# Seasonal Watering Proposal



## 2026-27

## Lindsay-Mulcra-Wallpolla

mallee catchment management authority

# Document Control

| Status | Version | Author | Date | Description |
|---|---|---|---|---|
| **Draft** | 1.1 | Mallee CMA | 4/03/2026 | Drafted content submitted to VEWH. |
| **Draft 2** | 1.2 | Mallee CMA | 8/4/2026 | Final Draft distributed to stakeholders for review and endorsement. |
| **Final** | 1.3 | Mallee CMA | 29/04/2026 | Final submitted to VEWH. |

### Citation

Please cite this document as:

*Mallee CMA (2026) Seasonal Watering Proposal Lindsay-Mulcra-Wallpolla 2026-27, Mallee CMA, Irymple, Victoria*

### Contact

For further information on any of the content provided within this document contact:

Nicole Wishart
Executive Manager Waterways, Wetlands and Statutory Functions
Mallee Catchment Management Authority

# Acknowledgement of Country

Mallee Catchment Management Authority (CMA) acknowledges and respects Traditional Owners, Aboriginal communities and organisations. We recognise the diversity of their cultures and the deep connections they have with Victoria's lands and waters.

We value partnerships with them for the health of people and country.

Mallee CMA Board, management and staff pay their respects to Elders past, present and emerging and recognise the primacy of Traditional Owners' obligations, rights and responsibilities to use and care for their traditional lands and waters.

This publication may be of assistance to you, but the Mallee Catchment Management Authority and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purpose and therefore disclaims all liability for any error, loss or other consequence that may arise from you relying on any information in this publication.

**Cover image:** Sandy Creek, Wallpolla Island

# Table of Contents

Figures ..... iii
Tables ..... iv
1 Context ..... 1
2 System Overview ..... 3
3 Traditional Owner Cultural Values and Uses ..... 5
4 Social Recreational and Economic Values and Uses ..... 1
5 Environmental Values and Objectives ..... 5
6 Engagement ..... 7
7 Scope of Environmental Watering ..... 12
8 Scenario Planning ..... 24
8.1 Drought ..... 24
8.2 Dry ..... 25
8.3 Average ..... 25
8.4 Wet ..... 25
9 Risk Management ..... 29
10. Approval ..... 44
10 References ..... 45
11 Appendices ..... 46
Appendix 1 - Site maps for pumped sites ..... 46
Appendix 2 - Proposed hydrographs ..... 49
Appendix 3 - Acronyms, Abbreviations and Glossary ..... 57
Acronyms and abbreviations ..... 57
Glossary ..... 57
Appendix 4 - Guidance Material ..... 60

# Figures

Figure 2.1 The Lindsay, Mulcra and Wallpolla Islands ..... 4
Figure 4.1 Sites of significant value to members of the community across Lindsay-Mulcra-Wallpolla. Error! Bookmark not defined.
Figure 4.2 Values of Lindsay-Mulcra-Wallpolla provided by members of the community ..... 2
Figure 6.1. 'Pins in Maps' activity used to collect community values and uses ..... 7

# Tables

Table 1.1 Summary of the proposed watering sites in 2026-27 for Lindsay-Mulcra-Wallpolla..... 2

Table 3.1: Cultural objectives relevant to Lindsay-Mulcra-Wallpolla ..... 6

Table 4.1 Shared benefit considerations for 2026-27 ..... 3

Table 4.2 Recreational objectives of Lindsay-Mulcra-Wallpolla ..... 4

Table 5.1 Environmental objectives relevant to Lindsay-Mulcra-Wallpolla. ..... 5

Table 6.1 Engagement activities conducted for the purposes of developing this proposal. ..... 9

Table 7.1 Potential watering actions and environmental objectives (weir pool connected) for sites across Lindsay-Mulcra-Wallpolla in 2026-27. These sites are typically managed via weir pool manipulations and/or regulating structures and are management actions which do not require a specific water allocation. ..... 13

Table 7.2 Potential watering actions and environmental objectives (disconnected from weir pool) for Lindsay-Mulcra-Wallpolla in 2026-27. These sites are typically managed via temporary pumping and/or regulating structures and require an environmental water allocation. ..... 17

Table 7.3 Sites which have been actively managed using environmental water delivery across Lindsay-Mulcra-Wallpolla in the past, but are not planned to receive an allocation during 2026-27 across any climatic scenario..... 23

Table 8.1: Proposed environmental watering actions for Lindsay-Mulcra-Wallpolla under each climatic scenario for 2026-27. ..... 27

Table 9.1 Risk assessment of watering of sites across Lindsay-Mulcra-Wallpolla for 2026-27 ..... 29

# 1 Context

Mallee Catchment Management Authority (CMA) is pleased to present the 2026-27 Lindsay-Mulcra-Wallpolla Seasonal Watering Proposal (SWP).

This SWP identifies the Mallee CMA's proposed priorities for use of managed environmental water for the Lindsay-Mulcra-Wallpolla wetland sites in 2026-27. Information from this document will inform development of the Seasonal Watering Plan 2026-27, available on the VEWH's website from 30 June 2026. The Seasonal Watering Plan is the state-wide plan outlining where, when, and why water for the environment can be delivered throughout Victorian waterways, including across Lindsay Mulcra Wallpolla Islands.

The actions outlined in this proposal are informed by ecological objectives and management goals outlined in the Lindsay-Mulcra-Wallpolla Environmental Water Management Plan (EWMP). Other environmental themes guiding site selection include providing and supporting refuge and habitat, maintaining site condition and creating resilience. This ensures the ability of sites to 'bounce back' and respond when conditions become more favourable (i.e. flooding/high river). Target flora and fauna at the proposed wetlands include inundation dependent wetland vegetation species as well as waterbirds, fish, and frogs. Other factors such as habitat and food resources are also a focus.

Planning for environmental watering actions incorporates information around required water regimes, current condition, plus the provision and maintenance of habitat for water dependent species that have critical needs.

In addition to providing water for environmental benefit, delivery of water to the wetlands also supports cultural, social and economic values. These are captured in feedback received from Aboriginal Community, industry and the local community.

Key areas of the proposal are detailed below:

- Scope of Environmental Watering – Describes the range of potential watering actions which may be delivered during 2026-27 (a summary of these actions is provided in Table 1.1)
- Scenario Planning – Describes how the combination of actions may change depending on the climate scenario.
- Risk Management – This is an important chapter of the proposal and is based on the outcomes from the 2026 Shared Operational Risk Workshop – in particular the risk management table.

*Table 1.1 Summary of the proposed watering sites in 2026-27 for Lindsay-Mulcra-Wallpolla*

| Wetland | Delivery Method | Land/Asset Manager |
|---|---|---|
| **Pumped sites requiring a water allocation** | | |
| Sandy Creek and Lilyponds | Pumped | Parks Victoria |
| Lindsay-Mullaroo Connector | Pumped | Parks Victoria |
| Crankhandle | Pumped | Parks Victoria |
| Scotties Billabong | Pumped | Parks Victoria |
| Stockyards | Pumped | Parks Victoria |
| Wallpolla Horseshoe | Pumped/Regulator Operation | Parks Victoria/SA Water |
| Wetland 33 | Pumped | Parks Victoria |
| **Weir pool sites** | | |
| Mullaroo Creek | Weir Pool Manipulation/Regulator Operation | Parks Victoria/SA Water |
| Potterwalkagee Creek | Weir Pool Manipulation/Regulator Operation | Parks Victoria/SA Water |
| Finnigans Creek | Weir Pool Manipulation | Parks Victoria/SA Water |
| Lindsay River North | Weir Pool Manipulation/Regulator Operation | Parks Victoria/SA Water |

This document has been developed in consultation with First Peoples of the Millewa Mallee Aboriginal Corporation (FPMMAC), Parks Victoria, SA Water, the Department of Energy, Environment and Climate Action (DEECA), Goulburn Murray Water (GMW), Lower Murray Water, Commonwealth Environmental Water Holder (CEWH), and Victorian Environmental Water Holder (VEWH). We are grateful for their time and input.

# 2 System Overview

The Lindsay, Mulcra and Wallpolla Islands cover over 26,100 ha of Victorian floodplain in the Murray-Sunset National Park (see Figure 2.1). These islands form part of the Chowilla Floodplain and Lindsay-Wallpolla Islands Icon Site that straddles the Victoria-South Australia-New South Wales border in the mid-Murray River system.

The Lindsay-Mulcra-Wallpolla floodplain is characterised by a network of permanent waterways, small creeks and wetlands. Lindsay River, Potterwalkagee Creek and Wallpolla Creek form the southern boundaries of the site and create large floodplain islands, with the Murray River to the north.

In their natural state, these waterways and wetlands would regularly flow and fill in response to high water levels in the Murray River. Large floods still occur, but major storages in the upper reaches of the Murray River system and extraction for consumptive use have reduced the frequency of small to moderate-sized floods.

Flows in the mid-Murray River system are regulated through a series of weir pools. The weir pools are named after the locks which form part of the infrastructure at the weirs that allow vessels to navigate from one weir pool to the next. The weir pools are primarily managed as small water storages to ensure adequate water levels for off-stream diversion via pumps and regulated channels.

Water is diverted from the Lock 9 weir pool in the Murray River to Lake Victoria, where it is stored for later use to meet South Australian water demands. The diversion causes water to bypass Murray River weir pools 7 and 8, and at times it can significantly impact flow in those reaches.

In recent years, water levels in weir pools 7 and 8 have been managed to achieve ecological benefits in the Murray River channel. For example, weir pool levels have been raised during winter and spring and then lowered during summer and autumn to mimic the seasonal river flow. The raising and lowering provide greater environmental benefits than a stable weir pool because it wets and dries off-channel habitats and creates more variable flow patterns in the Murray River and connected floodplain streams. Changes in water levels during appropriate seasons help establish fringing vegetation in shallow margins of the river channel and promote the cycling of nutrients and carbon as conditions fluctuate between wet and dry.

