MACQUARIE MARSHES ENVIRONMENTAL LANDHOLDERS ASSOCIATION

Introduction:

The Macquarie Marshes Environmental Landholders Association (MMELA) was formed in 1995 when there was increasing pressure to further reduce water flows to the Macquarie Marshes. Its members are local landholders, many of whom are third and fourth generation landholders in the area, and all are dedicated to ensuring a healthy and productive marsh for future generations.

The aim of MMELA is:

The Macquarie Marshes Environmental Landholders Association (MMELA) aims to ensure the social, economic and environmental sustainability of the internationally recognised Macquarie Marshes.

The Macquarie Marshes is a large semi-permanent, **flow through** wetland on the lower end of the Macquarie River in central western NSW. It covers an area of approximately 200,000ha of which 12% is a Nature Reserve managed by the NSW National Parks & Wildlife Service (NPWS). The remaining 88% is privately owned freehold land which supports an extensive agricultural industry. Much of the land has been held in families for generations and the property owners have an extraordinary knowledge and understanding of all aspects of the Marshes and its management.

The Macquarie Marshes Nature Reserve, "Wilgara" Wetland and U Block are listed on the Ramsar Convention of Wetlands of International Importance. The Nature Reserve is also listed on the Japan - Australia Migratory Bird Agreement (JAMBA) and the China - Australia Migratory Bird Agreement (CAMBA) along with several other agreements. It is the responsibility of the whole community, including State and Federal Governments, to ensure management of the wetland does not compromise values and/or obligations set out in the above mentioned agreements.

The Macquarie Marshes is unique both environmentally and economically. Research indicates it is the most important colonial nesting waterbird breeding site in Australia for species diversity and nesting density *(Kingsford and Thomas 1995)*. The majority of the breeding colonies are situated on privately owned land where landholders have managed and protected them since settlement. The Marshes also support an extensive cattle grazing industry which is its main economic focus. Sustainable grazing is encouraged by MMELA and the majority of landholders are acutely aware of the environmental needs of the wetland and undertake congruent management practices.

Government policy and decision making relating to natural resource management has in the past had devastating impacts on the Marshes, particularly water management, which has severely reduced water flows through river regulation and other such legislation.
When Burrendong Dam was completed and irrigation was established throughout the Macquarie Valley scientific research showed flows to the internationally recognised Macquarie Marshes were greatly decreased. MMELA brought this to the attention of many governments and fought for water to be recovered for this diverse and unique wetland and its associated floodplain. As a result both the NSW and Federal Governments introduced 'buy back' programs and improved efficiency schemes in an effort to halt the ongoing destruction of the Macquarie Marshes. It must be remembered that these programs only returned a small portion of the water originally taken from the Macquarie Marshes and the landholders who depend on its health and vitality to make their living.

MMELA was pleased to be able to meet with the productivity commission in Warren on the 21st of March and then delighted to have a visit to the marshes on Friday the 23rd of March. We must thank both Jane and John for the opportunity to present our case first hand and see the Marshes even though it was dry. The question are the Marshes in a better state as a result of the Basin plan is a complex one and during our submission we will attempt to give you our thoughts.

- Firstly the management of environmental water (EWA, river bank and CHEW) is working well in the Macquarie with the limited water that is available.
- The environmental watering advisory group (known locally as EFRG) that was established under the 2004 water sharing plan has worked very well and while there has been changers to the membership and the responsibility of the chairs role, we believe the group is working well. With the new membership came some new challenges, firstly the Commonwealth objective to provide connectivity with the Barwon, a renewed focus on environmental assets such as fish and an expectation to coordinate flows with other systems. The EFRG with the support of the Office of Environment and Heritage (OEH) has adapted well to the challenge and continue to agree on decisions while not ever satisfied that there is enough water.

Why is there not enough water in the environments accounts?

It must be noted that not long before the development of the basin plan, water trade became available to irrigators in the Macquarie valley. The combination of CHEW purchasing general security licences that may /may not have been used and smaller irrigators being offered an attractive price for their water on the temporary market has seen the reliability of general security water in the Macquarie dramatically fall. This has seen an increase of water usage as many small licence holders that traditionally only used some (undeveloped licences) of their entitlement now could sell or trade their water. This fall in reliability has seen the benefits from environmental water reaching the Marshes reduced. Also while this was going on there has also been other changers to river management that has also reduced the effectiveness of environmental flows.

- Water NSW becoming more efficient has seen a dramatic reduction in surplus flows reaching the Marshes.
- DPI water restructure has seen the loss of local staff and compliance has suffered.
- Combine this with extremely dry periods with reduced inflows into the major storage dams has resulted in the environmental water management decisions being extremely cautious. With this caution comes some negative outcomes.

During the development of the Northern Basin Review, MMELA had some major concerns about the appointment of the ex CEO of Macquarie River Food and Fibre (irrigation lobby group in the Macquarie) to the Basin authority. With the appointment of this positon on the MDBA we felt that the MDBA lost its independence. With the new member (former Macquarie River Food and Fibre) now firmly at the table came a new term for the Macquarie (over recovery). This term was then justified by the MDBA ignoring the advice given to them by the Northern Basin Advisory Group and going about proving that the Macquarie was in fact over recovered. This was done by the development of model runs to convince interested parties that the environmental outcomes were in fact being met.

