SUBMISSION PAPER

Murray-Darling Basin Plan: Five-year assessment

Macquarie River Food and Fibre
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Prepared for the Productivity Commission

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About MRFF

Macquarie River Food and Fibre represents the interests of over 500 irrigated food and fibre producers in the Macquarie Valley.

Our membership comprises:

- Water Access Licence holders in the Macquarie regulated river system, including both riparian irrigators and the individual members of the valley's off-river irrigation schemes; and
- Aquifer Access Licence holders in the Lower Macquarie Groundwater Sources.

MRFF is supported by a number of associated local businesses and service providers.

About this Submission

This document has been prepared for the Productivity Commission to provide feedback on their *Murray Darling Basin Plan: Five year review*.

The submission is provided on behalf of irrigated food and fibre producers in the Macquarie Valley however it is noted that our individual members may wish to provide their own comments on the draft.

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1. INTRODUCTION

1.1 Macquarie River Food and Fibre (MRFF) represents the interests of over 500 irrigated farming families in the Macquarie Valley. As the peak representative body for the valley's irrigation industry, MRFF takes a lead role in liaising with all tiers of government to ensure the ongoing security and efficient management of our members' water access rights.

1.2 MRFF welcomes the opportunity to provide feedback to the Productivity Commission for their *Murray Darling Basin Plan: Five year review*.

1.3 MRFF notes that while our submission is provided on behalf of irrigated food and fibre producers in the Macquarie regulated river system, our individual members may wish to provide their own submissions based on the experience they have had with the various environmental water recovery programs.

2. GENERAL COMMENTS

2.1 MRFF wishes to note upfront our frustration that despite the many submissions we made during the development of the Murray Darling Basin Plan, many of the issues that we raised went unaddressed in the final version of the Plan.

2.2 In previous submissions and correspondence, MRFF have repeatedly raised concerns regarding over-recovery, connectivity to the Barwon-Darling, non-flow measures to improve environmental outcomes in the Macquarie Marshes and the extent of socioeconomic impacts in the Macquarie. To date, we believe these issues have not been adequately considered or addressed to date.

2.3 Continued politicization of the Basin Plan dishonors the hard-fought bipartisan support and endangers critical deadlines and the Basin Plan itself.

3. SPECIFIC COMMENTS

3.1 Unacceptable approach to determining the local reduction for the Macquarie

3.1.1 Water recovery in the Macquarie Valley occurred prior to the release of the Murray Darling Basin Plan and focused on accumulating water, "without a strategy and without regret". This was the political catch phrase in 2009. The Twynam water purchase by the Commonwealth for $302M in this period was devastating to the Macquarie Valley regional economy. This single transaction would have to be one of the biggest social injustices in water reform as all three valleys that are considered to be over recovered, have been affected.

3.1.2 To date, the volume of water required to be recovered has NOT been determined, rather MDBA have advised that it was reverse engineered to match the volume of water that has been recovered in this valley.

3.1.3 Original Basin Plan documentation (2010) indicated a recovery target in the Macquarie of 20GL, however, when the Basin Plan was finalised in 2012 a target of 65GL was legislated. To date 83GL of water has been removed from production in the Macquarie.

3.1.4 This discrepancy in the MDBA's approach has been highlighted by BWR's review of the MDBA's hydrological documentation. BWR concludes that:

3.1.5 "The associated Macquarie volume of long-term diversion reduction and entitlement recovery required to meet these targets has not been calculated in any of the modelling presented to date. Rather the volume of long-term average use already recovered (84 GL/Yr) has been represented in the model and then the achievement of the demand series through evaluation of the specific flow indicators have been checked.

