

Attention: Dr John Keniry, AM

Commissioner
Natural Resources Commission
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Dear Dr Keniry

Mulloon Institute - Submission on Water Sharing Plans for the Greater Metropolitan Region

The Mulloon Institute welcomes this opportunity to provide input into the Natural Resource Commission's (**Commission**) review of the *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources 2011 (Metro Unreg. WSP)* and *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011 (NSW) (Groundwater WSP)*.

We would also welcome the opportunity to meet with the NRC to discuss the work of the Mulloon Institute and the matters raised in this submission.

Background to the Mulloon Institute

The Mulloon Institute is an independent not-for-profit research, education and advocacy organisation. We actively regenerate landscapes, while at the same time demonstrating and sharing our regenerative methods of land management. We use our research results and education tools to create sustainable, resilient landscapes, to help provide Australia with long-term water and food security, and to create a model adaptable to other countries.

The Mulloon Institute is located within the WSP areas based at the 2,300 ha Mulloon Creek Natural Farms which are used as a living sustainable laboratory for the Institute's work. Further information on the Institute is available at our website: <https://themullooninstitute.org/>.

Mulloon Creek is in the Reedy Creek Management Zone of Shoalhaven River Water Source – as described in clause 5(1)(a)(iii) of the Metro Unreg. WSP. Arising in the Tallaganda State Forest, Mulloon Creek flows in a northerly direction before joining Reedy Creek, which flows into the Shoalhaven River north of Braidwood. While the upper half of the Mulloon Creek catchment remains heavily vegetated with native Eucalypt forest, the lower half of the catchment has been cleared and current land use consists of extensive grazing of sheep and cattle, along with a range of smaller artisanal enterprises.

The Mulloon Community Landscape Rehydration Project

The Mulloon Institute is seeking to restore the landscape function and resilience of the Mulloon catchment through the Mulloon Community Landscape Rehydration Project (**MCLRP**). The MCLRP involves the majority of landholders in the Mulloon catchment and covers an area of around 23,000ha within the WSP areas (for more information on the MCLRP see <https://themullooninstitute.org/projects/#mclrp-section>).

A key component in restoring catchment function is re-establishing the functional connection between Mulloon Creek, its tributaries and the surrounding landscape – primarily the floodplains.

Johnson & Brierley (2006)¹ contend that the stream throughout much of the lower Mulloon was discontinuous prior to European settlement. In other words, it did not contain a continuous channel as it does today. Johnson & Brierley (2006) describe lower Mulloon prior to 1820 as a suspended load system. A laterally unconfined, discontinuous, suspended load system is typically associated with a stable chain of ponds swampy meadow wet and dry grassland valley floor complex.

Today much of Mulloon and its tributaries is deeply incised. This has serious implications for the catchment's water holding and water filtering capacity, as well as its biodiversity, its ability to sequester carbon (which is significantly higher in hydrated soil), the height of its water table (and the ability of vegetation to access such water), its agricultural productivity, and ultimately its resilience to extreme events such as droughts, floods and wild fires.

The scientific benchmarks and monitoring of the MCLRP is overseen by the Mulloon Institute's Science Advisory Council. Certain of the benchmarks can be seen at <https://themullooninstitute.org/projects/#mclrp-section>.

The Science Advisory Council includes a wide range of eminent specialists in the fields of ecology, hydrology, hydrogeology, geomorphology, soil microbiology, human health and public policy (for Council membership see <https://themullooninstitute.org/board/#sac-section>).

Mulloon Institute's experience of the WSPs

The Mulloon Institute was established in 2011 – the same year that the WSPs came into effect. The MCLRP has been undertaken within the framework of that plan, the *Water Management Act 2000* (NSW) (**WM Act**) and its associated regulations and instruments.

Over the past three years, the Mulloon Institute has undertaken instream works throughout the Mulloon catchment including creek repair and erosion control using small interventions (leaky weirs) to slow and filter water flow in the catchment. The aim of these works has been to:

- rehabilitate and restore the creeks and floodplains to a functional condition that is as close as possible to their original state;
- prevent and reverse the effects of erosion;
- raise the water table;
- slow the flow of water, make the water flow more consistent and rehydrate the adjacent landscape;
- sequester carbon in the hydrated soil and vegetation;
- improve water quality through natural filtration;
- improve soil quality;
- improve paddock productivity; and
- increase biodiversity.