The EFRG had to then come to terms with the possibility of water in the environments account being sold back to irrigators. Fortunately for the disallowance motion being successful in federal parliament on the 14th of February 2018 the environments accounts have not been sold. This would only make the job of managing environmental water in the Macquarie more difficult. The toolkit measures that were suggested to compensate for the loss of water were doomed to fail. The wetland vegetation in the Marshes requires water to maintain its ecosystem function.

- Removal of any water would see a continued decline in the Marshes ability to withstand shocks. One such shock is the occurrence of empty dams that has been exacerbated by water trade and the lowering of reliability. During the period of the MDBA manipulating the outcome of the northern basin review, MMELA worked hard to convince authority's that damage will be done to the health of the wetland. Our local government soon became involved and chose to support the amendments to the plan.
- As a result of the basin plan the conflict in our local community is as hostile as it's ever been. While the objectives of the plan were Economic, Social and Environmental, in the Macquarie it's been a fail at a social level (increased conflict between water dependant community's) and environmental, as water trade has lowered reliability. Combine this with now a complete lack of trust within many river communities of the MDBA as a result of the ABC airing of 4 corners, you could say that things are now in a worse state than before the basin plan was established.

Like the NSW government the MDBA has given into the continued lobbying from the irrigation industry who have been relentless. The irrigation industry employs professional lobbyist to target policy developers so as to favour the irrigation industry. In extreme cases they have been so successful that the MDBA have gone on to employ these staff.
On the other side are a mixed bag of green groups and some landholder groups (MMELA and the Australian floodplain association) that are mostly small business operators who often live in isolated communities with little or no access to help to lobby policy makers. The people who live and run business around the Macquarie Marshes have watched as the flow regimes have altered due to river regulation and now with the change of water use and the lowering of the reliability have tried their best to adapt.

The Macquarie Marshes are characterised by the intermittent and seasonal (ie inter-annual) transition between wet and terrestrial plant communities in response to variable flooding regimes. These plant communities exist as a complex mosaic in the landscape providing important refuge and breeding habitat for many different waterbirds, fish and frogs at any one time. We know that if the flooding regime is disturbed the change from wet to terrestrial plant communities becomes more permanent. Studies have found that plants that typically

characterise wetlands on floodplains (e.g. perennial grasses and sedges) are vulnerable to dry periods because they lose resilience (i.e. the seedbank is depleted and/or vegetative propagules become inviable). With re-wetting these plant communities are therefore more likely to be replaced by terrestrial opportunistic annual species rather than wetland plant species (rolly polly and Bathurst burr). We know that droughts (multi-year dry periods) will become more common and protracted therefore increasing the time between floods and reducing flood frequency. We also know that river regulation has exacerbated the cumulative impacts of droughts. These facts will inevitably change the character of floodplain wetlands.

The development of the Basin plan was all about attempting to repair the damage that had been caused by various state governments encouraging water extraction within their State. The NSW government has shown a lack of willingness to assist in the process. During the development of the water resource plans we have noticed that NSW policy planners are restrictive in what is able to be changed even if it's an improvement, so a lack of flexibility within the department to improve rules. They seem to be solely focused on no third party impacts (to the irrigation community). This is typical of the problem with the Basin plan that the states can still corrupt the outcomes. We thought that the MDBA may be the final hurdle to get past but now that we have lost all trust in the Basin Authority we expect that whatever the states put up will be signed off by the MDBA.

FLOODPLAIN HARVESTING - The whole concept of Floodplain Harvesting beggars belief. How can a Government allow one group of water users to take water (even under licence) when it has absolutely no capacity to measure or even assess the amount of water being taken. It does not know the impact on downstream users and communities. It does not know the impact on the ecology of the rivers, wetlands floodplains, and it does not know the impact on the internationally recognised Macquarie Marshes. One could even go a step further and assume it does not care. Until there is accurate metering of floodplain harvesting licences and meticulous monitoring when water is being taken, there can be no consideration that environmental objectives could be met. Flood plain harvesting has been required to be licenced as a result of the basin plan but now we are fearful that through the process (as a result of the basin plan) there is more water being harvested from the flood plain than before the plan was developed.

We are aware that the commonwealth has invested millions of dollars into the Murray Darling Basin plan and it's difficult to explain that even with the purchased water the environment has not seen a dramatic improvement. We hope this submission goes some way to explaining what we are seeing on the ground to back up our opinion.

Please find attached the Macquarie's contribution to the Barwon / Darling measured at Bells Bridge in the lower Macquarie before the river joins the Barwon. It is worth noting that there has continued to be years with very low flows even during the Basin plan.

The lack of protection of environmental flows in this section of the river plays a part in the reduced volumes measured at Bells Bridge but also the drying of the Marshes has meant that it now takes much more water to just wet the Marshes without even having some water flow through the system.

