Australian Government

MURRAY–DARLING BASIN AUTHORITY

Basin Salinity Management 2030 2019–20 Summary Report

Basin governments have been working together with their communities for over 30 years to manage salinity in the Murray–Darling Basin. The Basin Salinity Management 2030 (BSM2030) Strategy looks ahead to deliver a strategic, cost-effective and streamlined program of coordinated salinity management.

The results for the 2019–20 period demonstrate the effectiveness of all salinity mitigation works and measures since 1975 towards reducing salinity in the river. This outcome is beneficial to the environmental, social and economic values of the River Murray.

A significant part of 2019–20 BSM2030 key achievements is due to mitigation works and measures such as the improvement of land and water management practices over many years and the operation of salt interception schemes.

The amount of salinity reduction provided by mitigation works and measures is affected by climate, which delivers variations in dilution flows and changes in catchment salt mobilisation. Considering this variability and its impact on salinity outcomes, modelling is undertaken to understand how improved land and water management practices and mitigation works and measures deliver salinity benefits across both wet and dry periods.

While salinity management in the Murray–Darling Basin has improved over the past 30 years, salinity is forecast to continue to increase over time and requires careful ongoing management to prevent a return to the highly saline conditions of previous decades.

Key achievements

Throughout 2019–20, MDBA and Basin governments continued to work together to implement salinity management. BSM2030 highlights include:

The **Basin salinity target was met** for the eleventh consecutive year.

The Basin Salinity Register for the BSM2030 accountability framework is in credit, with all Basin states on the register maintaining a net positive salinity credit balance for accountable actions.

14 salt interception schemes diverted more than 471,000 tonnes of salt away from the River systems and adjacent landscapes.

The **second BSM2030 strategy** audit by the Independent Audit Group for Salinity was undertaken in November 2019.

Planning and joint management for first flush saline lower Darling River flows avoided salinity impacts in the River Murray.

The **2nd Basin Salinity Forum was held in Mildura** in November 2019. Sixty delegates shared new knowledge and experience to keep improving best management practices.

Knowledge priorities to reduce uncertainty around future salinity risks were progressed, including:

- **continued development of transfer functions** for use in groundwater models to calculate irrigation recharge to groundwater
- **salt interception scheme responsive management investigations**
- **conducting floodplain woody vegetation evapotranspiration studies** to inform knowledge of salinity dynamics in the lower Murray
- **planning for floodplain salinity modelling** projects to address knowledge gaps and improve river salinity management.

Salinity status of the Basin

Modelled salinity levels at Morgan have substantially declined (as shown in Figure 1) as a result of implementing works and measures under the salinity management strategies. For 2019–20, the salinity target was met (95% of time EC was <786µS/cm).

These outcomes reflect the partnership and commitment of the Australian Government, state and territory governments and the coordination of Basin-wide salinity management provided by the MDBA. The BSM2030 strategy builds on earlier strategies and complements the objectives of the Basin Plan by supporting the obligations related to salinity targets for flow management.

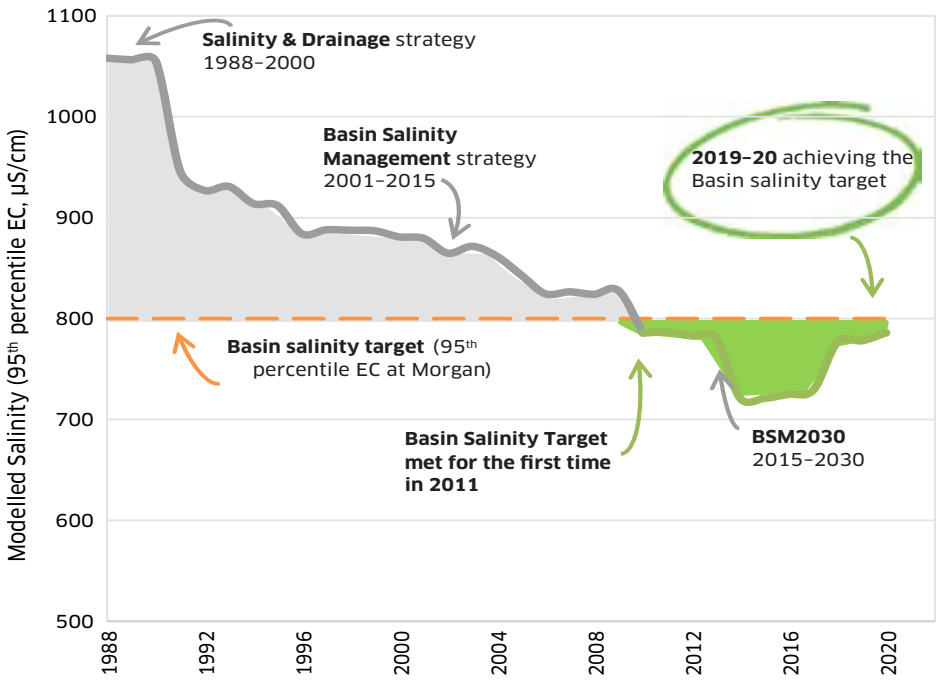


Figure 1: Modelled salinity at Morgan.

