaches. The online surveys relied on respondents selecting themselves to participate, consequently attracting more polarised respondents, whereas with the phone poll respondents were randomly selected from the population. Overall, these results represent a strong endorsement from the community, both local and broader, for the development of a long-term plan for the CLLMM region.

Whilst the vast majority of respondents agreed a long-term plan for the region is needed, a few believed it is not necessary. Of the 405 people who participated in the phone research, 30 felt that a plan is not needed, giving scores between 0 and 4 on the 0 to 10 scale where '0' denoted 'not at all

needed'. These respondents were asked why they felt a plan was not needed and their responses categorised.

Reasons for why a plan is not needed (in order of frequency)

- Plans don't achieve anything (8)
- Should let nature take its course/ not interfere (7)
- Should get on with fixing the problems (5)
- Need to get water from upstream/ secure allocations (5)
- Too late to fix (2)
- Tired of all the planning (1)
- Have upset the ecology of the area (1)

Goal of the long-term plan

Respondents were told about the goal of the long-term plan and were asked 'how supportive' they were of this goal.

Table 5: Community support for the goal

	Regional n=252 %	Metro n=153 %	All n=405 %
Not at all supportive (0-1/10)	3	4	4
Not supportive (2-4/10)	1	0	1
Neutral (5/10)	3	11**	6
Supportive (6-8 /10)	11	23**	15
Totally supportive (9-10/10)	82	62**	74
Total	100	100	100
Mean	9.0	8.4*	8.8

*Difference statistically significant at the 95% level

Respondents were generally very supportive of the goal of 'securing a future for the CLLMM region as a healthy, productive and resilient wetland of international importance'. Overall, nine in 10 respondents supported the goal of the long-term plan. 74% of respondents were 'very supportive' of the goal, giving scores of between nine or 10 on scale where '10' indicated 'total support' for the goal. 15% of all respondents were 'supportive' of the goal, giving scores of between six and eight on the scale. The mean, or average rating of support for the goal of the plan was also high at 8.8 out of 10 across the entire sample. A few (6%) respondents gave a 'neutral' response of five out of 10. Only a few respondents (5%) indicated they were 'unsupportive' of the goal. These results are comparable to findings from the previous stages of research. In the online surveys, 85% of respondents indicated they were 'very supportive' of the goal of the long-term plan.

Respondents local to the CLLMM region tended to be more supportive in their rating of the goal than respondents from the greater metropolitan area. 82% of the regional respondents were 'totally supportive' of the goal, giving a rating of nine or 10. Fewer metropolitan respondents, 62%, gave a rating of support between 9 and 10. This difference is statistically significant at the 95% level. Similarly, the mean rating of support for the plan's goal was slightly higher amongst regional respondents (9.0 out of 10) than amongst metropolitan respondents (8.4 out of 10).

Primary focus: the environment

Respondents were briefed on the State Government's approach and premise that 'addressing the environmental issues will support the local economy and communities' and then asked whether they agreed that 'the primary focus (of the plan) should be on ensuring a healthy environment in the region'.

Table 6: Community support for making the region's environment the primary focus of the plan

	Regional n=252 %	Metro n=153 %	All n=405 %
Agree	88	91	89
Disagree	5	4	4
Unsure	7	5	6
Total	100	100	99*

* Does not sum to 100 because of rounding.

Almost nine in 10 respondents agreed that the primary focus of the plan should be ensuring a healthy environment in the region. This is the same result as was found in the online surveys where 89% of respondents also agreed that the primary focus of the plan ought to be the environment.

Results were similar across both the regional and the metropolitan groups with around 90% of respondents agreeing that the primary focus of the plan should be the environment and around 5% indicating they were unsure. Across both groups, around 5% of respondents (35 people) disagreed with making the environment the primary focus of the plan. These respondents felt the plan should focus or consider other things including (in order of frequency):

- Water for farmers/ agricultural users (8)
- Economic impacts (6)
- Water for local industries (4)
- Supporting the local communities (4)
- The social impacts (3)
- Let nature take its course (2)
- Protecting the area (1)
- Reducing irrigation (1)

What is at stake?

To ensure that the long-term plan reflects what the community values about the CLLMM region, two questions about what is valued about the region and what is at stake were included in the interview. Respondents were asked 'what they personally value about the region'. Respondents could say as many things as they liked and their comments were categorised by the interviewers.

This was followed by a prompted question where interviewers read through a list of identified values (drawn from the Directions document) and respondents indicated which things they personally valued about the region. Again, respondents could select as many or few values as they wanted (multiple response).

Table 7: What is valued about the region- Unprompted

	Regional n=252 %	Metro n=153 %	All n=405 %
Ecology & biodiversity\ flora & fauna	43	35*	40
Natural beauty	39	31*	36
Environment	31	28	30
Recreational activities - boating, walking, fishing etc	28	15**	23
Wetlands (Ramsar listed)	23	14**	19
Water for industry\agriculture	19	12*	17
Local communities the river supports	17	10*	14
Tourism	12	9	11
Icon site	4	5	4
Indigenous heritage & cultural significance	4	5	4
Other	6	3	5
Don't know	7	14*	10
Total	>100%	>100%	>100%

*Difference significant at the 90% level ** Difference significant at the 95% level

These unprompted results demonstrate the community values a range of things about the CLLMM region. When asked what they valued about the region, regional respondents generally said two to three things (av. 2.3) and metropolitan respondents said one to two things (av. 1.8). The things most commonly valued about the region are its ecology and biodiversity, natural beauty and the environment in general of the region.

The results indicate that local residents and respondents from the broader Adelaide metropolitan area value similar things about the region. The rank order was the same across both groups of respondents, although regional respondents tended to mention more things when asked what they valued than the metropolitan respondents did. Consequently, for most items/values, the proportion of respondents mentioning it was slightly higher for the regional group than the metropolitan group (most differences are statistically significant at the 90 or 95% level).

About four in 10 respondents local to the CLLMM region ('regional') said they valued the ecology and biodiversity and the natural beauty of the region. About three in 10 said they valued the environment of the region and the opportunity the location affords for recreational activities like boating, fishing, and walking. About two in 10 regional respondents indicated they valued the Ramsar listed wetlands, the local industries and the local communities. Tourism was mentioned by about one in 10 regional respondents as something they valued about the CLLMM region. Fewer respondents, regional or metropolitan, indicated they valued the region as an icon site or for its rich Indigenous heritage and cultural significance.

About three in 10 metropolitan-based respondents said they valued the ecology and biodiversity of the region, its natural beauty or the environment. About one in 10 respondents indicated they valued the recreational activities the region affords, the Ramsar listed wetlands, the local industry and agriculture and the local communities that are supported by the river. A slightly higher

proportion of metropolitan respondents, compared to regional, were unable to think of anything they valued about the region without prompting (14% compared to 7%).

Other things respondents mentioned included what its like to live in the region (*'weather', 'low crime rate', 'healthy', that houses keep their value'*) or their personal connections with the region (*'born there'*). One respondent commented on the region's importance as a *'food bowl'* and a one commented that they valued the access to clean water the river provides.

Table 8: What is valued about the region- Prompted

	Regional n=252 %	Metro n=153 %	All n=405 %
Natural beauty of the region	93	90	92
Environment	89	90	90
Wetlands, recognised internationally for their importance	89	86	88
Environment supports the local communities and economy	80	90**	84
Unique ecology and biodiversity of the region	83	87	84
Opportunity the location affords for recreational activities	80	73*	78
Rich Indigenous heritage & cultural significance	73	72	72
Water it provides for industry	64	60	62
None of these	0	2	1
Don't know	0	1	1
Total	>100	>100	>100

*Difference significant at the 90% level ** Difference significant at the 95% level

The prompted results, shown in Table 8, also demonstrate that the community values a range of things about the CLLMM region. When read a list of things that are valued about the region (drawn from the 'What is at Stake' section of the plan), respondents generally indicated they valued between six and seven things about the region (av. of 6.5 items for both regional and metropolitan). This suggests that people generally value more things about the region than they can think of without prompting. This is typically seen in research findings.

The ordering of things people value is similar across both the prompted (Table 8) and unprompted questions, with 'natural beauty of the region' and 'environment' ranking amongst the highest and 'indigenous heritage' and 'water for industry' ranking lower.

Across both the regional and metropolitan groups of respondents, around nine in 10 indicated they value the natural beauty of the region, the environment and the 'internationally recognised' wetlands. Additionally, nine in 10 metropolitan-based respondents indicated they value the 'environment which supports the local communities and economy' and the unique ecology and biodiversity of the region.

Slightly fewer regional respondents said they valued these things, with around eight in 10 indicating they value the local communities or the biodiversity of the region. Slightly more regional respondents, around eight in 10, indicated they value the opportunity for recreational activities which the location affords. Across both groups, more than seven in 10 respondents indicated they value the Indigenous heritage and cultural significance of the region and about six in 10 indicated the water provided to industry is important.

These results are broadly similar to the findings from previous stages of research as evidenced by the top five values being the same in the online surveys' findings.

What are the problems & management challenges?

Respondents were told about the six problems identified in the long-term plan (reduced freshwater, acid sulfate soils, salinity, biodiversity loss, sea-level rise, and socio-economic impacts) and asked whether they agreed that these were the problems that need to be addressed as priorities by the plan.

Table 9: Community agreement that the 6 identified issues should be the priority

	Regional n=248 %	Metro n=153 %	All n=401 %
Yes, they cover everything	77	84	80
Yes these are the problems, but some are missing	17	10	14
No, I disagree these are the (priority) problems	2	1	2
I don't know enough about the environmental problems to say	3	5	4
Total	99	100	100

* Does not sum to 100 because of rounding

Most respondents agreed that the six identified problems (reduced freshwater, acid sulfate soils, salinity, biodiversity loss, sea-level rise, and socio-economic impacts) are the ones which ought to be addressed as priorities in the plan. Across both regional and metropolitan groups, around eight in 10 respondents agreed that the six identified issues are the most important to address. This is a higher level of agreement than recorded in the online surveys where around six in 10 respondents agreed the six identified issues should be the priority. Once again this difference is likely to be a function of the different sampling approaches (self-selected versus random). Respondents to the online survey tended to be much more knowledgeable and opinionated about the issues than typical and for many the impetus for participating was disagreement with some aspects of the proposed plan. Consequently, more online respondents were aware of additional issues they felt should be considered or championed particular issues exclusively.

Respondents local to the CLMM region were slightly less likely to agree the identified problems ought to be the priorities and more likely to feel that something else ought to be considered. Almost two in 10 regional respondents felt something else ought to be considered or addressed as a priority. Certainly it would be expected that, given their proximity to the problems, the issues would be more salient for regional respondents than metropolitan-based respondents and their breadth of knowledge of issues wider.

Across both groups, very few respondents (2% overall) disagreed that the issues of reduced freshwater, acid sulfate soils, salinity, biodiversity loss, sea-level rise, and socio-economic impacts ought to be addressed as priorities.

Other issues respondents felt ought to be considered

Respondents who felt that something was missing from the identified list or who disagreed with the six identified problems, were asked what else they thought ought to be considered or included. The key themes emerging from these comments are summarised below and reported as verbatim in Appendix 1.

Freshwater inflows (including upstream usage and allocations)

In total 22 respondents made comments relating to the need to get freshwater flowing through the system. Some respondents commented that the lack of freshwater was the cause of all the problems as well as the solution to them. For example:

The whole thing can be solved by the availability of water and if the water is not there that is the fundamental thing that will fail.

Seven of these respondents made comments about water allocations and irrigators taking water from the system, both in South Australia and interstate. For example:

Address the outtake of water all along the river, outtake by irrigators does not exceed what comes in.

Six of these respondents made comments regarding the distribution of water usage between the states and some voiced the opinion that users upstream were harvesting too much water.

Interstate should share the water - eastern states waste the water eg flooding and open channels

Transition to a natural (estuarine) environment

Eight respondents were of the opinion that engineering interventions like barrages, ought to be opened/removed and the water allowed to flow naturally throughout the region. For example:

Remove man made dams and let nature take its course

A few respondents also made more general comments supporting a transition to a more estuarine environment in the region.

Lake Alexandrina used to be a salt lake much higher than it is now

Management of the river

Six respondents made comments concerning the management of the river. The general sentiment was that South Australia was suffering, because of a lack of communication with other states regarding water availability or because they are looking after their own interests, and that a whole of basin approach was needed. For example:

River hasn't been allowed to flow as a whole identity and each state has harvested their own.

Some respondents felt a more centralised approach was needed. One respondent felt the Federal Government ought to govern the whole of the river system and one suggested an independent council be appointed to manage it as a 'federal resource'.

Lower Lakes

Two respondents were particularly concerned with the Lower Lakes region. One was concerned the town would be subjected to 'a very unpleasant smell' if the Lakes ran dry and one was concerned about the water being 'blown back from Lake Alexandrina' and the effect of this on the health of the Murray to Wellington area.

Current Actions

Two respondents were concerned about management actions currently underway, namely the regulator being built in the region. One respondent was concerned that:

...The weir at Clayton Bay is making the lake more saline....

A few respondents felt that the government wasn't moving quickly enough to address the current problems.

Impact on local industry

Two respondents mentioned the importance of providing water to agricultural industries and the region and one respondent was concerned businesses were prioritising their needs over that of the environment.

Respondents also mentioned issues such as climate change, the impact of these problems on local wildlife (specifically Cape Baron Geese), and the need to draw on the knowledge of locals.

How do we secure a healthy future?

Core Elements approach

This section of the interview introduced respondents to the State Government's approach and the six 'core elements'. Respondents were then asked how much they 'agreed with this approach of having six key elements to guide future action'.

Table 10: Agreement with the 'Core Elements' approach

	Regional n=252 %	Metro n=153 %	All n=405 %
Strongly disagree (0-1/10)	3	1	2
Disagree (2-4/10)	2	2	2
Neutral (5/10)	6	5	6
Agree (6-8 /10)	25	31	27
Strongly agree (9-10/10)	58	56	58
Unsure	6	5	5
Total	100	100	100
Mean	8.6	8.5	8.5

Respondents were generally quite supportive of the 'core elements' approach of having six key objectives to guide future action. Around six in 10 strongly agreed with the approach, giving scores of between nine and 10 on a scale where '10' denoted 'strong agreement' and '0' indicated 'strong disagreement'. Additionally, three in 10 respondents indicated they 'agreed' with the 'core elements' approach, giving scores of between six and eight on the scale. A few respondents, around 6%, gave a neutral rating of five out of 10 to this question. Only a few respondents, less than 5%, indicated they disagreed with the approach of having six key objectives ('core elements') to guide future action. Results were similar across both groups of respondents.

Overall the mean rating of agreement with the 'core elements' was high at 8.5 out of 10. This is a slightly higher score than was recorded for the online research in which the mean score was 7.5 out of 10.

Engaging the Community

To gauge community awareness of DEH's community engagement activities, respondents were asked whether they had 'heard about any of the opportunities for the public to have input into the long-term plan'.

Table 11: Awareness of engagement activities

	Regional n=228 %	Metro n=131 %	All n=359 %
Unaware	56	72**	62
Aware	40	25**	35
Unsure	4	3	3
Total	100	100	100

*Difference significant at the 95% level

Awareness of community engagement activities was higher amongst respondents from regional areas. Four in 10 respondents from the CLLMM region indicated they were aware of 'opportunities for the public to have input into the long term plan'. A quarter of the respondents from metropolitan areas claimed to be aware of opportunities for the public to have input into the plan. Given that many of the community engagement activities took place during the first public consultation period for the plan in May 2009, the awareness figures are particularly strong.

Respondents who were aware of engagement opportunities (n=141) were asked which activities they were aware of and their responses recorded (unprompted).

Table 12: Awareness of engagement activities- Unprompted

	Regional n=102 %	Metro n=39 %	All n=141 %
Community events\meetings\presentations	81	56**	75
Newspaper	18	23	19
Talkback radio	7	15*	9
Displays at local library\shops\hotel	6	5	6
Protests	4	10	6
Send in feedback\written submission	3	3	3
Online survey	2	0	1
TV news	1	5	2
Don't know\ Refused	5	15	8
Other	11	3	9
Total	>100	>100	>100

*Difference significant at the 90% level **Difference significant at the 95% level

Respondents were most commonly aware of the community meetings and presentations held for the long-term plan. Of those respondents who indicated they were aware of activities for the long-term plan, three quarters were aware of the community meetings. Eight in 10 regional respondents were aware of the community meetings and six in 10 metropolitan respondents were aware. Approximately two in 10 respondents were aware of newspaper coverage of the issue and around one in 10 were aware the issue had been covered on talkback radio. Around one in 20 respondents (6%) were aware of displays about the plan at local libraries, shops and hotels.

All of the respondents from regional postcodes (see 'Methodology' section) were asked additional questions about the engagement activities. Respondents were read a list of community engagement activities conducted for the long-term plan and asked to indicate which, if any, they were aware of in relation to the long-term plan (multiple response).

The results, shown in Table 13, provide an indication of the level of awareness of the various engagement activities for the long-term plan amongst residents local to the CLLMM region ('Regional') and those living on the fringes of the region (classed as 'Metropolitan').

Table 13: Awareness of engagement activities- Prompted

	Regional n=228 %	Metro n=131 %	All n=359 %
NOT aware of any	25	41**	31
Community meetings & events	66	52**	61
Displays at some local libraries, shops & hotels	30	23	27
The ability to send in comments about the plan	21	21	21
A website & online survey	18**	7	14
Government staff at local libraries & shops talking to people	13	8	11
Don't know\refused	4	2	4
Other	4	2	3
Total	>100	>100	>100

**Difference significant at the 95% level

Almost seven in 10 regional respondents (66%) indicated they were aware of the community events and meetings held for the long-term plan. Fewer metropolitan respondents were aware of the community events, at around five in 10. Three in 10 regional respondents claimed to be aware of displays about the plan at local libraries, shops and hotels. Slightly fewer metropolitan respondents were aware of the displays, at around two in 10. Across both groups, about two in 10 respondents were aware the public could send in comments about the plan. In regards to the website and online survey, almost two in 10 regional respondents were aware of these and fewer than one in 10 metro respondents. Around one in 10 respondents were aware of government staff being on hand at local libraries and shops to talk to the public about the plan.

A quarter of the regional respondents were not aware of any of the ways they could have had input into the plan. Of those respondents living on the fringes of the region (and classed as Metropolitan), more than four in 10 were unaware of any of the opportunities to have input into the plan.

All the respondents (n=343) who indicated they were aware of one or more engagement activity (after prompting) were asked if they had participated in any of these engagement activities.

Table 14: Participation in engagement activities

	Regional n=201 %	Metro n=133 %	All n=343 %
No	65	84	73
Event/ meeting/ presentation	26	6	18
Visited a display	6	0	4
Send/ emailed written comments	3	0	2
Online survey	2	0	1
Talked to government staff (listening post)	2	0	1
Talkback radio	2	0	1
Commented on AdelaideNow	1	0	<1
Don't know\ Refused	3	9	6
Other	3	2	3
Total	>100	>100	>100

Respondents had most commonly participated in the community meetings or presentations. 49 regional respondents (26% of those who were aware) claimed to have participated in an event or meeting about the long-term plan. Eight metropolitan respondents (6% of those who were aware) claimed to have attended an event or presentation about the plan. Lower percentages were seen for the other activities. Eleven regional respondents indicated they had visited a display, five claimed to have sent in comments, three indicated they had completed the online survey and three had visited a listening post.

Most respondents had not participated in any of the other engagement activities for the plan. Eight in 10 metro respondents indicated they had not participated in anything else. Fewer regional respondents, around two thirds, indicated they had not participated in any other engagement activity, despite being aware of at least one.

Respondents who indicated they were aware of one or more engagement activity but had not participated in any were asked why they had not participated and their responses were categorised by the interviewers.

Table 15: Reasons for not participating

	Regional n=107 %	Metro n=50 %	All n=157 %
Lack of time/ too busy	31	26	30
Unaware of activities	20	16	19
Inconvenient location	9	20	13
Personal reasons (illness, age etc)	7	22	11
Not interested	6	4	5
Inconvenient time	5	4	5
Other ways of having input	3	4	3
Lack of expertise	4	2	3
No point	4	0	3
Don't know	14	8	12
Other	1	6	3
Total	>100	>100	>100

Consistent with the results from previous stages of research, the most commonly cited reason for not participating was 'lack of time'. Some respondents, around one in five, indicated they were unaware of activities. Amongst the metropolitan respondents, approximately one in five said that the location of the events were inconvenient for them. Interestingly, fewer regional respondents (less than one in 10) indicated the location of the activities/events were inconvenient for them. Some respondents, around one in 10, indicated they had not participated because of personal reasons like ill health or age.

Community involvement in project implementation

Respondents from regional postcodes were also asked if they were interested in being involved in implementation of projects in the future.

Table 16: Interest in being involved in implementation projects

	Regional n=252 %	Metro n=84 %	All n=336 %
No	39	58	44
Yes	31	24	29
Depends on project	28	18	25
Unsure	2	0	2
Total	100	100	100

Almost one third of respondents (n=98) indicated they would be interested in being involved in implementing projects in the future. Another quarter (n=85) indicated they might be interested in being involved, depending on the project. There were similar levels of interest amongst residents local to the CLLMM region and those living on the fringes of the region. This shows strong interest in community engagement moving forward.

Government departments with responsibilities for the region

Respondents were also asked 'which, if any government departments, are you aware of being responsible for managing the Coorong and Lower Lakes'. The aim of this question was to ascertain the level of awareness of government departments and better understand DEH's profile within the community.

Table 17: Awareness of government departments responsible for the CLMM

	Regional n=252 %	Metro n=153 %	All n=405 %
None	28	26	27
State government	27	32	29
DEH	28	25	27
Federal government	21	18	20
DWLBC	20	16	19
Local government	12	11	11
SA Water	12	10	11
EPA	8	5	7
Murray Darling Basin NRM	8	7	7
PIRSA	8	7	7
Office for Water Security	5	4	5
Dept of Premier & Cabinet	4	5	4
Rural Solutions	3	3	3
Other	5	6	5
Total	>100	>100	>100

Almost three in 10 respondents were unable to name any government department responsible for managing the region. Almost three in 10 respondents mentioned the State Government generally. This is not surprising given that the state government had been mentioned in relation to the research during the interview. What is surprising is that a similar number mentioned the Department for Environment and Heritage in relation to the Coorong, Lower Lakes region although the department had not been mentioned in the interview. This is the highest mention for any single agency. Two in 10 respondents mentioned the federal government generally and around two in 10 mentioned the Department of Water, Land and Biodiversity Conservation (DWLBC). One in 10 respondents mentioned local government as being responsible for managing the region and approximately one in 10 mentioned SA Water. A range of other government departments and agencies were also mentioned by respondents.

Appendix 1: Comments- What are the problems & management challenges?

58 respondents felt that something was missing from the identified problems or else ought to be considered. Additionally seven respondents disagreed that the six identified problems ought to be the priority. Their comments are reported below as they were recorded by the interviewers.

