



Australian Government

**Interim Inspector-General of
Murray–Darling Basin Water Resources**

NSW Lower Murray Sustainable Diversion Limits set under the Basin Plan 2012

In March 2020, the Hon. Melinda Pavey MP, New South Wales (NSW) Minister for Water, Property and Housing requested the Interim Inspector-General of Murray-Darling Basin Water Resources (IIG) investigate why flood recharge was not considered in the modelling of the Lower Murray groundwater Sustainable Diversion Limit (SDL) when it was set under the *Basin Plan 2012* and whether NSW farmers in the Lower Murray with groundwater entitlements were denied having water returned to them when the *Basin Plan 2012* was enacted. This query is based on an assumption that modelled diversion limits for the NSW Lower Murray SDL management area contained in the Groundwater Modelling Report - Southern Riverine Plains (CSIRO and SKM, 2010) were adopted as the final SDL set under the *Basin Plan 2012*. Examination of this matter by the office of the IIG has revealed this was not the case and therefore, NSW farmers in the Lower Murray with groundwater entitlements were not denied access to further water when the *Basin Plan 2012* was agreed, as outlined below.

The Murray-Darling Basin Authority (MDBA) advise the CSIRO and SKM (2010) modelled diversion limits were included in the draft Basin Plan as a starting point for further discussion. However, they were only used to test a range of extraction limits against the environmentally sustainable level of take and were not adopted as the final SDL set under the *Basin Plan 2012*.

The NSW Lower Murray SDL management area comprises the Lower Murray deep alluvium SDL resource unit and the Lower Murray shallow alluvium SDL resource unit. The current combined SDL for the NSW Lower Murray groundwater sources set under the *Basin Plan 2012* is 170.8GL/year. This is equivalent to the long-term average annual extraction limit (LTAAEL), set under NSW state water sharing plans, plus domestic and stock rights. In comparison, the CSIRO and SKM model (2010) contained a combined modelled diversion limit of 128 GL/year and an alternate combined modelled diversion limit based on the inclusion of an uncertainty factor of 102 GL/year.

For the Lower Murray shallow alluvium, the MDBA adopted an existing water sharing plan limit as the SDL under the *Basin Plan 2012*. The SDL was set at the LTAAEL to ensure maximum flexibility to manage salinity and water logging and a reduction in saline groundwater flow to surface water resources. The process adopted was set out in the Proposed Groundwater Baseline and Sustainable Diversion Limits: Methods Report (Murray Darling Basin Authority, 2012, pp. 30, 36).

For the Lower Murray deep alluvium, the MDBA adopted the extraction limit under the Achieving Sustainable Groundwater Entitlements (ASGE) program as the SDL under the *Basin Plan 2012*. The SDL is equivalent to the LTAAEL, which is the extraction limit under the ASGE program with some additional water to meet stock and domestic needs. The process adopted was set out in an Addendum to the proposed Groundwater Baseline and Sustainable Diversion Limits: Methods Report (Murray-Darling Basin Authority, 2012, p. 22).

MDBA commissioned a peer review of the CSIRO and SKM (2010) model by a panel of experts, including Professor Noel Merrick (Heritage Computing, 2010). The review identified the model did not account for flood recharge and incorporated an 'uncertainty factor' that appeared severe. Professor Merrick was engaged to assist the office of the IIG in examining this matter. After reviewing information collected during the course of the examination, Professor Merrick concluded: "the recommendations in the peer review really are no longer relevant, as the model was not used and the final SDL values are more generous than suggested by the model. This overcomes my main concern that flood recharge had not been considered."

NSW Department of Planning, Industry and Environment (DPIE) was also engaged and advised the NSW Government agreed to manage groundwater extractions to the limits set in the *Basin Plan 2012*. The current departmental groundwater assessment and modelling work (aka post 2006 modelling – being updated currently) indicates current management practices and extraction limits remain effective without being unnecessarily restrictive. NSW is currently working on a modelling program to inform the Basin Plan 2026 review.

References

CSIRO and SKM, 2010. *Groundwater Modelling Report - Southern Riverine Plains*, Canberra: CSIRO.

Heritage Computing, 2010. *Peer Review of the Southern Riverine Plains Numerical Groundwater Model*, Winmalee: Heritage Computing.

Murray Darling Basin Authority, 2012. *The proposed Groundwater Baseline and Sustainable Diversion Limits: Methods report*, Canberra: Australian Government.

Murray-Darling Basin Authority, 2012. *Addendum to the proposed Groundwater Baseline and Sustainable Diversion Limits: Methods Report*, Canberra: MDBA.