

Report on Managing Water Quality and Salinity – South Australia

South Australia's annual report on the implementation of the water quality and salinity management plan (Schedule 12, Item 14)

Reporting context

The water quality and salinity management plan provides a Basin-wide framework of water quality objectives and targets for Basin water resources. The water quality and salinity management plan is set out in Chapter 9 of the Basin Plan and includes a list of the key causes of water quality degradation, water quality objectives for Basin water resources and water quality targets for long-term planning.

The purpose of this report is to monitor the extent to which the water quality and salinity management plan has been implemented. This report is a requirement of Chapter 13 of the Basin Plan and relates to Item 14 of Schedule 12.

Indicators for measuring success

Implementation of the water quality and salinity management plan is evaluated using the following five indicators:

- Recorded salinity at reporting sites is consistent with the salinity targets (**Indicator 14.1**)
- Adequacy of the flushing of salt from the River Murray System to the Southern Ocean (salt export) (**Indicator 14.2**)
- Governments are having regard to water quality and salinity targets when managing water flows (**Indicator 14.3**)
- Governments are having regard to water quality targets when making decisions about using environmental water (**Indicator 14.4**)
- Measures governments take to achieve end-of-valley salinity targets (**Indicator 14.5**)

Indicator 14.1: Salinity at reporting sites is consistent with the salinity targets in s9.14(5)

14.1.1. Proportion of days where measured salinity met the target EC at reporting sites

Response

No response required from Basin Governments or CEWH. MDBA report only.

Indicator 14.2: Adequacy of flushing to provide salt export

14.2.1. Estimated Salt Export (Tonnes) from the River Murray System to the Southern Ocean

Response

No response required from Basin Governments or CEWH. MDBA report only.

14.2.2. Flushing Adequacy

Response

No response required from Basin Governments or CEWH. MDBA report only.

Indicator 14.3: Managing water flows with regard to water quality targets (s9.14)

14.3.1. What procedures and tools were in place to enable water quality targets (dissolved oxygen, recreational water quality and salinity) to be met

Response

SA has a comprehensive natural resource management legislative framework (including the *Natural Resource Management Act 2004*, *River Murray Act 2003* and the *Environmental Protection Act 1993*) under which the state operates to maintain water quality.

In response to the Basin Plan, *Guidelines for Having Regard to Targets for Managing Water Flows* were developed to assist river operators, environmental water holders and managers. These Guidelines were endorsed and implemented in DEWNR in February 2014.

The following plans, guidelines and tools were used to ensure that regard is had to the targets in s9.14 when managing water flows in South Australia:

- South Australian River Murray Annual Operating Plan
- Annual Environmental Watering Plan
- Water/Wastewater Incident Notification and Communication Protocol
- Salt Disposal Plans
- Wetland Management Plans
- River Murray Action Request Forms

Response

- Guidelines for Having Regard to Targets for Managing Water Flows
- Modelling

In particular, the delivery of all regulated water entitlements (Entitlement Flow, trades and environmental water) to South Australia is undertaken in accordance with existing processes such as the *SA River Murray Annual Operating Plan* and the *Annual Environmental Watering Plan*. The Basin Plan targets for managing water flows were included in the 2013-14 South Australian River Murray Annual Operating Plan as part of the implementation of the Basin Plan in South Australia.

Salinity outcomes in South Australia are also dependent on river operation decisions made by the Murray-Darling Basin Authority (MDBA). The MDBA directs river operations in the River Murray System in accordance with the 'Objectives and Outcomes for River Operations in the River Murray System' document approved by the Basin Officials Committee each year.

14.3.2. Statement of how procedures and tools were used to meet water quality targets

Response

Flow management decisions are made on a daily basis by the DEWNR River Murray Operations Group consistent with the objectives of the *SA River Murray Annual Operating Plan* and the *Annual Environmental Watering Plan*. Decisions are made using a range of hydrological data, modelling and other information gathered regularly.

Oversight of decisions is provided by a defined governance structure. A multi-agency River Murray Operations Working Group meets monthly to review status and provide guidance to the River Murray Operations Group on issues that arise throughout the year. Any material salinity and water quality issues identified that cannot be resolved are elevated to a senior official's Murray-Darling Basin Coordinating Committee (MDBCC).

Regular monthly reporting on River Murray operations and flow and water quality outcomes is provided to the MDBCC. All plans (including the *SA River Murray Annual Operating Plan* and the *Annual Environmental Watering Plan*) and significant policy and operational decisions relating to the River Murray that may have an impact on water quality standards are assessed and approved by MDBCC before implementation.

River Murray Action Request Forms identify the potential impacts of flow management decisions as they relate to water quality for actions that arise throughout the year outside of the agreed *SA River Murray Annual Operating Plan* and the *Annual Environmental Watering Plan*.

Decisions about infrastructure operations such as opening wetland regulators and disposal of water from drainage disposal basins (when certain flow triggers are met) require the proponent to complete a River Murray Action Request Form with potential implications for water quality highlighted along with possible contingency measures. In 2013-14 four of these requests relating to flow management and wetland management were received for consideration.