General comments

1. Listen to the scientists/ fix some things now
2. Government isn't moving along fast enough to address the current problems
3. Live on Lake Alexandrina and question the facts
4. Other alternatives that could be done
5. Save the river mouth
6. Need to address a healthy river
7. Water situation in the lower lakes and mouth area
8. Also water supply and flow of the Murray

Freshwater inflows (including upstream usage and allocations)

9. Number one is to get some water there
10. Fresh water should be introduced now
11. Lack of fresh water is the cause of all the problems
12. They need to increase the flow of the river
13. The Ramsar agreement international agreement. We are ignoring this. Otherwise would have to fall in line to supply the water that they are holding back
14. Not letting the water come right through to lakes and the Coorong
15. The whole thing can be solved by the availability of water and if the water is not there that is the fundamental thing that will fail
16. The lack of freshwater
17. Need to fix the flows from the Angus, Marne Rivers. The farms on the Eastern side of Mt Lofty Ranges & the Marne River farmers are raping the river

Allocations & Irrigation

18. Just to address the outtake of water all along the river, outtake by irrigators does not exceed what comes in
19. Lack of knowledge of people taking the water out all along the river in SA
20. Unnecessary use of water interstate being used for growing crops
21. The amount of water taken from the river
22. Irrigation problems from local and upstream
23. All rivers have been over used. Salinity has become very high, and by November this really increases and there is a lot of spring fed water along the rivers

Usage of water upstream

24. Water from Queensland
25. NSW are harvesting too much water, and storm water is going out to sea
26. Interstate should share the water - eastern states waste the water eg flooding and open channels, and water locked
27. NSW and Queensland are harvesting too much water
28. NSW Victoria are harvesting more than needed
29. Sharing the resource with other states, not natural to take out from upstream

Transitioning to a natural environment (inc. seawater)

30. Turn it back to natural environment
31. Let nature take over

32. Too much intervention
33. Tampering with things that are not necessary
34. Remove man made dams and let nature take its course
35. Open up a barrage
36. Originally salt water, barrages re opened to allow natural water flow
37. Letting the sea in
38. Coorong has historically been both fresh and saltwater, freshwater not necessarily the answer for the future in the long term
39. Lake Alexandrina used to be a salt lake much higher than it is now. This problem needs to be addressed

Management of the River

40. Management of the Murray water
41. The whole river system should be owned by federal gov
42. The lack of communication with other states to do with availability of water and how it is proportioned
43. Other states are looking after themselves and SA is on the end of the line
44. Federal resources governed by a council of independent people and scrutinized
45. River hasn't been allowed to flow as a whole identity and each state has harvested their own
46. Government needs to take responsibility

Lower Lakes region

47. Lower section of the Murray water blown back from Lake Alexander. Health of the Murray to Wellington
48. Leaving your town "swinging in the breeze". In the summer of 09-10 no water in the lake and the town will be subjected to a very unpleasant smell

Current actions

49. The regulators that they have put in at the moment
50. Starting at wrong end of the system. The weir at Clayton Bay is making the lake more saline. This in turn is leading to an environmental impact in the summer months that is beginning already

Providing water to industry

51. It is essential that the farmers have water
52. Loss of agricultural income
53. It might impact businesses. They worry about themselves more than the environment. They push the environment thing to get what they want. Use it as an excuse to get the water there for their boats and own businesses

Ecological impact

54. The wildlife
55. Cape Baron Geese

Engaging the local community

56. Practicality [of] getting local knowledge on how to fix these problems

Climate change

57. Issues of climate change being considered seriously

Miscellaneous

58. Run off from the grapes being sprayed with copper into the river
59. Confused about the whole affair
60. Fact that it is a mouth that flows for industry
61. Forgot about the Coorong region in general
62. Find something to encourage young people to work. They come down and set fire to rubbish bins in playground, broken bottles under swings, wine glasses that are broken on the beach. Rubbish is thrown just anywhere
63. The Indigenous are given priority for so many things over the white Australians. It is not right. Some are born after us and in Australia Freedom of speech is gone in some respects

Appendix 2: General Comments

At the end of the interview respondents were given the opportunity to make comment about the long-term plan. 269 respondents chose to do so and their comments are reported below, as recorded by interviewers.

Water allocations, irrigation & upstream usage

Fairer distribution of allocations

1. A band-aid approach to over allocations of water from whole Murray system
2. Desperately needs to be sorted out, not just talk and changing plans. Needs Mr Rudd and Peter Garrett to step in and force NSW and Victoria to release the water after all it is one river and one country [Australia]
3. I wish they would make a decision and stick to it. The water distribution problem dissolved between the states
4. NSW and Victoria need to be held responsible for the amount of water they are harvesting
5. Other states have to release water
6. NSW is harvesting too much water and this needs to be addressed
7. Victoria is a problem with letting the water through to us to cause problems. We are all Australians and Murray belongs to all of us we should be able to share not just give us the sewerage
8. Too many allocations up stream - lower lakes are being sacrificed
9. The whole thing is hot air until they buy back water rights
10. Water harvested in NSW and Victoria needs to be released and that the SA COMMUNITY SHOULD NOT HAVE TO PAY FOR THE PRIVILEGE of receiving their own water
11. Water upstream and management of the water licenses causes problems for everyone

Securing water from upstream

12. Getting more water from NSW and Queensland
13. Just in general need more water at the top of the river to get things moving and coming down stream
14. Let water down from further up
15. Need to release the water up higher
16. The only way to alleviate the problem is to get water down from the top end by rain or more mega litres for us
17. The people up the river taking their hand out of the river. People don't like change
18. Treat the river as if it's a spit level and not held back i.e. NSW by holding back the water. Problem needs to be addressed ASAP

19. Water hold ups in other states
20. We need to preserve the area as a environmental rather than a financial problem. If water allocation plans can be divided fairly

Engaging the upstream states

21. All goes back to the mobs interstate
22. Commendable to see that people are trying to rectify the problem. also the need for not just the lower end to try and do something about it, we need those in the north to help out as well to do their bid to help out
23. Should not shut off the river [inlets] in other states Victoria and NSW, government to do something about this
24. The problem has been happening a long time ago. Eastern states think that if the water for Lower Lakes in their area it belongs to them. The River Murray is dying from the lower lakes up
25. Try and get water down from NSW as they are harvesting too much
26. We desperately need water and the other states need to be told what the plight of what the Murray is. They have their water supply and we do not
27. We need water released from upstream

Comments regarding irrigation

28. STOP THE GODDAM IRRIGATION UPSTREAM
29. Stop the large amount of irrigation along the river. Have other states let more water through - not a high awareness interstate about how little water it in the river down here
30. Building weirs is a waste of time and money. Water should be released from the east coast. Get rid of rice & cotton fields that is we should be growing farming what is environmentally friendly to Australia
31. Water from upstream, Qld let it through to flow, and rice growing in NSW should not be allowed
32. Possibly a bit late and took water unnecessarily. The flow from other states- water licences for cotton and rice
33. Other states should help out by letting water flow through the system, e.g Queensland uses lots of water growing cotton
34. Far too many irrigation setups on the river
35. Look at the irrigation robbery, in other words the irrigators that are chewing up the water supply
36. They have to put the pedal down. Grow the cotton in India we need fresh water. Grow the rice and cotton where there is lots of water 96% water goes out to sea Lake Argyle and Kaninara

Management- Federal level

37. Federal government should take-over cause now there's too many parties controlling the system, bottom end suffers when top end takes control
38. Federal Gov should help more
39. Federal government should organise plan
40. Federal involvement in the interstate issue regarding water issues (Vic and SA) and the state government (Karlene Maywald) should be more transparent regarding the issue and massively expanding Adelaide's storm water and potential reservoir capacity
41. Government not taking notice of the professionals, looking for short term solutions, problems come from higher up the river, should be a federal government issue
42. Haven't mentioned water buy back. A lot of wasted water when it rains doesn't benefit the river. The interference of governments in other states has created more problems eg channels
43. Hurry up! Federal government needs to step up to the job
44. Joint action taken by state and federal governments to solve the problem
45. Lack of Federal support they have no real interest. I like the plan do it now. Turtles are dying and cockle industry is suffering
46. Look at the big picture

47. Need just one body to control the whole system-top and bottom end cause currently too many involved-right hand doesn't know what the left hand is doing and also need more rainfall to help the ailing system
48. Plan should be handled by federal government and taken very seriously since the Murray runs through 3 states and SA gets the last of it. Need higher power to take action and be fair towards all states
49. Previous government promise not fulfilled, bottom end missing out
50. Problem needs to be addressed by Mr Rudd, as it is affecting everyone in the area, should stop farming cotton and rice upstream and let freshwater in the lower lakes and Coorong
51. SA can't fix it in isolation, need to be a federal government plan
52. State and Commonwealth governments to be jointly involved in action needs to be taken as soon as possible
53. The Federal Government should step in and control the NSW Queensland and Vic Government from impeding the flow of the Murray down into SA
54. There should be other state governments involved due to the downstream of the water and ruining the outlet
55. Think that the Federal government should have total control not the states
56. Thinking more about whole nation approach - why do other sites look like very little water impact, eventually the problem will cover when whole river system
57. We are not getting our quota of water in the state of SA
58. Working together both Federal and State Government would have a better chance of getting something done

Management- State Government

59. Everything has been done as much as the State Government can do under the circumstances
60. Hopes plans will be rock solid so that a change in government won't effect the plans
61. About time the state government took some action to look after the Murray River, not only for today but also for our future generation
62. Feel that both state and federal governments are not doing enough for the Murray and Darling systems, and so until they get them under control can't really do much for the lower lakes
63. Government get act together and achieve a result for the environment
64. Just to be mindful that the involvement by the government is long term and beneficial to the area. The communication with other states on availability of water
65. Karlene Maywald is a decoy to try & take the focus of the problem
66. Miss Maywald should worry about the water being stolen from the river by the Eastern states
67. Get rid of Karlene Maywald and Penny Wong and actually do something
68. The politicians are guided by their party. Politicians do not listen to the local people that live in the area. Spokesperson for area is not doing the right thing and doing it for her own financial gain
69. The whole thing is a bloody mess due to previous governments inactivity of the matter. Not a vote catcher so it gets lower priority
70. Thinks the state government needs to pay attention to expert opinion and forget politics
71. The money the Federal Government gave to local council has been frittered. Taken away so no-one is doing anything about water going into the Lower lakes & worse the Murray from the eastern states has been blocked off so no water comes to South Australia

Water allocations

72. Crux is over water allocation needs to be addressed by Government
73. Improve the situation. States have got to work together to solve the problem
74. Need more water bought up to get more water coming through
75. Need to provide information of where the water is going to come from, other states need to be involved to help solve the problem
76. Serious matter to be resolved, need to liaise with other states

77. State government needs to be involved with the federal government strongly insists on increasing water flow. There has been assured misuse of water licences along the Murray Darling basin. Cannot believe what's happening along the Murray
78. States need to talk about Murray Darling Basin as a whole. Continue dialogue for the common good and in the meantime ensure there is no more environmental impact
79. The government should take Melbourne to court to get the water
80. Unless there is water coming across the border it is useless dealing with Gov is futile/not long term development just for election

Management- Departmental level

81. Too many people involved and not doing enough for the project. Vic is taking the water from SA. Dreadful for the lower lake communities
82. Stop spending 15 million on pumping water and less chiefs and more Indians and conserve water more and I want more statistics published and don't turn it into an environmental nightmare
83. I should encourage that the government do it correctly. Be more transparent and open to people who live in the area. Thinks that it is already a forgone conclusion. Simple things first open the mouth of the river
84. We hear about what the state & federal governments want to do but we don't know if the Government are as well informed as they should be that is they are blocking off rivers & meddling with nature

Comments about the plan

85. Broad range of input is on the right track - listen to the scientists
86. Disappointed about the meeting attended. Feels the long-term plan is looking at it in an appropriate way. The action should from the whole nation and not just in SA
87. Don't hear enough of what plans are
88. Don't know what to believe
89. Government should address the fact that the general public really don't think that the government has a long term plan
90. Hasn't heard anything about a long-term plan. Listen to the aboriginals who have memorials about how the river has been in the past, and get ideas from
91. I cannot work out what they are doing. Seems unrealistic. Thinking it may be disastrous and cost millions of dollars
92. Like to know how they will go about it
93. Management wants revising, more practical plan be implemented with more local input. Rann should be sacked
94. More details of what is happening
95. More knowledge to come out before we commit ourselves to anything
96. MORE RESEARCH IS NEEDED to save the Murray in South Australia
97. Stop thinking about your pay cheque and think about the future of the community
98. They intend to push things off to people that don't know about the project and not to the people that should be working with the people in the area
99. Too short a notice for meetings about the plan

The timing of a response

The need urgent action

100. A lot of talk and not enough action, get on with fixing the problems
101. Be restored as soon as possible
102. Better do it quick
103. Concern about the timeline - will they leave it to late?
104. Concerned about the pace things are being done, feels it is too slow
105. Coorong is dying
106. Do something about it
107. Do something now
108. Do something soon
109. Do something to keep what we have in the area so its not damaged
110. Do what they say they are going to do/just not talking about
111. Forget long term and do something now
112. Get act together and not delay doing something about it
113. Get off backsides and really do something about it , otherwise the lakes will be left empty just mud
114. Get on with it
115. Get on with it and no more talk
116. Get on with it and stop talking about it
117. Get on with it start now and don't make promises you can keep. Lady goes to work at 5am in the morning only to see park sprinklers and golf courses sprinklers on full bore yet unable to do so at home. Why are they are wasting our water?
118. Get on with it. More action and less words
119. Got to be implemented as soon as possible
120. Has become a sceptic and thinks the government is not acting fast enough on the situation
121. Hope it works cause haven't seen anything good happening at moment and less talk, more action
122. Hopefully its not late
123. Hurry up
124. Hurry up and do something about it
125. Hurry up and get on with it before it dies
126. Hurry up and save the Murray for our children and the future
127. Hurry up before its too late
128. Hurry up before its too late!
129. Hurry up, the severity of the problems is rapidly getting worse
130. Just seems to be a heck of talk and no action. the action that has been done id not what the locals want / Government don't seem to be listening/spending lots of money for no results/a united front is needed for the good of everyone
131. Know what they mean by long term, it seems to be taking forever for anything to happen
132. Less talk and more action needed
133. Long term ok but do something now
134. Long term plan is worthless and the Coorong is dying now
135. Lot of talk and not much action. We have interfered with
136. Much too little too late
137. Need to get things done, without hold ups, as needs to be done before it is too late
138. Need to take action, not just talk about it
139. Needs to be acted on ASAP
140. Needs to happen now
141. Not doing it fast enough, much talk and less action
142. Not happy with the current situation, the g/ment should talk less and take more action now
143. Plans are all very well - concerned may be much talk and not much action
144. Please begin to do something, should have happened in 1994, less talk and more action

145. Put the plans into action sooner than later. We have no mains water so we are careful because we only have rainwater people on mains need to understand not to waste their water
146. Short plan should be the long term. People making noise about water most driven by own needs. Insufficient fresh water
147. Should be sooner rather than later
148. Should have been started 20 yrs ago/ too late
149. Should not just be long term plan, need quick action now
150. Situation needs prompt action, keep pressure on federal government to intervene with eastern states.
151. Sooner a plan rather than later. 4 years ago where we feed the ducks in the water is now only sand
152. Speed it up
153. Start doing something about it
154. Take the action and actually do something
155. Taking too long and Mike Rann is only doing this for votes
156. Taking too long to do anything
157. The government to act as quickly as possible
158. The long term is to long need action sooner rather than later
159. The plan is 30 years too late and the Murray system should be taken out of the hands of the state government into federal government
160. The plan to take effect sooner rather than later. NSW, Queensland are harvesting far to much water.
161. The sooner the better they act less talk have some action soon
162. They just come down look and go away they are taking too much time to do anything
163. They need to do something quick before it gets absolutely wrecked
164. They need to hurry up with the project as it is already in a mess
165. Too little too late
166. Urgent action needed now
167. Urgent letting the lower lake dies is disastrous eventually will die
168. We want a fairly quick and short tem solution to get water down/emergency supply as well as a long term solution/long term solutions will be too late
169. What is being done right now and what time frames are they looking at?
170. Wish for a short term plan
171. Wish it wasn't long term needs to be helped
172. Wish that it (help) would hurry up
173. Would like it to be a short term plan to start now. Need to deal with upper river areas and stop some of the water removed i.e. interstate allocations

Current Management Actions

Weirs

174. Agree with Wellington Weir
175. Lower end of lakes, weirs stuffing up especially at Wellington
176. Not consulting the public much and are against the Wellington weir
177. Shouldn't build a weir near Wellington stop with other building regulators
178. Disagree with weir to be built.

Barrages

179. Don't know whether barrage is a good thing or a bad thing
180. Don't think the barrage is not needed anymore/weir
181. Barrages should be dismantled everywhere. Fresh water should be flowing in from the Eastern end of the Coorong instead of going out to sea
182. Let barrages down
183. Let the water through the barrages

Other engineering interventions

184. Get rid of the locks up stream - let the water flow down, it is one river in one country

A more natural approach

185. The natural thing is happening is nothing to do with the climate change etc etc. What will happen will happen and let nature take its course
186. Don't like the government interfering and let mother nature take over
187. I would like nature to take its course. Sometimes it is not how nature intended
188. Important to keep the Murray as natural as possible and do not tamper with it at all
189. Just want things left as they are/its just a cycle
190. Lakes opened up for the birds, animals and fish to be the way nature intended
191. Learn to work with natural environment
192. Let nature take its course
193. Let the river run, its natural course as naturally as possible. Reduce amount of water that is being diverted from the whole system
194. All this state Government is doing is wasting time and money as this is urgent and what they are doing now is not right. It should be left open. Leave things alone. Let nature

Freshwater options

195. Fresh water to make sure the lakes survive
196. Hope that we can try and keep the water fresh and clean
197. Must look at the long term plan/ there is not enough water
198. Unless it rains and get water from up stream and the lochs stop the water coming down to where it is required
199. We should be looking at the fresh water solution. Not looking at the drought only. Too much water out of the river. I won't be voting for the state and federal Government as they haven't done anything for the river
200. Wonder where they are going to get the fresh water into the river

Seawater options

Opposed / concerned

201. Leave lower lakes alone don't flush them with salt water, let nature take its course
202. I do not think they should build the weir or let salt water into the lakes and try and get more fresh water by buying back irrigation licences
203. Disaster - building barriers for freshwater and salt-water
204. Eliminate the weirs and don't let salt water in. Compulsory acquisition of water licences interstate. END OF FEDERAL GOVERNMENT 7 STATE PROCRASTINATION

Supportive

205. Build the weir at Wellington and flood the lakes with seawater. Businesses are already destroyed. The plan needs to be sooner than later. Saltwater should be pumped into Lake Albert
206. Goolwa end used to be salt water, Pump sea water in
207. Let salt water back in
208. Let seawater come in if that's what has to happen
209. My concerns are the rising sea levels will push into the Lower lakes and the Coorong. Must be channelled back into the Lower Coorong. Also my point of view the ocean should be let into the lower lakes for sustainability e.g. fish
210. Plan to happen now and let salt water in and agree with weir
211. Salinity in south basin of Coorong is not connected to water coming down from the Murray/ allowing seawater in lower lakes should be a higher priority option
212. Salt water is better than any water. Opening the plugs will solve the problem at any cost due to the tidal movements. Cost of the dredging will be reduced
213. Should let sea water in to help dilute the salt level in the Coorong

- 214. The argument is if we open it to sea water or not and it is half and half in opinion. They need to.
- 215. Would like to hear more views on sea water at Wellington

Lower Lakes region

- 216. I just want to see water in the lower lakes
- 217. Keep Wellington jetty
- 218. Making the waterways better for boating. Lot of work on the lakes
- 219. Southerly end of lakes needs addressing badly

Involving the (local) Community

- 220. The people who really know what they are doing and take their comments into account
- 221. The state government has to look at local people as well as their own. Largely forgotten in what is going on
- 222. Seek advice from long term residents who know the best outcomes for the area who would be able to advise better than any expert sitting in an office suggesting what to do, and then of course get on with the job of fixing the problem
- 223. If Lake Albert dries up will effect rainfall. Like to see Government Dept and authorities taking more notice of local residents are suggesting
- 224. Just hope doing the right for local people
- 225. Don't think the government really listens to the people. The moves that they are making are more negative than positive. Think the gov will let it go. It seems to me that it is a 10year +plan e.g. sacrificial lamb
- 226. Not listening enough to the people and all state governments should work together for long term survival
- 227. For the Government to listen to the people for a change
- 228. I think there are too many opinions and the lay person has to rely on those opinions and you get to the point as to not knowing what the truth is
- 229. Student forums and public awareness - literature - pamphlets
- 230. Aboriginals need more input, they thought lock was unnecessary and by fixing one area isn't a good solution as its taking water from Lake Alexandrina -isn't balanced

General comments

- 231. Be a shame for everyone if it was no longer there
- 232. I know the river is dying. The banks are falling into the river. I am going to leave. I do not like it here anymore. The Governments have done nothing
- 233. Need to try to save it
- 234. Would be very concerned with damage to the natural environment

Miscellaneous comments

- 235. Have not lived here for all that long but know all of the problems that the area is facing, main
- 236. I am the chairman of the UKKE BOAT CLUB & we're trying to rehabilitate a the UKKE wetland
- 237. Save the turtles

Appendix 3: Location of Respondents

Metro Respondents

Respondents for the Metro sample were selected from suburbs within a 40km radius of the Adelaide CBD. Respondents came from a range of suburbs covering the eastern, southern, northern and western districts.

Additionally respondents who lived in a regional postcode (refer to Table 2) but indicated did not live, work or own property in the Coorong, Lower Lakes region; or use the river recreationally, were reassigned to the Metro sample. Some of these respondents came from towns in the Fleurieu Peninsula like Mount Compass, Mount Barker, Victor Harbour, Port Elliot and Middleton. Some of these respondents came towns in the Lower Murray & Lakes District like Murray Bridge, Strathalbyn, Tailem Bend.

Table 18: Metro respondents by region

	Sample size	Sample %
Fleurieu Peninsula *	67	44
Lower Murray & Lakes District ~	21	14
Eastern suburbs	19	12
Southern suburbs	17	11
Northern suburbs	16	10
Western suburbs	12	8
Adelaide	1	1
Total	153	100

* Included respondents from Mount Compass, Mount Barker, Victor Harbour, Encounter Bay, Port Elliot, Middleton, Hayborough, McCracken and Inman Valley

~ Included respondents from Murray Bridge, Strathalbyn, Tailem Bend & Langhorne Creek

42% of the metro respondents came from suburbs surrounding Adelaide, with the eastern, southern and northern suburbs represented equally. 44% of the metro respondents came from the Fleurieu Peninsula and 14% from Murray districts (upper regions).

