# Murray Darling Association Region 6

# Submission to the Productivity Commission

# Murray Darling Basin Plan: Five-year Assessment

### About the MDA

The Murray Darling Association (**MDA**) is the peak-representative body representing local government and their communities across the Murray-Darling Basin.

The vision of the MDA is a healthy Murray-Darling Basin which supports thriving communities, economic development and sustainable productivity. The purpose of the MDA is to provide effective representation of local government and communities at a state and federal level in the management of Basin resources by providing information, facilitating debate and seeking to influence government policy.

The MDA comprises 12 regions across Queensland, New South Wales, Australian Capital Territory, Victoria and South Australia. Local governments form the core membership of the MDA but individuals, businesses, not-for-profit and community service organisations can also become associate members.

### About MDA Region 6

MDA Region 6 represents the interests of the Lower Murray, Lakes & Coorong region. Current membership of MDA Region 6 includes Alexandrina Council, Coorong District Council, Rural City of Murray Bridge and Tatiara District Council along with a number of individual members with long-standing interest and experience in local water resource management issues. This submission has been endorsed by Alexandrina Council, Coorong District Council and Rural City of Murray Bridge as well as by the broader membership of MDA Region 6.

Collectively our four council districts cover an area in excess of 18,900km$^2$ and are home to almost 60,000 people, with a combined Gross Regional Product of $2.77bn (as at year ending June 2016).[1] Agriculture is the region's largest industry with livestock, cereal crops, vegetables and grapes generating the greatest output in value terms. Wool, dairy and broad-acre crops also make a significant contribution to our agricultural productivity. Despite upstream misconceptions, water reaching the Lower Lakes is productive water, with irrigated agricultural production accounting for approximately 10% of land-use across the region.[2] Tourism is another key driver of our regional economy with food, wine and river based experiences linking Adelaide with Melbourne via the Southern Ocean Drive and linking the Murray Mouth & Fleurieu Peninsula with upstream states via the Mighty Murray Way.

We recognise the Ngarrindjeri people as the traditional custodians of the lands and waters of the Lower Murray, Lakes & Coorong region and support their right to be involved in Basin Plan decision-making.

[1] https://profile.id.com.au
[2] https://www.mdba.gov.au/publications/mdba-reports/southern-basin-community-profiles

**General Comments on the Basin Plan**

The River, Lakes & Coorong are central to our way of life and we know all too well from lived experience about the direct link between the ecological health of the region and the economic, social and cultural wellbeing of our people. Prior to adoption of the Basin Plan, the unsustainable use and management of Basin water resources (combined with severe drought) had a devastating impact on our community and local environment. The impacts of the Millennium Drought on our region are well documented elsewhere but included low water levels, elevated salinity, vast exposure of acid sulphate soils and localised acidification of surface waters.[3] As a result, what lake water there was became either inaccessible or unusable for irrigation, whilst low water levels had a significant impact on tourism and related industries, with associated drops in property values and sales.

Against this backdrop, our region has been a vocal and consistent supporter of the Basin Plan. The councils of MDA Region 6 worked side by side with our community in seeking to ensure the Basin Plan would prioritise return of sufficient water to the system to avoid, as far as possible, a repeat of what we experienced during the Millennium Drought. We recognise that the 2750GL recovery target is a compromise position – in a changing climate we fear that even the higher 3200GL target is not enough to guarantee a healthy river. We've also contributed our fair share of Basin water recovery, with our region experiencing a net reduction in River Murray water available for production of between 10-15% and significant decreases in our agricultural workforce over the past 15 years.[4] Nonetheless, our region has in good faith continued to call for the full and timely implementation of the Basin Plan; putting our hope in the collective hands of the Basin States, trusting that they are committed to delivering a sustainable water management system which will, on balance, be of benefit not only to our region but to the Basin as a whole.

Recent events have shaken that trust and our community has been left confused and worried, not knowing what to make of the many competing claims which currently abound in the public arena about (1) the success of Basin Plan implementation to date, and (2) what is needed to get Basin Plan implementation back on track. The Basin Plan is a necessarily complex piece of legislation but current debates about the pros and cons of various elements (such as the Northern Basin Review and SDL adjustment mechanism) have made it increasingly difficult for our community to understand the local implications of these critical decision points. As recognised by the MDBA, successful water management in the Basin can only be achieved through genuine commitment and cooperation amongst Basin States which in turn depends on the support and understanding of local Basin communities. As the closest form of government to the community, local government has an important role to play in sharing community interests and impacts to other levels of government. We thus join with MDA Region 7 in encouraging the Commission to give thought to ways in which local government can provide added value to the goal of developing the necessary understanding and cooperation across jurisdictions.