Static weir pool levels and reduced flow in the Murray River have a significant effect on the flows in the Lindsay River and Potterwalkagee Creek. When flow increases in the Murray River and/or when water levels in weir pools 7 and 8 are raised above the full supply level, the upper Lindsay River starts flowing (Lock 7) and flow to Potterwalkagee Creek increases (Lock 8). When weir pools are lowered, flow to both the upper Lindsay River and Potterwalkagee Creek ceases. Mullaroo Creek on Lindsay Island is less affected by weir pool levels, and flow is controlled independently through the Mullaroo Creek regulator, which connects the creek and the Murray River. Moderate lowering of the Lock 7 weir pool level has little effect on Mullaroo Creek but lowering more than 0.5 m below full supply level makes it difficult to deliver the recommended minimum flow of 600 ML per day that is required to maintain fast-flowing habitat for native fish, especially Murray cod.

Fluctuation of weir pool levels is a major consideration for jurisdictions managing flow in the Murray River and the anabranch waterways of Lindsay, Mulcra and Wallpolla. Environmental objectives and associated water regimes for the Murray River sometimes conflict with those for the Lindsay, Mulcra and Wallpolla anabranch systems. Responsible agencies in Victoria and NSW and the Murray-Darling Basin Authority collaboratively plan how to effectively manage weir pools and flows to floodplain habitats.

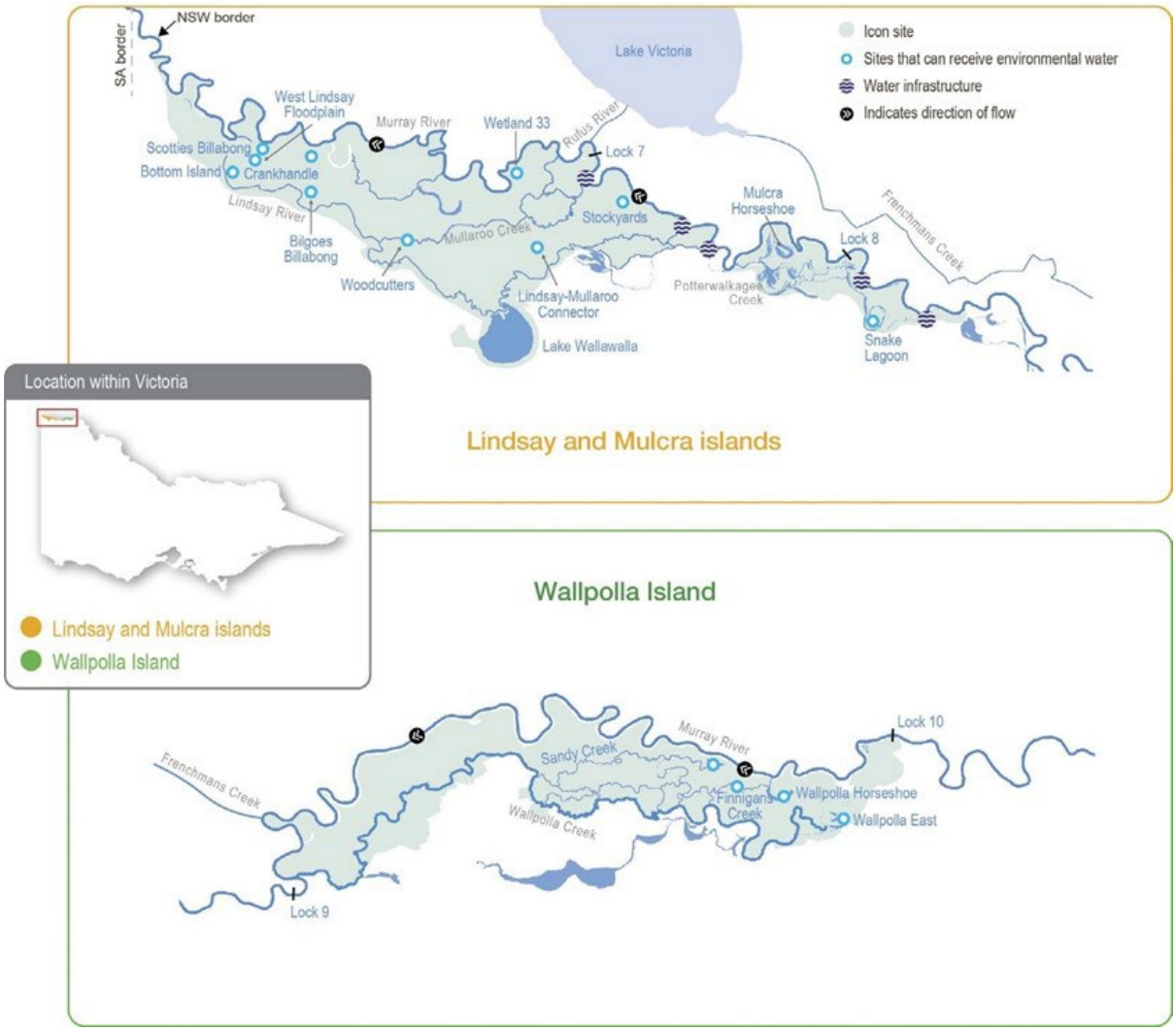



*Figure 2.1 The Lindsay, Mulcra and Wallpolla Islands*

# 3 Traditional Owner Cultural Values and Uses

Aboriginal ancestral occupation across the Lindsay-Mulcra-Wallpolla floodplain dates back tens of thousands of years and is sustained by the rich productivity of the floodplain woodland and wetland systems. Historically, the islands would have been an abundant source of food and water for these communities. The floodplain remains a vital part of community health and wellbeing for Aboriginal communities.

The First People of the Millewa-Mallee Aboriginal Corporation (FPMMAC) is recognised as the Traditional Owner of Country and hold Native Title for the area of north-west Victoria that runs south of the Murray River to the Mallee Highway and west from the Calder Highway to the South Australian border, including the Murray-Sunset National Park.

There are many sites of cultural significance across the floodplain, including ceremonial grounds, earth oven remains, culturally modified trees, shell middens, song lines, ancestral resting places and story places.

The FPMMAC has maintained associations with the Murray River for thousands of generations. The river and its surrounds are among the richest sources of Aboriginal archaeological and cultural heritage material in Australia. The floodplain provides vital resources, including food, water, shelter, medicine and tools. The Traditional Owners retain a strong connection to this Country.

Mallee CMA has a strong working relationship with the FPMMAC, which involves regular two-way communication, including planning, sharing of knowledge and on-going discussions. Water in the landscape is critical to the spirituality of the people of the FPMMAC, strengthening their connection to Country. The Mallee CMA and the FPMMAC have frequent discussions about water, including the planning and delivery of environmental water.

An Environmental Water Planning event was held with FPMMAC in October 2025, with a strong focus on early and meaningful engagement to inform future planning. Discussions reflected on previous engagements and how these have shaped current activities, before moving to FPMMAC's aspirations for environmental water delivery in 2026–27. The day was marked by a high level of participation and knowledge-sharing from Traditional Owners, particularly around the cultural connection to water and the role it plays in maintaining healthy Country.

Traditional Owners emphasised the importance of supporting aquatic life, including native fish and shellfish, as well as bird and plant communities across priority sites. These discussions enabled more detailed consideration of how environmental water can be used to improve water quality, support habitat, and sustain healthy trees and vegetation. Cultural indicators of waterway health, such as the presence of mussels and breeding waterbirds, were highlighted as important measures for future monitoring.

Targeted discussions were also held regarding Lake Wallawalla, a site of high cultural and ecological significance for FPMMAC. Planning has commenced to guide future management of the site, with a strong emphasis on protecting Cultural Heritage values along the lake edge, dune systems and culturally significant tracks, while maintaining tree health until broader restoration works (VMFRP) occur. Other priority locations, including Woods Lagoon (Wallpolla Wetland 2) and the Old Bridge site on Wallpolla Island, were identified for future watering to improve aquatic habitat, bank stability and vegetation condition.

Cultural input into Seasonal Water Proposals continues through both formal and informal engagement, supported by regular meetings and on-Country discussions with FPMMAC staff and leaders throughout

the year. These conversations have expanded to include desired monitoring programs, hands-on involvement in works and monitoring, capacity building and training opportunities, and opportunities for knowledge-sharing and on-Country activities. Collectively, this engagement has provided valuable guidance for developing a more holistic, culturally informed approach to environmental water planning and delivery.

*Table 3.1: Cultural objective relevant to Lindsay-Mulcra-Wallpolla.*

| | |
|---|---|
|  | Watering planned and/or delivered in partnership with Traditional Owners to support cultural values and uses |

# 4 Social Recreational and Economic Values and Uses

In planning the potential environmental watering actions in Table 7.1 and Table 7.2 the Mallee CMA has also considered how environmental flows could support other values and uses, including:

- water-based recreation (such as canoeing, kayaking, fishing and yabbying)
- riverside recreation and amenity (such as bushwalking, camping, bird and wildlife watching, four-wheel driving and photography)
- community events and tourism (such as increased and longstanding repeat visitation, ecotourism and educational programs for school, TAFE and university students)
- socioeconomic benefits (such as for commercial beekeepers who rest bees around the floodplain, local businesses providing accommodation and hospitality to tourists, researchers and local water delivery contractors).

The Lindsay-Mulcra-Wallpolla floodplain is a vast and isolated landscape. The remote nature of this landscape is a major drawcard, with people hoping to 'get away from it all' during trips to this area. Tourism is one of the largest industries in the Mallee region and Murray-Sunset National Park is one of the major attractions. Visitors from the three adjacent states and around the country, are common to Lindsay-Mulcra-Wallpolla. Visitor numbers across Lindsay-Mulcra-Wallpolla can extend into the tens of thousands each year (Mallee CMA, 2021a). Shared benefit considerations for the 2026–27 season are presented in Table 4.1.

The permanent source of water in the Murray River and anabranches act as focal points of these visits and provide a multitude of recreational opportunities including camping, canoeing, bird and wildlife-watching, photography, fishing and four-wheel driving. On occasions when environmental water is delivered, the potential attractiveness of the region only increases, with short-term responses to watering offering increased opportunities such as yabbying and birdwatching. Many families and groups have long standing connections with the Lindsay-Mulcra-Wallpolla region and make regular trips to enjoy this diverse landscape.