The Basin salinity target

The target is to maintain the average daily salinity at a simulated (modelled) level of less than 800 EC for at least 95% of the time at Morgan, South Australia, as shown in Figure 2.

Figure 2: Basin salinity target site.

The continued reduction of salinity levels is a management success

Figure 3 compares measured salinity levels at Morgan with modelled salinity levels that represent a "no further intervention" scenario. The "no further intervention" scenario estimates what river salinity levels would have been if there had been no management interventions post-1975.

The difference between the observed and the simulated no further intervention salinity levels are assumed to be the effect of management actions such as salt interception schemes and improved land and water management.

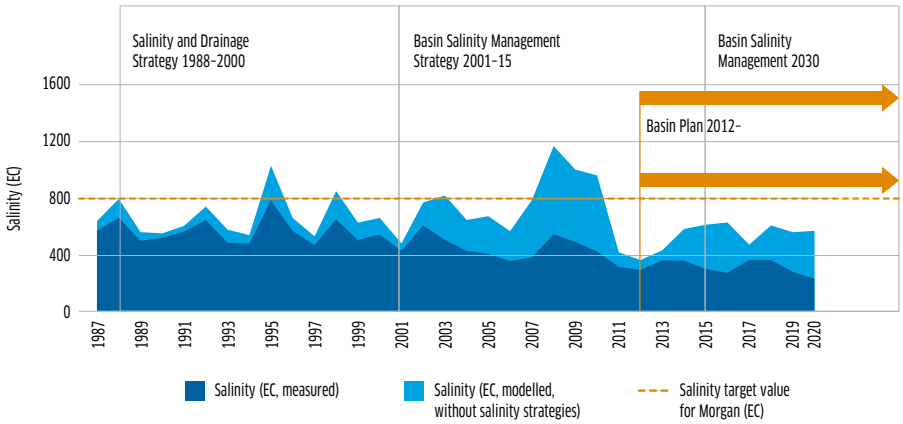


Figure 3: Comparison of measured salinity levels at Morgan to modelled 1975 no further intervention salinity levels

Contracting government highlights for 2019–20

The **Commonwealth** continued to review the influence of Commonwealth environmental watering on salinity in the Murray–Darling Basin. As with previous years, Commonwealth water for the environment continued to be delivered to the Lower Murray, contributing to improving water quality and the export of salt through the Murray Mouth.

New South Wales has progressed a number of audit recommendations including the review of irrigation salinity management policies and development approval processes and, the inclusion of a provisional salinity register entry to account for new irrigation development within the NSW Sunraysia region (2006 to 2018). Most notably, NSW has completed a state-wide salinity hazard map.

Queensland finalised a salinity risk investigation in the Lower Condamine, and results were presented at the 2nd Basin Salinity Forum. Investigations are continuing in the area and in the Border Rivers, helping to clarify the salinity risk from irrigation developments. The salinity monitoring network within the Condamine catchment was expanded, and a review of salinity and flow results was initiated.

Victoria continued to assess new and review existing accountable actions including the Goulburn Murray Water Connections Project (Stage 1 and 2) and the existing Nyah to South Australian Border Irrigation Development Accountable Action. Victoria maintained a net salinity credit balance on the BSM2030 salinity registers and remained compliant with its obligations under Schedule B of the Murray–Darling Basin Agreement.

South Australia's key achievements as reported in their status report include completion of the Pyap–Kingston and Berri-Renmark groundwater model reviews, commissioning of the Pike groundwater management scheme and assessment of the potential salinity impacts from actions undertaken as part of the South Australian Riverland Floodplain Integrated Infrastructure Project.

The **Australian Capital Territory** is developing a new SOURCE model, which will be used for salinity and water modelling. The Australian Capital Territory also remained off the Basin Salinity Register for the BSM2030 accountability framework.

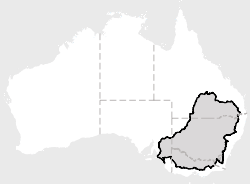
Governance and planning under the BSM2030 strategy continued with the support of the Basin Salinity Management Advisory Panel, comprising of representatives from the 6 partner governments: the Australian Government and the governments of New South Wales, Queensland, South Australia, Victoria and the Australian Capital Territory.

The next phase

The priorities for the next phase of Basin-wide salinity management arise from the continuing obligations in Schedule B of the MDB Agreement and BSM2030 strategy. In 2020–21, the priorities include:

- progressing updates to the MDBA river model for salinity accountability purposes
- preparing guidance material and implementing Basin Salinity Management procedures
- progressing projects related to the BSM2030 knowledge priorities
- continuing to implement the trial of responsive management of the salt interception schemes
- progressing major reviews of actions with significant river salinity effects located in the South Australian river reaches and the Mallee and riverine plain regions of NSW and Victoria
- updating groundwater models to assess potential salinity impacts
- implementing projects to improve understanding and management of salinity issues.

The Murray–Darling Basin



For more information visit

https://www.mdba.gov.au/issues-murray-darling-basin/salinity

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