3.1.6 This is a major concern for the Macquarie Valley because water removed from production has contributed directly to the perverse socioeconomic impacts that have occurred on the local communities of Warren, Narromine and Trangie. **It is unacceptable that the MDBA have taken the easy option to date, by setting targets based on pre-purchased water, at the expense of the local communities.**

3.1.7 Specific Flow Indicators instead of actual environmental objectives precluded integrated management solutions and reinforced a "just add water" approach to environmental management

3.1.8 Recovery targets were tested against modelling that did not include a model of all existing available environmental water holdings including the environmental water allowance and all NSW state held environmental water. Had this been done, then 3 of the 4 Specific Flow

Indicators (SFI) for the Macquarie Valley were being achieved before $440 million of government expenditure on water recovery (see below).

Indicator	Target Range	Without Development	Baseline **(21GL)**	Benchmark 1 **(65GL)**	Benchmark 2 **(84GL)**
Achieve a total in-flow volume of 100GL over 5 months between Jun to Apr.	80-85%	91%	80%	87%	85%
Achieve a total in-flow volume of 250GL over 5 months between Jun to Apr.	40-50%	66%	35% (only **5%** gap)	46%	48%
Achieve a total in-flow volume of 400GL over 7 months between Jun to Apr.	30-40%	48%	27% (only **3%** gap)	36%	37%
Achieve a total in-flow volume of 700GL over 8 months between Jun to May.	17%	18%	17%	18%	18%

Indicates target range met

Table 1. SFI compliance against recovery targets. See attached Barma Water Resources document for more details

3.1.9 While the Northern Basin Review recommended a total recovery target of 71GL for the Macquarie (a reduction of 12GL on current recovery) no evidence has been provided as to why this target is any more suitable than the target currently legislated in the Basin Plan.

3.1.10 Considerable progress had been made by ALL stakeholders during the Macquarie Cudgegong Water Sharing Plan (2004) planning process to support strong environmental outcomes in this valley including an environmental water allowance (EWA) of 160 GL or similar volume to 20% of the General Security entitlements.

3.1.11 Despite the WSP for the Macquarie-Cudgegong Regulated Rivers setting aside over 73% of long-term average annual river flows for the environment, the Macquarie has subsequently been a target for further water acquisitions by both the NSW and Commonwealth Governments. In total, 81% of long term average flows in the regulated Macquarie are reserved for the environment.

3.1.12 These water recovery programs have reduced the water available for town water supplies, stock and domestic uses, high security industry, and seasonal food and fibre production to less than 20% of the available resource.

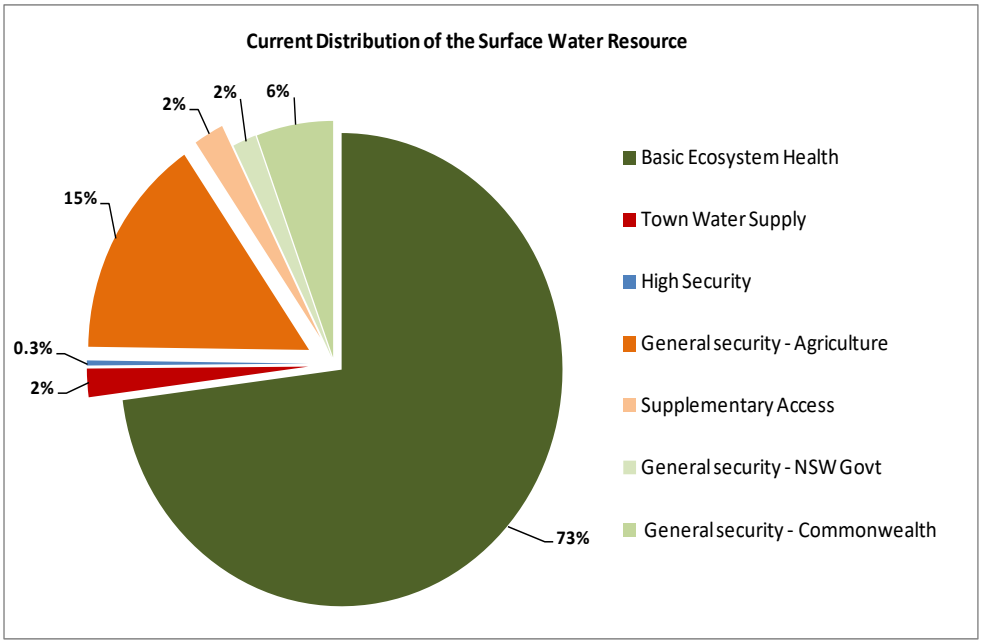

Figure 1 Resource Distribution in the Macquarie-Cudgegong, long term average flow