Regional Respondents

Table 19: Regional respondents by postcode

Postcode	Towns included	Sample size	Sample %
5211	Around Victor Harbor, Inman Valley, Waitpinga, Willow Creek	50	20
5253	Around Murray Bridge, Ettrick, Greenbanks	48	19
5214	Goolwa, Hindmarsh & Mundoo Islands, Currency Ck, Mosquito Hill	44	18
5255	Langhorne Creek, Finniss, Strathalbyn, Mt Observation, Nalpa	32	13
5251	Mount Barker, Bugle Ranges, Wistow	17	7
5256	Milang, Clayton Bay, Nurragi, Pt Sturt, Tolderol	10	4
5212	Port Elliot	9	4
5210	Mt Magnificent, Mt Compass, Nangkita	7	3
5260	Tailem Bend, Elwomple	7	3
5213	Middleton	6	2
5259	Narrung, Poltalloch, Wellington, Raukkan, Tailem Bend, Pt McLeay	6	2
5264	Meningie, Coorong, Policeman's Point, Salt Creek, Waltowa	6	2
5261	Cooke Plains, Coomandook, Yumali, Culburra, Ki Ki	4	2
5266	Bunbury, Colebatch, Deepwater, Tintinara	3	1
5301	Moorlands, Peake, Netherton, Wilkawatt, Carcuma	2	1
5254	Murray Bridge, Monteith, Manarto, Callington, Petwood	1	0
5265	Coonalpyn, Field	0	0
Total		252	100

Respondents included in the regional sample came from a range of locations across the Coorong, Lower Lakes region.

Appendix 4: Questionnaire

Question # 1 Page # 1

Good afternoon/evening, my name is from the University of South Australia. We are conducting research on the State Government's plan to address environmental problems in the Coorong & Lower Lakes. The survey will take less than 10 minutes and your answers will remain confidential.

We want to talk to people who live in South Australia and are over 18.

We would really appreciate your input.

(Reassure they don't need to be knowledgeable about the issue or have any special expertise to be able to participate, but that community input is vital to ensure the best possible plan for the region is developed and the plan reflects the values which are important to the community).

Firstly, I just need to check that you don't work for a government department or water authority responsible for managing the River Murray.

Is it a convenient time to conduct the interview?

Question # 2 Page # 2

Regional respondents only

Firstly, we would like to know a little bit about you. Do you.....

PROMPTED, Multiple response

- 1 Live in the Coorong, Lower Lakes, Murray Mouth region
- 2 Own a farm, property or vineyard in the region
- 3 Own or work for a business in the region
- 4 Use the river for recreational activities like boating, fish
- 5 None of these (DON'T READ)
- 6 Refused (DON'T READ)

Question # 3 Page # 3

Ask all

Have you heard about the long-term plan being developed for the Coorong, Lower Lakes & Murray Mouth region by the South Australian Government?

This is a written plan called either 'Directions for a Healthy Future' or 'Managing for a Healthy Future'. Please make sure they are not just talking about planning in the sense of public comments or policies about the area.

- 1 Yes, heard of plan
- 2 No
- 3 Don't know
- 4 Refused

Question # 4 Page # 4

Ask all

Now, I would like to tell you a little about what is being done and then ask you some questions.

The State Government is developing a long-term plan to address the environmental problems that the region is facing. How much do you think a long-term plan for the Coorong, Lower Lakes region is needed?

I would like you to tell me on a scale of 0 to 10 where '0' is 'not at all needed' and '10' is 'absolutely essential'. You can also use any number in between.

So your rating of how much you think a plan is needed would be..

Question # 5 Page # 5

For low ratings only

And why don't you think a plan is needed?

Interviewer to categorise comment, Multiple response

- 1 Plans don't achieve anything
- 2 Should get on with fixing

- 3 I'm tired of all the planning
- 4 Problems are too bad/significant to fix
- 5 Too late to fix
- 6 Need to get water upstream / allocations / NSW & VIC
- 7 Don't know/ refused
- 8 Other «»

Question # 6 Page # 6

Ask all

The long-term plan aims to secure a future for the Coorong, Lower Lakes and Murray Mouth as a 'healthy, productive and resilient wetland of international importance.'

How supportive are you of this goal?

I would like you to tell me on a scale of 0 to 10 where '0' is 'not at all supportive' and '10' is 'totally supportive'. You can also use any number in between.

So your level of support would be?

Question # 7 Page # 7

Ask all

The State Government thinks that addressing the environmental issues will support the local economy and communities.

Do you agree that the primary focus (of the plan) should be on ensuring a healthy environment in the region?

- 1 Yes- agree primary focus should be environment
- 2 No - disagree with enviro being primary focus
- 3 Don't Know
- 4 Refused

Question # 8 Page # 8

If disagree with primary focus of plan being the enviro.

What do you think the primary focus of the long-term plan should be then?

Question # 9 Page # 9

Ask all

The Government wants to make sure that the long-term plan reflects what the community values about the Coorong and Lower Lakes region.

What do you personally value about the region? 84

UNPROMPTED, multiple response

- 1 Environment
- 2 Wetlands (Ramsar listed)
- 3 Ecology & biodiversity/ wildlife/ flora & fauna
- 4 Natural beauty
- 5 Icon site
- 6 Recreational activities- boating, walking, fishing etc
- 7 Indigenous heritage & cultural significance
- 8 Water for industry/ agriculture
- 9 Local communities the river supports
- 10 Don't Know / Refused
- 11 Other «»

Question # 10 Page # 10

Ask all

I would like to read you a list of things that are valued about the Coorong & Lower Lakes region. I would like you to tell me which, if any, of these you value about the region. You may have just mentioned some of them.

PROMPTED, Multiple Response

- 1 the environment
- 2 the wetlands, recognised internationally for their importance
- 3 the unique ecology and biodiversity of the region
- 4 the natural beauty of the region
- 5 the opportunity the location affords for recreational activities
- 6 the rich Indigenous heritage and its cultural significance
- 7 the water it provides for industry
- 8 the environment supports the local communities and economy
- 9 none of these (DON'T READ)
- 10 Don't know (DON'T READ)
- 11 Refused

Question # 11 Page # 11

Ask all

In developing the plan, the Government needs to identify what the environmental problems are in the region. The problems which have been identified so far are:

- reduced freshwater into the Coorong and Lower Lakes,
- acid sulfate soils,
- salinity,
- biodiversity loss,
- sea-level rise and
- the impacts these problems might have on the local community and economy.

Do you agree these are the problems that need to be addressed as priorities?

We want to know the list of identified problems is complete or if people think some problems have been left out. We follow these up on the next page.

Single response, UNPROMPTED

- 1 Yes it covers everything
- 2 Yes these are the problems, but some are missing
- 3 No I disagree that these are the (priority) problems
- 4 I don't know enough about the environmental problems to say
- 5 Refused
- 6 Other «»

Question # 12 Page # 12

If think some problems are missing

What environment problem do you think hasn't been considered?

Interviewer to write comment

(if they need re-prompting on current problems)

The problems currently identified in the plan are:

- reduced freshwater into the Coorong and Lower Lakes,
- acid sulfate soils,
- salinity,

- biodiversity loss,
- sea-level rise and
- the impacts these problems might have on the local community and economy.

Question # 13 Page # 13

If disagree that these are the problems

Could you please tell me briefly why you disagree that these are the environmental problems which need to be addressed as priority?

Interviewer to write comment

Question # 14 Page # 14

I'd now like to tell you about the approach the State Government is taking to deal with the problems. Six overarching objectives are proposed to guide actions to deal with the problems the region faces in the future.

The objectives (or 'core elements' as they are known in the plan) are:

1. Providing fresh water to the Lower Lakes and Coorong
2. Keeping the Murray Mouth open and the Coorong, River Murray and Lower Lakes connected to the sea
3. Maintaining a wetland system that is connected and supported by a healthy environment
4. Managing localised threats, especially acidification
5. Providing a responsible management approach based on research, monitoring and community involvement
6. Engagement with the traditional owners - the Ngarrindjeri (nar- ran- gerri) People.

How much do you agree with this approach of having six key objectives to guide future action? I would like you to tell me on a scale of 0 to 10 where '0' is 'strongly disagree' and '10' is 'strongly agree'.

So your level of agreement would be?

Question # 15 Page # 15

Ask all

Have you heard about any of the opportunities for the public to have input into the long-term plan for the Coorong & Lower Lakes?

- 1 Yes
- 2 No
- 3 Don't know
- 4 Refused

Question # 16 Page # 16

For those who said yes

Which activities have you heard about?

UNPrompted, Multiple response

- 1 Community events/ meetings/ presentations
- 2 Send in feedback/ written submission
- 3 Displays at local library/ shops/ hotel
- 4 Listening posts
- 5 Online survey
- 6 AdelaideNow website
- 7 Talkback radio
- 8 Don't know/ refused
- 9 Other «»

Question # 17 Page # 17

For those who had heard

Have you participated in any of those activities?

UNPrompted, Multiple response

- 1 No
- 2 Event/ meeting/ presentation
- 3 Sent or emailed written feedback
- 4 Visited a display
- 5 Visited a listening post
- 6 Online survey
- 7 Commented on the AdelaideNow website
- 8 Talkback radio
- 9 Don't know/ refused
- 10 Other «»

Question # 18 Page # 18

Ask all

Do you think there have been enough opportunities for the public to have input into the long term plan for the Coorong and Lower lakes?

- 1 Yes
- 2 No
- 3 Don't know
- 4 Refused

Question # 19 Page # 19

Regional respondents only

The Government recognises that community involvement is important in addressing the problems facing the region, and will be seeking the community's help to implement projects.

Are you interested in being involved in the future implementation of the projects?

- 1 Yes
- 2 No
- 3 It depends on the project
- 4 Don't know/ refused

Question # 20 Page # 20

Ask all

We are interested in which government departments you see as being responsible for managing the Coorong and Lower Lakes.

Which, if any government departments, are you aware of being responsible for managing the Coorong and Lower Lakes.

UNPrompted, multiple response87

- 1 None
- 2 State government generally (inc Karlene Maywald, Jay Weatherill)
- 3 Federal government generally (inc Penny Wong)
- 4 DEH - Department for Environment & Heritage
- 5 Dept. of the Premier & Cabinet
- 6 Dept. of Water, Land & Biodiversity Conservation (DWLBC)

- 7 EPA - Environmental Protection Authority
- 8 Murray Darling Basin NRM Board
- 9 Office for Water Security
- 10 PIRSA - Dept. Primary Industries & Resources
- 11 Rural Solutions
- 12 SA Water
- 13 Refused
- 14 Other (can also record projects here) «»

Question # 21 Page # 21

Ask all

Are there any comments you would like to make about the long term plan being developed by the state government for the region?

Brief comments related to the future management of the Murray River

If they would like to make a longer comment, or find out more information about the plan they can go to:

Visit www.murrayfutures.sa.gov.au

Email cllmm@deh.sa.gov.au

Call 1800 226 709

If they are interested in staying informed they can sign up to receive regular updates on the project by going to the website.

Question # 22 Page # 22

Ask all

Thank you for taking the time to participate in this research - the information you've given me is very useful and I appreciate the time you have taken to talk to me.

If you have any questions about this research, you can contact Katherine Anderson on our toll-free number, 1800 801 857.

Appendix 11

Summary Table (1800, Emails, Web)

Number of phone calls Lower Lakes to 1800 hotline	11
Number of emails to cllmm@deh.sa.gov.au from unique individuals	61
Number of feedback comments on the CLLMM website	30
Number of submissions received by email	46
Number of submissions received by letter	12
Total number of submissions received	88
Number of unique visitors to the CLLMM website	1185
Number of visits to the CLLMM website	2032
Number of page views on the CLLMM website	6322

Appendix 12

Written Comments, Online Feedback Form, Template – Summaries

Identifier No	Comment
MHF0001	This submissions consists of a covering letter (2pp), a Proposal for the Production of Desalted Seawater for Lakes Alexandrina and Albert (4pp) Appendices (8pp) containing tables, graphs, a photograph, a map and explanatory text. The submission provides some additional information to that submitted for the Directions consultation round. That submission was based on the production of 200GLpa of desalted sea water for the Lower Lakes. Findings from the recently released CLLAMM study indicated 300GLpa are required. The submission 'scales up' the previous proposal to meet the 300GLpa requirement. This is a detailed submission. It requires consideration by technical experts. A proposal for testing to develop a plant to provide 300GL pa of desalted sea water to Lake Albert with over-flow to Lake Alexandrina. The proposal could lead to a solution to Lower Lakes within 3 years. The proposal will lead to the production and sale of soda ash and lime as economic by products, and relies on scaling up technology developed in SA and in use in Victoria. The submission indicates an employment outcome for the region of 600 jobs.
MHF0002	Failure to demonstrate listening and incorporation of local knowledge. Meetings but no feedback. Discuss ideas with people who provide them. CLLMM suffering due to past actions and current spin.
MHF0002	Managing doc - development of definitions. Define: end of system flow. Is it MM or barrage outflow to Coorong? Define climate scenario. Is it referenced to current drought period? (This appears to be rectified in printed version as footnote p9). MS refers to p21 Appendix 5. 'Evaporative loss' I can't find evaporative loss - but MS suggests that a clear definition of it needs to be developed.
MHF0002	MS written comment includes additions to text in red. There are 4 instances. These occur on pp 1 & 2. Suggested text addition for second to last paragraph (See MS p1.1). See p6 last box, middle column, for additional text
MHF0002	Note MS page references refer to an earlier version of Managing doc p7 Goolwa channel: indicates that fresh water refuges exist. Protests size Clayton Reg.p13 suggests regulator at Laffins and control of acid sands with sea water.p23? Goolwa Channel regulators MS believes cheaper and better options available. Belief that there is ecological cost of salinity 'shock'. Is the Clayton Regulator for 2 or 5 years max? MS suggests an additional category of management actions for Goolwa Channel (E) as it is a discrete area with different problems.
MHF0002	Should GL be expressed as GI. Preference for graphs rather than tables.

Identifier No	Comment
MHF0003	<p>This submission promotes one-off engineering projects that eliminate the need for temporary solutions responding to crisis situations. Encourages the introduction of salt-water into the lower lakes and their tributaries. To counter hyper-salinity, suggests a system of unpowered, ocean water injections into the South Lagoon and the Coorong and the top of Lake Albert (simulating West Lakes), thus eliminating the need to dredge. A permanent lock (allowing for the passage of river craft) should be constructed close to the river's mouth thereby preventing salt-water from entering the Murray. A minimum, yearly 'pulse flow' should flow the full length of the Murray River to simulate 'pre-lock' conditions as much as possible, while some water from the south east drainage system should be diverted to the south lagoon whenever rainfall permits</p>
MHF0004	<p>This submission suggests delaying the implementation of the plan for five months to allow for the possible resolution of uncertainties over the summer months.</p>
MHF0005	<p>This submission comprises a written component and a diagram. Two core themes can be extracted. The first revolves around the development of the local tourist industry via improved access, an upgrade of Meningie beach and the promotion of various leisure activities (bird watching, walking, fishing, boat tours, international events, tourist interpretive centres in Meningie, Raukkan and Salt Creek etc). The second reflects general support for the fresh-water solution. Perceived advantages of this solution include maintenance of conditions necessary to support native plant and animal species and reduced water use. Notes that the fresh-water solution must be self-funding via either business/industry or national/international events.</p>
MHF0006	<p>This submission, made by a fifth generation farmer on the shores of the Coorong and Lake Albert, comprises an alternative management plan for the Lower Lakes and Coorong. It commences with an historical overview of the Lakes' pre and post-settlement salinity levels, concluding that intermittent periods of saltwater have not and will not cause irreversible damage or change to the Lakes. The alternative management plan is therefore based on a saltwater solution. More specifically, it proposes the introduction of seawater into the Lakes when flow from the Murray falls below 800 gegalitres. The seawater would be introduced via a circulating system, thereby avoiding evaporation and hyper-salinity. The success of this system would depend upon the construction of a permanent weir and lock system.</p> <p>It is submitted that: climate-induced reduction of inflows into the Murray-Darling system; increased population; the failure of buy-back schemes to counter water-loss from the Lakes; and evaporation off the Lakes grossly exceeding flow into them, justify the introduction of seawater.</p> <p>The submission expressly opposes drying up Lake Albert, noting that the proposal by SA Water to pump 2 gegalitres a day from the Coorong into Lake Albert would, factoring in rainfall and evaporation, create an annual increase of salinity of 1.2, not double as suggested. It is also suggested that pumping 50 megalitres a day from Lake Alexandrina into Lake Albert would have a number of beneficial effects, including reduced salinity and the creation of a fresh water refuge. It is asserted that pumping water from the Coorong into Lake Albert would not "sand up" the mouth of the Murray River.</p> <p>The submission also notes that bio-remediation, being unprecedented on this scale, is likely to fail. The consequences of such a failure would be serious and widespread.</p>

Identifier No	Comment
MHF0007	Move Mundoo boat ramp and carpark.
MHF0008	Construct channel opposite Fat Cattle Point to Young husband Peninsular into the Coorong to allow oxygenated seawater in via fluctuating tidal and wind levels. Move Mundoo boat ramp and car park.
MHF0009	Government's solution depends on increase in rainfall which is not likely to happen. Contains technical information regarding water level required to keep Murray mouth open. States width of mouth is one fifth of that in 1929. Describes vigorous flows that would have moved through the Lakes and into the mouth at that time. Notes that even in the event of generous rainfall, it is highly unlikely that these flows will occur again.
MHF0009	Fresh water status brief artificial construct. Should not be wasting precious freshwater by pumping it into the Lakes. Salt does not = death for the Lakes. Need to avoid salt pans by keeping water moving via engineering solution – controllable gates to flush Lakes with salt water- construct barrage at southern end of River Murray – also to keep salt going upstream. Gives examples of where this has been done. Details infrastructure to keep water flowing in and out of Lakes.
MHF0009	Lakes need to be estuarine to avoid acid-sulphate build-up. Under threat from acid, algal blooms. Algal blooms create sludge that include sulphates. Does not agree exposing ASS to air creates sulphuric acid that will destroy the environment forever. Thinks source is finite – once sludge is dispersed more than likely the problem will not reoccur if causative conditions do not reoccur. Need to make LL a flowing water body to avoid stagnant pools which are source of problem.
MHF0009	Proposes covering a small surface of the lake with a (renewable energy) wind turbine/generator/desalination plant. Purpose would be to generate green energy/produce freshwater/pump water through the mouth to avoid sediment build up which will result from barrages controlling tides. As population grows more such plants can be added as the population grows. Could also be constructed in Gulfs St Vincent and Spencer b/c of high wind levels.
MHF0009	Proposes developing a pump system powered by renewable energy i.e. wind turbine for lifting water from Coorong into Lake Alexandrina.. Proposes building a channel connecting Lake Albert to the Coorong to allow discharge of saline contents of Lake Albert into the Coorong. Discusses cycling of water under this system. Could redesign the barrages at Goolwa to allow the gates to open in accordance with the tides thereby scouring out the channel and keeping the mouth patent. Alternate discharge from Lake Albert timed to coincide with low tide, will help scour the Northern Coorong and keep the Eastern approach to the Murray clear. Outlines advantages of this system for environment, bird and fish life etc.
MHF0009	SE Coorong: Diversion of surface freshwater into drainage channels and out to sea is cause of decreased inflows. Engineering infrastructure could be used to channel this freshwater back into the Coorong. This would also reinvigorate the band parallel to the Coorong, secure agriculture along this band with use of ground water recharge during times of high flows and drawing during dry times, This requires serious investigation. The Middle Coorong: Because of narrows need to do something that directly benefits southern section. Add fresh water from SE drainage scheme to salt water to maintain ideal level of salinity but do not make it fresh water.

Identifier No	Comment
MHF0009	Considers weir at Pomanda ineffective; can't rely on pool between weir and Lock 1 because of salt in the water table (provides technical detail). Suggests building a new, effective reservoir in the region. Details – construct a dam across the low line of the Lower Lakes where Bremer River passes towards Langhorne Creek, near Harrogate. Details advantages of location, suggests better alternative than Port Stanvac as could produce water that could be shifted from urban through to agricultural use. Alternative would be driven by renewable energy. Considers this a viable, long-term solution
MHF0009	Rehabilitating ecology of lower lakes - if LL becomes estuarine, how to manage ecology? Remove accumulated clays, revegetation coastal strip (suggestions for type of vegetation to be used are included) which will improve turgidity of lake so sunlight can penetrate, causing revegetation of lake bed. Also suggests using bird waste that accumulates on nesting islands for use as agricultural fertilizer - this is self-renewing.
MHF0009	Diverting water to save LL is ridiculous - water will be lost due to evaporation. Re scheme to pipe water to irrigators along North Shore of Lake Alex - wont work for two reasons: 1) cannot guarantee availability of suitable water due to rising salinity and declining flows 2) Pond at proposed weir is too small to meet demand of both irrigators and urban water users in Adelaide. Also, b/c of hydrodynamics of area, water level must be maintained as water flows through ground with salty water table. If water level drops, water table water which is much saltier than sea water will take its place rendering the water unsuitable for either human or agricultural use. Suggests building reservoir - see below.
MHF0010	Two past engineering mistakes. First mistake: construction of the barrage to make the Lakes freshwater which resulted in loss of water through evaporation 100 times greater than in the river itself. Second mistake: placing the pumping station for Adelaide's water supply at Mannum thus relying on the barrages stopping saltwater extending to the pumps. Both mistakes exacerbated by over-allocation of irrigation licenses and drought. Buying back licenses will not work as much rain in the catchment falls in farm dams. Solution is to open the barrages and prevent salt water up to Mannum and use 50GL of freshwater flow if acquired.
MHF0011	Believes it is erroneous to say that water management is driven by climate; in fact, it is driven by extraction. Should replace climate scenarios with his suggestions.
MHF0012	Not Supported - A3, A4, A5, A6, A7, A8, A10, A11, A12, B2, B6, B11, C5, C10, D3, D4, D45, D6
MHF0012	Supported - A1, A2, A9, B1, B3, B4, B5, B7, B8, B9, B10, B12, C1, C2, C3, C4, C6, C7, C8, C9, D1, D2, D5
MHF0012	Capacity building and education are not included in MAs, impossible to meet goals without them. Most important aspect, should receive most funding. Funding needed for (preferred to 'easy' engineering solutions): research into human behaviour to understand why we don't treat the river holistically; Educating Australians re: importance of health of the River and its importance for their mental health and prosperity. Supports engagement of traditional owners, supports 'A responsive management approach, based on robust research, adequate monitoring and extensive community involvement' Need to prioritise rehabilitation of river.

