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ABSTRACT SPECIFICATIONS

Lake Mealup 'Just add water': Managing acid sulphate soils on a wetland of significance in the Peel-Yalgorup Ramsar site, SW Australia.

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Photo: Lake Mealup aerial looking SW direction with Lakes McLarty and Harvey Estuary in the background: September 2013

Abstract:

Lake Mealup forms part of the Peel-Yalgorup wetland system on the Swan Coastal Plain in South Western Australia and is recognised under the Ramsar Convention as internationally important for waterbirds. Declining rainfall since the 1970s and modified drainage led to the lake drying out each summer. The reduced water levels have also allowed the spread of the invasive bulrush, *Typha orientalis*. Exposure of the sediments has caused extreme acidification and loss of habitat for waterbirds. In response, a collaborative effort has started to restore the Lake and protect the future of the lake's ecological values.

The Lake Mealup Recovery Program was developed to respond to this decline. The program's greatest asset has been its range of stakeholders including government agencies, catchment groups, community organisations and private consultants. It follows an adaptive management approach which identifies targets for ecological health and monitoring triggers for management action. The key component of the recovery program is the diversion weir which allows controlled diversion of flow from the Mealup Main Drain into Lake Mealup to maintain water levels and reduce acidification.

Diversion of drainage water into the lake to maintain water levels in combination with a program of mechanical and chemical control of typha have resulted in a significant improvement in water quality and complete elimination of typha. Since then, the abundance of water birds has increased from typically less than 100 individuals before the recovery program to over 2,000 birds with 43 species recorded, including trans-equatorial migrants.

The Recovery Program has been a demonstration of successful cooperation between a range of groups working together under an adaptive management framework to achieve positive outcomes for a significant and important wetland. The future is looking good if we continue to optimise operation of the diversion weir, and maintain the monitoring program to determine the optimal management to maximise the ecological values of the lake.