¹ Johnson, P. and Brierley, G. (2006) Late Quaternary river evolution of floodplain pockets along Mulloon Creek, New South Wales, Australia. *The Holocene* 16, 5, pp 661 – 674.

So far fourteen creek structures have been installed across three adjoining properties and along 3.5 kilometres of Mulloon Creek. Another 90 creek structures are planned to be installed throughout a further 25km of creek over the next two years.

The construction of these structures and the accompanying land rehabilitation, restoration and management work has so far only required controlled activity approval (**CAA**) under the WM Act, on a property by property basis, through the NSW Natural Resource Access Regulator (**NRAR**). However, it is possible that future instream works will also require development consent under the *Environmental Planning and Assessment Act 1979* (NSW) and relevant Local and State Government environmental planning instruments, which may also trigger the *Biodiversity Conservation Act 2016* (NSW) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

The Mulloon Institute's experience of this statutory approval framework has been that it is expensive and time consuming and does not encourage or facilitate land rehabilitation and environmental restoration work, despite the support and encouragement that the Institute has received from the Commonwealth and the NSW Government and individual Department officers.

In most cases, for each separate property in a catchment and for each set of works, our staff and external consultants have to spend significant time and expense navigating the various pieces of legislation and regulation, submitting the appropriate applications and expert reports and liaising with government officials and landholders. We would prefer this time, energy and funds were expended remediating landscapes rather than in (well meaning) compliance.

While much of the work required to restore and rebuild the landscape function of the catchment can and has been undertaken within the existing policy and statutory framework, it is the experience of the Mulloon Institute that the existing WSPs fall short in providing recognition and encouragement for these types of environmental rehabilitation works, but instead can be an impediment and present challenges to carrying out such works.

For example, it is the experience of the Mulloon Institute that:

- the effective recoupling of incised streams with their adjacent floodplains cannot be achieved under the current rules of the Metro Unreg. WSP. In order to rehydrate floodplain pockets (bearing in mind they were once fully hydrated), water needs to pulse across the surface where it can vertically access the alluvial aquifers and recharge the mosaic of ephemeral wetlands that were once a common feature of these floodplains. Under the current rules, a water access licence would be required to divert water from the current (incised) flowline and be reverted to the floodplain. This is the case regardless of whether the water is being diverted for irrigation or reverted for environmental purposes, or regardless of whether 100% of the diverted water might return to the creek; and
- all instream works must be justified on the basis of erosion control. Accordingly, altering the 'natural' flow or level through impoundment of water behind a structure for any other reason than erosion control is prohibited under the Metro Unreg. WSP. For instream remedial works which have broader benefits for the whole catchment/water source (see the list on the previous page), it can be difficult to establish justification on such narrow grounds.

- the Metro Unreg. WSP's restrictions on water supply works approvals for works in the hydrological catchment of Mulloon Creek, excluding Mulloon Creek, (clause 62(2)) and for in-river dams in the Reedy Creek Management Zone (clause 62(5)(a)(xiii)) act as a significant potential impediment constraining the construction of leaky weirs in these areas.

The Institute considers that these issues work against the objectives of the WSPs and restrict the environmental outcomes that can be achieved under the WSPs.

Submissions on WSPs objectives and environmental outcomes

In accordance with the Commission's preferred form of submission, we have considered the five key questions, however, we have confined our response to the questions of *'to what extent do you feel the plan has contributed to meeting its objectives'*, *'to what extent do you feel the plan has contributed to environmental outcomes'* and *'what changes do you feel are needed to the water sharing plan to improve outcomes?'*

The Mulloon Institute considers that the WSPs objectives should provide express recognition for, and active encouragement of, environmental remediation and restoration works undertaken by the Mulloon Institute and others within the WSP areas.

At present, the WSPs do not recognise or encourage this type of work, notwithstanding the fact that such activities clearly contribute to the vision of the WSPs by having a significantly positive effect on the ecology, hydrology and primary productivity in the catchment area (relevant surveys and reports can be found at <https://themullooninstitute.org/projects/#mclrp-section>).