3.1.13 If we are not achieving the desired results from 80% of the available resource, then we need to consider that either we are not making effective use of that 80% or that perhaps the 'just add water' approach does not provide the solution to the health of our rivers and wetlands.

3.2 Inadequate recognition of delivery losses from the Macquarie to the Barwon-Darling

3.2.1 MRFF remains concerned that the contribution from the Macquarie-Castlereagh water resource area to the northern zone shared reduction target does not adequately recognise the delivery losses and third party impacts associated with regulated releases through the Macquarie Marshes

3.2.2 The Northern Basin Review recommendation by the MDBA still included a 16GL shared contribution target in the Macquarie despite being the smallest contributor of the Northern NSW valley's, as highlighted below:

Table 2 Contribution to long-term average flow in the Darling River at Menindee

River system	Flow contribution (%)
Border Rivers	35
Namoi River	25
Condamine-Culgoa rivers	20
Gwydir River	10
Castlereagh-Macquarie-Bogan rivers	5
Warrego-Paroo rivers	5

3.2.3 MRFF contends that the shared contribution remains only because the water has already been purchased here rather than basing the decision on scientific and environmental evidence.

3.2.4 BWR's analysis of both the 2009 and 2014 Macquarie IQQM models, as well as actual gauge data, shows that less than 16% of the end-of-system flows, for the Macquarie-Castlereagh region, come from the regulated system (Appendix 1).

3.2.5 This contribution comes with considerable losses as evidence in Appendix 2. Best case "pre-wetted" conditions such as 2012-13, transmission losses of regulated releases through the marsh exceed 92%. Worst case dry conditions such as 2015, transmission losses of regulated releases exceed 98%.

3.2.6 Such high transmission losses make Macquarie shared contributions a very poor value proposition for tax payers and provide very little security to downstream users in the Barwon-Darling system and beyond.

3.3 PIIOP program 'buybacks' rather than efficiency works has further diminished productivity in the region

3.3.1 The PIIOP program contributed $220 million to four irrigation schemes in the Macquarie for infrastructure projects to improve scheme efficiency. In return, 68GL of entitlement was transferred to the Commonwealth.

3.3.2 Only 21% of the savings was recovered from actual efficiency works such as channel lining, pump and offtake works.

3.3.3 Approximately 80% of the savings resulted from "scheme rationalization" or the retirement of unprofitable or inefficient areas of the scheme, improving system efficiency for the remaining system.

3.3.4 The removal of 54GL of productive water has further impacted the local economy, accounting for over $20 million pa of farm income.

3.4 State sponsored wealth transfer to downstream beneficiaries

3.4.1 Over 90% of the 220,00HA Macquarie Marshes are privately held and operated primarily for grazing on the floodplain

3.4.2 These private enterprises directly benefit from regulated inundation of the marsh, increasing the carrying capacity of the land to their financial benefit. Further, significant diversion works have been developed to redistribute environmental water to maximise the financial benefit of environmental flows. See Appendix for aerial imagery demonstrating the extent of the diversion works.

3.4.3 Independent financial analysis commissioned by MRFF (Appendix 3) found that environmental flows in the Macquarie Marshes increased grazing gross margins by $30 per ML of environmental water. This indicates grazing activity has a very low value of water use compared to alternatives and yet substantial aggregate value because of the volume exploited. For instance, the 135,000ML environmental release in 2017 improved graziers margins by over $4 million. This water is unlicenced and unpaid for.