Identifier No	Comment
MHF0013	Considers status as Ramsar wetland is questionable. Also questions the freshwater status of the Lakes and Coorong. Artificial structures responsible for the separation of sea and freshwater, normally estuarine. Construction of barrages contributed to silting at Murray mouth. Why are there no River Gums ringing the Lakes? Because represents geographical limits of freshwater riparian ecosystems. Could the University of Adelaide do modelling on construction work, silt at the mouth, the venturi effect on water interchanges in the Coorong and Lakes? From this could get a picture of estuarine system.
MHF0014	Asks series of questions. (1) Where is complete documentation re: surface water and ground water for this area? (2) Where is freshwater for stock and domestic use for Hindmarsh Island? (3) Islands subsiding in Lakes. What will happen if/when sea level rises above level of barrages? How does Goolwa manage with low lying areas? (4) Management for Ramsar area should include Sir Richard Peninsular. Dredging of mouth and sand dispersal must be monitored closely so that the mud flats impacted upon for habitat feeding of migratory birds. (5) Regulators will damage natural flows, may result in algae blooms.
MHF0015	Spragg Waterbag is a new water supply technology with potential to contribute to environmental flows for the Coorong and Murray mouth. Involves dragging freshwater through ocean in a train of large fabric bags. Cheaper, more environmentally sound. Cites magazines in which it is referred to. Options: water provided from Tasmania for less than price of tap water (preferred option); use Adelaide waste water that is pumped into Gulf St Vincent (emergency option); supply from QLD (proposed in article in Engineers Australia).
MHF0016	LTP Supported. Supported - PA1, A1, A3, A5, A6, A7, A8, A9, A10, A11, A12, B1, B2, B3, B4, B5, B11, B12, C1, C2, C3, C4, C5, C6, C7, D1, D2, D3, D5, D6, D7
MHF0016	Neutral - A4, B6, B7, B8, B9, B10, C8, C9, D8
MHF0016	Not Supported - C10, D4,
MHF0017	LTP supported. Supported - PA1, A1, A8, A9, A11, A12, B1, B3, B4, B5, B8, C1, C2, D1, D3, D4, D6, D7, D8
MHF0017	Neutral - A3, A7, A10, B2, B6, B9, B10, B11, C3, C4, C5, C6, C7, C10, D2,
MHF0017	Not Supported - A4, A5, A6,
MHF0017	Supports goals of LTP, much needed for people and environment, MM needs to be opened, town would boom from boaters, visitors with water.
MHF0018	LTP supported. Supported - PA1, A1, A7, A8, A9, A10, A11, A12, B1, B3, B4, B6, B9, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C9, D1, D2, D3, D4, D5, D6, D7, D8
MHF0018	Neutral - B5, B7,
MHF0018	Not Supported - A4, A5, A6, B8, C8,
MHF0018	Undecided - B2, C10,
MHF0019	LTP supported. Supports - PA1, A1, A3, A9, A12, B1, B3, B4, B5, B6, B8, B9, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, D1, D2, D3, D4, D5, D6, D7, D8,
MHF0019	Neutral - A10, A11, B2, B7,
MHF0019	Not supported - A4, A5, A6, A7, A8,

Identifier No	Comment
MHF0020	LTP supported. Supports - PA1, A1, A3, A7, A8, A9, A10, A11, A12, B1, B3, B4, B5, B7, B8, B9, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C9, C10, D1, D2, D3, D4, D5, D6, D7, D8
MHF0020	Unsupported - A4, A5, A6, B2, B6, C8
MHF0020	Re. B6 - states unsupported, but in comments section notes only supported if navigation available between the Lakes
MHF0021	Supported - LTP, PA1, A1, A3, A7, A8, A9, A11, A12, B1, B3, B4, B10, B11, C1, C3, C4, C5, C6, C10, D1, D2, D3, D4, D5, D6
MHF0021	Undecided - A10, B5, B6, B7, B8, B9, B12, C2, C7, C8, C9, D7, D8
MHF0021	Not supported - A4, A5, A6, B2
MHF0022	Supported - LTP, A1, A4, A7, A8, A9, B1, C2, C3, C4, C5, C6, C10
MHF0022	Neutral - A3, A5, A6, A11, A12, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11, B12, C1, C7, C8, C9, D1, D2, D3, D4, D5, D6, D7, D8
MHF0022	Undecided - PA1
MHF0022	Must acknowledge that natural flows + ecology of system have been altered since barrages and weirs installed and that moves to preserve the current ecology does not reflect the "natural" pre-European order. Perhaps more realistic to create a new environment that will be more sustainable for future generations.
MHF0023	Supports - LTP, PA1, A8, A9, A12, C2, C3, C4, C5, C10, D2, D3, D6, D8
MHF0023	Neutral - A1, A3, A7, A10, A11, B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11, B12, C1, C6, C7, C8, C9, D1, D4, D5, D7
MHF0023	Not Supported - A4, A5, A6
MHF0024	Supported - LTP, PA1, A1, A8, A9, A10, A11, A12, B1, B4, B5, B10, B11, B12, C1, C2, C3, C4, C5, C6, D1, D2, D3, D4, D5, D6, D7
MHF0024	Undecided - A7, B3, B6, B7, B9, C7, C8, C9, D8
MHF0024	Not supported - A4, A5, A6, B2, B8, C10
MHF0024	Can't see the Murray providing the fresh water needed to maintain the lakes. Best long term option is the Wellington weir and opening of the barrages to flood the lakes with sea water. The Goolwa channel can be maintained as a fresh water area with the inflow from the Finnis and others. The Murray mouth has to be stabilised with a wall and fresh flow introduced to the South Lagoon. This Government has talked, talked and more talked about the Murray. Now stop talking and start acting. No more plans or more options or more investigations. Just do it.
MHF0025	Supports - LTP, PA1, A1, A9, A10, B1, B3, B4, B5, B10, B11, B12, C1, C4, C5, C6, D1, D2, D5, D6, D7
MHF0025	Unsupported - A3, A4, A5, A6, A7, A8, A11, A12, B2, B6, B7, B8, B9, C2, C3, C7, C8, C9, C10, D3, D8
MHF0025	Over-allocated human consumptive extraction from system. Need to wind back over allocation. All other actions costly, ineffective or harmful. Regarding climate scenarios - no connection between them and system outflow because of extraction policies. Supports world peace!
MHF0026	Supports - LTP, A1, A4, A5, A6, A9, A10, A11, B4, B5, C10, D2

Identifier No	Comment
MHF0026	Unsupported - PA1, A3, A7, A8, A12, B1, B2, B3, B6, B7, B8, B9, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C8, C9, D1, D4, D5, D6, D7, D8
MHF0026	Climate scenarios - must preserve freshwater upstream of weir at Wellington (build weir), return lakes to estuarine state. A12 - not supported at this stage, will support after main dredging and cleaning of upper and lower lagoons and Coorong complete. Remaining lake water to be used exclusively for mixing with seawater to make estuarine environment. Bioremediation not supported by science, liming not backed by science, should cover ASS with seawater. Need to act now to stop ASS reaching Encounter Bay Marine Park. Introducing seawater = estuarine fishery, increased tourism.
MHF0027	Supports - LTP, PA1, A1, A3, A4, A5, A6, A7, A8, A9, A12, B3, B4, B7, B8, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C8, C9, D1, D2, D3, D4, D5, D6, D7, D8
MHF0027	Undecided - A11, B2
MHF0027	Neutral - A10, B1, B9
MHF0027	Unsupported - B5, B6, C10
MHF0027	Tourism should be encouraged and controlled so as to not damage environment. Recently been made aware that BHP Billiton and the Olympic Dam Project planning to build a desalination plant and have this water piped under ground for use at the Olympic Dam site, but also for use with the Spencer Gulf region and inland areas there. Touted as taking pressure off the CLLMM as this region draws their water supply from there. Appears we have been in the scenarios of the Dry to Extreme Dry in the previous five years, and are now suffering the worst signs of polluted water not being sufficiently diluted with clear water. This year we have had more rain than for the last 10 years and it would be interesting to know how this has affected the area. It may mean that the amount of good years we would have to have to counter bad years are about equal. Also if the planned desalination plant goes ahead if the pressure on the use of water from the Murray River is relieved somewhat - is it possible to gauge how much effect this will have? Buybacks are a short term solution that is required when the dry state of emergency exists - it is not a long term solution surely. What are the costs associated with buybacks? Transportation costs and what quantity is required to bring about a satisfactory staving off of dire circumstances for the ecosystem? Need to maximise rain collections via tanks etc, control chemicals entering the river via farming.
MHF0028 WEB 1	Supported - goal of LTP, PA1, A1, A2, A4, A5, A9, A11 - B8, B10 - C9, D1 - D8
MHF0028 WEB 1	Undecided - A3, A6, A7, A10, B9, C10
MHF0028 WEB 1	Educate the communities up-stream on the importance of maintaining a healthy MDB system. Encourage participation with communities in the planning process; Increasing diversion of water from the SE is an excellent way to restore water flow to the South Lagoon. Aquifer storage may be another way to help store water to be used in dry periods; Need to ensure that the scheme is supported by the communities up-stream. Encourage participation and education; Construction will cause impacts on the environment. Need to establish an EIA to determine the effectiveness of the channel. Need to look at which species are keystone species for each environment and collect monitoring data on species levels. Support eco-tourism ventures and promote local community efforts.
MHF0029 WEB 2	Supports the median scenario
MHF0029 WEB 2	Supported - LTP, Goal, PA1, A1, A2, A4 - A11, B1, B3, B4, B7 - C1, C3 - C5, C7, C9 - D6, D8
MHF0029 WEB 2	Neutral - A12, B6, C2, C6, C8, D7
MHF0029 WEB 2	Undecided - A3
MHF0029 WEB 2	Not supported - B2, B5

Identifier No	Comment
MHF0030 WEB3	Supported - Goal, PA1, A1, A2, A7, A8, A10 - B4, B6, B8, B10 - C7, C9, D1, D2, D4 - D8
MHF0030 WEB3	Neutral - A5, A6, A9, B7, D3
MHF0030 WEB3	Unsupported - A3, A4, B5, B9, C8, C10
MHF0030 WEB3	PA1 - It is imperative that water allocations to Queensland NSW and Victoria are reduced and environmental flows into the Lower Lakes Goolwa and Coorong increased; A7 - but only until training walls can be built; A9 - This is the only permanent option to allow unrestricted water flows and supply a navigable mouth; General comments - I believe that sea walls/ training walls are the only permanent option for an open Murray Mouth allowing tidal flushes into the Coorong. Water buy backs upstream have to be accelerated to provide more fresh water for the Lower lakes system.
MHF0031 WEB4	Is dry scenario most likely?
MHF0031 WEB4	Supported - goal of LTP, PA1, A1 - A3, A7 - A9, A12, B1, B3, B4, B6 - D8
MHF0031 WEB4	Unsupported - A4 - A6, A10, A11, B2, B5,
MHF0031 WEB4	I am very happy to see the water coming up in the Goolwa channel it will revive tourism and business in the locality there will obviously be winners and losers but it is sensible to restrict evaporation to the minimum surface area i.e. the river. It is sad about the lakes but evaporation must be minimized especially in times of drought.
MHF0032 WEB5	Supported - goal of LTP, A1, A3, A4, A7, A12, B2, B3, B5, B10, B12, C1, C2
MHF0032 WEB5	Neutral - A2, A5, A6, A8, A9, A10, A11, B1, B6, B7, B8, B9
MHF0032 WEB5	PA1 - This is ideal but until the Federal government shows some guts and takes on the Eastern States it is not going to happen. A good example is the pipeline under construction in Vic to extract water savings out of the Goulburn. A4 - Is there an engineering solution to get water from the sea in the southern end of the Coorong thus giving a natural flow through - on a scale larger than west lakes.
MHF0033 WEB6	Supported - goal of LTP, PA1, A1 - A3, A7, A8, A12, B1, B3, B4, B6, B7, B10 - C9, D1, D3 - D8
MHF0033 WEB6	Neutral - A4 - A6, A9 - A11, B2, B5, B8, B9, D2
MHF0033 WEB6	Unsupported - C10
MHF0033 WEB6	PA1 - How we could ever have embarked on growing crops such as cotton and rice in such a dry continent eludes me as does overselling water rights given the cyclical nature of wet and dry periods. A4 - I agree with keeping the Murray Mouth open but dredging is a high maintenance activity with little long term result. Surely a system of breakwaters could be constructed to create a more natural scouring action to keep the mouth open? A6 - I support this only in the absence of any other solution. A7 - I support this only in the absence of any other solution. LTP - This is a unique area in Australia if not the world. It would be so sad to lose it because of our intervention no matter how well intentioned in the past. This opportunity to attempt to rectify and preserve should be embraced with the same determination that introduced the locks and barrage in the first place
MHF0034 WEB7	Supported - goals of LTP, PA1, A1, A2, A5, A7 - A10, A12, B1, B3 - C2
MHF0034 WEB7	Neutral - A4, A6, A11, B2

Identifier No	Comment
MHF0034 WEB7	Undecided - A3
MHF0034 WEB7	PA1 - Not sure as to the viability of buy back we do not receive enough accurate data due to (I believe) vested interests as to the amounts of available water and the sustainability of it.
MHF0035 WEB8	Supported - goals of LTP, PA1, A1, A2, A7 - B1, B3 - B5, C1, C2, C4, C5, C10, D4, D5
MHF0035 WEB8	Neutral - B10 - B10
MHF0035 WEB8	Undecided - A6, B7 - B9, C6 - C9, D1 - D3, D6
MHF0035 WEB8	Unsupported - A3 - A5, B2, B6, C3
MHF0036 WEB9	Supports: Goal, PA1, A1, A2, A8, A9, A12, B1 - B12, C1 - C9, D1 - D3, D5 - D8
MHF0036 WEB9	Not Supported: A4, A5, A6, A10, A11, C10
MHF0036 WEB9	Neutral: A3, A7, D4
MHF0037	Document requires editing re. Difference between "effect and affect". Phrases such as "there is insufficient water to keep the system going" should be replaced by "there is insufficient water for proper ecosystem function." Assumption that current situation is extreme dry and can't get worse, but this isn't necessarily true. Hard to get picture of appreciation of proposed responses under different scenarios. Report needs maps and hydrological, ecological and salinity scenarios outlined. Some research at Southern Cross Uni suggests ASS may be exacerbated by seawater. Also tidal flow of seawater may not be adequate and create hypersaline lagoon/salt pan. Next 50 years should consider new engineering solutions with greater sympathy for biological systems.
MHF0037	Emphasis of document is on environmental impacts, water resources. Socio-economic impacts brief appears to be after-thought despite risks for local industries and communities. SE impacts require greater attention. Recommend engagement of PIRSA staff re clarifying understanding of issues being "addressed by SA Government's drought contingency program", especially those relating to drying of wetlands, riverbank and irrigation bank slumping, disruption of ferries across river, stranding of irrigation infrastructure.
MHF0038	Document needs to broaden context to link in with Murray Darling Basin, MDB Authority, end of river system etc. Document has no status in absence of linkage to Basin Plan. "What is at stake?" section does not highlight importance of area as part of Murray Basin i.e. re. Ecological function. "A regional community and economy" could identify key industries i.e. wine, dairy etc and their contribution to the State's economy. Does not discuss importance of water-allocation planning and co-ordination with other states. Should reference long term decline of LL and C that flow over barrages declined over past 10 years. Supports an adaptive approach with contribution across all levels of Government, industry, scientific and community involvement. "Planning for a worse case scenario" should include a brief description for what temporary weir will achieve as many people do not understand what it should be doing. Supports community engagement including SAFF in further planning and implementation of MAs through consultation, education, capacity building. Recommends that all MA undertaken within monitoring, evaluation and reporting framework to enable adaptive management.
MHF0039	Supports - LTP, PA1, A1, A3, A4, A5, A6, A7, A8, A9, A10, A11, A12, B1, B2, B3, B4, B5, B6, B8, B11, B12, C1, C2, C3, C4, C5, C6, C7, C9, C10, D1, D2, D3, D4, D5, D6, D7, D8

Identifier No	Comment
MHF0039	Neutral - B7, B9, B10, C8
MHF0039	A3/B1 - 12/C1 - 10/D1-8 - for benefit to reach Coorong need plentiful + ongoing supply of fresh water in both Lakes; A4/A5/A6/A7/A8 concurs until sure of annual flow of 1500GL+ into Lower Lakes. Studies suggest breakwaters on both sides of MM extending 500m up to Encounter Bay/Southern Ocean could be good alternative to continued dredging; B6 need lock between Lakes Albert and Alex. Must pursue socio-economic outcomes, significant investment needed in infrastructure for tourism/leisure industries.
MHF0040	Supports -LTP, PA1, A1, A4, A12, B1, B3, B10, B11, B12, C1, C2, C4, C5, C6, D1, D2, D5, D6, D7
MHF0040	Neutral - A6, D3, D8
MHF0040	Undecided - B5, B6, B7, B8, B9, C7, C8, C9
MHF0040	Unsupported - A3, A5, A7, A8, A8, A10, A11, B2, B4, C10, D4
MHF0040	<p>The weir has robbed land holders and communities east of the weir+ Lake Alexandrina of flows of Finniss and Currency Creek which have always flowed into the Lake, not down to Goolwa. The flooding of the Goolwa Channel to pre drought AHD is over kill. Secure fresh water for the region but this means that all Eastern Mt Lofty Ranges water systems are allowed to flow into Lake Alexandrina unimpeded, not what is happening now, i.e. the weir at Clayton Bay stopping all fresh water inflows into the Lake and the Langhorne Creek irrigators milking the Bremer River for all its worth, robbing Lake Alex again. Do not support more physical engineering solutions. Not supporting fish passages at Goolwa while the weir is at Clayton Bay. B4 - Riparian rights must remain with the lakeside property owners as it is with property owners upstream. C2 - management of the Lakes water levels for the irrigators has been a huge factor in the erosion problem of the lake edges for years. Lower water levels would certainly benefit the lake and the wetland health. We have been arguing about this for years. C3 - should include the two irrigation pipelines to Langhorne Creek, not just the 2nd pipe line, this is stealing water from the lake shore land holders again for the benefit of irrigators. 99.9% of lake shore owners have their own rain water systems well established, only relying on lake water to use as grey water. Chlorinated water is not needed for cattle or grey water household use. C4 - We have been revegetation these levels for years, only to see them destroyed by the high water levels maintained for the irrigators upstream of Pt. Sturt.</p> <p>I suggest that if the water ever comes back into the Lake system that the water levels are kept at 0.6AHD or even lower. We have been fencing stock off the lake for many years now at our own expense, does not help lake shore erosion. This was alleviated by putting a barrier of a rock wall about 2 metres from the edge and filling the space with clean backfill. D1 - This is a joke. Both of these rivers have been dammed up for the boaties at Goolwa certainly not for the environment. The environment does not need water at +0.7AHD to help it survive.</p> <p>A4 - If this State Government is remembered for anything, it will be for the mismanagement of the Lower Lakes, the blatant disregard of local input at consultation meetings, the environmental vandalism by the building of the Clayton Bay weir. As this has already been built, any water discharged should only go into Lake Alexandrina.</p>
MHF0041	Supports - LTP, PA1, A1, A7, A8, B5, B8, B12 C1
MHF0041	Neutral - B3
MHF0041	Undecided - A4, A5, A6, A9, A12, B1, B2, B4, B7, B10, B11,
MHF0041	Unsupported - A3, A10, A11, B6, B9, C2. C10

Identifier No	Comment
MHF0041	C10 - how much is 'the minimum amount?' SA wasted lots of time/lack of political will. Applies to relations with COMMONWEALTH and other State Governments. Despite recent rain covering sandbars and islands in Goolwa pool problem is not solved. Should be managed by COMMONWEALTH with strong legislative framework to enforce States' compliance. Flows must be reinstated. If Pomanda Weir constructed - sign of failure by all Governments that will be noted internationally.
MHF0042	Supports - PA1, A1, A10, A12, B1, B4, B5, B10, B12, C1, C3, C4, C6, D3
MHF0042	Neutral - LTP, A4, A5, A6, A9, A11, B3, B8, C2, C9, D2, D5, D7
MHF0042	Unsupported - A3, A7, A8, B2, B6, B7, B9, B11, C5, C7, C8, C10, D1, D4, D6, D8
MHF0042	Tired of plans, strategies etc - how about actually doing something? Need to reduce amount of water dedicated to non-sustainable farming and for towns and cities. PA1 - nationalise water, why 'buy back' something that shouldn't have been taken in the first place? Get flows down the Murray and nature will take care of itself - engineering not the solution. Pumping - blocking of Lake had negative environmental effects. Use native plants for revegetation. Abolish irrigation. ASS - Governments have no clue - if fish and frogs functioning, forget about acid. Totally against minimal seawater as will kill everything in Lower Lakes. Shouldn't extend pipelines to allow irrigators to continue, need to learn to survive on rainfall. Need flow down the tributaries to combat ASS, not regulators.
MHF0043	Supports - PA1, A1, A9, B1, B5, B8, B9, B10, B11, B12, C1, C2, C4, C5, C6, C7, C9, D1, D3, D5, D6, D7, D8
MHF0043	Neutral - LTP, A4, A10, B3, C3, D2
MHF0043	Unsupported - A3, A5, A6, A7, A8, A11, A12, B2, B4, B6, B7, C8, C10, D4
MHF0043	LTP - motherhood statement. Re climate scenarios, no base line comparison against which proposals or modelled outcomes can be validated. Also does not embrace natural extent of flood and drought and impacts re. generating ecosystem responses. None of scenarios address impacts of recent engineering intervention on natural systems. Re pumping from South Lagoon - short term but expensive option. Pumping from Lake Alex has clogged the Narrows, better to let Lake Albert fluctuate naturally. Re pipelines - result = less water available for environmental work. C2/3 supported subject to detail and moderation of engineering bias. C4-8 - fluctuate water level to maintain viability as needed. C10 - completely against seawater. D4 - v. opposed, waste of taxpayer's money, killed future of Holmes Creek/Mundoo Channel nursery/refuge, upper Finniss refuge threatened with saline flooding, will cause Goolwa oxbow to stagnate, clog with milfoil, must undo regulator. From socio-political-economic perspective the document is deficient - does not recognise asset value connected to residential and lifestyle investment. Overall, very disappointing document, non-environmental regional interests are totally neglected, Ngarrindjeri interests are omitted, no consideration of off-shore impacts of altering nutrient flows from only river system to serve southern shelf. Water level/salinity estimates not good enough, business needs certainty. Decision model for water allocation on flow recovery and incorporation of environmental flows should be introduced into plan as element of all scenarios.
MHF0044	Supports - PA1, A2, A9, A12, B1, B3, B4, B5, B6, B7, B8, B9, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C8, C9, D1, D3, D5, D6, D7, D8
MHF0044	Unsupported - A3, A4, A5, A6, A7, A8, A10, A11, B2, C10, D4

Identifier No	Comment
MHF0044	Traditional owners not acknowledged in feedback form. Ngarrindjeri Nations maintained health of river for thousands of years but bad management by successive Governments = current state of crisis. Should ask Ngarrindjeri people what the goals are for their land. Suggests paragraph for inclusion in document that acknowledges their role and the importance of partnership in restoring health of CLLMM. Every effort should be made to ensure survival of Ngarrindjeri <i>ngartji</i> (guardian species) and restore well-being of <i>Ruwi</i> (living lands and waters). Inserted a letter written to Damien Vears, infrastructure and Business division, re. impact of pump noise on locals' health. Has not received a reply. C2, C4 -9, D5 -8 supported if Ngarrindjeri involved and consulted. Bad management of River has resulted in Loveday Bay becoming acidic. Must heed Ngarrindjeri plea for water.
MHF0045	Support - LTP, PA1, A4, A9, A10, A12, B1, B3, B4, B8, B9, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C9, D1, D2, D3, D5, D6, D7, D8
MHF0045	Neutral - A8, A11, B2, B5, B6, B7, C8
MHF0045	Undecided - A1, A5, A6, A7, D4
MHF0045	Unsupported - A3, C10
MHF0045	Agree with LTP hence confused by some actions i.e. engineering, increasing allocations to irrigators rather than allocate water to the environment. Focus should be on returning natural flow. Re climate scenarios - latter two are unacceptable, must address over-allocation and ensure sufficient flow reaches CLLMM, plan has taken too long. PA1 - should be accelerated across the Basin. How much money allocated to buybacks and why chosen to increase allocations to irrigators? A3 - Albert a terminal wetland full of contaminants and sediment which h will impact on health of Coorong and migratory birds etc. A4 - A8 - need sufficient natural flow so that dredging unnecessary. A9 - conservation of indigenous species should be a priority. B11- increase indigenous species. D2 supported if objective is to manage lake levels for ecological purposes. D4 - scientific opinion divided, need more research. Other - need to pressure upstream States + Commonwealth to take action re. Ensuring environmental flow. SA Government needs to buy water entitlements for the area.
MHF0046	Supports - LTP, PA1, A4, A9, B1, B3, B4, B5, B6, B8, B10, B11, B12,C1, , C2, C4, C5, C6, C7, C9, D1, D2, D3, D4, D5, D6, D7, D8
MHF0046	Neutral - A1, A10, A12, B2, B9, C10
MHF0046	Undecided -
MHF0046	Unsupported - A3, A5, A6, A7, A8, A11, B7, C3, C8
MHF0046	A1 - more research required; A11 - possible negative impact on North Lagoon; B5 supported assuming availability of water; B7 - uncertain technology; B9 - implies acceptance of no/limited recharge from River system; C5 -12, D6, D8 - only have merit as short term strategies, LTP focuses on CLLMM but management has environmental and economic impact on all water/wetlands/communities upstream of Lock 1. This needs to be recognised and addressed.
MHF0047	Supports - LTP, PAI, A1, A3, A4, A9, A12, B1, B2, B3, B4, B5, B6, B8, B10, B11, B12, C1, C3, C4, C5, C6, C7, C9, C10, D3, D4, D5, D6, D7, D8
MHF0047	Undecided - A10
MHF0047	Unsupported - A5, A6, A7, A8, A11, B7, B9, C2, C8

