

EVALUATION OF SDL ADJUSTMENT MEASURE FOR PHASE 2 (BUSINESS CASES) - MDBA ASSESSMENT

TITLE OF MEASURE: RIVER MURRAY IN SOUTH AUSTRALIA CONSTRAINTS MEASURE BUSINESS CASE

PROPONENT: SOUTH AUSTRALIA

Key points/summary

Overall, the River Murray in South Australia business case is a comprehensive proposal that meets the assessment requirements. If implemented (and dependent on the flow constraint in the Yarrawonga-Wakool reach), the measure would be able to deliver on its stated outcomes and allow for significant environmental benefit within the reach.

The effectiveness of the measures proposed in the South Australian business case is dependent on the proposed flows in the Yarrawonga-Wakool reach. The South Australian River Murray constraints measure will not achieve its stated outcomes if the proposed maximum flow rate downstream of Yarrawonga Weir remains at 30,000 ML/d. It is unlikely that flows in the range of 60,000 to 80,000 ML/d at the South Australian border would be achievable unless the proposed flow rate downstream of Yarrawonga is increased, making it difficult to justify implementing this proposal given upstream constraints.

In addition to the above, the following issues require further consideration in the business case to ensure longer-term project delivery and security:

- The process for commissioning flow trials and what arrangements would be put in place to manage potential liability.
- Issues of asset ownership, operations and maintenance arrangements and associated financial responsibility.
- Resolution of preferred mitigation activities with respect to property, such as one-off payments (for easements) or alternative arrangements such as an ongoing payment scheme.
- Lack of community support is identified as a key risk, however, it is not made clear what would happen if the proposed strategy for dealing with the risk is unsuccessful.
- The safety risk to third parties during an environmental watering event.
- There may need to be some consideration of changes to legislation to ensure river operating agencies are covered in relation to third party liability issues arising as a result of delivering overbank environmental flows.

The costing is considered to have a high level of contingency and further refinement in the future may be beneficial to reduce the cost of this proposal.

1. Eligibility (3.1)

1.1 Supply measure requirements (3.1.1)

The MDBA notes that the South Australian Government has notified this measure as both a constraints and a supply measure, however the business case has only nominated the measure as a constraints measure.

The MDBA recommends that the business case clarify the nomination of the measure as either a constraints or supply measure.

1.2 Measures not included in the benchmark conditions of development (3.1.2)

The business case indicates that this is a new measure which is additional to those included in the benchmark assumptions of the Murray–Darling Basin Plan.

2. Ecological values of the site (4.2)

The business case provides a description of the ecological values of the River Murray in South Australia and an overview of past management activities.

Key water-dependent and floodplain vegetation and habitat types are identified. Relevant references to detailed information regarding the ecological values and features of the reach influenced by the proposed measure are also provided; including:

- References to water-dependent flora and fauna species present;
- References to identified threatened or listed species/communities;
- Recognition of international agreements ; and
- References to vital ecological functions of the site including vital habitat.

3. Ecological objectives and targets (4.3)

The business case includes a description of the ecological objectives and targets sought under the proposed measure. The ecological objectives and outcomes detailed in the business case:

- Are clearly articulated and provide an accurate representation of the ecology of the reach;
- Are consistent with the Basin Plan, the Basin-wide Environmental Watering Strategy, and the SA long term watering plan;
- Have recognised the interaction with the upstream River Murray constraints measures and existing and proposed floodplain water delivery infrastructure;
- Take into account ecosystem function, connectivity, interaction and inter-dependencies with other sites/habitats across the reach;
- are quantified; and
- compare the frequency, extent and duration of watering of the proposed measures with:
 - the natural flow regime; and
 - benchmark conditions.

4. Anticipated ecological outcomes (4.4)

4.3 Anticipated ecological benefits (4.4.1)

Chapter 3 of the business case details the anticipated ecological benefits for both the River Murray in South Australia and for the broader River Murray upstream.