3.4.4 Using the MDBAs numbers, the recovery of 83GL (long term average equivalent volume) through the Basin recovery process has removed almost $54 million (at $650 per ML farm gate value) from irrigation communities, merely transferring it downstream to lower value and unlicenced water users.

3.4.5 A common defense of marsh grazing practices is the co-benefit of environmental improvements through stimulation of water couch growth and pest and weed control. While no evidence has been provided to support this position, MRFF have witnessed first hand the effects of grazing on marsh vegetation communities and subsequent fluvial geomorphological alteration. The well documented photo below, which first featured in the Australian Geographic (March 2005), shows the impacts of grazing. Grazing practices denude the landscape and alter the flow regimes of creeks and water courses.

Figure 2 Private land on the left of the fence with the North Marsh Nature Reserve on the right at the height of the drought in 2002 when water allocations in the Macquarie Valley were 0% .

3.4.6 In 2005 a group of Macquarie Valley irrigators concerned about the health of the Macquarie Marshes formed the Macquarie Marshes Environmental Trust (MMET). In an attempt to make a practical difference to the iconic wetlands, the group purchased "Burrima", a 260-hectare property adjacent to the North Marsh Nature Reserve with the aim of managing the property for restoration and conservation.

3.4.7 Following the purchase of "Burrima" the MMET has embarked on a program of both passive and active rehabilitation and has done so with involvement from Traditional Owners and the community. The Trust has worked closely with the Central West Local Land Services, the NSW Department of Environment, Climate Change and Water, and a range of other NRM groups to develop and implement a range of management actions suitable for the property.

These have included destocking, fencing, preservation of cultural heritage, revegetation and water ponding.

3.4.8 The actions undertaken on "Burrima" are now resulting in significant improvements in the condition and extent of important wetland vegetation including the regrowth of reed beds and young River Redgum and Coolibah trees. The investment in “Burrima” has demonstrated alternative and potentially more cost-effective approaches to achieving the desired environmental outcomes for sites like the Macquarie Marshes.

3.4.9 Despite a small number of contrary and unfounded views, “Burrima” is a genuine example and case study on the significant environmental gains that can be achieved when an integrated approach to environmental management is adopted.

3.4.10 MRFF believes that a basin-wide planning process underpinned by a “just add water” approach, is fundamentally flawed and at odds with the concept of integrated catchment management. For more information on the “Burrima” Project go to www.macquariemarshes.org.au.

4. FURTHER INFORMATION

MRFF thanks the Productivity Commission for the opportunity to provide comment on the *Murray Darling Basin Plan: Five year review.* Please be in touch should further information or clarification on any of the comments or recommendations in this submission be required.

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5. Appendix 1

Modelled average annual End of System Flows vs. actual gauge data (GL/Yr)

		Macquarie IQQM 2009 Model (Current Development)*	Macquarie IQQM 2014 Model (Current Development)^	Gauge data
Regulated Flows	Macquarie @ Carinda	53.8	38.3	41.2
	Marra Ck @ Billybingbone	11.7	1.4	10.7
	Total (Regulated Inflows)	**65.5 (15.6%)**	**39.7 (11.4%)**	**51.9 (15.9%)**[1]
Unregulated Flows	Marthaguy @ Carinda	66.0	21.3	42.6
	Castlereagh at Coonamble	21.2	21.2	27.3[2]
	Bogan at Gongolgon[3]	267.2	267.2	204.5
	Total (Unregulated Inflows)	**354.4 (84.4%)**	**309.7 (88.6%)**	**274.4 (84.1%)**
	Total (all Inflows)	**419.9 (100%)**	**349.4 (100%)**	**326.3 (100%)**

1 This includes tributary flows in addition to regulated dam releases. Furthermore it is a long term average figure which is generally not representative of actual end of system flows, on a year to year basis, which are highly variable.