In summary, the Basin Plan is imperfect but nonetheless the best chance we've got to deliver a healthy, working river for all communities from Queensland through to South Australia. That said, we feel our region has the most to lose should the Plan not be delivered in full. We hope the growing list of inquiries will bring a clear and transparent path forward, based on best available science and evidence, so that the Basin States can get on with the job of delivering this much needed water reform.

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[3] See for example DEH (2010) *Securing the Future, Long Term Plan for the Coorong, Lower Lakes and Murray Mouth.*
[4] https://www.mdba.gov.au/publications/mdba-reports/southern-basin-community-profiles

**Response to Issues Paper**

The Issues Paper pose a series of questions, the majority of which we as a region are not able to provide specific answers to. Many of the answers will need to come from Basin States themselves, and from specialist commentators with specific legal, scientific and/or economic expertise. What we can provide is an insight into the interests and concerns of our community, highlighting those issues our community is most worried about and those questions our community is most keen to see answered.

Information Request 2(a): Sustainable Diversion Limits & Adjustments

- On the understanding that current recovery targets represent the bare minimum needed to restore and maintain river health, it is absolutely critical that Basin States play by the rules, particularly when proposing downward adjustments to recovery targets. We note the concerns raised by the Wentworth Group of Concerned Scientists about the poor quality of some "supply measure" projects underpinning the 605GL of downwater (i.e. that they do not satisfy relevant assessment criteria) and support the Commission in identifying these projects as an area of particular focus requiring further scrutiny.

- Our region successfully advocated for the inclusion of end-of-system, locality-specific targets to be included in the Basin Plan. It is of critical importance to our community that these targets are met. These include the environmental watering objectives regarding the ecological character of Ramsar wetlands, minimum lake levels and flows through the Murray Mouth (Basin Plan, Chapter 8, Part 2), the salt export objective (Basin Plan, Section 9.09), and the salinity target for Milang (Basin Plan, Section 9.14). We seek surety that any SDL adjustments will only proceed if there is sufficient evidence that such amendments won't unduly jeopardise achievement of these end-of-system environmental targets, objectives and outcomes (as compared to the benchmark scenario).

- We note that current Basin Plan SDLs are based on an assessment of historic climate variability over the past century and do not take into account the likely impacts of climate change on future water availability. We know that climate change is likely to result in lower average rainfall patterns and more frequent and extreme droughts. We understand CSIRO has predicted that median river flows in the southern Murray Darling Basin will decline 13% by 2030.[5] Current SDLs may quickly become unsustainable when dryer average conditions come to pass, and it remains to be seen whether the Basin Plan can adequately protect the CLLMM region over the long-term given these predicted climatic changes. It is essential that proposed SDL adjustments take the likely impacts of future climate change into account. A precautionary approach to downwards adjustment of SDLs is clearly warranted given that current recovery targets are already a compromise position with respect to achieving river health.

- We seek assurances that Basin States will demonstrate their commitment to full & timely implementation of the Basin Plan via their proactive administration of programs designed to deliver up to 450GL of environmental water for enhanced environmental outcomes by 2024. These programs should be rolled-out across the entire Basin so that participants with the most efficiency gains to be made can self-select for involvement. We note this additional water recovery can only occur through

[5] South Australian EPA (2016) *Summary report prepared for DEWNR:CLLMM quality monitoring program 2009 to 2016*

voluntary participation in projects that have no adverse social or economic outcomes but submit that one way to address concerns regarding adverse impacts would be to fund associated programs which support Basin communities to adapt to change and embrace a more diverse range of economic development opportunities. The existing Murray-Darling Basin Regional Diversification Fund is an example of the kind of targeted structural adjustment program that could be considered.

Information Request 3: Northern Basin Review

- In February 2018, the Board of the MDA (including the Chair of Region 6) voted to support the SDL adjustment recommended in the Northern Basin Review. Region 6 stands by this decision of the MDA Board, on the basis that we recognise the importance of local government working together to ensure the fair and equitable implementation of the Basin Plan. Before the amendments return to Parliament, we do however seek assurances that: (1) Queensland and New South Wales will be required to implement the accompanying toolkit measures needed to maintain environmental outcomes, (2) NSW will review and amend water sharing rules in the Barwon-Darling to protect environmental flows, and (3) the questions raised by the Australia Institute[6] about the veracity of the modelling underpinning the Northern Basin Review have been adequately investigated and addressed.

Information Request 5(b): Recovery of water for the environment

- As with many other South Australian stakeholders, our concern for the Basin Plan is 'death by a thousand cuts'. Best-available science tells us the benchmark 2750GL recovery target will be insufficient to return the Lakes & Coorong region to a sustainable level of health and yet we are facing a number of decisions in coming months which are likely to reduce that figure even further – these include the Northern Basin Review, the SDL adjustment process and political pressure not deliver the 450GL of special account water.