Thank you for the opportunity to have our say to the productivity Commission.

Regards Garry Hall
President MMELA 0427244361

Please refer to scientific papers listed below

1. Continental impacts of water development on waterbirds, contrasting two Australian river basins: Global implications for sustainable water use. RT Kingsford, G Bino, JL Porter - Global change biology, 2017

2. Plant traits of propagule banks and standing vegetation reveal flooding alleviates impacts of agriculture on wetland restoration. SK Dawson, DI Warton, RT Kingsford… - Journal of Applied …, 2017

3. Frequent inundation helps counteract land use impacts on wetland propagule banks. SK Dawson, RT Kingsford, P Berney… - Applied Vegetation …, 2017

4. Contrasting influences of inundation and land use on the rate of floodplain restoration. SK Dawson, RT Kingsford, P Berney… - Aquatic …, 2017

5. Amphibian abundance and detection trends during a large flood in a semi-arid floodplain wetland. JF Ocock, RT Kingsford, TD Penman… - Herpetological …, 2016

6. Remote sensing measures restoration successes, but canopy heights lag in restoring floodplain vegetation. S Dawson……, P Berney, D Keith, JA Catford, RT Kingsford - Remote Sensing, 2016

7. Developing State and transition models of floodplain vegetation dynamics as a tool for conservation decision-making: a case study of the Macquarie Marshes Ramsar wetland. G Bino, SA Sisson, RT Kingsford… - Journal of Applied …, 2015

8. Mapping inundation in the heterogeneous floodplain wetlands of the Macquarie Marshes, using Landsat Thematic Mapper. RF Thomas, RT Kingsford, Y Lu, SJ Cox, NC Sims… Journal of …, 2015

9. Regulated recruitment: native and alien fish responses to widespread floodplain inundation in the Macquarie Marshes, arid Australia. TS Rayner, RT Kingsford, IM Suthers, DO Cruz Ecohydrology, 2015

10. Prioritizing wetlands for waterbirds in a boom and bust system: waterbird refugia and breeding in the Murray-Darling Basin. G Bino, RT Kingsford, J Porter - PloS one, 2015

11. Maximizing colonial waterbirds' breeding events using identified ecological thresholds and environmental flow management. G Bino, C Steinfeld, RT Kingsford - Ecological Applications, 2014

12. Frogs during the flood: differential behaviours of two amphibian species in a dryland floodplain wetland. JF Ocock, RT Kingsford, TD Penman… - Austral Ecology, 2014

13. Disconnecting the floodplain: earthworks and their ecological effect on a dryland floodplain in the Murray–Darling Basin, Australia. CMM Steinfeld, RT Kingsford - River Research and …, 2013

14. Breeding flow thresholds of colonial breeding waterbirds in the Murray-Darling Basin, Australia. AD Arthur, JRW Reid, RT Kingsford, HM McGinness… - Wetlands, 2012

15. Landsat mapping of annual inundation (1979–2006) of the Macquarie Marshes in semi-arid Australia. RF Thomas, RT Kingsford, Y Lu… - International Journal of …, 2011

1

16. Strategic adaptive management in freshwater protected areas and their rivers. RT Kingsford, HC Biggs, SR Pollard - Biological Conservation, 2011

17. Statistically integrated flow and flood modelling compared to hydrologically integrated quantity and quality model for annual flows in the regulated Macquarie River in arid Australia. S Ren, RT Kingsford - Environmental management, 2011

18. Modelling flow to and inundation of the Macquarie Marshes in arid Australia. S Ren, RT Kingsford, RF Thomas - Environmetrics, 2010

19. The effect of river red gum decline on woodland birds in the Macquarie Marshes. A Blackwood, R Kingsford, L Nairn, T Rayner - 2010

20. Small environmental flows, drought and the role of refugia for freshwater fish in the Macquarie Marshes, arid Australia. TS Rayner, KM Jenkins, RT Kingsford - Ecohydrology, 2009

21. Developing indicators for floodplain wetlands: managing water in agricultural landscapes. K Jenkins, R Kingsford, D Ryder - Chiang Mai Journal of Science, 2009

22. Waterbird breeding and environmental flow management in the Macquarie Marshes, arid Australia. RT Kingsford, KM Auld - River Research and Applications, 2005

23. Ecological impacts of dams, water diversions and river management on floodplain wetlands in Australia. RT Kingsford - Austral Ecology, 2000

24. Irrigated agriculture and wildlife conservation: conflict on a global scale. AD Lemly, RT Kingsford, JR Thompson - Environmental management, 2000

25. Social and economic costs and benefits of taking water from our rivers: the Macquarie Marshes as a test case. RT Kingsford - Preserving rural Australia: issues and solutions, 1999

26. Impact of water diversions on colonially-nesting waterbirds in the Macquarie Marshes of arid Australia. RT Kingsford, W Johnson - Colonial Waterbirds, 1998

27. The Macquarie Marshes in arid Australia and their waterbirds: a 50-year history of decline. RT Kingsford, RF Thomas - Environmental Management, 1995