Report on Managing Water Quality and Salinity- Commonwealth Environmental Water Holder

The Commonwealth Environmental Water Holder'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 (I**ndicator 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 (I**ndicator 14.3**)
- Governments are having regard to water quality targets when making decisions about using environmental water (I**ndicator 14.4**)
- Measures governments take to achieve end-of-valley salinity targets (I**ndicator 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 (s9.09)

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

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

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

14.3.3. Case study

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

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

14.4.1. Statement that procedures and tools were in place

Response
The CEWH has regard to the water quality targets set out in 9.14(5) when making decisions about the use of Commonwealth environmental water. For every Commonwealth watering action, a risk assessment is undertaken 'including with regard to the Basin Plan's water quality and salinity targets for managing water flows'. This risk assessment is guided by the *Risk Management Guidance for the Use of Commonwealth Environmental Water*, which specifically

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identifies the potential risks of Commonwealth environmental watering resulting in the water quality and salinity targets being exceeded, and provides guidance on mitigation strategies. In addition, an internal 'Basin Update' prepared by the CEWO, tracks salinity in the Basin on a weekly basis which assists with having regard to water quality targets when developing environmental watering actions. Updates on blackwater and blue-green algae events provided by the MDBA and Basin States are also considered when assessing potential environmental water needs.

14.4.2. Statement of how procedures and tools were used

Response
Risk assessments, which included the potential risks of exceeding the water quality targets, were undertaken for all Commonwealth water use actions in 2013-14. This included hydrologic modelling (see case study below) for some activities. No Commonwealth environmental watering actions were found to have resulted in adverse water quality impacts in 2013-14. In 2013-14 there were no major natural events that led to the water quality targets being exceeded and that required the CEWH to respond to. Twelve Commonwealth environmental watering actions in 2013-14 identified reduced salinity and/or increased dissolved oxygen as an expected outcome. The delivery of Commonwealth environmental water to the Lower Murray in 2013-14 contributed to maintaining salinity levels below target levels.

14.4.3. Case study

Response
Mallee Catchment - Psyche Bend Lagoon Psyche Bend Lagoon is located approximately 20 km upstream of Mildura within the Mallee Catchment Management Authority (CMA) region. It is a low-lying wetland within the River Murray floodplain and receives local saline groundwater discharge. Salt accumulates in Psyche Bend Lagoon until it is flushed which occurs naturally when River Murray flows exceed 100,000 ML/day. Operating Protocols also provide for Psyche Bend Lagoon to be flushed when River Murray flows exceed 35,000 ML/day (an accountable action under the Basin Salinity Management Strategy). In 2013–14, the Mallee CMA in partnership with the CEWO and the Victorian Environmental Water Holder (VEWH) initiated the Psyche Bend Lagoon Project, a one-off three year environmental watering project that aims to: • Refresh lagoon waters; • Improve the health of the surrounding Black Box community; and • Improve water quality and provide opportunity for Murray Hardyhead relocation. As the proposed Psyche Bend Lagoon environmental watering project was expected to result in an increased mobilisation of salt into the River Murray, the CEWO worked with the Mallee CMA to undertake hydrological modelling to assess the impacts of the environmental watering project on River Murray salinity. Hydrological modelling was used to inform a detailed risk assessment that was

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undertaken by the CEWO in line with the *Risk Management Guidance for the Use of Commonwealth Environmental Water.* Using the *Risk Management Guidance for the Use of Commonwealth Environmental Water*, the proposed operation of Psyche Bend Lagoon was assessed as low risk. Despite this low risk, a number of mitigation strategies were identified for implementation by the Mallee CMA to manage potential risk of salinity impacts including: • In-stream salinity downstream of the discharge site to be monitored at all times during surface water discharge events; • The rate of release from Psyche Bend Lagoon to be managed such that salinity immediately downstream of the discharge point does not exceed 300 EC during discharge events; and • The management of releases has regard to downstream Basin Plan salinity targets at Lock 6 and Murray Bridge by undertaking regular consultation with the Discharge Operating Group, which will include representatives from, among others, MDBA River Murray Operations, Mallee CMA, Lower Murray Water, CEWO and the South Australian Department of Environment, Water and Natural Resources. The CEWO had broad consultation with the relevant Basin States using existing forums on this watering project. The consultation through existing forums proved to be a good method of distributing information and obtaining feedback. During the implementation of this watering action, river salinity was maintained below local water quality thresholds and Basin Plan salinity targets.

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 report 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 report only.