- Two measurement issues affecting the recovery of water for the environment of particular concern to our region are:

  (1) the impact of irrigation efficiency projects on return flows and hence net stream flows and whether these impacts have been properly accounted for in determining how much water has in fact been recovered for the environment;[7] and

  (2) the way that evaporation losses are accounted for across the Basin. South Australia's allocation of water is determined and measured by river flows at the state border such that evaporative losses within South Australia are already accounted for within that allocation. We understand that this is not the case in upstream states, where metering often occurs at the farm-gate rather than at the initial off-take point from the river itself. A question for the Commission is how should the system be metered to ensure that all diversions and associated evaporative losses are properly and equitably accounted for.

[6] http://www.tai.org.au/content/northern-disclosure-rubbery-figures-murray-darling-basin-plan-review
[7] http://www.abc.net.au/news/2017-07-27/murray-darling-300-billion-litres-of-environmental-water-lost/8748794

Information Request 7: Water resource plans

- We are concerned about the apparent lack of progress toward preparation and accreditation of Water Resource Plans. We are particularly concerned that continued delays will result in multiple WRPs being submitted to the MDBA for accreditation all at once over a short period of time, leaving the MDBA with insufficient time and/or resources to adequately scrutinise the content to ensure that these plans are truly Basin Plan compliant.

Information Request 8: Environmental Water Planning & Management

- With respect to environmental changes to date, there are positive signs of environmental recovery within our region as a result of improved environmental flows and the outputs of the CLLMM Recovery Project. The process of ecological recovery is however variable and still continuing. Whilst water quality quite quickly returned to pre-drought levels in Lake Alexandrina and the Goolwa Channel, this is not the case for Lake Albert where salinity levels remained significantly higher than the pre-drought average until very recently. Salinity levels in Lake Albert during the first week of April 2018 have been above 1600EC,[8] as compared to average pre-drought levels of below 1600EC.[9] Continued monitoring of Lake Albert salinity levels is critical for adaptive management.[10] Many key species (frogs, fish, water birds, *Ruppia tuberosa*) have also not recovered in terms of abundance and distribution recorded prior to the Millennium Drought. Monitoring results indicate that continued recovery is highly dependent on future freshwater flows and a management approach which allows for seasonal water level changes in the lakes and additional barrage flows into the Coorong over spring and summer.[11] We strongly encourage the Commission to actively engage with the South Australian Government (DEWNR, PIRSA, SARDI, EPA), relevant research institutions including CSIRO and the Goyder Institute, local irrigators and other community members about the outcomes of ecological monitoring and on-ground observations of environmental change.

Information Request 9: Water quality & salinity management

- We are concerned that some will seek to use the current suite of Basin Plan inquiries to reopen debate about the Basin Plan providing a freshwater vs seawater solution for Lakes Alexandrina and Albert. We respectfully submit there is little value in such discussions given the extensive body of research which demonstrates that the consequences of removing the barrages and re-introducing seawater on a long-term basis would be the creation of an increasingly degraded, hyper-saline ecosystem rather than a healthy, estuarine environment.[12] In the absence of natural upstream river flows, both the barrages and sufficient freshwater flows are essential for maintaining the environmental values of the CLLMM region as well as an appropriate supply of "fit for purpose" water to existing users between Lock 1 and the barrages. Here "fit for purpose" means water of sufficient quality and quantity to be suitable for urban water supply, irrigation industries, tourism and other

[8] https://www.sawater.com.au/community-and-environment/the-river-murray/river-reports/daily-salinity-report
[9] http://www.epa.sa.gov.au/data_and_publications/water_quality_monitoring/lower_lakes/lake_albert
[10] South Australian EPA (2016) *Summary report prepared for DEWNR:CLLMM quality monitoring program 2009 to 2016*
[11] DEWNR (2014) *Ecological Monitoring Summary: Coorong and Lakes Alexandrina and Albert, July 2013 to June 2014.*
[12] See for example Muller K.L. (2011). *Ecological consequences of managing water levels to prevent acidification in Lakes Alexandrina And Albert: Technical Report*. Prepared for Department for Environment and Natural Resources, Adelaide, South Australia.

community uses such as the irrigation of public space. As identified in the MDBA's Drought Emergency Framework for Lakes Alexandrina and Albert, the introduction of seawater would not only result in the collapse of existing ecosystems, it would also compromise major urban, irrigation and riparian stock and domestic supplies below Lock 1.[13]

- What this Commission should consider is the impact that future sea level rise is likely to have on the effective operation of the barrages and correspondingly, on water quality for the Lakes & Coorong region. The Climate Change Adaptation Plan for the South Australian Murray-Darling Basin identifies protection of the Lakes & Coorong region in response to rising sea levels as a priority area of future decision-making and makes a number of recommendations regarding possible adaptation responses.[14] These recommendations include:

  - commencing social engagement to increase community awareness and to promote informed debate about the future operation and location of the barrages;

  - adaptation or modification of the barrages for faster operation to provide better ability to manage high-water levels on the estuary side of the barrages; and

  - raising the height of, or relocating, the barrages, as a long-term solution.

