



THE HON BRUCE SCOTT MP
SECOND DEPUTY SPEAKER
FEDERAL MEMBER FOR MARANOVA

Submission to the inquiry into the impact of the Murray-Darling Basin Plan in Regional Australia

The proposed Murray-Darling Basin guide identifies Sustainable Diversion Limits on surface water and ground water use for consumptive purposes from each catchment and for the entire Basin. It could see water cuts in Queensland of more than 45 per cent in the Nebine, Moonie and Warrego catchments with 39 per cent for the Condamine Balonne catchment. AgForce Queensland believes the irrigation cutbacks will erode the productive base of rural towns, impact jobs and social wellbeing, remove certainty of agricultural investment, and reduce food and fibre production.¹

The impact of these proposed guidelines, however, will be most felt at a community level. What happens in the Queensland section of the Basin is a world away from what happens in the Victorian, New South Wales or South Australian sections of the Basin. If we want to get serious about re-engineering the Basin, we need to start thinking of the Basin not as one system but as two completely separate river systems. First, the Murray River system, which is south of Menindee Lakes, and second, the Darling River system, which runs through New South Wales, north of Menindee Lakes. For this plan to be relevant to the communities in my electorate of Maranoa, I believe that each system requires its own plan tailored to address the challenges experienced in these two ecologically and hydrologically different regions.

Rainfall across the Murray-Darling Basin

The Murray-Darling Basin can be divided by climate into northern rivers (Darling catchment) and southern rivers (Murray catchment). Rainfall in the Darling catchment is greater in summer and also tends to be more intense as it is influenced by tropical systems and produces higher peak flows. In the Murray catchment, the rainfall is winter dominant, which results in significant amounts of snow contributing to the Murray system, or is evenly distributed over the year. River flow is less predictable in the Darling catchment, with more frequent and longer periods of very low flow compared to the tributaries of the Murray. The climate is also hotter in the

Darling catchment with higher evaporation, 1,700 mm per annum in the north of the Darling catchment compared to 950 mm in the south of the Murray catchment.²

Mean annual rainfall in the Warrego River varies from about 650 mm in the north near Carnarvon National Park to less than 300 mm in the south.³ Despite this significant difference in rainfall, these two areas are on the banks of the same river. The same can also be said of the Condamine River system, with mean annual rainfall starting at 1000 mm in the ranges near Killarney, to only 400 mm in the lower catchments near Hebel.⁴ These examples prove just how difficult and unattainable it would be to implement a uniform plan to address the entire Murray-Darling Basin.

Runoff in the Murray-Darling Basin

There is again disparity between the runoff of the two river systems. The tributaries of the Murray make the largest contribution to total runoff of the Murray-Darling Basin with just three rivers, the Upper Murray, Murrumbidgee and Goulburn, accounting for 45.4 per cent of MDB runoff. By contrast, the Darling tributaries contribute 31.7 per cent of the Basin's mean annual runoff.⁵

The Darling River catchment, while comprising 10.0 per cent of the Basin's area, contributes only 0.4 per cent of its mean annual runoff. By contrast, the upper Murray catchment occupies only 1.4 per cent of the Basin's area, but contributes 17.3 per cent of mean annual runoff.⁶

The runoff is also more variable in the Darling compared to the Murray. As a result, water availability in the Darling catchment is generally less reliable than in the Murray catchment. Most of the water from the Paroo River and Warrego River catchments which originate in south west Queensland, for example, only reach the Darling River during large floods.⁷ Before flooding in April this year, 2010, the Paroo River had not reached the Darling in 20 years.⁸

Holes in the hydrology science

The Darling Basin is twice the size of the Murray, but it drains a much more arid area. Climate records show that the system experiences long periods of below average rainfall, affecting river flow and groundwater recharge.⁹ In addition, a large part of the flow in the Darling's tributaries rivers ends up in the wetland areas, rather than in the Darling River itself. As a result, flows in the Darling and its tributary rivers are much smaller and more variable than flows in the Murray and its tributaries.¹⁰

Large-scale water infrastructure development since the 1960s has resulted in major dams in the headwaters of all major NSW tributaries, and the Border Rivers. These dams control about 30 per cent of the Darling Basin's flows – considerably less than is controlled by dams in the Murray Basin. The overall impact of water use development on the hydrology of rivers and aquifers in the Darling Basin has been substantial, and changes are comparable in scale with those that have occurred in the Murray. However, there are important differences in the nature of some of these

changes, and their potential impacts, resulting from both the more arid character of the Darling Basin, and the differences in the style of water use development. While there would seem to be as much justification for greater effort to address the impacts of water use development as there is in the Murray, the form this should take will need to be tailored to the Darling Basin's different circumstances.¹¹