While social, recreational and economic drivers are not the deciding factors when selecting and prioritising sites to receive water, community support can be an important factor in the success of a watering event. Feedback from the community highlights the importance of these landscapes to people and the additional benefits of delivering environmental water.

Feedback regarding the social and recreational values of Lindsay-Mulcra-Wallpolla clearly indicates the areas are valued by community members as locations where they can connect with nature and, as such, are important to health and wellbeing. Through conversations with Mallee CMA staff members and formal surveys, it is evident community members appreciate and seek opportunities to be closer to nature through activities at Lindsay-Mulcra-Wallpolla, such as kayaking, walking, bird watching, fishing and social gatherings. These values are illustrated below as word clouds, where the higher frequency words are larger in size than those less used (Figure 4.1 and Figure 4.1). These word clouds provide an "at-a-glance" insight into community values of the sites. Additional evidence of the recreational values of Lindsay-Mulcra-Wallpolla can be found on social media posts from local special interest clubs including Mildura Birdlife, Sunraysia Bushwalkers, and Sunraysia Inspired Photographers.

The Lindsay, Mulcra and Wallpolla Islands are also important for apiarists who use the area for their bee hives and collection of honey. The bees benefit from a natural environment and allow them to be rested away from commercial crops (nuts, fruit etc.) and insecticides used in their production. Delivery of environmental water improves the health of local vegetation, which can result in flower production and subsequently higher honey production.

There are direct local economic benefits of environmental watering across Lindsay-Mulcra-Wallpolla as many sites require water to be delivered via temporary pumping infrastructure. Delivery contractors are engaged to install and operate the pumping infrastructure and, in recent experience, have been local to the Mallee region, employ local staff and use local goods and services to maintain their business.

Research is an important component of learning more about the natural environment and the response of flora, fauna, hydrological and geomorphological outcomes to inundation of wetlands, creeks, channels, floodplain, and rivers. Research can determine improved ways to manage environmental water, which in turn results in improved recreational (e.g. improved breeding response to a recreational angling species) and cultural (e.g. higher instances of medicinal plants on the floodplain) outcomes with improvements to timing, magnitude and duration of watering. Additionally, researchers may be sourced locally or use local hospitality and accommodation providers.

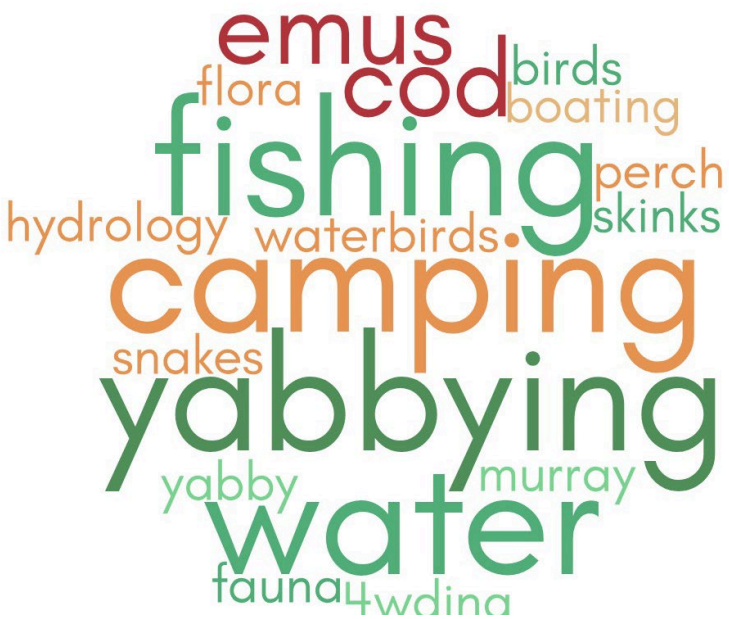



*Figure 4.1 Values of Lindsay-Mulcra-Wallpolla provided by members of the community*

*Table 4.1 Shared benefit considerations for 2026-27*

| Beneficiary | Connection to the waterway | Values/ Uses/ Objectives/ Opportunities | How have these benefits been considered? |
|---|---|---|---|
| Local businesses | Pumped water delivery has historically been awarded to locally based suppliers.<br><br>The local tourism industry benefits as a result of increased tourism. | Local employment opportunities<br>Retaining money in local communities<br>Support local industry/business | Environmental water delivery in the Mallee is highly dependent on pumped delivery. Delivery contracts have historically been awarded to local suppliers who understand the landscape and delivery requirements. Without the support of these local suppliers the program would not be possible.<br><br>Water attracts tourism and encourages locals to undertake recreational pursuits across these areas. This results in increased patronage at near-by hospitality and accommodation facilities and directly relates to increased eco-tourism opportunities. |
| Apiarists | Watering supports flowering in native vegetation which is beneficial for bees. Readily available water from water deliveries, so that bees don't have to travel long distances in search of water to drink. | Commercial enterprise | Water delivery benefits vegetation outcomes which support flower production providing abundant resources for bees. |
| Bird watchers | Water provides important habitat for birds, which draws birds and twitchers (bird observers) to the region. | Recreation opportunities | Water is regularly delivered to sites for the purpose of meeting waterbird and bird objectives. |
| Anglers | Increased opportunities for yabbying across the floodplain wetlands. | Recreational<br>Food for personal consumption | Delivering water to floodplain and large shallow wetlands regularly results in a boom in yabby abundance. This is utilised by anglers who catch yabbies for personal consumption. |
| Campers | Water draws people to sites. Increasing the quality and beauty of a region draws tourists to the area. | Recreation<br>Fishing<br>Birdwatching<br>Photography | Water attracts people. Campers, given the option, will generally prefer setting up at a site which contains water, over a site which does not. This provides them with instant access to the water in which to undertake complementary recreational pursuits. |

| Beneficiary | Connection to the waterway | Values/ Uses/ Objectives/ Opportunities | How have these benefits been considered? |
|---|---|---|---|
| Tourists | Water draws people to sites. Increasing the quality and beauty of a region draws tourists to the area. The local tourism industry benefits as a result of increased tourism. | Recreation opportunities<br>Tour operators | Community consultation and engagement is regularly undertaken as part of the environmental water delivery program. |
| Researchers | Studying the wetland, floodplain and rivers during different stages (wet, dry, during drawdown) increased understanding of the natural environment and the requirements of the flora, fauna and processes that reside across these habitats. | Condition monitoring<br>Intervention based projects around watering<br>Large-scale system investigations | Provision of water to sites, and working with researchers to target particular flora, fauna or hydrological outcomes allows them to undertake projects which will better inform future management of the region. |
| School students | Local schools and other education centres such as TAFE and universities incorporate aspects of natural environment in their curriculum. | Natural resources education (e.g. food webs, effects of flooding, water uses)<br>Recreation/outdoor education (e.g. School camps)<br>Connection with country and indigenous/cultural education. | A number of sites within proximity to Mildura have been used previously by schools and TAFE (such as Wallpolla). Through delivery of environmental water these education resources remain in school curriculum and assist with learning of the younger generation. |

*Table 4.2 Recreational objectives of Lindsay-Mulcra-Wallpolla*

| | |
|---|---|
|  | Environmental watering will also support water sports activities (e.g. canoeing, kayaking, rowing, swimming, water skiing) |
|  | Environmental watering will also support waterbird-related recreational activities (e.g., twitching, birdwatching) |
|  | Environmental watering will also support angling activities |
|  | Environmental watering will also support peaks in visitation (e.g., camping, or other public activities on long weekends or school holidays) |

# 5 Environmental Values and Objectives

The Lindsay, Mulcra and Wallpolla Islands are formed by three separate anabranch systems and contain various streams, billabongs, large wetlands and swamps. When flooded, waterways and wetlands within these systems provide habitat for native fish, frogs, turtles, waterbirds and water-dependent plants. Terrestrial animals (such as woodland birds) also benefit from improved productivity and food resources when anabranch systems are inundated. Large floodplain wetlands (such as Lake Wallawalla) can retain water for several years after receiving inflows; they provide important refuges for wetland-dependent species and support terrestrial animals (such as small mammals and reptiles).

Mullaroo Creek supports one of the most significant populations of Murray cod in the mid-Murray River system. Mullaroo Creek provides fast-flowing habitat that Murray cod favour, which contrasts with the artificially slow-flowing and still habitats in the nearby Murray River weir pools. Fish in Mullaroo Creek breed and produce juveniles that contribute to populations in adjacent parts of the Murray system (such as in the Darling River in NSW and the lower Murray River in South Australia). Waterways and wetlands throughout the icon site support several other fish species, including freshwater catfish, golden perch, silver perch, Murray-Darling rainbowfish and unspecked hardyhead.

The reduced frequency and duration of floods in the Murray River have degraded the water-dependent vegetation communities throughout the Lindsay, Mulcra and Wallpolla Island system, which has, in turn, reduced the diversity and abundance of animals that rely on healthy vegetation for habitat.