Identifier No	Comment
MHF0047	Goal commendable but needs clear explanation of what it means. Need to make clear from beginning of document that sustainable future = lake water level above sea level. Also need to identify that this plan is about long term and that short term actions are not part of LTP. Overall, document misses mark completely, need clear enunciation of what LTP setting out to achieve, separate short and long term actions. LTP should be focusing on key issues - fresh or mixed water; should elements of system be managed separately. Re climate scenarios - not realistic, long term future without lake level above sea level is not sustainable. Questionable whether some periods of mixed water required to maintain this. Don't agree with including extreme dry as not included in CSIRO Sustainable Yields Report. IF it must be included have to recognise that it means the freshwater solution may not be viable and some periods of mixed water required. A5/A6/A8 - counterproductive, expensive. no real benefit for Coorong. A7 - demonstrated that will almost certainly fail. A10 - energy supplies + effective removal of salinity need to be addressed. A11 - likely to lead to loss of water level in summer. B3 superfluous. B\$ already implemented, not action for LTP. B9 not sustainable in long term, C5, C7, C9, D4, D6, D8 supported as short term measures only. D5 - supported if confined to zone above projected target water level range
MHF0048	Supports - LTP, PA1, A1, A4, A6, A9, A12, B1, B3, B4, B5, B10, B11, B12, C1, C3, C4, C5, C6, C9, D1, D2, D5, D6, D7, D8
MHF0048	Neutral - B9, C7
MHF0048	Undecided - A3, A5, A10, A11, B8
MHF0048	Unsupported - A7, A8, B2, B6, B7, C8, C10, D3, D4
MHF0048	LTP - conserving species and ecosystem is the priority. Climate scenario - appear to be in extreme dry period brought on by over extraction from upstream rather than just climate change. A3/A5 - engineering solutions not the answer in most cases, need convincing case to support it. A5 supported in worst case scenario. A7 - not justified just for boat passage. A10 could have unintended consequences. B2 take out bund and bring more water down to flow into Lakes. B4 supported provided emphasis on rainwater/waste water. B9 do not pump from Lake Alex, obtain water from upstream. C7 Get water downstream - must be provided for wetlands upstream of Lock 1. D4 no more engineering solutions. Generally - CLLMM + tributaries are one system and should be managed together. If regulation requested in 2003 had been put into place would have been sufficient rain this winter in tributary catchments flowing into Lakes and River to alleviate problem. Problem too slow to act. Money spent on regulators, bioremediation, other measures could've been used to fast track EMLR WAP and include stock and domestic water.
MHF0049	Supports - LTP, PA1, A4, A5, A9, A10, B1, B4, B6, B10, B11, B12, C1, C4, C5, C6, C10, D1, D2, D3, D5, D6, D7., D8
MHF0049	Neutral - A7, A11, A12, B5, C8, C9, D4
MHF0049	Undecided - A3, A8
MHF0049	Unsupported - A1, A6, B2, B3, B7, B8, B9, C2, C3, C7

Identifier No	Comment
MHF0049	Of Bunganditj descent. Hunted, fished, trapped rabbits etc along Coorong for 58 years criticised for doing this but fair to say that main damage caused by mismanagement/lack of action to ensure water supply. Need to learn to endure extreme dry climate scenario, upstream greed, global warming, Adelaide water needs, evaporation, and irrigation. CLL need to be seawater or dry. A1 difficulty accepting this option has merit. It relies on increasing flows and diminished supplies. A5 - further investigation, perhaps fits with idea of abandoning barrage system and reverting system to estuary. A6 - sounds 'airy fairy'. A7 unnatural and great risk of wash away and eventual flood. A11 do more model research to justify. B2 insufficient water for this. B4 should have been doing this before. B5 worthwhile with total marine estuary environment. B8/B9 let in seawater.
MHF0050	Supports - LTP, PA1, A7, A8, A9, B1, B4, B5, C1, C2, C3, D1, D2, D3
MHF0050	Neutral - A1, A3, A10, A11, A12, B3, B7, B8, B9, B10, B11, B12, C4, C5, C6, C7, C8, C9, C10, D4, D5, D6, D7, D8
MHF0050	Unsupported - A4, A5, A6, B2, B6
MHF0050	Unjust that Goolwa/LL/C must suffer b/c of greed etc of other Australians upstream. Unsustainable interstate businesses should be closed. Climate scenarios - wet scenario only option, stop open irrigation and wastage, let water flow. PA1 buy backs imperative for future, why not water permits? A4 - total waste of money. General - if freshwater not available then seawater should be captured during high tides and Lakes flooded. Could then be released throughout the year flushing out mouth. LL freshwater users would require piped water. Nature did these pre-barrages for 1000's of years. Wildlife would just move up river.
MHF0051	Community consultation a waste of tax payers money, decisions shouldn't be based on individual desires. Government must take complete charge. Too much politics in process which results in overspending on surveys studies etc. Best option is to remove barrages and install one further upstream - this will save tourist industry, give farmers limited water, save other residents from complete drought.
MHF0052	Supports - PA1, A1, A4, A5, A6, A7, A8, A9, A10, A11, A12, B4, B12, C1, C2, C3, C4, C6, D2, D3, D4, D5, D6, D7, D8
MHF0052	Neutral - LTP, A3, B1, B3, B8, D1
MHF0052	Undecided - B5, B6, B9, B11, C5
MHF0052	Unsupported - B2, B7, B10, C7, C8, C9, C10
MHF0052	LTP - support goal of maintaining healthy ecosystem, but not necessarily freshwater one. Marine ecosystem could be just as diverse and healthy. Environment constantly changing. Can't let Lake levels go down any further, ASS too severe to treat with bio-remediation. Climate scenario - currently in extreme dry scenario, no prospect of freshwater flows to alleviate system, lake levels will continue to fall over summer, crisis, don't have time for more trials etc. PA1 - not enough water in system to achieve this, A3 would support connection between Lake Albert and Coorong if seawater used to enhance circulation and avoid hyper salinity. A4 dredging needs to be taken to higher level using sand resuspension during ebb tide. A10 should not be isolated action but part of overall plan for whole Lakes system. B1/B2 Insufficient water upstream to cover ASS, need to seriously consider use of seawater. B5 depends on if Lake Albert isolated from system. B7 has this been successful elsewhere? B8/C9 ok for small areas, impractical for whole lake. B10/C7/C8 bioremediation impractical on large scale. C1 even with saltwater option should still be buybacks and rationalisation of type of irrigation suitable for Australian climate, scheme should be controlled Federally. C2 supported if it = letting saltwater into Lakes. C5 only if saltwater option not used. C10 minimal amounts of seawater will increase risk of hypersalinity. If seawater let in, techniques available to ensure circulation of seawater. Allowing Lakes to become estuarine - which they have been in the past - would not cause problems if proper measures adopted, but Government is pandering to freshwater only people. Not in favour of removing barrages as they can be used to circulate water. This would create healthy Ramsar wetland. Saltwater would not exacerbate ASS

Identifier No	Comment
MHF0053	D4 against - Why have regulators been installed so people can sail their yachts? Sulphuric acid - should've been treated long ago. Kingston drains have a lot to do with the problem. Don't need cotton or rice farming in Australia, should only be able to grow things that suit the climate. Over allocation of water upstream leaving us with stagnant lakes, dying Coorong. Aboriginal people suffering due to distressed state of Lakes and Coorong - this is our religion. By taking water out of the river they are taking away our culture and health. Committing genocide again because of legacy for future generations - we die without water.
MHF0054	Climatic scenarios should include current conditions - extreme dry scenario shows 366 gigalitres of flow to MM - currently below this. Freshwater options ONLY to be considered. Accept variable water levels but maintain system connectivity. Management options to include timely removal of all temporary barriers. Use biological monitoring for removal of barriers. A3 Against connecting Lake Albert to the Coorong North Lagoon. A7/A8 dredging necessary under current conditions but support low intervention options. A9 - upgrade current fish passages in Goolwa + Tauwichee Barrages. Install passages Clayton, Finniss and Currency Creek regulators. B3 - need fluctuating lake levels to emulate drying cycles for wetlands, simulate regeneration of riparian zones provide freshwater to aquatic plants. SA water needs to indicate pool levels necessary for operation of barrages. B6 do not support permanent regulators. B7/C8 could disturb ASS. B9 Lake Albert could be permanently damaged if groundwater becomes highly saline. C1 minimise water allocation. C10 seawater not option, pandering to boating community. Maintain environmental focus. D2 many short term solutions compromising LTP - e.g. potable pipelines, need to prioritise environmental outcomes not just irrigation issues. D4 Already existing action should be represented in LTP as such. Could have been smaller. Goolwa Channel Water Level Management Project re ASS detrimental for Lake Alex, don't need to fill Goolwa pool to 0.7m AHD, just need enough to cover ASS. Submission also outlines group's environmental monitoring work to date, their observations i.e. rejuvenation in many parts of Riverine environment over winter 2009 following monitoring survey of macro-invertebrates. Includes details of data obtained from some survey work. For MHF to be successful need to: involve Ngarrindjeri; involve community to ensure local knowledge incorporated; revegetation and bio-remediation for ASS; secure freshwater upstream; increase diversion of water from SE drainage system.
MHF0055	Supported - LTP, PA1, A1, A3, A7, A8, A9, A10, A12, B1, B2, B3, B5, C1, C2, C4, C5, C6, C9, C10, D1, D5, D7
MHF0055	Neutral - A5, A6, A11, B4, B7, B8, B9, B10, B11, B12, C3, C7, C8, D2, D3, D4, D6, D8
MHF0055	Unsupported - A4, B6

Identifier No	Comment
MHF0055	<p>If consider CSIRO, BOM and IPCC reports + water availability past 2030 then short term solutions doomed to failure. Re climate scenarios - lakes below sea level + separation of Goolwa channel + isolation of Lake Albert not acceptable. Need to partition 65% of system out of current freshwater body to service Ramsar assets. Even when SA receives min flow of 1,850 under intergovernmental agreement that very little goes into Coorong. Need 2000+ for positive mixing in Coorong via Tawcherie barrage. Need 2500+ for respite from dredging. Medium scenario is wishful thinking. PA1 - buybacks accelerated in last 12 months but water availability still dependant on change in climate of catchments upstream of purchases. Many purchases are from Northern connected system including general security licences - these do little to increase flows. Need to accelerate proposed 5.9 billion infrastructure upgrade. A5 - channel dimensions critical to success of proper tidal mixing with water from Lake Albert. A11 - can't let hypersaline water in South Lagoon enter Nth Lagoon in low tide conditions. B2 as temporary solution only. B4 implies holding Lakes below sea level which negates A3 + other initiatives. If it involves saltwater solution, do not agree. B6 not a LT solution. B7/C8 do proper study. B9 negates A3. B10 implies low flows will become norm + fresh water into Coorong will be rare - not a LT solution. B11 good short term solution. C7 should not be part of LT solution. C10 weir pools should fluctuate annually to reduce salt load. D6/8 should not be necessary if water level maintained. General comments - need long term solutions not band aids. Can current barrages deal with rising sea levels? Indigenous people robbed of much by construction of barrages - couldn't fish outside Loveday Bay or within during low tide. This can be reinstated + their access from McLeay into Coorong.</p>
MHF0056	Supports - LTP, PA1, A1, A3, A4, A5, A6, A9, A10, A12, B1, B2, B4, B6, C1, C2, C3, C4, C10, D2, D4
MHF0056	Undecided - A7, A8, B3
MHF0056	Unsupported - A11, B7, B8, B9, B10, B11, B12, C5, C6, C7, C8, C9, D1, D3, D5, D6, D7, D8
MHF0056	<p>LTP - supported on condition that conservation of species, ecological communities etc does not preclude change toward more estuarine wetland if not enough freshwater to maintain Lakes' water levels. Climate scenarios - based on CSIRO Sustainable Yields modelling which is flawed as excluded 2007/8. Given limitations of modelling upon which LTP based and uncertainties associated with climate change, should consider all options i.e. seawater in order to ensure lakes don't go lower than 0.0 AHD. Need to rectify this deficiency in final plan. PA1 - necessary when water available but irrelevant during severe drought when no water available for allocation regime for diversion/environmental flows. Need to accept possibility of insufficient freshwater and consider creating estuarine wetland. A3 - assumes sufficient freshwater to fill Lake Albert. A4/5/6 if seawater used sufficient tidal movement needed to prevent hypersalinity, may impact on dredging. A7/8 proven impractical. B7/8/9 better MA = maintain water levels in first place. B10/11/12/D5/6/7/8 - this isn't revegetation as soils never vegetated as below sea level. C1/2 - supported to degree it is viable. C6/7/8/9 - ok for lake shores 0.75AHD + but keep lakes wet. C10 - supported with qualification that word 'minimal' be removed. Consequences of acidification are serious and begin at much higher water levels than -1.5AHD. D1 - not relevant to LTP if sea water considered. D3 - regulators only temporary hence why are these in LTP? A4 already installed relevance to LTP? General comments - critical that all possible management strategies address issues which may arise if climate conditions continue to be significantly drier than CSIRO predictions. If 2007/8 had been included in CSIRO model clear that predictions of probable freshwater future would be much less optimistic. Community reps on LTP Ref Group weighted toward freshwater future. Need to avoid bias when collecting data from community.</p>

Identifier No	Comment
MHF0056	Attached document - "What the DEH are choosing NOT to tell you about freshwater in the LL" 1) DEH statement that Lakes predominantly freshwater for 7000 + years. Response - research at Adelaide Uni suggests Lakes had, in part, a tidal history. 2) CSIRO Sustainable Yields predicts low river flows should only occur 1% of time or 4% in future extremely dry climate. Response - CSIRO modelling not accurate (see comments above). Should do modelling in 2009 to include 08/9 - this would match reality of extremely dry lake bed. To say last two years of catchment inflows as 'atypical' is to avoid unpleasant reality. Uncertainties of climate change make modelling predictions even less reliable. 3) DEH's 'A Freshwater for the Lower Lakes' fact sheet is flawed, biased and lacking in objectivity. Sturt's comments taken out of context to support freshwater view
MHF0057	Need to reverse over management of CLLMM. E.g. SE drains resulted in water loss to ocean rather than diversion into Coorong and South. Lagoons - must reverse this. System must be treated as a whole. Fed Government must be persuaded by SA Government to take up responsibility re unsustainable cotton and rice farming, over allocation of water in upstream States. Must work with traditional owners of land; seek out their knowledge of the land and waters. Acknowledges impact of demise of river upon Ngarrindjeri people. For LTP to be successful need to work together.
MHF0058	Supports LTP, PA1, A1, A3, A8, A9. A10, A11, A12, B1, B2, B3, B4, B5, B8, B9, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, D1, D2, D3, D4, D5, D6, D7, D8
MHF0058	Neutral - B7
MHF0058	Unsupported - A4, A5, A6, A7, B6
MHF0058	A1 - most important way of obtaining freshwater for Coorong, subject to free-flowing, permanently open mouth. A4 - 6 - expensive failure, not suitable for LTP.
MHF0059	Supports - LTP, PA1, A1, A4, A9, A10, A12, B1, B3, B4, B5, B8, B9, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C8, C9, D1, D2, D5, D6, D7, D8
MHF0059	Neutral - A5, B2, D3
MHF0059	Undecided - A6, B7
MHF0059	Unsupported - A3, A7, A8, A11, B6, C10, D4
MHF0059	LTP - should state that main focus is to preserve freshwater and estuarine species, ecological communities and ecosystems of the site. Climate scenarios - must understand that plants and animals may take time to adapt to climatic conditions. Scenario assumes a continuation of one scenario rather than different scenarios in subsequent years. PA1 - must address over allocation for health of entire Murray basin. Must open mouth through flows. A4/5 - should be continued as backup. A6 - need to assess validity and risks. A7/8 mouth of River Murray is dynamic; this must be maintained to facilitate variability of flow over time. Training walls would impede this + impede long shore sand movement causing build up of sand deposits on Coorong side of mouth. A10 should be undertaken with a view to return South Lagoon to more natural state. A12 - done to maintain populations until sufficient ecological flows restored. N1/C1/C2/C3 - addressing over allocation + securing environmental water is critical to health of entire system. Need to maintain sufficient flow out of MM. B2 assumes bund in Narrung narrows will be permanent, aim of LTP should be to restore natural connection between both lakes. B3 maintenance of elevated lake levels post barrages created a number of environmental issues - i.e. lakeshore erosion. B6 - LTP should aim to secure adequate freshwater flows for CLLMM thus eliminating need for engineering works. B7 need to trial to determine impacts. B9 supported as last resort measure, all efforts should be focused on securing adequate environmental flows. C10 - Lakes should be maintained in natural freshwater state. D3 - do not support installation of existing or future regulators, this MA seems to suggest regulators will be permanent. Should be committed to securing natural flow and removing structures accordingly. D4 - these structures interfere with ecosystem function, should remove existing/partially constructed structures

Identifier No	Comment
MHF0060	Problem caused by chronic lack of river flows caused by 30+ years of over-extraction. LTP must stop this. Future extractions made on basis of science, not individual interests. This needs to be managed by a truly independent body. Details the 'harsh realities' facing Basin, including the fact that 20/23 rivers are listed as poor/very poor condition (Sustainable Rivers Audit 2008); in 2009 30-40% water taken from Basin rivers being used to flood irrigate open pastures. Irrigation practices are 50 years out of date; Clayton, Finniss, Currency Creek embankments = parochial, expedient, short-term remedy that do not address long term causes. Also - need to recognise the harsh realities of climate change which will exacerbate existing damage unless action taken quickly. 1) Need to seal off majority of open channels, convert the most strategic with pipes, 2) seal off lowest priority, ephemeral regions. Currently no whole of river management to solve Basin's problems, just parochial approach based on politics not science. Hence SA only receives 7% of Basin's water.
MHF0061	Board supports adaptive response across all levels of Government. Needs to be managed flexibly. New responses need to take into account past conditions and responses and learn from mistakes. Flows past Wellington that exceed current level will result in saline conditions, the salt will need to be moved out of MM and into Coorong and ocean. Board makes 7 recommendations: 1) CLLMM + tributaries are linked - all solutions must take this into account. 2) Characteristics of each scenario be described comprehensively 3) LTP be consistent with MDBA Basin Plan 4) The Board be invited to discuss "likely candidates for final suite of management actions" + management responses incorporating monitoring, evaluating, reporting and improvement criteria 5) Bullet point describing reliance on freshwater be revised. 6) Correction made to reflect the correct name for 'The South Australian Murray-Darling Basin Natural Resources Management Board NRM Plan, 2009-19.' (Appendix 3, page 18). The relationship between the LTP and SA MDB NRM Board Regional NRM Plan be made evident. 7) Typographical errors (in Appendix 6 - pages 24 - 31) be amended; clarification of actions be provided; consideration given to appropriateness of actions.
MHF0062	Supported - LTP, PA1, A1, A4, A10, A12, B1, B3, B4, B5, B8, B12, C1, C2, C3, C4, C6, D1, D2, D5, D7, D8
MHF0062	Neutral - B11, C9, D3, D6
MHF0062	Undecided - A3, A5, A6, A7, A8, A9, C5
MHF0062	Unsupported - A11, B2, B6, B7, B9, C8, C10, D4
MHF0062	Specific: LTP - This statement should be used to allow flexibility in the type of sustainable ecosystems in the region. The document needs to be based on describing sustainable future for the ecosystems within the region with targets for end of River flow. PA1/A1/B1 - Basin Plan; end of river targets A3 - Fishing thru Lake Albert would provide a sustainable future for the lake A5 - Need much technical information to evaluate alternative dredging strategy; esp. consider water levels in Coorong in Spring summer A6/A7/A8 - Needs a technical answer; not able to be commented on by community A9 - I believe the barrages should be operated as a "transparent" system through which fish can pass A10 - All has been in place to support this for some time now. get on with it A11 - Sills maintain water level in South lagoon A12 - Technically difficult; untried B2 - Maintain all lake levels at sea level; above acid sulphate triggers B3/C2/C4/C6/D1/D2/D5/D7 - Motherhood B5 - low levels bund and pumping have reduced flows and changed the hydrology B6 - Connectivity essential B7 - Not necessary if water level kept at sea level B8 - Short term only B9 - The future of L Albert should be as environmental and recreational lake B10/B11/C5 - Is happening naturally C1 - The Murray Basin Plan and end of river targets C7 - In medium term keep lakes at seawater level C8 - Acid sulphate soils are overstated problem C10 - Not now. But yes in an estuarine future for the lakes D3 - Remove regulators D4 - Already done and what a mess. Why ask now???? C9/D6/D8 - Short term only General: The Lower Lakes and Coorong need to be managed with an end of River allocation in the new Basin plan. This is not considered in the Murray Futures document. Rather a reactive position is taken where we will "do our best" as the system flows reduce and the system becomes unsustainable. The management needs to prescribe the amounts of water that would make a sustainable future. My future for the lakes is as a connected estuarine system with sufficient flows to maintain salinity gradient