It has also been reported that 20 per cent of basin water flows were not included in scientific models for the proposed plan¹². In technical volumes published with the guide, the Murray-Darling Basin Authority said the complexity of hydrologic modelling made it difficult to consider a large range of scenarios on sustainable diversion limits in a timely way¹³. According to the guide, overall, about 80 per cent of current surface water use under current diversion limits in the basin is explicitly represented in the hydrologic modelling framework. The technical volume concedes the authority developed another analytic tool to examine the numerous water flow scenarios in a timely way as it developed recommendations on diversion limits.

This raises serious concerns over the science and models being used to support the proposed plan. With the livelihoods of a number of communities hanging in the balance, the Murray-Darling Basin Authority needs to have an agreement in the science used for future models for two separate systems - Murray and Darling.

Ecology and ecological health of the systems

A whole Basin approach could have serious implications on the ecological health of the Darling River system. The tributaries of the Darling River were assessed as having better ecosystem health than the tributaries of the Murray according to the 2004-07 Sustainable Rivers Audit (see table below)¹⁴. The Paroo had good ecosystem health while the Border Rivers and the Condamine had moderate ecosystem health. Only two of nine Darling tributaries were in Very Poor Health compared to nine of 14 Murray tributaries.¹⁵

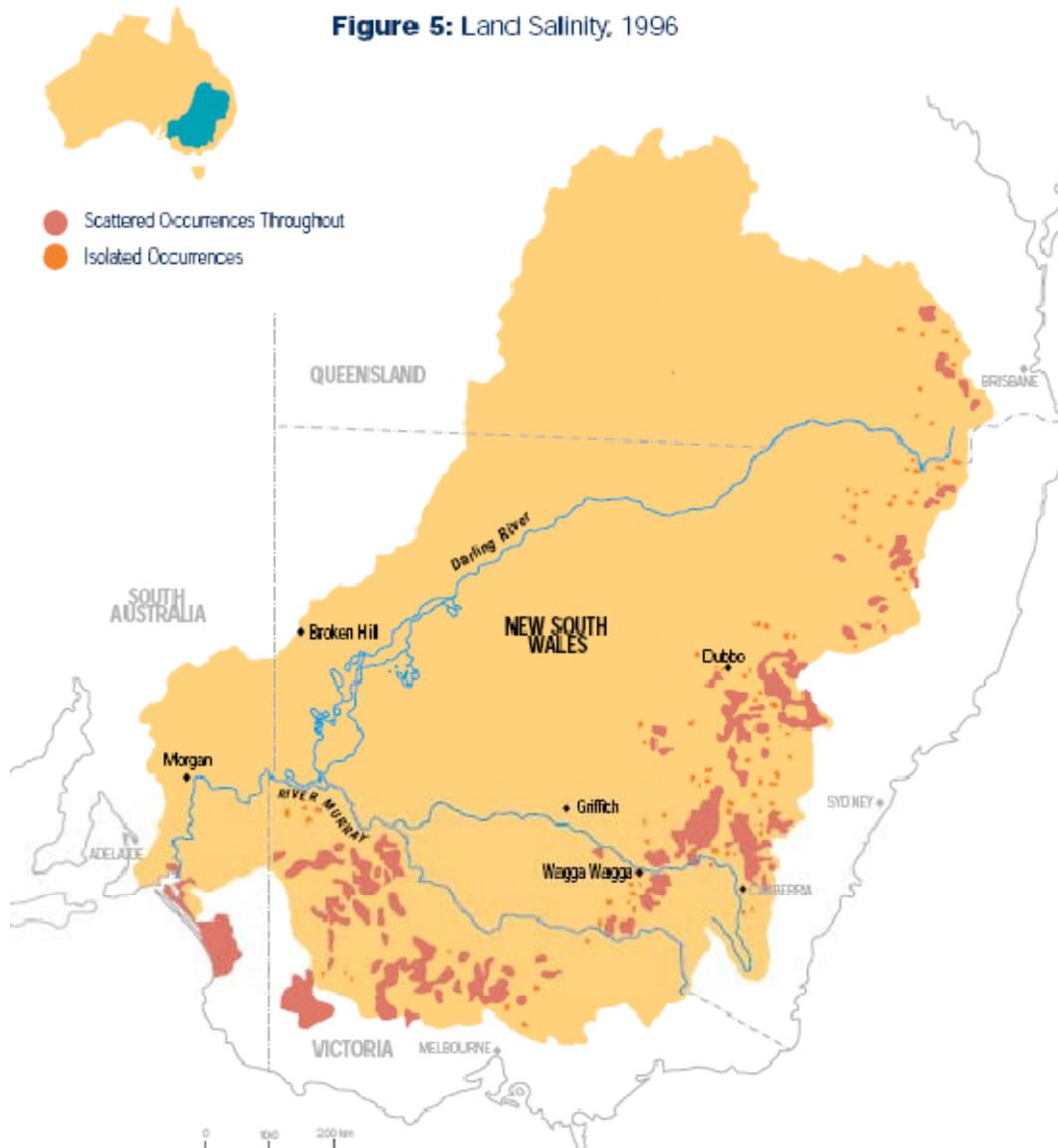
Summary of Ecosystem Health and Condition assessments for each Valley in the Murray-Darling Basin.

