the mulloon institute
for environment, farming and society

Coastal Harvestable Rights Review
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Mulloon Institute - Submission to Review of Coastal Harvestable Rights

The Mulloon Institute welcomes this opportunity to provide input into DPIE-Water's coastal harvestable rights review.

We would also welcome the opportunity to further 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 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/.

Relevantly for this review, Mulloon Creek is located in a NSW coastal catchment – the Reedy Creek Management Zone of the Shoalhaven River Water Source, within the *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources 2011* (NSW) (**WSP**). Notably, this water source is located just to the east of the Wollondilly case study catchment that is considered in DPIE-Water's discussion paper.

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 Rehydration Initiative

The Mulloon Institute is seeking to restore the landscape function and resilience of the Mulloon catchment through the Mulloon Rehydration Initiative (**MRI**). The MRI involves the majority of landholders in the Mulloon Catchment and covers an area of around 23,000 ha within the WSP area (for more information on the MRI see https://themullooninstitute.org/projects/#mri-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 Catchment was discontinuous prior to European settlement. In other words, it did not contain a continuous channel as it does today. They describe the lower Mulloon Catchment 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 Creek 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 bushfires.

The scientific benchmarks and monitoring of the MRI 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 harvestable rights and farm dams

The Mulloon Institute was established in 2011 so has operated for its entire existence under the harvestable rights provisions of the *Water Management Act 2000* (NSW) (**WM Act**), its associated regulations and instruments.

Over this time, 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 Holocene16, 5, pp 661 – 674.

So far, over fifty structures have been installed across six adjoining properties along 15 km of Mulloon Creek. Another 60 creek structures are planned to be installed throughout a further 25 km of creek over the next two years.

At times, the Mulloon Institute has relied on the harvestable rights provisions within the 1st and 2nd order part of the catchment system, so as to construct these structures and the accompanying land rehabilitation, restoration and management work. However, much of our work has occurred within 3rd order or greater streams. As such, placing 'leaky weir' structures instream is only justifiable on the basis of erosion control under the current WSP for the region.

While these 'leaky weir' structures allow water to back up behind them, they are not designed to dam or impound the water, merely to slow it down so that the water has time to soak in and recharge the floodplain aquifer. However, as part of the approval process we are asked to identify how much water is being held up behind these 'leaky weirs' at any point in time. It is generally no more than 25% of the maximum harvestable right dam capacity (**MHDC**) for any of the properties through which Mulloon Creek flows.

Furthermore, the Mulloon Institute has been required to obtain:

- a controlled activity approval (**CAA**) under the WM Act, on a property-by-property basis, through the NSW Natural Resource Access Regulator (**NRAR**),
- 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), and
- upcoming approvals will trigger the need for approvals under the *Crown Land Management Act 2016* (NSW).

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 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 view of the Mulloon Institute that the harvestable rights framework could potentially be used in place of WAL requirements to more efficiently facilitate these types of environmental rehabilitation works.

Currently, in many cases, the effective recoupling of incised streams with their adjacent floodplains cannot be achieved without a WAL, even though, prior to the becoming incised some time since European settlement, streams and their floodplains were naturally linked. This presents a significant obstacle to the regeneration and restoration of a catchment.

Response to the discussion paper

We understand that the focus of the discussion paper is upon farms dams, as opposed to the restoration of hydrological processes through interventions like leaky weirs and contours. However, as noted above, we suggest that the harvestable rights framework could potentially be used in place of WAL requirements to more efficiently facilitate these types of environmental rehabilitation works.

Furthermore, we note that while the discussion paper's analysis reflects the detrimental impacts of farm dams to environmental flows and other consumptive users, the Mulloon Institute's activities provide an example of where similar structures actually provide benefits to the environment and other users – through restoration of hydrological processes, more consistent base water flow, filtering water, improved water quality, biodiversity, carbon capture and habitat for threatened species. We note also that increased biomass production following rehydration of floodplains can result in increased farm productivity and provide a demonstrable benefit to landholders.

The potential for landscape scale repair and restoration through landscape rehydration at the catchment scale can result in increased water security and many co-benefits as indicated above and evidenced by the MRI. Landscape rehydration would see water reverted from streams and rivers onto the floodplains and recharging local aquifers. The use of water in this way is not currently captured under environmental flows but is important to reinstating hydrological processes that have been lost due to the degradation of our streams and rivers. We appreciate that this positive impact does not necessarily result from the majority of structures that are the subject of the discussion paper. However, we suggest that the review should also consider the potential for harvestable rights activities to do so – as described in this submission.

In acknowledging that the majority of harvestable rights activities do not have this positive downstream impact, we *do not* submit that harvestable rights volumes should be increased (whether through application to third order streams or otherwise) only for the purpose extra water being allowed to be held in farm dams – noting that any such changes would most likely allow the Mulloon Institute to more effectively undertake its landscape rehydration activities. We *do* however, submit that any increase in harvestable rights ought to be for the benefit of landscape rehydration activities.

In summary, we are grateful for the opportunity to highlight the significant environmental and production benefits available from the use of landscape rehydration in conjunction with harvestable rights. We therefore encourage DPIE-Water to consider these benefits as part of its review and hope that it will support future landscape rehydration through this basic landholder right.

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 DPIE-Water to discuss the matters raised in this submission.

Yours faithfully,

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