Significant proposals to change water flows are modelled to determine the impacts on water quality. For example, in 2013-14 South Australia considered exercising its storage rights to store up to 50GL. Decisions to defer the delivery

Response

of and store Entitlement Flow take into account a number of water resource and operational factors. In 2013-14 with the Lower Lakes (Alexandrina and Albert) still recovering from increased salinity levels caused by the 'Millennium Drought' a significant consideration before deferring water was the impact that the deferral of water would have on the salinity levels in Lakes Alexandrina and Lake Albert.

Therefore, as part of the development of the Deferred Storage Plan the impacts of reducing flow to the Lower Lakes according to the proposal were modelled. This showed a negligible impact on the salinity target for Milang and salinity levels across the Lower Lakes. The River Operations Team assessed the proposal as having minimal impact on downstream salinity and approved the Plan for implementation in 2013-14.

14.3.3. Case study

Response

In considering how the Basin Plan would be implemented in South Australia it was identified that there was a need for a set of guidelines to assist river and environmental water managers understand and have regard for the water quality targets in the Basin Plan.

Guidelines were developed with input from a number of South Australian Government agencies with responsibility for managing flow, water quality and salinity and formally approved in February 2014. The guidelines have been used in the development of the 2014-15 South Australian River Murray Annual Operating Plan, the 2014-15 Annual Environmental Watering priorities, 2014-15 Annual Environmental Watering Plan and are being incorporated into the long-term environmental watering plan.

The guidelines will be kept under regular review and updated as required based on new knowledge and experience.

Indicator 14.4: How were water quality targets taken into account when making decisions about using environmental water

14.4.1: Statement that procedures and tools were in place

Response

As outlined above, the following were used to ensure that regard is had to the targets in s9.14 when making decisions about the use of environmental water in South Australia:

- South Australian River Murray Annual Operating Plan
- Annual Environmental Watering Plan
- Water/Wastewater Incident Notification and Communication Protocol
- Short Term Barrage Operating Plan
- Wetland Management Plans
- River Murray Action Request Forms
- Guidelines for Having Regard to Targets for Managing Water Flows
- Modelling and Decision Templates

Response

The delivery of all regulated water entitlements (Entitlement Flow, trades and environmental water) to South Australia is undertaken in accordance with existing processes such as the *SA River Murray Annual Operating Plan* and the *Annual Environmental Watering Plan*.

The Basin Plan targets for managing water flows were included in the 2013-14 South Australian River Murray Annual Operating Plan as part of the implementation of the Basin Plan in South Australia.

14.4.2: Statement of how procedures and tools were used

Response

Water quality is very important to South Australia because of the number of offtakes for human consumption along the river. In the initial development of watering proposals SA uses an adapted The Living Murray (TLM) template that includes the risks identified with both not watering and watering wetlands. The same template is also used in the planning process. Modelling products are also used by working groups in their decision making processes relating to development, planning and use of environmental water to make an assessment against the targets listed under s 9.14.

During watering events specific monitoring of water quality occurs in real-time at the major wetland sites. Smaller sites are monitored through the in-stream monitoring network. Data is available in real-time to the DEWNR River Murray Operations Group who manage river operations.

SA also participates in the MDBA operations led advisory group for environmental watering and the information provided about water quality from that group is also used in real-time operational decisions.

Environmental water managers are involved in the River Murray Operations Working Group which meets monthly to review status and provide guidance to the DEWNR River Murray Operations Group on issues that arise throughout the year. Decisions to use environmental water are dependent on the real-time river conditions at the time, the perceived risks and available contingency measures.

South Australia requests the Commonwealth Environmental Water Holder to consider the matters listed under 9.14(5) in making decisions to use its water.

Environmental watering actions that arose throughout the year outside of the agreed SA River Murray Annual Operating Plan and the planned Annual Environmental Watering priorities were asked to complete a River Murray Action Request Form. In 2013-14 two requests relating to wetland management occurred.

14.4.3. Case study

Response

Bunyip Reach wetland complex forms part of the Riverland Ramsar Site, a wetland of international importance. The vegetation surrounding Braddy's Lagoon, part of the Bunyip Reach, was showing signs of stress in March 2014.

Response

Past experience has shown that providing water to these wetlands in Autumn will have beneficial future outcomes for the native vegetation.

A partial refill of the lagoon with gradual evaporation was therefore proposed and the DEWNR River Murray Operations Group notified. A River Murray Action Request Form was completed, which outlined the proposed action, the risks and likely impacts of the action.

It was assessed that because the drawdown was to be by evaporation the impact of water quality on the river would be negligible. Having had regard to the target value for the River Murray at Morgan the action was approved.

Indicator 14.5: Implementation of measures to achieve end-of-valley salinity targets

No response required from Basin governments or CEWH. MDBA reports on this indicator on behalf of Basin governments, drawing on their Basin Salinity Management Strategy implementation reports against end-of-valley targets

14.5.1. Types of measures implemented

Response

No response required from Basin Governments or CEWH. MDBA response only.

14.5.2. Summary of objectives, activities and achievements with regard to each measure implemented

Response

No response required from Basin Governments or CEWH. MDBA response only.