*Table 5.1 Environmental objectives relevant to Lindsay-Mulcra-Wallpolla.*

| Seasonal Watering Plan Environmental objectives for Lindsay-Mulcra-Wallpolla | Environmental Water Management Plan Objectives (Mallee CMA, 2021a) |
|---|---|
| F1 - By 2030, increase the abundance of small-bodied native fish and the spread of age classes for long-lived native fish, compared to 2006 baseline levels | LMW9 - By 2030, improve native fish populations (large- and small-bodied fish) across the Lindsay-Mulcra-Wallpolla icon site and their relative abundance and diversity; assessment to include comparison with 2006-2012 levels for short-lived species and the spread of age-classes for long-lived fish. |
| A1 - Maintain populations of frogs | LMW5 - Improve or maintain the populations of threatened flora and fauna that are flow-dependent at the Lindsay-Mulcra-Wallpolla icon site by 2030. |
| CN1 - By 2030, improve the function of water-dependent ecosystems by improving productivity linkages between river and floodplain habitats | LMW1 - By 2030, maintain diversity of freshwater ecosystem types at the Lindsay-Mulcra-Wallpolla icon site, including palustrine, riverine and floodplain ecosystems with temporary and permanent water regimes.<br>LMW7 - By 2030, improve ecosystem functions of water-dependent ecosystems by maintaining or improving productivity linkages between the river and floodplain habitats (on and off) at the Lindsay-Mulcra-Wallpolla icon site by achieving variable extents of lateral connectivity. |

| Seasonal Watering Plan Environmental objectives for Lindsay-Mulcra-Wallpolla | Environmental Water Management Plan Objectives (Mallee CMA, 2021a) |
|---|---|
| <br>V1 - Improve populations of flow-dependent threatened flora<br>V2 - By 2030, maintain the extent and improve the condition of river red gum, black box and lignum compared to 2006 baseline levels<br>V3 - By 2030, improve the species richness and abundance of native wetland and floodplain aquatic vegetation functional groups | LMW2 - Improve the species richness and abundance of native wetland and floodplain aquatic vegetation functional groups by 2030.<br>LMW3 - Improve condition and maintain extent (ha) from baseline (2006) levels of river red gum (Eucalyptus camaldulensis), black box (E. largiflorens) and lignum (Duma florulenta) to sustain communities and processes typical of such communities at Lindsay-Mulcra-Wallpolla icon site by 2030.<br>LMW4 - By 2030, limit the spread of Typha and other invasive flora species.<br>LMW5 - Improve or maintain the populations of threatened flora and fauna that are flow-dependent at the Lindsay-Mulcra-Wallpolla icon site by 2030. |
| <br>B1 - Maintain communities and the species diversity of colonial nesting waterbirds, waterfowl and waders that feed on fish<br>B2 - By 2030, increase populations of colonial nesting waterbirds at Lake Wallawalla and non-colonial waterbirds at Mulcra Horseshoe and Wallpolla Horseshoe | LMW6 - By 2030, protect and restore vital feeding habitat that supports sustainable communities of colonial nesting waterbirds, waterfowl, waders and piscivores to maintain the current species diversity at the Lindsay-Mulcra-Wallpolla icon site.<br>LMW8 - By 2030, protect and restore breeding habitat for colonial nesting waterbirds at Lake Wallawalla and non-colonial waterbird breeding at Mulcra Horseshoe and Wallpolla Horseshoe. |

# 6 Engagement

A variety of stakeholders have been engaged to inform the development of this SWP. All engagement has been tailored to stakeholders' interests and mapped against the International Association for Public Participation's (IAP2) spectrum (Table 6-1).

In developing the 2026/27 SWP engagement plan, Mallee CMA seized the opportunity to review previous years' efforts, document the lessons learned and implement key changes. Among the changes delivered was the earlier engagement of Traditional Owners and community members in the annual environmental water planning process. This approach meant the values and perspectives of Traditional Owners and community members informed preliminary planning and discussions, rather than being incorporated later in the planning phase. This approach facilitated more meaningful engagement and has helped further build trust between Traditional Owners, community members and the Mallee CMA.

SWP engagement activities commenced in September 2025 and included:

- Face-to-face meetings with special interest groups and community members
- Formal meetings with partner agencies
- Attending community events to discuss planned wetting/drying actions
- Distributing newsletter articles and publications with information about planned wetting/drying actions; and
- Releasing digital content (including social media).




*Figure 6-1. Community engagement at Red Cliffs Market*

One method used to engage Traditional Owners and community members was the 'Pins in Maps' activity. Participants were asked to place a coloured pin in a map to represent their values/uses at the various wetlands. The coloured pins corresponded to four categories: recreation, flora/fauna, water, and other. A high number of responses were collected by undertaking this activity at a wide range of community engagement events including on-Country visits, drop-in sessions, citizen science activities, and local markets. Additionally, the 'Pins in Maps' activity proved to be an engaging method to initiate place-based conversations about environmental water.

Online surveys, fact sheets and social posts have also been effective methods of engaging the community in the SWP process. These methods of engagement provided an opportunity for the community to provide feedback and outline their values to better inform current and future water planning.

Following completion of this SWP, Mallee CMA produced informative flyers and website updates to outline the environmental watering/drying actions to be undertaken across the catchment in 2026-27. Targeted consultation and engagement activities will be undertaken with relevant community and stakeholders to provide the opportunity for further in-depth and detailed discussions to help to "close the loop" and demonstrate how their feedback informed planning.

*Table 6.1 Engagement activities conducted for the purposes of developing this proposal.*

| Category | Stakeholder(s) | IAP2 level of engagement | Engagement Method | Engagement Purpose |
|---|---|---|---|---|
| **Traditional Owners, Aboriginal Community & Aboriginal organisations** | Traditional Owners | Involve | • Face-to-face meetings with individual Traditional Owners and community members across the catchment who have an interest in Lindsay-Wallpolla-Mulcra<br>• "Talk Water" with FPMMAC at the Mallee CMA (23/10/2025).<br>• Aboriginal Reference Group is a committee facilitated by the Mallee CMA represented by various Aboriginal community members. Mallee CMA presented the proposed watering actions for 2026/27 (04/02/2026). | Allow Traditional Owners to speak for Country. Provide opportunity for on-country discussions to inform 2026-27 watering actions.<br>Two-way sharing knowledge between cultural practices and needs and modern wetlands and floodplain management principles.<br>Build and maintain relationships with Traditional Owners, ensuring conduits for two-way communication about watering and ensure operations are effective |
| **Government agencies** | Victorian Environmental Water Holder (VEWH) | Collaborate | • Discussion of SWP guidelines (15/01/2026)<br>• Annual risk assessment workshop (4/2/2026).<br>• Weir Pool Manipulation Operations Group (11/02/2026)<br>• Ongoing discussion as planning progresses | Ongoing planning and consultation with input from VEWH regarding water availability, current and forecast water condition conditions, risk planning and feasibility. |
| | Commonwealth Environmental Water Holder (CEWH) | Collaborate | • Annual risk assessment workshop (4/2/2026)<br>• Weir Pool Manipulation Operations Group (11/02/2026)<br>• Ongoing discussions throughout planning and delivery | Ongoing planning and consultation with input from CEWH regarding water availability, current and forecast water condition conditions, risk planning and feasibility. |
| | Parks Victoria (PV) | Collaborate | • Discussion with key local Parks Victoria Staff regarding proposed sites and seek advice on what they would like to see across their areas of responsibility and any issues with practical logistics. | Review and update the risk tables relevant to the proposed watering program for 2026-27.<br>Ongoing planning and consultation with input from PV around on-ground management activities, risk planning and site feasibility. |

| | | | | |
|---|---|---|---|---|
| | | | • Presentation to key staff and discussion of timelines, risks and mitigation measures that are site specific (12/12/2025).<br>• Mallee CMA meets monthly with PV. | |
| | Department of Energy, Environment and Climate Action (DEECA) | Inform | • Bi-monthly meeting regarding EC6 contract.<br>• Various progress reports throughout the years on watering milestones and outcomes. | Share planning and provide opportunity for feedback and comment regarding any operation and/or on-ground works being or planned to be undertaken over the coming year. |
| | New South Wales Department of Climate Change, Energy, the Environment and Water (DCCEEW) | Collaborate | • Multiple meetings; Face-to-face<br>• Email and telephone. | Discussion around Weir pool manipulation to ensure Mallee CMA watering priorities can be met in conjunction with working with NSW requirements and priorities. |
| | Victorian Murray Floodplain Restoration Project (VMFRP) Project Team | Inform | • Various meetings and discussions to discuss scheduling of watering events. | Coordination of activities across the two programs. For the coming year, but also longer-term planning around potential construction and EWMP updates. |
| | Goulburn Murray Water (GMW) | Collaborate | • Various meetings and discussions to discuss scheduling of delivery. | Coordination of delivery |
| | South Australia Water (SA Water) | Collaborate | • Various meetings and discussions to discuss scheduling of delivery. | Coordination of delivery and operation of regulating structures |
| | Mildura Rural City Council | Inform | • Regular formal and informal conversations through various meetings and face-to-face interactions. | Share planning and provide opportunity for feedback and comment regarding any operation and/or on-ground works being or planned to be undertaken over the coming year. |
| **Neighbouring Landholders** | Lindsay Point Irrigators | Inform | • Fact sheet / website information | To provide information to adjoining landowners and ensure any concerns are understood. |

| | | | | |
|---|---|---|---|---|
| **Community groups and environment groups** | Special interest groups | Inform | • Fact sheet | To provide information to community who value and utilise the sites and how they can obtain further information<br>Capture community values for the site and another feed back |
| | Mallee CMA Land and Water Advisory Committee | Inform | • Presentation and discussion of proposed watering sites (12/03/2026) | Advise the Advisory Committee as to the extent and location of proposed watering sites for 2026-27 and answer any questions. |
| | OzFish Unlimited | Consult | • Fact sheet | Alignment of projects and early identification of opportunities and where potential actions may be conflicting. |
| | Wider community | Consult | • Online – web based and social media<br>• Stall at Red Cliffs and Sunraysia Farmer's Markets | Provide the community with the opportunity to provide feedback and important information about what they value about the sites. |
| **Local businesses and tourism operators** | Tourism operators that utilise Lindsay-Mulcra-Wallpolla and the Mildura Visitor Information Centre | Inform | • Fact sheet | To provide information for local business, visitors to the area and community about the upcoming watering events. |

# 7 Scope of Environmental Watering

The prioritisation process for identified waterbodies in this SWP has considered a number of factors. Primary considerations were the current condition of the site, with respect to the ecological values present and the expected condition (under pre-regulation watering conditions), an assessment of the site's environmental objectives and a comparison of actual watering regimes to recommended optimal watering regimes at each site. Much of this required information is identified in the Environmental Water Management Plan (EWMP) for the LMW Islands (Mallee CMA, 2021a) and supporting documents; the Watering Guide (Mallee CMA, 2021b) and Operating Plan (Mallee CMA, 2022).

In addition to current environmental condition and long-term objectives, community and Aboriginal objectives are also considered. This information has been received from a wide range of community and stakeholders including landholders and land managers, recreational and special interest groups and Traditional Owners. The approach used to gather this information and outcomes from consultation and communication is detailed in Sections 3, 4 and 1.