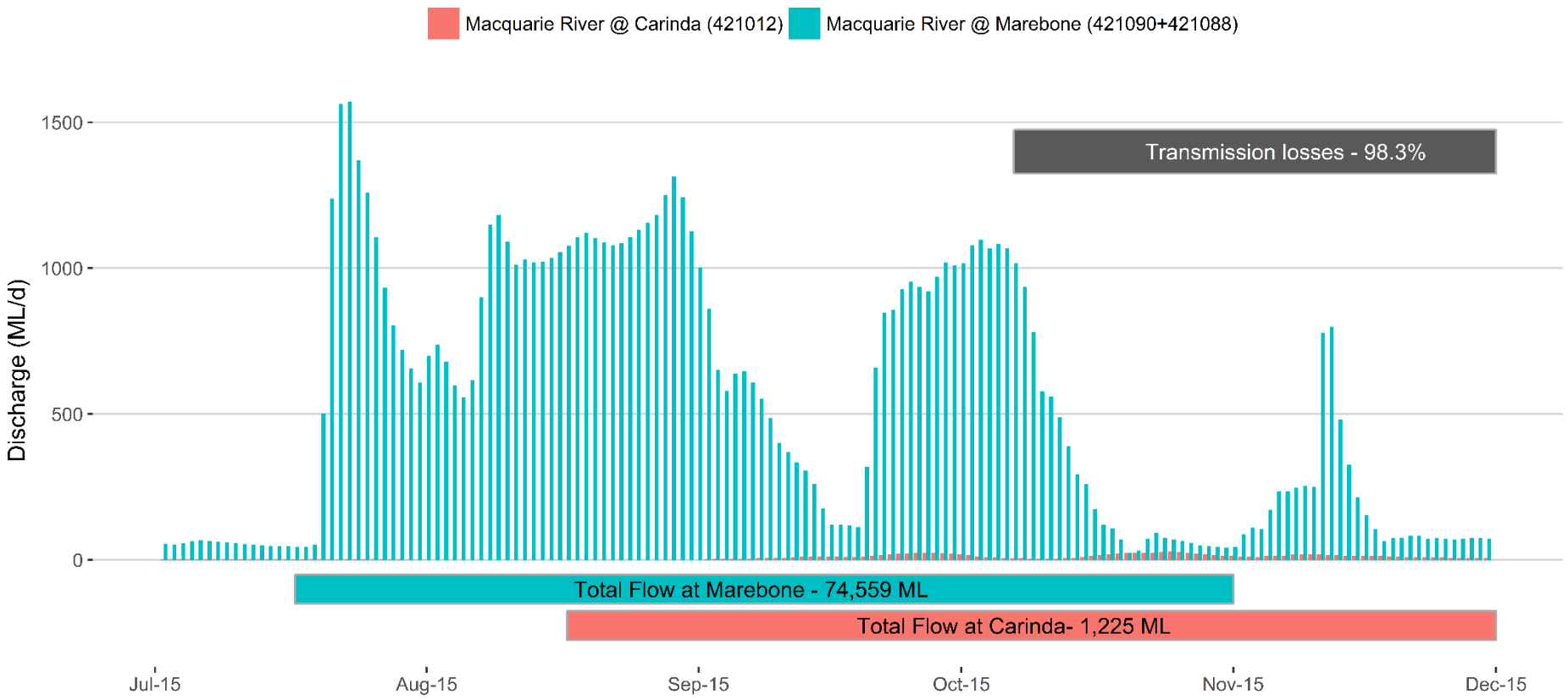
2 Observed Flows at Gungalman, Coonamble data not available for common period