  Current projections from the CSIRO's Climate Change in Australia website indicates that sea levels in the Murray Basin region could rise above the 1986-2005 level by up to 0.64M by 2090 under a medium emissions scenario and by up to 0.84m by 2090 under a high emissions scenario.[15] Whilst the existing barrages do have some inbuilt adaptive capacity,[16] it is generally accepted that under these long-term projected conditions the barrages would struggle to perform their function (i.e. separating the freshwater of Lake Alexandrina from the estuarine water of the Coorong and Goolwa Channel) on a regular basis without adaptation.

  A number of preliminary investigations on the implications of sea level rise and climate change for the CLLMM region have been undertaken (including one in 2005 for the then State Government Department of Environment and Heritage[17], another in 2009 by CSIRO for the SA Murray Darling Basin NRM Board,[18] and another in 2011 for the National Climate Change Adaptation Research Facility[19]) but as yet, no detailed modelling has been publicly released on the potential frequency, duration, extent and/or impacts of barrage failure under varying amounts of sea level rise. Nor are we aware of

[13] Murray Darling Basin Authority (June 2014). *Drought Emergency Framework for Lakes Alexandrina and Albert,* p. 10.
[14] http://www.naturalresources.sa.gov.au/samurraydarlingbasin/projects/all-projects-map/adapting-to-climate-change
[15] https://www.climatechangeinaustralia.gov.au/en/climate-projections/future-climate/regional-climate-change-explorer/sub-clusters/?current=MBC&tooltip=true&popup=true
[16] As detailed in the Barrage Operating Strategy prepared by the SA Department for Environment and Water.
[17] Matthews C (2005) Sea Level Rise and Climate Change: Implications for the Coorong and Lakes Alexandrina and Albert Ramsar sites. A preliminary investigation. Conservation Programs South East, Regional Conservation, Department for Environment and Heritage.
[18] Webster T (2009) *A Preliminary Assessment of the Impacts of Sea Level Rise on Water Levels in the Coorong*. Prepared for the SA Murray-Darling Basin NRM Board.
[19] https://www.nccarf.edu.au/sites/default/files/attached_files_publications/Gross_2012_Limits_in_the_Coorong.pdf

any detailed quadruple-bottom line assessments (i.e. social, economic, cultural and environmental) of potential adaptation responses.

The barrages are "River Murray Operation Assets" and jointly controlled by the Australian, New South Wales, Victorian and South Australian governments. By agreement of the four asset controlling governments, the Murray Darling Basin Authority (**MDBA**) manages the River Murray Operation Assets and under this structure, SA Water is appointed as the operating authority. It is thus beyond the scope of local government to have primary responsibility for undertaking climate change adaptation planning for the barrages and Lower Lakes. We suggest that State and Federal government investment is needed to undertake the following:

- detailed modelling of the potential frequency, duration and extent of barrage failure under varying levels of sea level rise;

- a review of existing literature and commissioning of further research to evaluate the likely social, economic, environmental and cultural impacts of various adaptation responses in order to developed a preferred long-term adaptation pathway; and

- delivery of a supporting community education and engagement strategy in order to promote informed local debate about the future barrage operation.

It took many decades for Basin States to agree on and then construct the current barrages and we can expect that developing and implementing an adaptation pathway for this critical infrastructure will play out over a similarly long timeframe. Given the long lead time required for decision-making of this kind, it is important that initial steps to gather the evidence base are taken sooner rather than later.

Information Request 12: Compliance

- The allegations of non-compliance in NSW are of serious concern to our community, as are the low levels of metering in QLD and NSW, compared to South Australia where 96% of extraction is metered. It is extremely unsettling for our irrigators and wider community to see not only vast tracts of open irrigation channels but also allegations of water theft and a lack of enforcement, when here in South Australia we have been leading the way in best-practice irrigation techniques for decades. Proper compliance of water rules is crucial for ensuring community confidence in Basin Plan outcomes along the entire length of the river. In times of severe drought, communities at the end of the system need confidence that upstream States and water users are doing the right thing and that Basin Plan environmental watering will operate as expected.

Information Request 14: Basin institutional and governance arrangements

- As stated in our introductory comments, successful water management in the Basin can only be achieved through genuine commitment and cooperation amongst Basin States which in turn depends on the support and understanding of local Basin communities. As the closest form of government to the community, local government has an important role to play in sharing community interests and impacts to other levels of government. We thus encourage the Commission to consider the ways in

which local government can provide added value to the goal of developing the necessary understanding and cooperation across jurisdictions.