A conceptual model is used to assess the likely ecological benefits within the reach for a range of different proposed flow bands up to 80,000 ML/day at the South Australian border. The conceptual models contain statements on ecological patterns and processes expected from biotic/abiotic components based on relevant hydrological data.

Ecological benefits have been provided for key environmental sites, ecological functions and species groupings based on several flow rate scenarios (Table 4 and 5 in the business case), with Table 6 in the business case quantifying the anticipated area of inundation of key flood-dependent native vegetation groups.

Monitoring and evaluation of environmental outcomes will be conducted pursuant to the South Australian long term watering plan and broader Basin Plan implementation.

The business case acknowledges that the South Australian River Murray constraints measure is highly dependent on upstream constraints. The outcomes described in this business case are based on two scenarios 50,000 or 65,000 ML/day downstream of Yarrowonga. If the proposed maximum flow rate downstream of Yarrowonga Weir remains at 30,000 ML/d this proposal is unlikely to achieve its stated outcomes. Flows in the range of 60,000 to 80,000 ML/d at the South Australian border would be unlikely unless the proposed flow rate downstream of Yarrowonga is increased.

4.4 Potential adverse ecological impacts (4.4.2)

A high level assessment of the potential adverse environmental outcomes for the River Murray, including the River Murray in South Australia, is presented in Appendix 2 of the business case. The risks identified include some which are also associated with normal environmental watering activities. The key risks identified are salinity, water quality, pest species, ecological function and connectivity and other cumulative impacts. The risk assessment provides commentary on mitigation strategies and residual risks.

The assessment is consistent with the Commonwealth Environmental Water Holder framework for determining Commonwealth environmental water use.

5. Hydrology of the area and environmental water requirements (4.5)

5.3 Current hydrology and proposed changes to the hydrology (4.5.1)

Hydrology of the reach, including post development (current) and pre development (natural) is discussed respectively in sections 3.4 and 4 of the business case. Modelling has indicated that under current development conditions in the Murray–Darling Basin, the average annual flow to South Australia has been reduced by 52% compared to without development conditions.

The proposal used “relaxed constraints” modelling assuming two different upstream regulated flow limits at Yarrowonga, as investigated throughout the course of Phase 2: 50,000 ML/day and 65,000 ML/day. The business case notes that the ultimate flow rates implemented in the upstream reaches, together with the coordinated delivery of increased flows and natural flows, will result in a greater frequency and/or duration of 80,000 ML/day events at the South Australian border.

Table 6 of the business case presents the extent of vegetation and wetlands inundated within the reach for the different modelled flows. The approach to the associated flow inundation modelling is described in Appendix 8 of the business case and includes information on the relationships between flow, area, volume and height, as well as the modelling assumptions and calibrations.

5.4 Environmental water requirements (4.5.2)

A brief description of the environmental watering requirements of the priority environmental areas within the reach is provided, more comprehensive detail is referred to within the South Australian long term watering plans.

6. Operating regime (4.6)

The proposed operating regime is covered extensively in section 4 of the business case, and assumes constraints upstream are addressed to at least 50,000 ML/d at Yarrowonga. The proposal intends to use natural cues as a trigger for coordinating releases from headwater storages to augment flow contributions from tributaries. Further clarification is required on how restricting flows at Yarrowonga to 30,000 ML/day will impact this proposed measure.

The business case considers two elements in relation to how higher flow rates would be delivered operationally to the River Murray in South Australia: the first is in the supply of water to the border, and the second is management of the flows in South Australia.

The decisions on the management and use of environmental water delivered to the South Australian border will be made within existing frameworks, consistent with the South Australian long term watering plans and annual plans managed by river operators and environmental water managers. Relaxing constraints will provide river operators and environmental water managers with flexibility and ability to take advantage of environmental watering opportunities.

The business case discusses the desired timing of flows to generate maximum benefit for the environment and pose the least risk to recreational and tourism activities. It also references the over-arching principles on which the operation of the River Murray System is based.