Valley	Ecosystem Health	Fish	Macro invertebrates	Hydrology
Paroo	Good	Moderate	Moderate	Good
Border Rivers	Moderate	Moderate	Moderate	Moderate to Good
Condamine	Moderate	Moderate	Poor	Moderate to Good
Namoi	Poor	Poor	Poor	Good
Ovens	Poor	Poor	Poor	Good
Warrego	Poor	Poor	Poor	Good
Gwydir	Poor	Poor	Poor	Moderate to Good
Darling	Poor	Poor	Poor	Poor
Lower Murray	Poor	Poor	Poor	Poor
Central Murray	Poor	Poor	Poor	Moderate
Upper Murray	Very Poor	Extremely Poor	Moderate	Moderate to Good
Wimmera	Very Poor	Poor	Very Poor	Poor
Avoca	Very Poor	Poor	Very Poor	Moderate to Good
Broken	Very Poor	Very Poor	Poor	Moderate to Good
Macquarie	Very Poor	Very Poor	Poor	Moderate to Good
Campaspe	Very Poor	Extremely Poor	Poor	Moderate
Castlereagh	Very Poor	Extremely Poor	Poor	Good
Kiewa	Very Poor	Very Poor	Poor	Good
Lachlan	Very Poor	Extremely Poor	Poor	Moderate to Good
Loddon	Very Poor	Extremely Poor	Poor	Moderate
Mitta Mitta	Very Poor	Extremely Poor	Poor	Good
Murrumbidgee	Very Poor	Extremely Poor	Poor	Poor to Moderate
Goulburn	Very Poor	Extremely Poor	Poor	Poor

Salinity

The 1999 Salinity Audit of the MDB noted that generally flat terrain, low rainfall and high evaporation combine to concentrate salt in the Murray River groundwater basin.¹⁶ By contrast, land salinity levels in the Darling system were considerably lower, with only scattered occurrences in the north-east of the Basin.

Historically there are salt lakes in the Victorian and NSW Mallee regions resulting from primary landscape salinisation but changing land-use from clearing for agriculture has resulted in secondary salinisation. There were an estimated 300,000 hectares of salt affected land in the MDB as the result of dryland salinity, the majority of which were in the Murray catchment. The figure below shows salinity throughout the Basin in 1996.¹⁷



The Murray-Darling Basin – let's consider two separate plans

The Murray-Darling Basin is home to over two million people. It produces 40 per cent of the nation's food, as well as food for export around the world. The Basin is an important socioeconomic face of our nation.

As mentioned throughout this submission, there is significant scientific evidence which shows just how different the Murray River and Darling River systems are. Aside from differences in climate between the two systems, the Murray-Darling Basin Authority must also take into consideration regional disparities in average rainfall and runoff, as well as the current ecological health of the systems. Moreover, there is significant disagreement in the science behind the proposed plan.

Instigating an overarching Basin plan and imposing catchment-wide diversion limits, does nothing but to stifle the ongoing prosperity and growth of communities across

WORKING HARD FOR MARANOVA

DALBY - PO Box 641, Dalby Q 4405 Ph: (07) 4662 2715 or 1300 301 964 (local call fee) Fax: (07) 4662 5149

ROMA - (07) 4622 7166 or (1300) 787 299 (local call fee)

Website: www.maranoa.info

the Murray-Darling Basin region. We need to develop separate River Murray and River Darling plans to provide a long-term solution to water management and environmental sustainability across each Basin. As the lifeblood of so many regional communities, it is imperative that the Federal Government ensures that they take heed of any concerns of the Basin residents to ensure they get the management of this precious resource right.

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