Identifier No	Comment
	and diversity across the system. I am sending Allan Holmes and Peter Croft a presentation that outlines this future.
MHF0063	Supported - LTP, PA1, A1, A4, A9, A10, A12, B1, B2, B3, B4, B5, B8, B9, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C9, D1, D2, D3, D5, D6, D7, D8
MHF0063	Unsupported - A3, A5, A6, A7, A8, A11, B6, B7, C8, C10, D4
MHF0063	<p>Climate scenarios- median flows seem too dry compared to recent history and with this level of flow dredging shouldn't be necessary. Acidification trigger levels are incorrect and need to be proved. A1 - suggested it should happen in a wet scenario as well, although caution with effects on groundwater in SE and on species that rely on drainage channels as habitat. South lagoon still needs pumping in conjunction with this action. A3- Issues with acidity and amount of mud/ASS in Lake Albert being moved into north lagoon. Decent flow will require large channel or pumping equipment = \$\$\$ A4- supported but focus and core element of this action should be on maintaining an open mouth with river flows. A5- further dredging is futile- with a larger mouth and no river flows it will increase the amount of sand that can flow back in. Where will all this sand be put? A6- Water velocity is what keeps sand in suspension, fluidising will need to happen over a large area, and will the pipes be secured? A7- Walls have been used elsewhere and in the past and don't work- unable to move as the mouth moves. A8- how is this possible? A9- Fish passages are essential but they require water! A10- this should happen in all climate scenarios, current dredging should be sufficient. A11- Could increase hypersaline flow into North Lagoon by the wind, therefore counter productive. A12- needs appropriate water salinity guaranteed into the future. B2- Modelling re acidification levels needs to be proven. B3- Even the irrigators will support this if it means better water for them. B5 - We know that wind driven mixing is possible through the Narrows. B6 - Will need dredging of the channel which will fill up with no flows, and this option opens the door to further permanent destruction e.g. drying out / seawater intrusion. B7 - What if there is no groundwater? B8 – Yes, this has happened to good effect in Finniss and Currency. B11- From experience on Point Sturt, local mounding by wind blown sand on old posts, wheel tracks, plants etc encourages natural growth leading to more mounding. B12- legal issues re boundaries, permanence of fencing, weed control is important. Stock access is not all bad- pugging/footprints allow seeds to take hold in windy areas and manure supplies nutrients and seeds as well. C4 - Yes but it's hard to find that edge because of the natural vegetation growth. C6 -Don't alienate the landholders by cutting them off from management of "their" shore. C7- Yes but it's not a suitable permanent solution. C8- Edges too shallow and mostly clays anyway, and will disturb natural revegetation and ASS. C10- Issues with effects on freshwater species and additional salt load to remove later. Could lose SA's only bargaining chip in saving the Murray- the Lakes might be considered "fixed" therefore SA needs no water at all. D3- The structures shouldn't be built in the first place. D4- This has happened therefore why ask? D5- Stock management will be a problem due to large reed beds.</p>
MHF0063	<p>General: 1.Criteria for removal of the "temporary" wall at Clayton is not clear nor being discussed. 2. The "excess" water above 0.7m must go back to the Lakes, although I can see an argument for letting some out to assist the Mouth clearing and/or Coorong. 3. The Bund at Narrung was an emergency action and ought to be removed as soon as possible. 4. Irrigation users/ stock/domestic users are part of a river system, a natural landscape with an internationally recognised status through Ramsar and other treaties. The human use has always been very small. 5. Any long term management of the Lakes below sea level is silly and can only be short term.</p>
MHF0064	Supported - LTP, PA1, A1, A3, A7, A8, A9, A10, A11, A12, B1, B3, B4, B5, B8, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C9, C10, D1, D2, D3, D4, D5, D6, D7, D8
MHF0064	Neutral - B6, B7

Identifier No	Comment
MHF0064	Undecided - C8
MHF0064	Unsupported - A4, A5, A6, B9
MHF0064	<p>Specific: LTP - Tourism and the heritage of the Coorong must be paramount. Frustrated by the inability of State and Federal politicians cooperate to solve the over- allocation problem that has led to the current situation. Flow through the mouth is very important. Sea water flowed into the Goolwa pond. PA1 - I appreciate this has started but it needs further concerted action. Crops requiring large amounts of water in open irrigation should be stopped. A1 - This plan also aids the South East to decrease salinity. A3 - This would assist to maintain critical flows and brig water that is "fresher" into the Nth lagoon. A4/A5/A6 - A different plan such as breakwaters and altered flows would alleviate costly dredging. A7 - this is moving towards a better plan but A8 is better. A8 - This is the best option, ecologically sound. A9 - this allows natural migration prevented by the current barrage system A10 - salinity is far higher than most people acknowledge- if this would help I support it B1 - this is self evident. B4 - a critical step for the WHOLE of the river system. B10 - as necessary. B11 - as necessary where flows insufficient C1 - see earlier comments. C2 - as long as more committees do not prevent action. C5 - when appropriate. C10 - I strongly support this. D5 - this is only common sense</p> <p>General: Immensely frustrated and disappointed that successive Governments have taken so long to act and have allowed this manmade disaster to occur (accepting drought compounds over extraction).</p>
MHF0065	<p>Supports: goals of LTP; increased freshwater provided from upstream provided via buy backs/Basin Plan/water allocation; reduced extraction from Lakes, ensuring piped water supplied; bioremediation; fish passages; revegetation; restoration of surface water flow from wetlands of upper South East to South Lagoon. Council only support water allocations below 100% being imposed on local irrigators if equitable principles applied upstream. Re. installation of walls at MM - must be backed by science/proven engineering principles + MD A healthy river system must be able to flush out salt build-up/pollutants on regular basis - therefore strongly oppose installation of additional regulators or weirs in MDB system. Council does not support use of saltwater in Lakes. Finally, where their community is negatively impacted by reduced allocations/declining state of environment, asks State Government to actively engage community to work through these issues.</p>
MHF0066	<p>Noticed decline/change in habits of following bird and fish species since barrages closed in 2003: Coorong Mullet; Hardyhead; no migratory birds evident on shores by her house at Woods Well this autumn (first time); pelicans breed at Jack's point regardless of conditions but anecdotal evidence that young adult pelicans dying b/c no Hardyhead fish in South Lagoon – pelicans found dead in properties and along edge of Coorong; each year less and less Caspian Terns breeding on islands in South Lagoon. Birds reduced to eating brine shrimp. Supports move to fresher water in South Lagoon but some reservations. Planting of blue gums should be abandoned. Where will pipes be positioned, will noise impact upon my property? Channel suggested by (MHF 008) seems good alternative. 'Lower Lakes Gates' at Parnka Point very silted hence would need to be dredged if going to rely on water from MM coming from one Lagoon to another. Flow of current influenced by wind – see Rob England's "Cry of the Coorong" for more information – this influences movement of water between Lagoons. Smell of rotting brine causes distress amongst residents along South Lagoon, businesses at Policeman's point suffering economic loss as a result. Re. Indigenous consultation – witnessed incorrect people speaking for country, correct person is most senior elder – Peter Mansfield. Includes his details + maps of region.</p>
MHF0067	Supported: Goal, PA1, A1, A2, A4, A9 - B3, B6, B7, B8, B10 - C1, C4 - C6, C8, C9, D1, D3 - D8
MHF0067	Not Supported: A7
MHF0067	Neutral: A3, A5, A6, A8, B4, B9, C3
MHF0067	Undecided: B5, C2, C7, C10, D2
MHF0068	Supported - A1 - A5, A7 - B5, C1 - C4, C6, C10 - D5, D7
MHF0068	Neutral - A6, B6 - B12, C5, C7 - C9, D6, D8

Identifier No	Comment
MHF0069	Supported - A1, A2, A4 - A9, A11 - B1, B3 - B6, B8, B11, C1 - C3, C5, C7, C9, D1, D3, D4, D6
MHF0069	Not Supported - B12, C10
MHF0069	Neutral - A3, A10, B2
MHF0069	Undecided - B7
MHF0070 (9)	Supported - GOAL, A1, A3, A9, A12, B5, B12, C4 - C6, D3, D5 - D7
MHF0070 (9)	Not Supported - PA1, A2, A4 - A8, A11, B1 - B4, B6, B7, B9 - B11, C7, C8, C10 - D2, D4
MHF0070 (9)	Neutral - C2, C9, D8
MHF0070 (9)	Undecided - A10
MHF0071 (54)	Supported - Goal, PA1, A2, A4, A5, A9, A10, A12 - B3, B5, B8, B10 - C2, C4 - C7, C9, D1, D3 - D8
MHF0071 (54)	Not Supported - A3, A7, A8, A11, B6, B7, B9, C10
MHF0071 (54)	Neutral - A6, B4, D2
MHF0072 WEB	Supports: Goal, PA1, A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A11, A12, B1
MHF0073 WEB	Supports: Goal, PA1, A1,A2, A4, A9, A10, A11, B3, B4, B5, B6, B12, C1, C2, C3, C4, C6, D1, D2, D3, D4,D5, D7
MHF0073 WEB	Neutral: A3, A5, A6, A12, B8, B10, B11, C10, D8
MHF0073 WEB	Not Supported: A7, A8, B2, B7, B9, C5, C7, C8, C9, D6
MHF0074 WEB	Supported: A1, A2, A4, A5, A6, A9, A12, B1, B4, B8, B10, B11, B12, C1
MHF0074 WEB	Neutral: A3, A7, A8, A10
MHF0074 WEB	Undecided: A11, B2, B3, B5, B6, B7, B9
MHF0075 WEB	Supported: Goal, PA1, A1, A2,A4, A9, A10, A11, A12, B1, B3, B4, B6, B8, B9, B11, B12, C1, C3, C4, C5, C6, C7, C9, D1, D2, D3, D4, D5, D6, D8
MHF0075 WEB	Neutral: A3, A5, A6, B5, B7, B10, C2, C8,
MHF0075 WEB	Not Supported:A7, A8, B2
MHF0076 WEB	Supported: A1, A2, A3, A8, A9, A10, A11, A12, B1, B2, B3, B4, B5, B6, B8, B11, C1, C2, C3, D1, D2, D3, D6
MHF0076 WEB	Neutral: A7, B10, B12, C4, C5, C6, C7, C9, C10, D4, D5, D7, D8
MHF0076 WEB	Not Supported: A4, A5, A6, C8
MHF0076 WEB	Undecided: B7, B9

Identifier No	Comment
MHF0077	Supports: LTP. Need to consider Murray as one system. 'Managing' document makes good use of CSIRO 'Sustainable Yields' report. 'Water Availability in the Murray, Summary of a report to Aust. Government from CSIRO MDB Sustainable Yields Project' notes that the best estimate (median) of climate change by 2030 is less severe than recent past. However, appropriate to look at range of possibilities included in this report. Recommends taking into account best science according to Sustainable Yields Report when considering water that may be available up to 2030. Believes MDB Authority in best situation to provide water for the environment. However CLLMM Plan must provide evidence of need for end of system flows, including water flowing out of MM in sufficient quantities to remove salt and nutrient gathered in river. Need much greater flows past Wellington to move salt out to ocean (especially taking into account irrigation which will eventually resume upstream). Recommends including on page 7 "Emergency Measures" info regarding construction of temporary blocking bank at Narrung Narrows enabling water to be pumped from Alex to Albert that this stopped on June 30 in effort to save Alex. Pages 10/12 – meaning of Extreme Dry Scenario not clear – present period much worse than extreme dry scenario. CSIRO report indicates how rare current situation is.
MHF0077	Supports - A1
MHF0077	Not Supported - A7, 8 (should be removed, detract from document's credibility, B9 (illogical to turn Albert into bioremediation basin as only required in extreme dry scenario which is 4% of time, higher flows predicted).
MHF0077	Other - A11 - considered with extreme caution only as not enough info re: groundwater movements in area. B4 - remove reference to Langhorne Creek.
MHF0078 WEB	Supported: A1
MHF0079 WEB	Supported: Goal, PA1, A2, A9, B1, B3, B4, B8, B11, B12, C1, C2, C3, C4, C6, D1, D2, D3, D5, D7
MHF0079 WEB	Neutral: A1, A12, , B7,
MHF0079 WEB	Not Supported: A7, A8
MHF0079 WEB	Undecided:A3, A4, A5, A6, A10, A11, B2, B5, B6, B9, B10, C5, C7, C8, C9, C10, D4, D6, D8
MHF0080 WEB	Goal, PA1, A1, A2, A3, A4, A5, A6, A9, B1, B3, B5, B10, B11, B12, C1, C2, C5, C6, C9, D1, D3, D6, D7
MHF0080 WEB	A10, B2, B7,
MHF0080 WEB	Not Supported:B4, B6, B9, C3, D2,
MHF0080 WEB	Undecided: A7, A8, A11, A12, B7, B8, C4, C7, C8, C10, D5, D7
MHF0081 WEB	Supported: Goal, PA1, A1, A2, A4, A5, A6, A9, A10, A11, A12, B1, B3, B4, B5, B8, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C9, D1, D2, D3, D5, D6, D7, D8
MHF0081 WEB	Not Supported:B6, B9, C10, D4
MHF0081 WEB	Undecided:A3, B2, B7, C8
MHF0082 WEB	Supported: Goal, PA1, A1, A2, A4, A5, A6, A9, A10, a12, B1, B3, B4, B5, B8, B9, B10, B11, B12, C1, C2, c3, C4, C5, C6, C7, c9, D1, D2, D3, D5, D6, D7, D8
MHF0082 WEB	Neutral:A1, C8
MHF0082 WEB	Not Supported:A3, A7, A8B2, B6, C10, D4
MHF0082 WEB	Undecided:B7

Identifier No	Comment
MHF0083 WEB	Supported: Goal, PA1, A1, A2,A9, A12, B1, B4, B5, C1, C2, C3, C5, C7, D2, D5, D6
MHF0083 WEB	Undecided:A3, A4, A5, A6, A7, A8A10, A11, B2, B6, B7, B8, B9, B10, B11, B12, C4C6, C8, C9, C10, D1, D3, D5, D7
MHF0084 WEB	Supported: Goal, PA1, A1, A2, A3, A8, A9, A10, A11, A12, B1, B2, B3, B4, B5, B8, B9, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, D1, D2, D3, D4, D5, D6, D7, D8, D9, D10
MHF0084 WEB	Neutral: B7
MHF0084 WEB	Not Supported:A4, A5, A6, A7, B6
MHF0085 WEB	Supported: Goal, PA1, A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A11, A12, B1, B2, B3, B4, B5, B6, B8, B10, B11, B12, C1, C2, C3, C4, C5, C6, C7, C8, C9, D1, D3, D5, D6, D7, D8
MHF0085 WEB	Neutral: B7, B9
MHF0085 WEB	Not Supported:C10, D4
MHF0086 WEB	Supported: Goal, PA1, A1, A2, A8, A9, A10, A11, A12, B1, B2, B3, B4, B5, B7, B10, B11, B12, C1, C2, c3, C5, C6, C9, C10, D1, D2, D3, D5, D6, D7, D8
MHF0086 WEB	Neutral: A3, A4, A6, A7, , B8, C4, C8
MHF0086 WEB	Not Supported:C7
MHF0086 WEB	Undecided: A5, B2, B7, D4
MHF0087 WEB	Supports: Goal, PA1, A1, A2, A4, A5, A6, A9, A10, A12, B1, B3, B4, B7, B8, B10 - C9, D1 - D8
MHF0087 WEB	Not Supported: C10
MHF0087 WEB	Neutral: A11
MHF0087 WEB	Undecided: A3, A7, A8, B2, B5, B6, B9

Appendix 13

Management Actions Table

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
COORONG AND MURRAY MOUTH					
Freshwater provided to the Lakes and Coorong and managing variable lake levels <ul style="list-style-type: none"> A1 Increase diversion of water from the South East Drainage system. A2 Increased freshwater provided from upstream in the MDB (Basin Plan, Water for the future, buy backs etc) 	N Y	Y Y	Y Y	Y Y	<p>Reduction of salinity in South Lagoon.</p> <p>Short-term – Reduces salinity within the wetland system, including the Coorong. submerges Acid Sulfate Soils</p> <p>Long-term - Delivery of freshwater to the site is the preferred option for establishing a healthy, productive and resilient wetland of international importance.</p> <p>Re-establishes salinity gradient within the Coorong that makes it a productive estuarine system,</p> <p>Secures the future of communities and industries dependent on the wetland system.</p>
<ul style="list-style-type: none"> A3 Connect Lake Albert to the North Lagoon of the Coorong 	Y	Y	N	N	High River Murray flows from Lake Alexandrina could be delivered directly to the North Lagoon via Lake Albert.
The Murray Mouth open and connecting the Coorong, River and Lakes to the sea <ul style="list-style-type: none"> A4 Dredging – existing strategy 	N	Y	Y	Y	Murray Mouth needs to be kept open when insufficient river flows are available to flush the Murray Mouth. This is to maintain system connectivity, which is critical for a healthy, productive and resilient wetland.
<ul style="list-style-type: none"> A5 Dredging – increase channel dimensions 	N	Y	Y	Y	Murray Mouth needs to be kept open when insufficient river flows are available to flush the Murray Mouth. This is to maintain system connectivity, which is critical for a healthy, productive and resilient wetland. Dredge the Murray Mouth to establish and maintain mouth channels that are larger in

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
COORONG AND MURRAY MOUTH					
<ul style="list-style-type: none"> A6 Dredging with sand fluidisation 	N	Y	Y	Y	<p>size, and to get greater penetration of tidal flows along the Coorong.</p> <p>Murray Mouth needs to be kept open when insufficient river flows are available to flush the Murray Mouth. This is to maintain system connectivity, which is critical for a healthy, productive and resilient wetland.</p> <p>In addition to dredging, fluidise sand (by using pump and pipe infrastructure to inject water or air into the sand to cause re-suspension) to use the natural flow and enhance its capacity to move sand seawards</p>
<ul style="list-style-type: none"> A7 Channel dredging with River Mouth Training Walls 	N	Y	Y	Y	<p>Murray Mouth needs to be kept open when insufficient river flows are available to flush the Murray Mouth. This is to maintain system connectivity, which is critical for a healthy, productive and resilient wetland.</p> <p>Construct River mouth training walls to stabilise and maintain the entrance channel and improve navigability through the Murray Mouth. Dredge the Murray Mouth and inner channel to establish a good starting environment</p>
<ul style="list-style-type: none"> A8 Sand bypassing with River Mouth Training walls 	N	Y	Y	Y	<p>Murray Mouth needs to be kept open when insufficient river flows are available to flush the Murray Mouth. This is to maintain system connectivity, which is critical for a healthy, productive and resilient wetland.</p> <p>Construct River mouth training walls to stabilise and maintain the entrance channel and improve navigability through the Murray Mouth. As an addition, install infrastructure to bypass long term net sand transport.</p>
Maintaining system connectivity and ecological function <ul style="list-style-type: none"> A9 Fish passages through to the Coorong at Goolwa. 	Y	Y	Y	Y	<p>Fish passages are essential structures to enable fish to move between different parts of the Ramsar site that have been disconnected through barrages, regulators and other devices.</p>
Managing localised threats, especially acidification <ul style="list-style-type: none"> A10 Pumping out of the South Lagoon. 	N	N	Y	Y	<p>Will lead to a reduction of salinity in the South Lagoon of the Coorong - salinities are currently above the threshold for keystone species, such as <i>Ruppia</i>.</p> <p>Complementary action to A11.</p>
<ul style="list-style-type: none"> A11 Clearing of silts near Parnka Point. 	N	Y	Y	Y	<p>Complementary action to A10 – essential to increase mixing between the North and South Lagoons and enhance the salinity gradient within the South</p>

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
COORONG AND MURRAY MOUTH					
<ul style="list-style-type: none"> A12 Transplanting of <i>Ruppia</i> sp. 	Y	Y	Y	N	<p>Lagoon and to ensure the success of A10.</p> <p><i>Ruppia</i> spp. are keystone species for the ecology of the Coorong Lagoons and are in extremely poor condition. Existing populations are not self-sustaining.</p> <p>Revegetation will increase their cover and thereby improve overall ecological health of the Coorong lagoons.</p>

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
LAKE ALBERT					
<p>Freshwater provided to the Lakes and Coorong and managing variable lake levels</p> <ul style="list-style-type: none"> B1 Increase freshwater provided from upstream in the MDB (Basin Plan, Water for the future, buy backs etc) 	Y	Y	Y	Y	<p>Short-term – Reduces salinity within the wetland system, including Lake Albert. Submerges Acid Sulfate Soils</p> <p>Long-term - Delivery of freshwater to the site is the preferred option for establishing a healthy, productive and resilient wetland of international importance.</p> <p>Secures the future of communities and industries dependent on the wetland system.</p>
<ul style="list-style-type: none"> B2 Pumping from Lake Alexandrina. 	N	N	Y	N	<p>The acidification trigger level for Lake Albert is -0.5mAHD. Pumping water from Lake Alexandrina to Lake Albert would avoid reaching this trigger point, thus avoiding acidification. However, funding for pumping ceased on 30 June 2009: the continuing low inflows to the Lower Lakes was also bringing Lake Alexandrina closer to its trigger point. Further modelling will be undertaken to better define acidification trigger levels once results from acidity flux research investigations are obtained.</p>
<ul style="list-style-type: none"> B3 Develop a framework to manage water most 	Y	Y	Y	Y	<p>Water levels within the Lakes have traditionally been managed to</p>

Actions	WET	MEDIAN	DRY	EXTREME DRY	Rationale
LAKE ALBERT					
effectively within the site					provide for take by irrigators from the water bodies. Managing water levels primarily for ecological outcomes will allow for greater variation in lake levels and should lead to improved wetland health.
<ul style="list-style-type: none"> B4 Reduce reliance upon Lakes for extractive uses – i.e. installation of pipeline and/or rainwater tanks etc (note that this action does NOT include the irrigation pipeline to Langhorne Creek, which is an existing action) 					Will remove reliance of all water users from the lakes and increase the reliability and quality of water supply to these users.
The Murray Mouth open and connecting the Coorong, River and Lakes to the sea					Allows for greater flexibility in managing water levels in the lakes for wetland health.
<ul style="list-style-type: none"> The requirement to maintain an open Murray Mouth is addressed in the Coorong and Murray mouth section above. The requirement to maintain the natural variable salinities in the Coorong in this future is addressed in the Coorong and Murray Mouth section above. 					
Maintaining system connectivity and ecological function					
<ul style="list-style-type: none"> B5 Narrung Narrows remedial works (applies to wetter scenarios only) – remove bund, dredge narrows, undertake remedial works including modifications to ferry causeway to provide for natural flows through The Narrows. 	Y	Y	N	N	Improve connectivity between Lakes Alexandrina and Albert to improve the water quality and water regime in Lake Albert.
<ul style="list-style-type: none"> B6 Alternative to Narrung Narrows remedial works (applies to dry scenarios only) - Installation of a regulator at Narrung. 	N	N	Y	N	Allows for greater flexibility in varying water levels in the two Lakes. This has the potential to result in better water quality in one or both Lakes. May provide water savings Provides the opportunity to implement actions in one of the Lakes without impacting on the other Lake.
Managing localised threats					Prevention is preferable to treatment.
<ul style="list-style-type: none"> B7 Prevention of acidification 	N	N	Y	Y	
<ul style="list-style-type: none"> B8 Hot spot Acid Sulfate Soil mitigation (e.g. cracking 	N	N	Y	Y	Application of finely ground limestone will neutralise acid that has been

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
LAKE ALBERT					
clays, sands, Mono-sulfidic Black Oozes) • B9 "Bioremediation basin".	N	N	Y	Y	generated. Application of finely ground limestone will neutralise acid that has been generated. Bioremediation will help to manage the effects of acidification. Provides approximately 170GL per year of water savings, through ceasing to pump water from Lake Alexandrina. Lake Albert converted to an ephemeral wetland, which can facilitate bioremediation.
• B10 Revegetation for Acid Sulfate Soil remediation around Lake edges.	N	N	Y	Y	Revegetation using crops and native plants will help to promote conditions that do not encourage the formation of acid and will reduce mobilisation of heavy metals. This will prepare the Lake for other management options such as saturation of exposed soils with freshwater, native revegetation (reeds, rushes, trees).
• B11 Planting of annual crop type species on exposed areas to contain wind erosion.	N	N	Y	Y	Promotes resilience within the wetland system as it minimises the exposure of new acid sulfate soils to air.
• B12 "NRM" activities (weed control, fencing, rabbit control to ensure success of revegetation and cropping).	Y	Y	Y	Y	Pest plants and animals have the potential to significantly alter the Ecological Character of the site if not controlled. Uncontrolled stock access to the Lakes threatens some components of Ecological Character through processes such as disturbance of acid sulfate soils, trampling, grazing and pugging.