As an example, NSW Government Ecologists were so impressed with the habitat regeneration within the section of creek where work has already taken place, that a wild release of the Yellow Spotted Bell Frog (*Litoria castanea*), which is extinct in the wild, will occur from this Spring.

The legislative framework in the WM Act, clearly allows for water management plans (including water sharing plans) to deal with such matters. Section 24 of the WM Act anticipates that the water use provisions of water sharing plans may deal with matters regarding "restoration or rehabilitation of land or water sources or their dependent ecosystems". Similarly, Section 33 of the WM Act anticipates that the controlled activity provisions of water sharing plans may deal with matters regarding *"the undertaking of work for the purpose of restoring or rehabilitating a water source or its dependent ecosystems, protecting, restoring or rehabilitating the habitats or pathways of animals and plants"*. In our review of the WSPs, we note the absence of any provisions dealing with matters regarding restoration or rehabilitation. The Mulloon Institute considers that recognition of such matters would not only contribute to the vision of the WSPs, but would be entirely consistent with the express legislative purpose of the WM Act.

Neither the unregulated nor groundwater WSP recognise the connectivity between surface water and groundwater in shallow alluvial aquifers associated with watercourses. The Mulloon Institute considers the conjunctive management of connected water resources would provide for enhanced environmental outcomes and allow for more comprehensive restoration and rehabilitation of ecosystems.

The Mulloon Institute submits the WSPs do not adequately address such matters and addressing such matters would help encourage and facilitate such works on a broader scale within the WSP areas.

Other changes to the WSPs, which would encourage and facilitate these restoration and rehabilitation works, include:

- *The conjunctive management of shallow alluvial groundwater* – The Mulloon Institute considers that surface water and associated alluvial groundwater should be managed conjunctively in systems where these water resources are connected. This connectivity has been recognised in other WSPs such as the Water Sharing Plan for the Bega and Brogo Rivers Area Regulated, Unregulated and Alluvial Water Sources 2011. The Mulloon Institute would like to see a conjunctive approach incorporated into a revised Greater Metropolitan WSP for relevant watercourses and their alluvial groundwater resources, such as Mulloon Creek. Ideally, this approach would facilitate the rehydration (recharge) of the floodplain aquifers and the flow-on environmental benefits to riparian and aquatic ecosystems without the need for a water access licence. This approach would provide the landscape with significant drought resilience.
- *The creation of specific purpose access licence for environmental remediation activities* – the Mulloon Institute notes the possibility of creating a new “specific purpose access licence” under clause 52 of the Metro Unreg. WSP that would allow its holder to divert water for the purpose of environmental remediation, e.g. building leaky weir structures to revert water for the purpose of rehydrating floodplain pockets. As noted above, under the existing Metro Unreg. WSP rules, the effective recoupling of incised streams with their adjacent floodplains cannot be achieved without a water access licence, presenting a significant obstacle to the regeneration and restoration of the catchment.
- *The creation of an exemption for environmental rehabilitation and restoration activities in a Schedule to the WSP* – the Mulloon Institute also notes the possibility of creating a Schedule akin to Schedule 2 or 3 of the existing Metro Unreg. WSP that sets out a general exemption to the certain rules (e.g. for water access licences or water supply work approval) in the WSP that applies only where an activity is for the purpose of rehabilitation and restoration of the environment.
- *Broader justifications for allowing instream works in the WSP area for rehabilitation and restoration purposes* – the Mulloon Institute submits that, in accordance with Clause 10(b) of the Metro Unreg. WSP, the MCLRP is in fact a prime example of sustainable and integrated management of the water cycle, which is being undertaken within a community setting under rigorous research conditions. The MCLRP research framework has been set up to consider the short and long-term environmental, economic and social impacts of this catchment-scale project.
- *Adding a specific mention of the MCLRP to the WSPs* – a specific mention of the MCLRP in the WSPs would have the benefit of indicating that the WSPs are supportive of the vision and draft plans contained in the MCLRP, allowing for monitoring and review of the progress of the MCLRP and reporting on whether similar projects should be implemented throughout the catchment and in other catchment areas. This could provide an effective case study which could be adopted by other WSPs (lead by example).

Please do not hesitate to contact me if you have any questions in relation to this submission or the Mulloon Institute. We would welcome the opportunity to meet with the NRC to discuss the matters raised in this submission.

Yours faithfully,



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