Special consideration was given for the Lindsay and Wallpolla Island sites, with respect to plans for construction of proposed water management infrastructure under the Victorian Murray Floodplain Restoration Project (VMFRP). These sites will potentially have construction of infrastructure commencing in the future, so the ability to undertake environmental watering will be limited or restricted at some sites during construction. In addition, consideration has also been given to Scotties Billabong which forms part of the Restoring Flows to Mallee Floodplains Project (RFMF). This site has construction of infrastructure commencing across the 2026-27 year, so the ability to undertake environmental watering will be limited or restricted until after construction has been completed. Once this RFMF construction has been completed, watering of the site will be required as a commissioning event for the new infrastructure.

Actions proposed for 2026–27 either relate to operation of structures and/or incorporate aspects of weir pool manipulation or will require delivery of water through temporary pumping infrastructure. Hydrological compliance for all temporary pumping sites is measured using flow meters on the pumps which are compliant with industry requirements.

Waterbodies identified for Potential Watering Actions (PWA) for the 2026–27 year and a summary of the environmental objectives and flow recommendations are shown in Table 7.1 and Table 7.2.

The number of potential watering sites across LMW is greater than indicated in the list of Potential Watering Actions presented in Table 7.1 and 7.2. Sites listed in Table 7.3 have been actively managed in the past and were considered during the pre-planning stage but were not deemed suitable for delivery in 2026–27. This is due to a number of factors including previous watering history, current condition at the site, planned drawdown or a requirement for the site to remain dry to meet environmental and hydrological objectives, suggestions resulting from community and Aboriginal community consultation, logistical limitations and potential future impact on VMFRP planned operations/construction.

Mallee CMA has indicated timing/season of delivery for the sites identified to receive environmental water in 2026-27. Adaptive management will be used throughout the year to allow for changing conditions and to target events such as waterbird breeding. Certain factors may mean that sites indicated for spring may be moved to autumn (e.g. low carryover, late inflows, approval delays and current ecological character).

*Table 7.1 Potential watering actions and environmental objectives (weir pool connected) for sites across Lindsay-Mulcra-Wallpolla in 2024-25. These sites are typically managed via weir pool manipulations and/or regulating structures and are management actions which do not require a specific water allocation.*

| Wetland | Potential watering action | Climatic scenario (s) | Expected watering effects | Rationale | EWMP environmental objectives | VEWH Objectives |
|---|---|---|---|---|---|---|
| **Finnigans Creek** | Spring (August-October)<br><br>Provide a moderate flow pulse. | Dry Average | Provide a moderate flow by raising the Lock 9 weir pool to a maximum of 27.6 m AHD (subject to feasibility) to:<br>• Increase diversity of structural habitat<br>• Promote recruitment of aquatic macrophytes<br>• Provide connectivity between the Murray River and Wallpolla Creek<br>• Provide conditions for semi-aquatic lakebed herbland to establish during drawdown.<br>• Provide soil moisture to improve condition of riparian vegetation, specifically black box and river red gum.<br>• Provide temporary flowing water to reconnect pools and support dispersal, spawning and recruitment opportunities for native fish. | The watering regime for Finnigans Creek is to provide a flow-through event 8 in 10 years. The minimum requirements for flow and duration are not currently being met.<br>The proposed flow in 2026/27 will help to achieve the target flow and duration. Using weir pool manipulation to deliver water to this site will help to restore productivity linkages between the river and floodplain habitats.<br>Watering Finnigans Creek will provide greater connectivity between the Murray River and Wallpolla Creek, as well as maintaining the surrounding riparian vegetation and providing temporary flow outcomes for frogs and fish.<br>Riparian vegetation responded positively to previous waterings, with substantial improvement in condition and development of resilience. | LMW1<br>LMW2<br>LMW3<br>LMW5<br>LMW7 | A1<br>CN1<br>V1,V2,V3<br>F1 |

| Wetland | Potential watering action | Climatic scenario (s) | Expected watering effects | Rationale | EWMP environmental objectives | VEWH Objectives |
|---|---|---|---|---|---|---|
| **Lindsay River North** | Spring (September-November) Provide flows of Approximately 45 ML/d | Dry Average | Provide Low flow by raising the<br>Lock 7 weir pool to the extent needed to achieve the flow outcome (a maximum of 22.50 m AHD) to:<br>• Provide temporary flowing water to reconnect pools and support dispersal, spawning and recruitment opportunities for native fish.<br>• Improve seasonal flow through the upper Lindsay River to improve connectivity between the Murray River and Lindsay River<br>• Provide soil moisture to improve condition of riparian vegetation.<br>• Inundate the littoral zone to improve productivity. | Lindsay River would have naturally flowed via the Northern Inlet in most years, for at least 6 months. In drier years, this flow would have been shortened to periods around late winter/spring when River Murray flows were highest.<br>Providing water to Lindsay River North supports aquatic and riparian vegetation along this reach, as well as providing temporary habitat for flow-dependant species and providing an alternate means for aquatic fauna passage. System scale longitudinal connectivity will also benefit, with transmission of carbon and nutrients along the creek line and back to the Murray River. | LMW1<br>LMW2<br>LMW3<br>LMW4<br>LMW5<br>LMW7 | F1<br>A1<br>T<br>CN1<br>V1, V2, V3 |
| **Mullaroo Creek** | Summer (July-August, December-June)<br>Maintain baseflows at a minimum of 600 ML/d. | All scenarios. | • Provide flows ≥ 600 ML/d to support the target of a minimum of 60% of the Mullaroo Creek will exhibit fast flowing habitat within a flow envelope of 0.2-0.5 m/s (mean cross-sectional velocity).<br>• Maintain fast-flowing habitat for native fish (such as Murray cod, silver perch and golden perch).<br>• Maintain habitat for aquatic vegetation and maintain soil moisture to maintain the condition of streamside vegetation. | Mullaroo Creek provides critical habitat for several species which depend on flowing water habitat. Most important is the Murray cod, with the Mullaroo population of significance in the Lower Murray. It is the only reach across Lindsay-Mulcra-Wallpolla (and at a larger regional perspective) which provides annual fast flowing habitat. In addition, the creek is littered with woody debris (i.e. snags) | LMW1<br>LMW4<br>LMW5<br>LMW9 | F1<br>T<br>CN1 |

| Wetland | Potential watering action | Climatic scenario (s) | Expected watering effects | Rationale | EWMP environmental objectives | VEWH Objectives |
|---|---|---|---|---|---|---|
| | Spring (September-November) –<br>Provide a pulse of approximately 1,200 ML/d | All scenarios. | • Provide flows ≥ 1,200 ML/d to support the target of a minimum of 75% of the Mullaroo Creek will exhibit fast flowing habitat within a flow envelope of 0.2-0.5 m/s (mean cross-sectional velocity).<br>• Increase the extent of fast flowing water to provide cues for movement and spawning and improve recruitment opportunities for native fish.<br>• Provide improved fish passage between Mullaroo Creek and the River Murray via the Mullaroo Creek regulator fishway. | which provide structural habitat for the fauna found in the creek.<br>The proposed flow regime is the same as previous years. This regime has proven to promote Murray cod breeding. A spring pulse targeting 1,200 ML/d results in favourable conditions to support movement, facilitate additional habitat and support breeding (Tonkin, et al., 2019). This flow regime will be pursued annually to support Mullaroo Creek's significant Murray cod population.<br>In addition to Murray cod, several other fish species, such as the listed freshwater catfish (*Tandanus tandanus*) and Murray-Darling rainbowfish (*Melanotaenia fluviatilis*), benefit from the habitat provided within the Mullaroo Creek.<br>If the proposed watering regime is not delivered in 2026-27, it would pose a severe risk to populations of the federally listed Murray cod, along with other threatened native fish.<br>The compliance point for the Mullaroo Creek is taken from the flow gauging station approximately 700 m upstream from Broken-back Bridge and is monitored by SA Water. | | V1, V2<br>G |

| Wetland | Potential watering action | Climatic scenario (s) | Expected watering effects | Rationale | EWMP environmental objectives | VEWH Objectives |
|---|---|---|---|---|---|---|
| **Potterwalkagee Creek* (via Stoney Crossing and Upper Potterwalkagee)** | Spring (September-November)<br>Provide flows of approximately 120 ML/d. | Drought<br>Dry<br>Average | Provide Low flow by raising the Lock 8 weir pool to 24.8 m AHD to:<br>• Provide temporary flowing water to reconnect pools and support dispersal, spawning and recruitment opportunities for native fish.<br>• Provide seasonal flowing water habitat and improve connectivity between the River Murray and Potterwalkagee Creek.<br>• Maintain soil moisture to improve condition of riparian vegetation.<br>• Provide a productivity pulse through return of carbon and nutrients to the water column from the channel. | Potterwalkagee Creek would have flowed naturally most years. It has a water regime of 9 years in 10, which is currently being met.<br>Around half of these flows should also engage Upper Potterwalkagee. This supports aquatic and riparian vegetation along this reach, as well as providing temporary habitat for flow-dependant species and providing an alternate means for aquatic fauna passage.<br>Failure to provide the proposed flow pulse would impact on river red gum populations along the creek and would also have detrimental impacts on populations of small and large bodied native fish.<br>Coordination of manipulation actions in Lock 8 with Lock 7 (and to some extent Lock 9 where possible) are also an important consideration. As well as maintaining consistent actions and conditions at a landscape scale, coordinated action can also reduce the impact on fishway effectiveness concerns. | LMW1<br>LMW2<br>LMW3<br>LMW4<br>LMW5<br>LMW7<br>LMW9 | <br>F1<br><br>A1<br><br>T<br><br>CN1<br><br>V1, V2, V3 |

* Lindsay River and Potterwalkagee Creek flows are calculated using a model. Exact flow is dependent on flow in the Murray River at the time and weir pool height. Please see weir pool hydrographs for proposed weir pool heights under the various scenarios for Lock 7 and Lock 8 (Appendix 2 - Proposed hydrographs). There are no compliance points for measurement of flows.