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
LAKE ALEXANDRINA					
Freshwater provided to the Lakes and Coorong and managing variable Lake levels • C1 Increased freshwater provided from upstream in the MDB (Basin Plan, Water for the future, buy backs	Y	Y	Y	Y	Short-term – Reduces salinity within the wetland system, including Lake Alexandrina. Submerges Acid Sulfate Soils

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
LAKE ALEXANDRINA					
etc)					Long-term - Delivery of freshwater to the site is the preferred option for establishing a healthy, productive and resilient wetland of international importance.
<ul style="list-style-type: none"> C2 Develop a framework to manage water most effectively within the site 	Y	Y	Y	Y	Secures the future of communities and industries dependent on the wetland system.
<ul style="list-style-type: none"> C3 Reduce reliance upon Lakes for extractive uses – i.e. installation of pipeline and/or rainwater tanks etc 	Y	Y	Y	Y	Water levels within the Lakes have traditionally been managed to provide for take by irrigators from the water bodies. Managing water levels primarily for ecological outcomes will allow for greater variation in lake levels and should lead to improved wetland health.
<p>The Murray Mouth open and connecting the Coorong, River and Lakes to the sea</p> <ul style="list-style-type: none"> The requirement to maintain an open Murray Mouth is addressed in the Coorong and Murray mouth section above. The requirement to maintain the natural variably salinities in the Coorong is addressed in the Coorong and Murray Mouth section above. <p>Accepting variable water levels, yet maintaining system connectivity</p> <ul style="list-style-type: none"> The requirement to maintain ecological connectivity in this future is addressed in the Coorong and Murray Mouth and Lake Albert sections above. <p>Managing localised threats, especially acidification</p>					Will remove reliance of all water users from the lakes and increase the reliability and quality of water supply to these users.
<ul style="list-style-type: none"> C4 Revegetation (native) for ecosystem rehabilitation around Lake edges. 	Y	Y	Y	Y	Allows for greater flexibility in managing water levels in the lakes for wetland health.
<ul style="list-style-type: none"> C5 Cropping of annual species in exposed areas to 	N	N	Y	Y	Planting these areas will increase the connection between habitats within the Lake, including between aquatic and terrestrial habitats. Additional benefit of providing additional carbon and iron to the Lake system.
					Promotes resilience within the wetland system as it minimises the exposure

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
LAKE ALEXANDRINA					
contain wind erosion, to be followed by planting natives and increasing biodiversity.					of acid sulfate soils to air.
<ul style="list-style-type: none"> C6 “NRM” activities (weed control, fencing, rabbit control to ensure success of revegetation and cropping). 	Y	Y	Y	Y	<p>Pest plants and animals have the potential to significantly alter the Ecological Character of the site if not controlled.</p> <p>Uncontrolled stock access to the Lakes threatens some components of Ecological Character through processes such as disturbance of acid sulfate soils, trampling, grazing and pugging.</p>
<ul style="list-style-type: none"> C7 Bioremediation wetlands for areas that disconnect from main water body of Lake Alexandrina. 	N	N	Y	Y	<p>Application of finely ground limestone will neutralise acid that has been generated. Bioremediation will manage acidification risks and acid sulfate soils.</p> <p>Parts of Lake Alexandrina converted to ephemeral wetlands/swamp, which can function as Bioremediation Basins.</p>
<ul style="list-style-type: none"> C8 Prevention of acidification 	N	N	Y	Y	Prevention is preferable to treatment
<ul style="list-style-type: none"> C9 Hot spot Acid Sulfate Soil mitigation (e.g. cracking clays, sand, Mono-sulfidic Black Oozes). 	N	N	Y	Y	Application of finely ground limestone will neutralise acid that has been generated. It will also help to promote conditions that do not encourage the formation of acid.
<ul style="list-style-type: none"> C10 Introduction of minimal amounts of seawater to avert acidification of Lake Alexandrina 	N	N	N	Y	May avoid acidification (although could make it worse)

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
TRIBUTARIES - FINNISS RIVER AND CURRENCY CREEK					
Freshwater provided to the Lakes and Coorong and managing variable lake levels					
<ul style="list-style-type: none"> D1 Increased freshwater provided from upstream in the MDB (Basin Plan, Water for the future, buy backs etc) 	Y	Y	Y	Y	<p>Short-term – Reduces salinity within the wetland system. Submerges Acid Sulfate Soils.</p> <p>Long-term - Delivery of freshwater to the site is the preferred option for establishing a healthy, productive and resilient wetland of international</p>

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
TRIBUTARIES - FINNISS RIVER AND CURRENCY CREEK					
<ul style="list-style-type: none"> D2 Reduce reliance upon Lakes for extractive uses – i.e. installation of pipeline and/or rainwater tanks etc <p>The Murray Mouth open connecting the Coorong, Lakes and the sea</p> <ul style="list-style-type: none"> The requirement to maintain an open Murray Mouth in this future is addressed in the Coorong and Murray mouth section above. The requirement to maintain the natural variable salinities in the Coorong in this future is addressed in the Coorong and Murray Mouth section above. <p>Maintaining system connectivity and ecological function</p> <ul style="list-style-type: none"> D3 Installation of fish passage into regulators <p>Managing localised threats, especially acidification</p> <ul style="list-style-type: none"> D4 Installation of regulators to achieve soil saturation in creeks to address Acid Sulfate Soils (& removal in Year 5). D5 Revegetation (native) for Ecosystem rehabilitation around the tributaries. D6 Cropping of annual species to contain wind 					<p>importance.</p> <p>Secures the future of communities and industries dependent on the wetland system.</p> <p>Will remove reliance of all water users from the lakes and increase the reliability and quality of water supply to these users.</p> <p>Allows for greater flexibility in managing water levels in the lakes for wetland health.</p> <p>Fish passages are essential structures to enable fish to move between different parts of the Ramsar site that have been disconnected through barrages, regulators and other devices.</p> <p>Installation of the regulators will mitigate the acidification risks within the tributaries by inundating acid sulfate soils and minimising formation/ mobilisation of acid and heavy metal salts.</p> <p>Creation of a freshwater refuge area subject to operation of the regulators, and a reduction in salinity.</p> <p>Provides an opportunity to increase the connection between habitats within the wetland system, including between aquatic and terrestrial habitats.</p> <p>Promotes resilience within the wetland system as it minimises the exposure</p>

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
TRIBUTARIES - FINNISS RIVER AND CURRENCY CREEK					
erosion.					of acid sulfate soils to air.
<ul style="list-style-type: none"> D7 "NRM" activities (weed control, fencing, rabbit control to ensure success of revegetation and cropping). 	Y	Y	Y	Y	Pest plants and animals have the potential to significantly alter the Ecological Character of the site if not controlled.
<ul style="list-style-type: none"> D8 Hot spot Acid Sulfate Soil mitigation (e.g. cracking clays, sand, Mono-sulfidic Black Oozes). 	N	N	Y	Y	Application of finely ground limestone will neutralise acid that has been generated. It will also help to promote conditions that do not encourage the formation of acid, and assist the re-establishment of key plant and animal species.

<i>Actions</i>	<i>WET</i>	<i>MEDIAN</i>	<i>DRY</i>	<i>EXTREME DRY</i>	<i>Rationale</i>
A RESPONSIVE MANAGEMENT APPROACH BASED ON ROBUST RESEARCH, ADEQUATE MONITORING AND EXTENSIVE COMMUNITY INVOLVEMENT - An adaptive management framework is under development. Community involvement aspects will be determined through consultation with communities.	Y	Y	Y	Y	Community engagement, project managers, finance, procurement, policy, governance. This is to include policy work such as water allocation planning and other mechanisms.
ENGAGEMENT OF THE TRADITIONAL OWNERS – THE NGARRINDJERI	Y	Y	Y	Y	At the request of the Ngarrindjeri, this section remains to be developed in consultation with Ngarrindjeri people. Working in partnership with Ngarrindjeri is critical to the successful development and implementation of this Long-Term Plan. The recently signed <i>Kungun Ngarrindjeri Yunnan</i> or 'Listening to Ngarrindjeri Talking' Agreement (see p.7 for further detail) will provide an opportunity to ensure that Ngarrindjeri interests and values are incorporated into the Long-Term Plan and addressed in future programs.

Appendix 14

Events and Shows

Adelaide Boat Show

16-19 July 2009

Adelaide Convention Centre

Key community discussion themes:

1. Regulators/Goolwa Channel project
2. Pomanda Island Weir
3. Boat access to Lower Lakes region
4. Seawater option
5. Acid Sulphate Soils
6. Long Term Plan

Community reaction to display:

1. People wanted to know more/to become informed
2. Good level of general interest
3. Strong interest in maps, especially large map (facilitated staff-public interaction)
4. Little negative reaction/generally positive interest

Suggestions for improvement:

1. Continue to be seen/available to the public
2. Similar stands in the CLLMM region
3. Demonstrated our willingness to listen(positive aspect)
4. Use more images/maps
5. Target information to audience
6. Too many handouts/Info 'pack's worked well

Summary

While attendance at the stand was a little down on expectations, members of the public that decided to engage with the display and talk with staff expressed overall satisfaction with the efforts being undertaken to deal with the environmental issues of the CLLMM. This positive sentiment may largely be representative of the type of person who was in attendance at the Boat Show, which would be expected to be supportive of efforts to raise water levels in the Goolwa Channel.

In terms of the 'tangibles' of the DEH presentation, it is clear that the public enjoyed engaging with staff members while actively referring to the large map of the CLLMM region. Many of the smaller A4 size maps were taken away, with some members of the public also wanting updated versions from the DEH website.

Having similar 'road show' type displays in the region, with information targeted specifically to the relevant local audience/issue could be an engagement tool that the CLLMM team incorporates in its ongoing community consultation efforts.

Appendix 15

Template/Online Feedback Form

Managing for a Healthy Future Feedback Form

Planning a sustainable future for the region

The South Australian Government is developing a long-term plan for the Coorong, Lower Lakes and Murray Mouth region in partnership with the community, scientists and industry. This is part of the South Australian Government's \$610 million [Murray Futures](#) program, funded by the Australian Government's [Water for the Future](#) program.

The second step in developing the long-term plan is the release of the *Managing for a Healthy Future* document for public comment. The full version of the document is available on this disc.

Managing for a Healthy Future

The *Managing for a Healthy Future* document builds on the framework outlined in the *Directions for a Healthy Future* document, released in May 2009, and presents a range of options for how the Coorong, Lower Lakes and Murray Mouth region will be best managed in the future.

Each of the proposed management actions address the overarching objectives (or 'core elements') that need to be put in place to achieve a healthy, sustainable future for the region.

Community feedback will help inform the final long-term plan, due for completion in October 2009, and is vital to ensure the best possible plan is developed.

Have your say

Please complete this feedback form to give your comments on the *Managing for a Healthy Future* document and the proposed actions to manage environmental issues facing the region.

You can choose what sections and questions to comment on, or complete the full feedback form.

Please send your completed forms back to the Coorong, Lower Lakes and Murray Mouth projects team:

Email: cllmm@deh.sa.gov.au
Postal: Reply Paid 1047, Adelaide SA 5000

Feedback is due by Friday 11 September 2009 to be considered in the final long-term plan.

Thank you

Thank you for taking the time to provide feedback on the *Managing for a Healthy Future* document.

Your feedback will help us develop the best possible plan for a healthy, sustainable future for the Coorong, Lower Lakes and Murray Mouth region.

Feedback Form - Registration

Information about you

(*Essential Information)

Title: Dr(Mr/Mrs/Ms/Dr etc)

First Name*

Last Name

Organisation

Email address

Postal Address

Please note: By submitting your feedback you are giving consent for your words and ideas to be included in Department for Environment and Heritage public documents. Your name and organisation may be listed to acknowledge you as a contributor, but you will not be identified with any specific comment or idea.

I agree ☐ (check box)

Index

Section one

- The goal of the Long Term Plan; Consideration of four possible Climatic Scenarios and; the primary management action

Section two

- Management actions related to the Coorong and Murray Mouth

Section three

- Management actions related to Lake Albert

Section four

- Management actions related to Lake Alexandrina

Section five

- Management actions related to the Tributaries - Finniss River & Currency Creek

Section six

- Your opportunity to make other comments about the *Managing for a Healthy Future* document

Section one – Goal of the long-term plan

<p>Our goal is to secure a future for the Coorong, Lower Lakes and Murray Mouth as a healthy, productive and resilient wetland system of international importance.</p> <p>The goods and services that drive the regional economy and support local communities largely depend on a healthy environment. It is therefore critical that the main focus of the long-term plan is to conserve the species, ecological communities and ecosystems of the site. In doing so, our actions will significantly contribute to the social and economic wellbeing of local communities in the long-term.</p>
<p>Indicate your level of support for the goal here:</p> <div><div>Supported</div><div>Neutral</div><div>Not supported</div><div>Undecided</div></div>
<p>Your Comment</p>

Climatic Scenarios

The table below describes the possible implications to the region's environment for a range of possible climatic scenarios (wet, median, dry and extreme dry) used in planning for a variable future climate. These scenarios are a best attempt to describe the possible affects using currently available data. Your comments may assist in the establishment of more accurate scenarios.

This table is based on the current water allocation arrangements and does not incorporate water recovery targets being achieved by the Living Murray initiative or arrangements being considered through the development of the Murray-Darling Basin Plan.

For example, it may be possible to improve outcomes in terms of Ecological Character by improving water allocation arrangements for the dry and/or median scenarios.

Environmental impacts on the Coorong & Lower Lakes region					
Climatic Scenario	Flows to Murray Mouth	The effect of flows on the Murray Mouth	Water levels in Lower Lakes	Wetland system	Biodiversity – plants & animals
Wet scenario	5550 gicalitres / year	Frequent flooding. Mouth open.	Water levels in Lake Alexandrina maintained between 0.3 and 0.85metres above sea level in most years. In some years water levels may be higher due to the sheer volume of water available.	Wetland systems (including Lakes Alexandrina and Albert, the Coorong, the Murray Mouth and Estuary, the Goolwa Channel and the Tributaries) connected, healthy, resilient and productive.	Ruppia species present in both the North Lagoon and South Lagoon of the Coorong. The salinity gradient present in the lagoons promotes the survival of the diversity of biota for which the Coorong is renowned.
Median scenario	3482 gicalitres / year	Slightly increased the average period between flood events that flush the Murray mouth. Maximum period between flood events that flush the Murray mouth increased to nearly 1 in 8 years Dredging required to maintain an open Murray Mouth sometimes.	Water levels in Lake Alexandrina maintained between 0.3 and 0.85 metres above sea level for more than 50% of the time.	Wetland systems (including Lakes Alexandrina and Albert, the Coorong, the Murray Mouth and Estuary, the Goolwa Channel and the Tributaries) connected during these periods. Outside of these times, the Coorong, Murray Mouth and Estuary could experience periods of disconnection. Average annual volumes of environmentally beneficial floods close to halved.	Ruppia would start to disappear from the South Lagoon of the Coorong.
Dry scenario	1417 gicalitres / year	Dredging would be required to maintain an open Murray Mouth most of the time. Increased the average period between flood events that flush the Murray mouth to 1 in 3 years. Maximum period between flood events that flush the Murray mouth increased to over 1 in 16 years.	Water levels in Lake Alexandrina dropping. Water level in Lake Albert dropped to levels close to the acidification trigger of 0.5 metres below sea level.	Water being pumped from Lake Alexandrina into Lake Albert to avert acidification of the latter i.e. these wetland systems would be artificially connected.	The ecology of the Coorong would likely be significantly altered, with Ruppia species almost absent from the South Lagoon and contracting from the North Lagoon.

<i>(continued)</i> Environmental impacts on the Coorong & Lower Lakes region					
Climatic Scenario	Flows to Murray Mouth	The effect of flows on the Murray Mouth	Water levels in Lower Lakes	Wetland system	Biodiversity – plants & animals
Extreme dry scenario	366 gigalitres / year	No flows over the barrages most of the time.	Lower than 0.5m below sea level. Shallow.	Lake Alexandrina a shallow water body disconnected from Lake Albert, the Coorong, Murray Mouth and Estuary, the Goolwa Channel and the Tributaries. Large areas of exposed acid sulfate soils in Lakes Alexandrina and Albert, the Goolwa Channel and Tributaries.	Coorong becomes hypermarine, and the salinity gradient that supports the diversity of species characteristic of the Coorong non-existent in the South Lagoon and parts of the North Lagoon.

Your Comment

Section one – Management actions to benefit the complete Coorong, Murray Mouth and Lower Lakes Region

PA1: The primary management action			
Increased freshwater provided from upstream in the Murray Darling Basin (Basin Plan, Water for the Future, buy backs etc)			
Core Element: Freshwater provided to the Lakes & Coorong and managing variable lake levels			
Description		Rationale	
Secure freshwater from upstream of the Coorong, Lower Lakes and Murray Mouth –through buybacks, the Basin Plan, Water Allocation Planning processes [Links to B1, C1& D1]		Short-term – Reduces salinity within the wetland system, including the Coorong. submerges Acid Sulfate Soils Long-term - Delivery of freshwater to the site is the preferred option for establishing a healthy, productive and resilient wetland of international importance. Re-establishes salinity gradient within the Coorong that makes it a productive estuarine system, Secures the future of communities and industries dependent on the wetland system.	
Management action A2 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level support for the primary management action here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about the primary management action here:			

End of section one

Section two - Management actions related to the Coorong & Murray Mouth

A1: Increase diversion of the water from the South East Drainage system			
Core Element: Freshwater provided to the Lakes & Coorong and managing variable lake levels			
Description		Rationale	
Restoration of surface water flow path from wetlands of the Upper South East to the South Lagoon of the Coorong.		Reduction of salinity in South Lagoon.	
Management action A1 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
No	Yes	Yes	Yes

Indicate your level of support for management action A1 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action A1 here:

A3: Connect Lake Albert to the North Lagoon of the Coorong

Core Element: Freshwater provided to the Lakes & Coorong and managing variable lake levels

Description		Rationale	
Construct a channel linking Lake Albert to the North Lagoon of the Coorong and discharge water from Lake Albert to the North Lagoon. Return flows would be prevented by design.		High River Murray flows from Lake Alexandrina could be delivered directly to the North Lagoon via Lake Albert.	
Management action A3 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	No	No

Indicate your level of support for management action A3 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action A3 here:

A4: Dredging – existing strategy**Core Element: The Murray Mouth Open and connecting the Coorong, River and Lakes to the Sea**

Description	Rationale
Dredge the Murray Mouth in accordance with existing procedures.	Murray Mouth needs to be kept open when insufficient river flows are available to flush the Murray Mouth. This is to maintain system connectivity, which is critical for a healthy, productive and resilient wetland.

Management action A4 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
No	Yes	Yes	Yes

Indicate your level of support for management action A4 in the box below.:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action A4 here:

A5: Dredging – increase channel dimensions**Core Element: The Murray Mouth Open and connecting the Coorong, River and Lakes to the Sea**

Description	Rationale
Dredge the Murray Mouth to establish and maintain mouth channels that are larger in size, and to get greater penetration of tidal flows along the Coorong.	Murray Mouth needs to be kept open when insufficient river flows are available to flush the Murray Mouth. This is to maintain system connectivity, which is critical for a healthy, productive and resilient wetland.

Management action A5 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
No	Yes	Yes	Yes

Indicate your level of support for management action A5 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action A5 here:

A6: Dredging with sand fluidisation**Core Element: The Murray Mouth Open and connecting the Coorong, River and Lakes to the Sea**

Description	Rationale
As an adjunct to dredging, fluidise sand (by using pump and pipe infrastructure to inject water or air into the sand to cause re-suspension) to use the natural flow and enhance its capacity to move sand seawards.	Murray Mouth needs to be kept open when insufficient river flows are available to flush the Murray Mouth. This is to maintain system connectivity, which is critical for a healthy, productive and resilient wetland.

Management action A6 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
No	Yes	Yes	Yes

Indicate your level of support for management action A6 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action A6 here:

A7: Channel dredging with River Mouth Training Walls**Core Element: The Murray Mouth Open and connecting the Coorong, River and Lakes to the Sea**

Description	Rationale
Construct River mouth training walls to stabilise and maintain the entrance channel and improve navigability through the Murray Mouth. Dredge the Murray Mouth and inner channel to establish a good starting environment.	Murray Mouth needs to be kept open when insufficient river flows are available to flush the Murray Mouth. This is to maintain system connectivity, which is critical for a healthy, productive and resilient wetland.

Management action A7 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
No	Yes	Yes	Yes

Indicate your level of support for management action A7 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action A7 here:

A8: Sand bypassing with River Mouth Training walls			
Core Element: The Murray Mouth Open and connecting the Coorong, River and Lakes to the Sea			
Description		Rationale	
Construct River mouth training walls to stabilise and maintain the entrance channel and improve navigability through the Murray Mouth. As an adjunct, install infrastructure to bypass long term net sand transport.		Murray Mouth needs to be kept open when insufficient river flows are available to flush the Murray Mouth. This is to maintain system connectivity, which is critical for a healthy, productive and resilient wetland.	
Management action A8 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
No	Yes	Yes	Yes
Indicate your level of support for management action A8 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action A8 here:			

A9: Fish passages through to the Coorong at Goolwa			
Core Element: Maintaining system connectivity and ecological function			
Description		Rationale	
Fish passages (eg. vertical slots/rock ramps) will be installed in all structures (existing and proposed) to optimise fish passage between the lakes and the Coorong.		Fish passages are essential structures to enable fish to move between different parts of the Ramsar site that have been disconnected through barrages, regulators and other devices.	
Management action A9 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action A9 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action A9 here:			

A10: Pumping out of the South Lagoon**Core Element: Managing localised threats, especially acidification**

Description	Rationale
Pumping out water from the South Lagoon at a set rate every day for one year. Requires completion of actions A4-A8 (as an open Murray Mouth is essential to the success of this action).	Will lead to a reduction of salinity in the South Corong - salinities are currently above the threshold for keystone species, such as Ruppia. Complementary action to A11.

Management action A10 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
No	No	Yes	Yes

Indicate your level of support for management action A10 here:

Supported

☐

Neutral

☐

Not supported

☐

Undecided

☐

Please add your comments about management action A10 here:

A11: Clearing of sills near Parnka Point**Core Element: Managing localised threats, especially acidification**

Description	Rationale
Channel through the Needles (North Parnka Point) to be widened and/or deepened through dredging.	Complementary action to A10 – essential to increase mixing between the North and South Lagoons and enhance the salinity gradient within the South Lagoon and to ensure the success of A10.