The MDBA notes that this is not an infrastructure based proposal.

7. Assessment of risks and impacts of the operation of the measure (4.7)

The business case provides a high level assessment of the risks to implementation of the measure in Table 16, Appendix 5. The risks and impacts appear adequately described and assessed according to the risk assessment framework in Section 8.5 of the business case. Robust mitigation treatments are proposed.

In addition to the assessment described in Appendix 5 of the business case, the following issues also require further consideration to ensure longer-term project delivery and security:

- the process for commissioning flow trials, and what arrangements would be put in place to manage potential liability
- issues of asset ownership, operations and maintenance arrangements and associated financial responsibility.
- resolution of preferred mitigation activities with respect to property, such as one-off payments (for easements) or alternative arrangements such as an ongoing payment scheme.
- lack of community support is identified as a key risk. The success of voluntary easements with landholders ultimately depends on landholder uptake of easements over the affected parts of their property. If full coverage is not obtained, there is a residual legal risk that the landholders who do not have easements may decide to enforce their rights and seek compensation or an injunction to prohibit future environmental flows that affect their land. However, it is not made clear what would happen if the proposed strategy for dealing with the risk is unsuccessful. There may need to be some consideration of changes to legislation to ensure river operating agencies are covered in relation to third party liability issues arising as a result of delivering overbank environmental flows.
- the safety risk to third parties during an environmental watering event.

Table 7 of the business case summarises the nature and extent of potential impacts and mitigation measures identified and costed by independent consultants. Details of the estimated costs of the proposed operating regime for the River Murray in South Australia, including the identified mitigation measures, are included at Section 7 and Appendix 6 of the business case.

The total costs for proposed mitigation measures for the River Murray in South Australia is currently estimated at \$38-40 million to \$53-55 million. This includes administration and management costs as well as considerable contingencies and depends on the mix of land management arrangements and infrastructure works and the extent of constraints relaxation flow rates for upstream reaches.

Some mitigation measures (and associated costs) are likely very conservative (that is, they appear to err on the side of over-mitigation), for example:

- proposed mitigation measures relating to specific infrastructure items (e.g. Loxton bank stabilisation works, Berri Marina boat ramp upgrades, etc)
- costs associated with the SA Water Salt Interception scheme.

As recognised in the proposal, if it were to proceed, further on-ground consultation, at a property-by-property level, would need to be undertaken to refine understanding of impacts, mitigation options and costs.

8. Complementary actions and interdependencies (4.9)

The River Murray in South Australia business case was originally conceived as part of an integrated package of River Murray constraints proposals. However the River Murray business cases which have been submitted do not fully reflect an integrated approach. In particular, this measure and the Hume to Yarrowonga constraints measure business case were developed assuming the central reach – the Yarrowonga to Wakool Junction – would propose addressing flow constraints downstream of Yarrowonga up to either 50,000 ML/d or 65,000 ML/d. The current Yarrowonga to Wakool measure business case proposes 30,000 ML/d. This limit adversely affects the viability of both the Hume-Yarrowonga and River Murray in South Australia constraints measure business cases.

If the proposed maximum flow rate downstream of Yarrowonga Weir remains at 30,000 ML/d, it is unlikely that the South Australian River Murray constraints measure will achieve its stated outcomes. Further assessment is required of the impacts of the proposed Yarrowonga to Wakool Junction constraints measure on this proposed measure.

The business case also identifies the importance of the prerequisite policy measures being in place to achieve the maximum benefit from this proposal.

9. Project governance and project management arrangements (4.11)

Legal and statutory requirements (4.11.2)

The River Murray in South Australia constraints measure business case could have implications for transitional and interim water resource plans.

The business case does not appear to impact any transitional or interim plans, however, if any actions in the business cases result in an amendment to a transitional or interim water resource plan it is expected the Basin State would seek accreditation of any such amendment in the normal way.