*Table 7.2 Potential watering actions and environmental objectives (disconnected from weir pool) for Lindsay-Mulcra-Wallpolla in 2024-25. These sites are typically managed via temporary pumping and/or regulating structures and require an environmental water allocation.*

| Wetland | Potential watering action | Climatic scenario (s) | Expected watering effects | Rationale | EWMP environmental objectives | VEWH Objectives |
|---|---|---|---|---|---|---|
| Tier 1 | | | | | | |
| **Scotties Billabong** | Fill wetland during spring to 21.0 m AHD by pumping up to 200 ML. | Dry Average | • Provide shallow-water habitat to provide refuge and feeding habitat for wetland-dependant species including frogs and water birds.<br>• Stimulate aquatic vegetation growth during inundation.<br>• Provide soil moisture to maintain and improve condition of riparian vegetation, specifically river red gum and lignum.<br>• Provide conditions for lakebed herbland to establish during drawdown. | Scotties Billabong is an ephemeral wetland on Lindsay Island with a watering regime of 7 in 10 years. This regime is not currently being met with the wetland only receiving water 5 times in the last 10 years. A high number of significant flora and fauna have been recorded previously from this wetland including frogs, waterbirds, and other floodplain dependant species. This includes the EPBC listed growling grass frog (*Ranoidea raniformis*), (Mallee CMA, 2021).<br>This wetland last received water in the 2022-23 overbank flooding event and has since undergone a drying phase to promote consolidation of sediment and nutrient cycling while removing pest species from the wetland. Watering in 2026-27 will prime the wetland for future deliveries and provide environmental outcomes for surrounding river red gums, shallow feeding habitat for waterbirds, feeding and breeding habitat for frogs and support growth of lakebed herbland on drawdown.<br>Watering this wetland in spring 2026 will commission the new environmental watering infrastructure being constructed as part of the Restoring Flows to Mallee Floodplains (RFMF) project, a Sustainable Diversion Limits (SDL) project. The delivery will be less expensive than previous environmental water deliveries at this site, as the | LMW1<br>LMW2<br>LMW3<br>LMW5<br>LMW6<br>LMW8 | <br>A1<br><br>B1, B2<br><br>T<br><br>CN1<br><br>V1, V2 |

| Wetland | Potential watering action | Climatic scenario (s) | Expected watering effects | Rationale | EWMP environmental objectives | VEWH Objectives |
|---|---|---|---|---|---|---|
| | | | | reconstruction and decommissioning of temporary earthworks will no longer be needed once the new structures are completed. | | |
| **Crankhandle** | Fill wetland during autumn to 21.8 m AHD by pumping up to 600 ML. | Dry<br>Average | • Provide shallow-water habitat to provide refuge and feeding habitat for wetland-dependant species including frogs and birds.<br>• Stimulate aquatic vegetation growth during inundation.<br>• Provide low-level inundation and increased soil moisture to maintain and improve condition of riparian vegetation, specifically lignum (*Duma florulenta*).<br>• Provide conditions for semi-aquatic lakebed herbland to establish during drawdown. | Crankhandle has a watering regime of 7 in 10 years, which is not currently being met. Crankhandle has received water 5 times in the last 10 years. The natural overbank flooding in 2022-23 resulted in improved condition of riparian species including lignum, black box and river coobah and provided habitat for a variety of floodplain dependant fauna species.<br>Crankhandle has since undergone a drying phase to promote consolidation of sediment and nutrient cycling while removing pest species from the wetland. Watering in 2026-27 will prime the wetland for future deliveries and provide environmental outcomes for surrounding lignum and black box communities, shallow feeding habitat for waterbirds, breeding and feeding habitat for frogs and support growth of lakebed herbland on drawdown. | LMW1<br>LMW2<br>LMW3<br>LMW5<br>LMW6<br>LMW8 | A1<br>B1, B2<br>T<br>CN1<br>V1,V2 |

| Wetland | Potential watering action | Climatic scenario (s) | Expected watering effects | Rationale | EWMP environmental objectives | VEWH Objectives |
|---|---|---|---|---|---|---|
| **Wetland 33** | Fill wetland during spring to approx. 21.8 m AHD by pumping up to 150 ML. | Dry<br>Average | • Provide drought refuge for floodplain-dependant species.<br>• Provide both shallow and deeper freshwater habitat for wetland-dependant species, including waterbirds, frogs & turtles.<br>• Maintain condition of riparian vegetation including river red gum communities.<br>• Provide conditions for establishment of aquatic macrophytes | Wetland 33 is an ephemeral wetland with a watering regime of 7 in 10 years. This is not currently being met, having received water 6 times in the previous 10 years. Wetland 33 was inundated naturally in 2021, 2022 and 2023 and pumped in autumn 2026.<br>Watering in spring 2026-27 will build on the positive environmental effects achieved through the delivery in autumn 2026 and help to manage encroaching red gums. Maintain condition of riparian river red gums and promote establishment of aquatic macrophytes. As Wetland 33 holds water for a prolonged period of time (1.5 years drying time from full), it will also provide refuge for floodplain dependant fauna in a drying landscape. | LMW1<br>LMW2<br>LMW3<br>LMW5<br>LMW6<br>LMW8 | <br>A1<br><br>B1, B2<br><br>T<br><br>CN1<br><br>V1,V2 |
| **Lindsay-Mullaroo Connector** | Fill creek line during autumn to target inundation height of 22.6 m AHD by | Dry<br>Average | • Provide shallow-water habitat and open water habitat to provide feeding and breeding habitat to support wetland-dependant species including frogs and waterbirds. | The target watering regime for Lindsay-Mullaroo Connector is 8 in 10 years. This is not currently being met, with the creek being inundated for 5 of the previous 10 years. The creek has been dry for the last four years.<br>The proposed watering for autumn 2027 will help to promote resilience in a drying landscape, continue to promote abundance and diversity in the understorey vegetation | LMW1<br>LMW2<br>LMW3<br>LMW5<br>LMW7 | <br>A1<br> |

| Wetland | Potential watering action | Climatic scenario (s) | Expected watering effects | Rationale | EWMP environmental objectives | VEWH Objectives |
|---|---|---|---|---|---|---|
| | pumping up to 300 ML. | | • Stimulate aquatic vegetation growth during inundation.<br>• Provide soil moisture to improve condition of riparian vegetation, specifically, lignum, river red gum and black box.<br>• Provide conditions for semi-aquatic lakebed herbland to establish during drawdown. | community and work towards achieving the target water regime. | | CN1<br><br>V1,V2,V3 |
| Stockyards | Fill creek/wetland complex during spring to target inundation height of 23.0 m AHD by pumping up to 800 ML. | Average | • Provide shallow-water habitat and open water habitat to provide feeding and breeding habitat to support wetland-dependant species including frogs and waterbirds.<br>• Stimulate aquatic vegetation growth during inundation.<br>• Provide soil moisture to improve condition of riparian vegetation, specifically river red gum. | The watering regime for Stockyards is 7 in 10 years. This is not being met, with the complex only having been inundated in 5 of the previous 10 years. Prior to inundation during spring 2025, the complex had been dry for the previous three years.<br>The delivery in spring 2025 achieved improved condition of surrounding lignum, black box and river red gum communities and saw the return of some aquatic vegetation species not commonly recorded in recent waterings including EPBC listed jerry-jerry (*Ammannia multiflora*) and dwarf brooklime (*Gratiola pumilo*). It also provided breeding and feeding habitat for waterbirds and frogs. | LMW1<br>LMW2<br>LMW3<br>LMW5<br>LMW7 | <br>A1<br><br>CN1<br><br>V1,V2,V3 |

| Wetland | Potential watering action | Climatic scenario (s) | Expected watering effects | Rationale | EWMP environmental objectives | VEWH Objectives |
|---|---|---|---|---|---|---|
| | | | • Provide conditions for semi-aquatic lakebed herbland to establish during drawdown. | Given this wetland is currently behind it's optimal watering regime inundation frequency, it is considered a priority to water in 26/27. Successive watering events will help to build resilience into the site as conditions continue to dry. | | |
| **Sandy Creek and Lilyponds** | Fill creek/wetland complex during spring to target inundation height of 29.7m AHD by pumping up to 2,000 ML. | Dry Average | • Diversity of structural habitat<br>• Abundance of wetland aquatic vegetation<br>• Connectivity between river and floodplain<br>• Provide conditions for semi-aquatic lakebed herbland to establish during drawdown.<br>• Provide shallow-water habitat and open water habitat to provide feeding and breeding habitat to support wetland-dependant species including frogs and waterbirds (including group nesting species).<br>• Provide soil moisture to improve condition of riparian vegetation, specifically lignum and river red gum. | The watering regime for Lilyponds is 7 in 10 years and 8 in 10 for Sandy Creek. This is only partially being met, with the Sandy Creek only having been inundated for 7 of the last 10 years.<br>Delivering water to this site will build on the positive outcomes achieved through the spring 2025 delivery and continue to restore productivity linkages between the river and floodplain habitats.<br>Watering Sandy Creek and Lilyponds will provide greater connectivity between the Murray River and Wallpolla Creek, as well as maintaining the surrounding riparian vegetation and providing flow outcomes for frogs, fish and waterbirds.<br>Riparian vegetation responded positively to previous waterings, with substantial improvement in condition and development of resilience. | LMW1<br>LMW2<br>LMW3<br>LMW5<br>LMW6<br>LMW7<br>LMW9 | <br>A1<br><br>CN1<br><br>V1,V2,V3<br><br>B1<br><br>F1 |

| Wetland | Potential watering action | Climatic scenario (s) | Expected watering effects | Rationale | EWMP environmental objectives | VEWH Objectives |
|---|---|---|---|---|---|---|
| **Wallpolla Horseshoe** | Fill wetland during spring to a target inundation height of 28.9 m AHD by pumping up to 400 ML. | Drought<br>Dry<br>Average<br>Wet | • Provide shallow-water habitat and open water habitat to provide feeding and breeding habitat to support wetland-dependant species including frogs and waterbirds (including colonial nesting species).<br>• Provide habitat to support native fish species.<br>• Provide soil moisture to improve condition of riparian vegetation, specifically river red gum.<br>• Promote aquatic and riparian vegetation growth. | Wallpolla Horseshoe is a semi-permanent wetland on Wallpolla Island. It has a watering regime of 9 in 10 years, which is not currently being met. It has received water 8 times in the previous 10 years, with a dry period in 2024/25.<br>Watering in 2025/26 supported aquatic revegetation works undertaken by traditional owners and provided habitat for juvenile golden and silver perch.<br>The watering proposed for spring 2026 will be vital in supporting native vegetation and fauna, including fish, frogs and waterbirds as well as the restoration works conducted in 2025/26. | LMW1<br>LMW2<br>LMW3<br>LMW5<br>LMW6<br>LMW7<br>LMW8<br>LMW9 | <br>A1<br><br>CN1<br><br>V1,V2,V3<br><br>B1,B2<br><br>F1 |