Management action A11 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
No	Yes	Yes	Yes

Indicate your level of support for management action A11 here:

Supported

☐

Neutral

☐

Not supported

☐

Undecided

☐

Please add your comments about management action A11 here:

A12: Transplanting of Ruppia species			
Core Element: Managing localised threats, especially acidification			
Description		Rationale	
Propagate and plant out <i>Ruppia megacarpa</i> into the North Lagoon and <i>Ruppia tuberosa</i> into the South Lagoon.		Ruppia species are keystone species for the ecology of the Coorong Lagoons and are in extremely poor condition. Existing populations are not self-sustaining. Revegetation will increase their cover and thereby improve overall ecological health of the Coorong lagoons.	
Management action A12 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	No
Indicate your level of support for management action A12 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action A12 here:			

End of section two

Section three – Management actions related to Lake Albert

B1: Increase freshwater provided from upstream in the Murray Darling Basin (Basin Plan, Water for the future, buy backs etc)			
Core Element: Freshwater provided to the Lakes & Coorong and managing variable lake levels			
Description		Rationale	
Secure freshwater from upstream of the Coorong, Lower Lakes and Murray Mouth – may be through buybacks, through the Basin Plan, through Water Allocation Planning processes [Linked to A2, C1 & D1]		Short-term – Reduces salinity within the wetland system, including Lake Albert. Submerges Acid Sulfate Soils Long-term - Delivery of freshwater to the site is the preferred option for establishing a healthy, productive and resilient wetland of international importance. Secures the future of communities and industries dependent on the wetland system.	
Management action B1 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action B1 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action B1 here:			

B2: Pumping from Lake Alexandrina**Core Element: : Freshwater provided to the Lakes & Coorong and managing variable lake levels**

Description	Rationale		
Pump water into Lake Albert from Lake Alexandrina to avert acidification in Lake Albert.	The acidification trigger level for Lake Albert is 0.5 metres below sea level. Pumping water from Lake Alexandrina to Lake Albert would avoid reaching this trigger point, thus avoiding acidification. However, pumping ceased on 30 June 2009: the continuing low inflows to the Lower Lakes was also bringing Lake Alexandrina closer to its trigger point. Further modelling will be undertaken to better define acidification trigger levels once results from acidity flux research investigations are obtained.		
Management action B2 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
No	No	Yes	No
Indicate your level of support for management action B2 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action B2 here:			
T			

B3: Develop a framework to manage water most effectively within the site**Core Element: : Freshwater provided to the Lakes & Coorong and managing variable lake levels**

Description	Rationale		
Develop and implement a framework to manage water most effectively within the site. Will incorporate a Lakes and Barrages Operating Strategy. [Linked to C2]	Water levels within the Lakes have traditionally been managed to provide for take by irrigators from the water bodies. Managing water levels primarily for ecological outcomes will allow for greater variation in lake levels and should lead to improved wetland health.		
Management action B3 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action B3 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action B3 here:			
Don't really know what you mean here			

B4: Reduce reliance upon Lakes for extractive uses – i.e. installation of pipeline and/or rainwater tanks etc (note that this action does NOT include the irrigation pipeline to Langhorne Creek, which is an existing action)

Core Element: : Freshwater provided to the Lakes & Coorong and managing variable lake levels

Description	Rationale		
<p>Extend existing potable pipelines and the irrigation pipeline currently under construction to include all users of water extracted from the lakes.</p> <p>Undertake a regional water use and wastewater budget from Lock 1 to the Murray Mouth to identify 1) ways in which River Murray and tributary water use can be reduced or changed to benefit the wetland system and 2) opportunities for wastewater re-use to replace current River Murray and/or tributary water use. Options may include rainwater tanks and piping of treated wastewater to users. [Linked to C3]</p>	<p>Will remove reliance of all water users from the lakes and increase the reliability and quality of water supply to these users.</p> <p>Allows for greater flexibility in managing water levels in the lakes for wetland health.</p>		
Management action B4 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action B4 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action B4 here:			

B5: Narrung Narrows remedial works (applies to wetter scenarios only) – remove bund, dredge narrows, undertake remedial works including modifications to ferry causeway to provide for natural flows through The Narrows

Core Element: Maintaining system connectivity and ecological function

Description	Rationale
Remove the bund between Lake Alexandrina and Lake Albert, dredge the Narrung Narrows and modify the ferry causeway to provide for natural flows through The Narrows	Improve connectivity between Lakes Alexandrina and Albert to improve the water quality and water regime in Lake Albert.

Management action B5 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
Yes	Yes	No	No

Indicate your level of support for management action B5 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action B5 here:

B6: Alternative to Narrung Narrows remedial works (applies to dry scenario only) - Installation of permanent regulator at Narrung

Core Element: Maintaining system connectivity and ecological function

Description	Rationale
Construct a permanent regulator at the location of the bund between Lakes Alexandrina and Albert that can facilitate two-way wind-driven flow between the Lakes.	Allows for greater flexibility in varying water levels in the two Lakes. This has the potential to result in better water quality in one or both Lakes. May provide water savings. Provides the opportunity to implement actions in one of the Lakes without impacting on the other Lake.

Management action B6 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
No	No	Yes	No

Indicate your level of support for management action B6 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action B6 here:

B7: Prevention of acidification			
Core Element: Managing localised threats			
Description		Rationale	
Install low permeability sub-surface barriers in strategic locations parallel to the shoreline to permit groundwater mounding and partial submergence of acid sulfate soils. Mound water behind shallow terraces along contour lines and distribute over sediments via perforated pipes.		Prevention is preferable to treatment.	
Management action B7 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
No	No	Yes	Yes
Indicate your level of support for management action B7 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action B7 here:			

B8: Hot spot Acid Sulfate Soil mitigation (e.g. cracking clays, sands, Mono-sulfidic Black Oozes)			
Core Element: Managing localised threats			
Description		Rationale	
Apply finely ground limestone to exposed lakebeds. This may be surface application or subsurface application. [Linked to C8]		Application of finely ground limestone will neutralise acid that has been generated.	
Management action B8 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
No	No	Yes	Yes
Indicate your level of support for management action B8 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action B8 here:			

B9: "Bioremediation basin"			
Core Element: Managing localised threats			
Description		Rationale	
Allow Lake Albert to drawdown to a level that will be sustained with groundwater or surface water inflows, noting that the groundwater may be highly saline. Remediate the lake by, applying organic matter, carbonate and iron, as required for sulfate reduction to pyrite. [Linked to C7]		Application of finely ground limestone will neutralise acid that has been generated. Bioremediation will help to manage the effects of acidification. Provides approximately 170GL per year of water savings, through ceasing to pump water from Lake Alexandrina. Lake Albert converted to an ephemeral wetland, which can facilitate bioremediation.	
Management action B9 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
No	No	Yes	Yes
Indicate your level of support for management action B9 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action B9 here:			

B10: Revegetation for Acid Sulfate Soil remediation around Lake edges			
Core Element: Managing localised threats			
Description		Rationale	
Exposed acid sulfate soils will be direct seeded with crops or native vegetation. [Linked to C4]		Revegetation using crops and native plants will help to promote conditions that do not encourage the formation of acid and will reduce mobilisation of heavy metals. This will prepare the Lake for other management options such as saturation of exposed soils with freshwater, native revegetation (reeds, rushes, trees).	
Management action B10 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
No	No	Yes	Yes
Indicate your level of support for management action B10 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action B10 here:			

B11: Planting of annual crop type species on exposed areas to contain wind erosion			
Core Element: Managing localised threats			
Description		Rationale	
Areas exposed to wind erosion will be planted with annual crop species, initially to stabilise soils. This will be followed by the planting of natives such, as sedges, to increase biodiversity. [Linked to C5]		Promotes resilience within the wetland system as it minimises the exposure of new acid sulfate soils to air.	
Management action B11 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
No	No	Yes	Yes
Indicate your level of support for management action B11 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action B11 here:			

B12: Natural resource management (NRM) activities (weed control, fencing, rabbit control to ensure success of revegetation and cropping)			
Core Element: Managing localised threats			
Description		Rationale	
Implement integrated pest plant and animal control programs across the whole site, including both aquatic and terrestrial habitats. Develop and implement a Code of Practice for lakeshore graziers that provides for best practice for managing stock around the Lakes – would cover issues such as fencing, alternative water points, erosion control and rotational grazing. [Linked to C7]		Pest plants and animals have the potential to significantly alter the Ecological Character of the site if not controlled. Uncontrolled stock access to the Lakes threatens some components of Ecological Character through processes such as disturbance of acid sulfate soils, trampling, grazing and pugging.	
Management action B12 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action B12 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action B12 here:			

End of section three

Section four – Management actions related to Lake Alexandrina

C1: Increased freshwater provided from upstream in the Murray Darling Basin (Basin Plan, Water for the future, buy backs etc)			
Core Element: Freshwater provided to the Lakes & Coorong and managing variable lake levels			
Description		Rationale	
Secure freshwater from upstream of the Coorong, Lower Lakes and Murray Mouth –through buybacks, the Basin Plan, Water Allocation Planning processes		Short-term – Reduces salinity within the wetland system, including Lake Alexandrina. Submerges Acid Sulfate Soils Long-term - Delivery of freshwater to the site is the preferred option for establishing a healthy, productive and resilient wetland of international importance. Secures the future of communities and industries dependent on the wetland system.	
Management action C1 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action C1 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action C1 here:			

C2: Develop a framework to manage water most effectively within the site			
Core Element: Freshwater provided to the Lakes & Coorong and managing variable lake levels			
Description		Rationale	
Develop and implement a framework to manage water most effectively within the site. Will incorporate a Lakes and Barrages Operating Strategy.		Water levels within the Lakes have traditionally been managed to provide for take by irrigators from the water bodies. Managing water levels primarily for ecological outcomes will allow for greater variation in lake levels and should lead to improved wetland health.	
Management action C2 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action C2 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action C2 here:			

C3: Reduce reliance upon Lakes for extractive uses – i.e. installation of pipeline and/or rainwater tanks etc			
Core Element: Freshwater provided to the Lakes & Coorong and managing variable lake levels			
Description		Rationale	
Extend existing potable pipelines and the irrigation pipeline currently under construction to include all users of water extracted from the lakes.		Will remove reliance of all water users from the lakes and increase the reliability and quality of water supply to these users.	
Undertake a regional water use and wastewater budget from Lock 1 to the Murray Mouth to identify 1) ways in which River Murray and tributary water use can be reduced or changed to benefit the wetland system and 2) opportunities for wastewater re-use to replace current River Murray and/or tributary water use. Options may include rainwater tanks and piping of treated wastewater to users.		Allows for greater flexibility in managing water levels in the lakes for wetland health.	
Management action C3 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action C3 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action C3 here:			

C4: Revegetation (native) for ecosystem rehabilitation around Lake edges**Core Element: Managing localised threats, especially acidification**

Description	Rationale
Revegetate the adjacent high elevation areas of the lake above 0.75 metres above sea level with native species.	Planting these areas will increase the connection between habitats within the Lake, including between aquatic and terrestrial habitats. Additional benefit of providing additional carbon and iron to the Lake system.

Management action C4 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes

Indicate your level of support for management action C4 here:

Supported
☐Neutral
☐Not supported
☐Undecided
☐

Please add your comments about management action C4 here:

C5: Cropping of annual species in exposed areas to contain wind erosion, to be followed by planting natives and increasing biodiversity**Core Element: Managing localised threats, especially acidification**

Description	Rationale
Areas exposed to wind erosion will be planted with annual crop species, to be followed by plantings of native species.	Promotes resilience within the wetland system as it minimises the exposure of acid sulfate soils to air.

Management action C5 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
No	No	Yes	Yes

Indicate your level of support for management action C5 here:

Supported
☐Neutral
☐Not supported
☐Undecided
☐

Please add your comments about management action C5 here:

C6: Natural resource management (NRM) activities (weed control, fencing, rabbit control to ensure success of revegetation and cropping)

Core Element: Managing localised threats, especially acidification

Description		Rationale	
Implement integrated pest plant and animal control programs across the whole site, including both aquatic and terrestrial habitats. Develop and implement a Code of Practice for lakeshore graziers that provides for best practice for managing stock around the Lakes – would cover issues such as fencing, alternative water points, erosion control and rotational grazing.		<p>Pest plants and animals have the potential to significantly alter the Ecological Character of the site if not controlled.</p> <p>Uncontrolled stock access to the Lakes threatens some components of Ecological Character through processes such as disturbance of acid sulfate soils, trampling, grazing and pugging.</p>	
Management action C6 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action C6 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action C6 here:			

C7: Bioremediation wetlands for areas that disconnect from main water body of Lake Alexandrina

Core Element: Managing localised threats, especially acidification

Description		Rationale	
Manage Lake Alexandrina water levels to a level that will sustain wetland function. Manage acid sulfate soils in the lake by applying limestone and cover crops, and saturation.		<p>Application of finely ground limestone will neutralise acid that has been generated. Bioremediation will manage acidification risks and acid sulfate soils.</p> <p>Parts of Lake Alexandrina converted to ephemeral wetlands/swamp, which can function as Bioremediation Basins.</p>	
Management action C7 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
No	No	Yes	Yes
Indicate your level of support for management action C7 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action C7 here:			

C8: Prevention of acidification**Core Element: Managing localised threats, especially acidification**

Description	Rationale
Install low permeability sub-surface barriers in strategic locations parallel to the shoreline to permit groundwater mounding and partial submergence of acid sulfate soils. Mound water behind shallow terraces along contour lines and distribute over sediments via perforated pipes.	Prevention is preferable to treatment

Management action C8 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
No	No	Yes	Yes

Indicate your level of support for management action C8 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action C8 here:

C9: Hot spot Acid Sulfate Soil mitigation (e.g. cracking clays, sand, Mono-sulfidic Black Oozes)**Core Element: Managing localised threats, especially acidification**

Description	Rationale
Apply finely ground limestone or water to exposed lakebeds	Application of finely ground limestone will neutralise acid that has been generated. It will also help to promote conditions that do not encourage the formation of acid.

Management action C9 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
No	No	Yes	Yes

Indicate your level of support for management action C9 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action C9 here:

C10: Introduction of minimal amounts of seawater to avert acidification of Lake Alexandrina

Core Element: Managing localised threats, especially acidification

Description	Rationale
The minimum amount of seawater necessary will be introduced to avert acidification of Lake Alexandrina.	May avoid acidification (although could make it worse)

Management action C10 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
No	No	No	Yes

Indicate your level of support for management action C10 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action C10 here:

End of section four

Section five: Management actions related to Tributaries - Finniss River & Currency Creek

D1: Increased freshwater provided from upstream in the Murray Darling Basin (Basin Plan, Water for the future, buy backs etc			
Core Element: Freshwater provided to the Lakes & Coorong and managing variable lake levels			
Description		Rationale	
Secure freshwater from upstream of the Coorong, Lower Lakes and Murray Mouth –through buybacks, the Basin Plan, Water Allocation Planning processes		<p>Short-term - Reduces salinity within the wetland system. Submerges Acid Sulfate Soils.</p> <p>Long-term - Delivery of freshwater to the site is the preferred option for establishing a healthy, productive and resilient wetland of international importance.</p> <p>Secures the future of communities and industries dependent on the wetland system.</p>	
Management action D1 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action D1 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action D1 here:			

D2: Reduce reliance upon Lakes for extractive uses – i.e. installation of pipeline and/or rainwater tanks etc

Core Element: Freshwater provided to the Lakes & Coorong and managing variable lake levels

Description	Rationale		
<p>Extend existing potable pipelines and the irrigation pipeline currently under construction to include all users of water extracted from the lakes.</p> <p>Undertake a regional water use and wastewater budget from Lock 1 to the Murray Mouth to identify 1) ways in which River Murray and tributary water use can be reduced or changed to benefit the wetland system and 2) opportunities for wastewater re-use to replace current River Murray and/or tributary water use. Options may include rainwater tanks and piping of treated wastewater to users.</p>	<p>Will remove reliance of all water users from the lakes and increase the reliability and quality of water supply to these users.</p> <p>Allows for greater flexibility in managing water levels in the lakes for wetland health.</p>		
Management action D2 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action D2 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action D2 here:			

D3: Installation of fish passage into regulators

Core Element: Maintaining system connectivity and ecological function

Description	Rationale		
Fish passages (eg. vertical slots/rock ramps) will be installed in regulators to optimise fish passage between the tributaries, the lakes and the Coorong.	Fish passages are essential structures to enable fish to move between different parts of the Ramsar site that have been disconnected through barrages, regulators and other devices.		
Management action D3 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes
Indicate your level of support for management action D3 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action D3 here:			

D4: Installation of regulators to achieve soil saturation in creeks to address Acid Sulfate Soils (& removal in Year 5)

Core Element: Managing localised threats, especially acidification

Description	Rationale		
<p>Construct a temporary regulator from the mainland near Clayton to Hindmarsh Island, and additional low level temporary regulators at the terminal ends of Finniss River and Currency Creek to impound the first flushes from the tributaries. In a one off event, 27.5 GL of water will be pumped from Lake Alexandrina into the ponded area in July 2009 following completion of the regulators. Water in the Channel to be discharged when the water level reaches 0.70 metres above sea level.</p> <p>Discharge location could be to Lake Alexandrina (via the regulator at Clayton) (as currently advised by the Commonwealth Government) or to the Murray Mouth and Coorong via the Goolwa barrage (would need to be negotiated with the Commonwealth Government).</p>	<p>Installation of the regulators will mitigate the acidification risks within the tributaries by inundating acid sulfate soils and minimising formation/ mobilisation of acid and heavy metal salts.</p> <p>Creation of a freshwater refuge area subject to operation of the regulators, and a reduction in salinity.</p>		
Management action D4 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
N	N	N	Yes
Indicate your level of support for management action D4 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action D4 here:			

D5: Revegetation (native) for Ecosystem rehabilitation around the tributaries**Core Element: Managing localised threats, especially acidification**

Description		Rationale	
Revegetate along the edges of the tributaries with native species		Provides an opportunity to increase the connection between habitats within the wetland system, including between aquatic and terrestrial habitats.	
Management action D5 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
N	N	Yes	Yes
Indicate your level of support for management action D5 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action D5 here:			

D6: Cropping of annual species to contain wind erosion**Core Element: Managing localised threats, especially acidification**

Description		Rationale	
Areas exposed to wind erosion will be planted with annual crop species.		Promotes resilience within the wetland system as it minimises the exposure of acid sulfate soils to air.	
Management action D6 will apply under the following climatic scenario/s			
Wet	Median	Dry	Extreme Dry
N	N	Yes	Yes
Indicate your level of support for management action D6 here:			
Supported <input type="checkbox"/>	Neutral <input type="checkbox"/>	Not supported <input type="checkbox"/>	Undecided <input type="checkbox"/>
Please add your comments about management action D6 here:			

D7: Natural resource management (NRM) activities (weed control, fencing, rabbit control to ensure success of revegetation and cropping)

Core Element: Managing localised threats, especially acidification

Description	Rationale
Implement integrated pest plant and animal control programs across the whole site, including both aquatic and terrestrial habitats.	Pest plants and animals have the potential to significantly alter the Ecological Character of the site if not controlled.

Management action D7 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes

Indicate your level of support for management action D7 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action D7 here:

D8: Hot spot Acid Sulfate Soil mitigation (e.g. cracking clays, sand, Mono-sulfidic Black Oozes)

Core Element: Managing localised threats, especially acidification

Description	Rationale
Apply finely ground limestone to exposed creek beds	Application of finely ground limestone will neutralise acid that has been generated. It will also help to promote conditions that do not encourage the formation of acid, and assist the re-establishment of key plant and animal species.

Management action D8 will apply under the following climatic scenario/s

Wet	Median	Dry	Extreme Dry
N	N	Yes	Yes

Indicate your level of support for management action D8 here:

Supported
☐

Neutral
☐

Not supported
☐

Undecided
☐

Please add your comments about management action D8 here:

End of section five

Section six - Any other comments about the *Managing for a Healthy Future* document

Please insert any other comments, or questions you have about the *Managing for a Healthy Future* document.

Your Comment

End of section six

Thank you

Thank you for taking the time to provide feedback on the *Managing for a Healthy Future* document.

Your feedback will help develop the best possible plan for a healthy, sustainable future for the Coorong, Lower Lakes and Murray Mouth region.

To submit your feedback

Email: cllmm@deh.sa.gov.au

Post: Reply Paid 1047, ADELAIDE SA 5001

Feedback is due by Friday 21 August 2009 to be considered in the final long-term plan.

Further information

Murray Futures

www.murrayfutures.sa.gov.au

**Department for Environment and Heritage
Coorong, Lower Lakes and Murray Mouth Projects**

www.environment.sa.gov.au/cllmm

Email: cllmm@deh.sa.gov.au

Phone: 1800 226 709 (free call during normal business hours)

Appendix 16

Examples – Management Action Flashcards

Coorong and Murray Mouth

MANAGEMENT ACTION

Increase diversion of the water from the South East drainage system

CORE ELEMENT

Freshwater provided to the Lakes and Coorong and managing variable lake levels.

DESCRIPTION

Restoration of surface water flow path from wetlands of the Upper South East to the South Lagoon of the Coorong.

CLIMATIC SCENARIO

Wet	Median	Dry	Extreme Dry
No	Yes	Yes	Yes

A1 MURRAYFUTURES

Coorong and Murray Mouth

RATIONALE

Reduction of salinity in South Lagoon.

A1 MURRAYFUTURES

Australian Government
Government of South Australia

Lake Albert

MANAGEMENT ACTION

Pumping from Lake Alexandrina

CORE ELEMENT

Freshwater provided to the Lakes and Coorong and managing variable lake levels.

DESCRIPTION

Pump water into Lake Albert from Lake Alexandrina to avert acidification in Lake Albert.

CLIMATIC SCENARIO

Wet	Median	Dry	Extreme Dry
No	No	Yes	No

B2

MURRAY**FUTURES**

Lake Albert

RATIONALE

The acidification trigger level for Lake Albert is -0.5mAHD. Pumping water from Lake Alexandrina to Lake Albert would avoid reaching this trigger point, thus avoiding acidification. However, pumping ceased on 30 June 2009: the continuing low inflows to the Lower Lakes was also bringing Lake Alexandrina closer to its trigger point.

Further modelling will be undertaken to better define acidification trigger levels once results from acidity flux research investigations are obtained.



Australian Government



Government
of South Australia

B2

MURRAY**FUTURES**

Lake Alexandrina

MANAGEMENT ACTION

Develop a framework to manage water most effectively within the site

CORE ELEMENT

Freshwater provided to the Lakes and Coorong and managing variable lake levels.

DESCRIPTION

Develop and implement a framework to manage water most effectively within the site. Will incorporate a Lakes and Barrages Operating Strategy.

CLIMATIC SCENARIO

Wet	Median	Dry	Extreme Dry
Yes	Yes	Yes	Yes

C2

MURRAYFUTURES

Lake Alexandrina

RATIONALE

Water levels within the Lakes have traditionally been managed to allow for irrigators to take from the water bodies. Managing water levels primarily for ecological outcomes will allow for greater variation in Lake levels and should lead to improved wetland health.



Australian Government



Government of South Australia

C2

MURRAYFUTURES



www.murrayfutures.sa.gov.au

Email: cllmm@deh.sa.gov.au

Phone: 1800 226 709
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Department for Environment and Heritage
Reply Paid 1047
ADELAIDE SA 5001

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