3 Contains a small volume of regulated water from Duck and Guningbar Creeks

* Model used by the MDBA

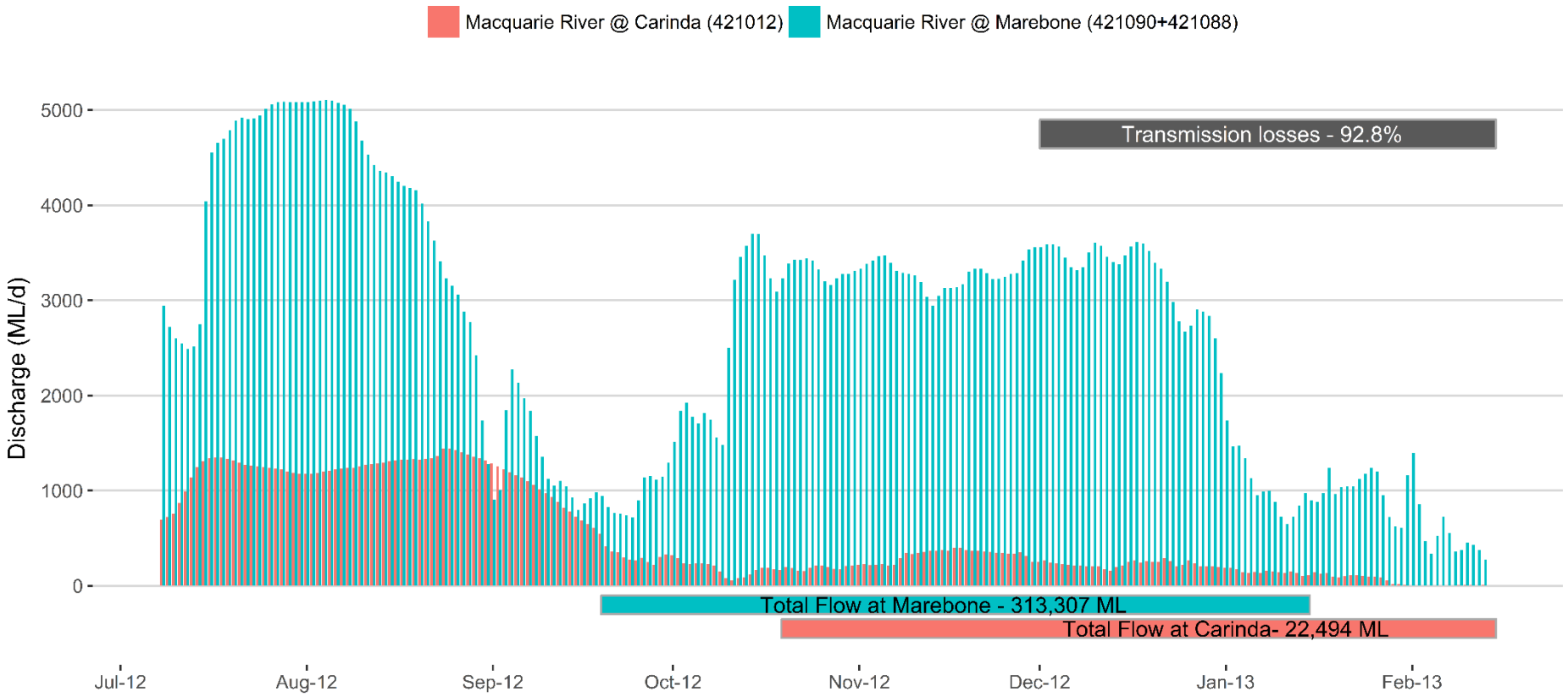
^ Model not being used by the MDBA

6. Appendix 2



2015 Environmental Flow

- Approximately 75,000ML of held environmental water was regulated through the Macquarie Marshes between July and November.
- The flows followed an extended dry period with large tracts of the marsh in a dry state.
- Allowing for travel time (approx. 1 month), the resulting flows out of the marsh totalled approximately 1,225ML between August and December. 98.3% of flow was intercepted by evapotranspiration/seepage etc



2012/2013 Environmental Flow

- Following a significant flood event in early 2012, approximately 313,000ML of held environmental water was regulated through the Macquarie Marshes between September and January.
- With the preceding flood event 'wetting-up' the marsh and tributaries, conditions were perfect for transferring regulated water through the marsh
- Despite optimal conditions, only 7% of regulated flow was recovered at the end of the marsh (Carinda)

7. Appendix 3