*Table 7.3 Sites which have been actively managed using environmental water delivery across Lindsay-Mulcra-Wallpolla in the past, but are not planned to receive an allocation during 2026-27 across any climatic scenario.*

| Waterbody | Potential Watering Action | Rationale |
|---|---|---|
| Bilgoes Billabong | Drawdown | As no water will be delivered to these sites through the environmental water program during 2026–27, they will continue to drawdown, and some are likely to enter a dry phase. In combination with planned watering sites, drying these waterbodies will provide a mosaic of habitat types across the broader landscape. This mosaic provides favourable conditions and supports a wider range of species across the landscape. For example, aquatic and semi aquatic vegetation as well as vegetation which grows of exposed mudflats and piscivorous water bird species which utilise deep water to feed, waders which use shallow water for feeding and exposed mud flats which are favoured by shorebirds.<br>Drying the wetlands will also see pest fish species die, effectively resetting the site which will be beneficial for future water delivery and avoiding or limiting intrusion of pest fish during delivery. |
| Woodcutters | | |
| Lake Wallawalla | | |
| Lindsay River South | | |
| Snake Lagoon Extension | | |
| Mulcra Horseshoe | | |
| Mulcra Floodplain | | |
| Wallpolla Creek East | | |

# 8 Scenario Planning

Scenario planning and prioritisation for 2026–27 for Lindsay-Mulcra-Wallpolla is being heavily influenced by a number of critical factors. Foremost is the consideration of the current environmental condition of the landscape. A concerted effort across the icon site has seen localised improvement in condition, however, prior to floods in 2022, much of the rest of the site had been dry since 2016 and this is reflected through condition monitoring and associated reporting at the icon site level. This is potentially exacerbated through many individual sites not meeting their required watering regimes over 10+ years. Sites chosen for 2026-27 focus on sites that are behind their watering regimes.

The influence of local weather on water scenario planning and flow triggers is very low across the Lindsay-Mulcra-Wallpolla region. Local water availability is highly dependent on conditions experienced in the upper catchments, the resulting in-flow and flow in the adjacent Murray River. Local rainfall, with the exception of extreme rainfall events, has limited to no effect on flooding and inundation of local floodplain and wetlands across the Islands. Temperature, particularly during the warmer months, also has little bearing on scenario planning. Even during milder conditions, evaporation in the region is still high, thus not a strong factor influencing decision making.

Water availability and seasonal cues are strong considerations during scenario planning. Water availability includes a mix of river flows (driven by seasonal allocations, system demands for water delivery through to the Lower Murray and any additional natural/unregulated flows) and available allocations of water for the environment. Carryover is particularly important to consider for early year demands (i.e. early spring). In dry conditions, environmental allocations are lower and in keeping with broader seasonal cues, tends to be used for smaller scale environmental watering actions aimed at maintaining ecological health and avoiding decline where possible. The availability of high river flow, and unregulated flows in the Murray River passing the LMW site provides additional environmental allocations and seasonal cues for more opportunistic and broader-scale watering actions, increasing the likelihood of following a higher usage water scenario.

The Lindsay-Mulcra-Wallpolla weir pools and thus backwaters, are maintained at a base level through operational requirements. Some anabranch systems are naturally engaged at Full Supply Level (FSL) and hence will receive water under standard operation conditions. There are no wetlands across the region which have a requirement for essential annual watering. The naturally ephemeral nature of the landscape means drying of sites (predominantly wetlands) is generally considered part of the natural cycle in this region.

Use of natural cues is also a strong consideration driving scenario planning. It is one of the foremost factors when undertaking weir pool manipulation planning. Naturally, low flow in the Murray River would see lower water level in the river and drying of anabranch creeks. This is replicated by lowering the weir pools. Alternately, during high flow, water level is increased, and off-channel creeks receive flows (i.e. weir pool raising). Natural flows also influence some aspects of wetland, and more so, floodplain inundation planning.

## 8.1 Drought

A Drought scenario is enacted when the Probability of Exceedance (PoE) is 99%. This means that the inflows are the lowest on record. The main watering objective is to 'Avoid irretrievable loss of key environmental assets'. The underlining management objectives are to:

- Avoid critical loss of species, communities and ecosystems;
- Maintain key refuges;
- Avoid irretrievable damage or catastrophic events.

The wetlands being planned for delivery under this scenario have reached a critical point in their cycle where inundation is now considered essential to avoid loss of environmental character. Wallpolla Horseshoe dried out completely in 2024/25, so a delivery in spring 2026 is required to meet the target watering regime of 9 in 10 years.

At this point, we do not envisage a drought scenario in 2026–27 is feasible. For this to occur there needs to be a significant shift that indicates no in-flows are forecast for the system over a 12-month period.

## 8.2 Dry

A Dry scenario is enacted when the Probability of Exceedance (PoE) is 90%. This means that the inflows are in the bottom 10% of all years. The main watering objective is to 'Ensure priority river reaches and wetlands have maintained their basic functions'. The underlining management objectives are to:

- Maintain river functioning with reduced reproductive capacity;
- Maintain key functions of high priority wetlands;
- Manage within dry spell tolerances; and
- Support connectivity between sites.

As well as addressing the site deemed essential under a Drought scenario, sites under a Dry scenario look to continue to build resilience and maintain key functions of wetlands. In addition to the Wallpolla Horseshoe, Scotties Billabong, Lindsay-Mullaroo Connector, Crankhandle, Sandy Creek and Lilyponds will be watered through in a dry scenario. Planning for these sites is now aiming for improvements in condition, not just looking to maintain condition. The aim is to restore the ecological character of these sites, by returning them to a natural watering regime as much as possible.

Current indications have the 2026–27 water year being under a Dry scenario.

## 8.3 Average

An Average scenario is enacted when the Probability of Exceedance (PoE) is 50%. This means that the inflows are on average with most years. The main watering objective in an Average scenario is 'Ecological health of priority river reaches and wetlands have been protected or improved'. The underlining management objectives are to:

- Enable growth, reproduction and small-scale recruitment for a diverse range of flora and fauna;
- Promote low-lying floodplain-river connectivity; and
- Support medium flow river and floodplain functional processes.

As well as addressing sites deemed essential under Drought and Dry scenarios, sites under an Average scenario look to promote floodplain connectivity and processes and look to enable recruitment and improve condition of flora and fauna.

Particular flow triggers used in the consideration for acceptance of this scenario are linked to modelled natural flows. Modelled natural flows in the Murray River, at Lock 9, ≥23,000 ML/d by early August, will facilitate decisions to trigger an Average scenario. Unregulated flows in the Murray River in the two months prior to August should also be a strong consideration for triggering an Average scenario. The reason for these considerations is to replicate natural conditions, which would start to see off-channel creeks to engage, which would generally lead to low level floodplain connectivity as time, and inflow increases.

## 8.4 Wet

A Wet scenario is enacted when the Probability of Exceedance (PoE) is 10%. This means that the inflows are in the top 10% of all years. The main watering objective is to 'Improve the health and resilience of aquatic ecosystems'. The underlining management objectives are to:

- Enable growth, reproduction and large-scale recruitment for a diverse range of flora and fauna;
- Promote higher floodplain-river connectivity; and
- Support high flow river and floodplain functional processes.

It is anticipated that under a Wet scenario, pumping may still be required at some of the remaining sites, due to higher commence-to-flow requirements than flows which trigger removal of weirs from the River Murray. Inundation of the remaining low-lying sites, will occur via overbank flooding, with no pumping required. This results in a lower requirement for delivery of environmental water via pumping compared to Dry and Average scenarios. Whilst Wetland 33 has a high commence-to-flow requirement, the site will become inaccessible due to increased heights through the Little Mullaroo Creek.

High flows in the River Murray, which result in the removal of all weirs between Wentworth and the South Australian border, will be used to trigger proposed actions under a Wet scenario.

*Table 8.1: Proposed environmental watering actions for Lindsay-Mulcra-Wallpolla under each climatic scenario for 2026-27.*

| Climate Scenario | Drought | | Dry | | Average | | Wet* | |
|---|---|---|---|---|---|---|---|---|
| Expected climatic conditions and water availability | PoE 99% | | PoE 90% | | PoE 50% | | PoE 10% | |
| Expected river conditions (including unregulated water, consumptive water, etc.) | Base level river flows in line with minimum operational requirements resulting in regulated conditions. | | Low Murray River flows with little to no inflows from storages or tributaries (other than operational releases) resulting in regulated conditions. River Murray flows unlikely to naturally inundate off-channel wetlands and anabranches. | | High river flows resulting from controlled releases from storage or minor spills and/or high tributary inflows. Murray River flow may be operating under either regulated or unregulated conditions. Wetlands, anabranches may receive natural inundation. | | Large spills from upstream storages and/or high tributary inflows resulting in unregulated conditions and removal of all weirs. Wetlands, anabranches and floodplain likely to receive natural inundation | |
| Environmental objectives | Maintain critical wetland habitat | | Maintain and protect critical habitat at key sites | | Maintain condition of floodplains | | Provide inundation of vegetation communities for growth and germination | |
| Priority watering actions/wetlands expected to be delivered 2026/27<br><br>**Tier 1:** Critical actions, expect to be able to deliver given the expected water availability and operational restraints. | Tier 1 | | Tier 1 | | Tier 1 | | Tier 1 | |
| | Wallpolla Horseshoe | 400 | Wallpolla Horseshoe | 400 | Wallpolla Horseshoe | 400 | Wallpolla Horseshoe | 400 |
| | | | Scotties Billabong | 200 | Wetland 33 | 150 | | |
| | | | Crankhandle | 600 | Stockyards* | 800 | | |
| | | | Sandy Creek and Lilyponds | 2,000 | Lindsay-Mullaroo Connector | 300 | | |
| | | | Lindsay-Mullaroo Connector | 300 | Crankhandle | 600 | | |
| | | | Wetland 33 | 150 | Sandy Creek and Lilyponds | 2,000 | | |
| | | | | | Scotties Billabong | 200 | | |
| Estimated environmental water requirement | 400 ML | | 3,650 ML | | 4,450 ML | | 400 ML | |

#*These sites will have been naturally inundated under a wet scenario and will not require delivery.

