

## Rehabilitation of wetland inundation regimes in the Lachlan River, NSW, Australia: achievements and ongoing challenges

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### ABSTRACT

River regulation and water extraction have reduced wetland flooding frequency of wetlands along inland NSW rivers in comparison with historical levels, but efforts are now being made to establish more natural inundation regimes through environmental water allocations. Novel additions to the Lachlan River hydrology model were used to simulate the long-term effects of the allocation of environmental water to wetlands. These include models for: 1. discrete riparian wetlands 2. effluent (distributary) creeks and 3. the terminal swamp of the Lachlan Valley. Models indicate that the current water sharing plan (WSP) delivers extra flows to some targeted wetlands and only impacts on irrigation water by c. 3%. However, the benefits of environmental flows are not equally shared, with one effluent creek being the main beneficiary in terms of total volumes. Moreover, the terminal swamp, a nationally significant wetland, needs more flood flows for river red gum health..

KEY WORDS: wetlands; hydrology; lowland rivers; adaptive management; IMEF; hydro-ecology.