*Table 8.2 Proposed management of wetlands and off-channel systems connected to the weir pool, prioritised under each climatic scenario (See Appendix 2 - Proposed two-year hydrographs)*

| Climate Scenario | Drought | | Dry | | Average | | Wet* | |
|---|---|---|---|---|---|---|---|---|
| **Wetlands managed via weir pool manipulation**<br>R – Connected during weir pool raising<br>F – Connected at full supply level<br>O – Regulator operation<br>D – Drying phase<br>N – Natural flooding | Finnigans Creek | D | Finnigans Creek | R | Finnigans Creek | R | Finnigans Creek | N |
| | Websters Lagoon | D | Websters Lagoon | D | Websters Lagoon | D/N | Websters Lagoon | N |
| | Mullaroo Creek | O | Mullaroo Creek | O | Mullaroo Creek | O | Mullaroo Creek | N |
| | Potterwalkagee via Stoney Crossing | F | Potterwalkagee via Stoney Crossing | R | Potterwalkagee via Stoney Crossing | R | Potterwalkagee via Stoney Crossing | N |
| | Upper Potterwalkagee Creek | D | Upper Potterwalkagee Creek | R | Upper Potterwalkagee Creek | R | Upper Potterwalkagee Creek | N |
| | Lindsay River North | R | Lindsay River North | R | Lindsay River North | R | Lindsay River North | N |
| | Lindsay River South | D | Lindsay River South | D | Lindsay River South | D | Lindsay River South | N |

* Under a wet scenario the relevant weirs will be stripped, and unregulated flows will have already achieved desired inundation and ecological outcomes for all weir pool managed sites. All regulating structures will be open under this scenario.

NOTE: Water use for wetlands and off-channel systems connected to the weir pool is undertaken through a model incorporating water use, or savings relating to weir pool heights. As an example, in 2017-18 the total environmental water use across locks 7, 8, 9 and 15 was 3,274 ML.

# 9 Risk Management

The risk management section is specifically targeted for this proposal and should be reassessed if changes are made to the watering schedule.

*Table 9.1 Risk assessment of watering of sites across the Lindsay-Mulcra-Wallpolla for 2026-27*

| Risk category | Risk description | Pre-Mitigation Risk | | | Mitigation actions | Lead organisn. for action | Residual Risk Rating | Risk type Static or Dynamic |
|---|---|---|---|---|---|---|---|---|
| | | Likelihood | Consequence | Risk Rating | | | | |
| Environment | Extended periods of high demand could lead to system or delivery shortfalls which reduce access for environmental water deliveries, resulting in failure to complete planned actions. | Possible | Minor | Low | • Planned deliveries can be interrupted and rescheduled with minimal impact on outcomes<br>• Weir pool manipulations may be curtailed in high demands periods<br>• Consult MCMA to prioritise watering actions that will have outcomes severely affected if delivery is interrupted and liaise with DEECA and MDBA to plan avoidance of interruptions | MCMA<br>MDBA<br>VEWH | Low | Static |
| Environment | Maintenance activities by the storage operator or constructing authority affect the ability to deliver water to sites. | Possible | Minor | Low | • Monitor maintenance activities and schedules to identify possible issues and reschedule deliveries actions if required to minimise any disruption.<br>• Provision of early advice of planned maintenance actions.<br>• Ensure consultation with storage operator on watering plan development | MCMA<br>Storage Operator<br>MCMA | Low | Static |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Reputational | Access routes into public park areas may be inundated by delivery of environmental water, leading to potential impacts on recreational opportunities for park users. | Possible | Minor | Low | • Watering proposals to identify potential impacts (e.g. flooding footprint overlaid with key land roads and recreational assets) and ensure proposed watering plans are communicated to land mgrs.<br>• Land Managers implement the required management activities prior to and during environmental watering events. This includes:<br>o Identification of impacted assets<br>o Preparation of resources required (e.g. signage, maintenance of alternative recreational sites) to implement road, walking track and campsite closures and to direct users to alternative sites (including coordinating on ground implementation with partners where appropriate)<br>o Communication of planned events, access closures and alternative recreational opportunities<br>** Note that insufficient resources may limit the land manager's ability to implement management activities. Increased resources may reduce the likelihood of the risk description occurring.* | MCMA<br><br>Parks Vic<br>MCMA | Low | Static |
| Business Costs | Park visitor vehicles or environmental watering operational staff cause damage to tracks, or to other assets in the surrounding landscape, due to off-road activity (by users going off track to avoid floodwaters) during and after environmental watering<br><br>*Note: off-road traffic also risks damage to cultural heritage* | Likely | Moderate | Medium | Land Managers:<br>• Implement management activities to prevent access to flooded roadways (e.g. close roads, communicate planned events, install signage) including coordinating on ground implementation with partners where appropriate<br>• Repair damage during and after environmental watering events<br>• Consider rationalisation of road networks to remove unwanted access tracks and improve the standard of retained tracks.<br>• Ensure watering operators only access areas when tracks are dry and accessible to minimise damage.<br>• Land managers to advise CMA if access issues arise, to allow adjustments to watering action planning<br><br>** Note that insufficient resources may limit the land manager's ability to implement management activities. Increased resources may reduce the likelihood of the risk description occurring.* | Land Manager<br>MCMA<br><br>MCMA<br><br>Land Manager | Low | Static |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Legal | Access routes into public park areas may be inundated by delivery of environmental water, leading to potential economic impacts on commercial operators, resulting in claims for damages. | Possible | Minor | Low | • Communication and advice to commercial operators to alert them of environmental watering, via Land Manager as licensing authority. | MCMA | Low | Static |
| Environment | Delivery of greater volumes than ordered may result in an overdraw of environmental water account, leading to water not being available as per approved watering statement to complete subsequent planned actions | Unlikely | Minor | Low | • Monitor ABA balances and undertake regular communications with CMA as part of usage monitoring and portfolio management activities.<br>• Monitor deliveries in progress to ensure that they align with ordered/approved volumes. This may include consultation via the OAG to cover all sites | VEWH<br>MCMA | Low | Static |
| Business Costs | Costs exceed approved VEWH funding for delivery actions at a site basis, leading to impacts on watering activities (including possibly cessation of deliveries). | Possible | Moderate | Medium | • Develop accurate costings including allowances for planned risk mitigation actions and tracking of actuals against estimates.<br>• Reallocate funding, based on proposals developed by MCMA.<br>• Ensure specifications for service providers include coverage of contingency measures<br>• Investigate and implement permanent infrastructure to avoid pumping costs where feasible | MCMA<br>VEWH<br>MCMA<br>MCMA | Low | Static |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environment | Cost and/or time required to undertake cultural heritage assessments and implementation of any required actions may prevent watering actions being undertaken at a site leading to failure to achieve environmental benefits<br><br>*Note: There are also reputational risks if effective engagement and management of cultural values issues in not undertaken with Traditional Owners.*<br>*Time for undertaking assessments is biggest risk to implementing watering actions For 26-27, delays in CHMP approval are limiting ability to maintain tracks and access target sites in Lindsay island - pre-mitigation risk based on this cause* | Possible | Minor | High | • Develop accurate costings including allowances for planned risk mitigation actions, and tracking of actuals against estimates.<br>• Undertake early assessments to identify potential cultural heritage issues and include in planning, with appropriate contingency allowances<br>• Reallocate funding within the overall funding contract, based on proposals developed by MCMA.<br>• Seek support from DEECA and FPSR (in DPC) to expedite approvals process.<br><br>*Note: Potential future recognition of joint management arrangements with Traditional Owners may see a need for provision of funding.* | MCMA<br><br>MCMA<br><br>VEWH<br><br>SA Water/ CMA | Medium | Dynamic |
| Legal | Failure to recognise cultural heritage issues at a site targeted for watering may result in necessary permits and approvals not being obtained, leading to prosecution and fines. | Likely | Moderate | Medium | • Undertake desktop reviews and site assessments of footprint of activities being undertaken with archaeologists, traditional owners and land managers, to identify approval needs and contingency measures - standard practice for all sites.<br>• Obtain any necessary formal approvals/permits and implement required actions.<br>• Monitor developments from VFMRP assessment process and adapt and apply procedures as required (noting that some of this information has not yet been entered into ACRIS)<br>• Share latest site survey information on cultural heritage information with CMA to assist with planning water actions<br>• Apply MCMA cultural heritage site assessment processes | MCMA<br><br>MCMA<br><br>MCMA<br><br>PV<br><br>MCMA | Low | Dynamic |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environment | Total cost of proposed delivery actions exceeds the funding that can be provided by VEWH, limiting scope of the program and not achieved planned environmental outcomes | Possible | Minor | Low | • Prioritise funding and site selection in line with available resources.<br>• Undertake preliminary assessment of costs as early as possible during development of proposals and scoping of the plan.<br>• Investigate opportunities for additional funding from partners to support proposed program | VEWH<br>MCMA/VEWH<br>MCMA/VEWH | Low | Dynamic |
| Reputational | Reporting of water usage and updating of water register lags behind deliveries, leading to possible overuse of environmental entitlements and incorrect reporting of "water used/available" in the water market, with implications for efficient functioning of the water market. | Possible | Major | Medium | • Post usage to water register as soon as possible after delivery noting the need to assess return flow credits at some sites<br>• Review water accounting processes to identify any opportunities for improvement.<br>• Regular/timely reporting of delivery volumes and progress to VEWH in accordance with agreed processes.<br>• Communicate the availability of VEWH annual trading strategy to provide information for market participants | GMW<br>Storage Operators MCMA<br>VEWH | Low | Static |
| Environment | Pumping of environmental deliveries into wetlands results in erosion downstream of pump discharge, leading to water quality impacts and the need to suspend watering actions and rectify the damage. | Likely | Minor | Low | • Ensure delivery routes downstream of pump sites can withstand the proposed flow rates without unacceptable impacts.<br>• Armouring and other protections may be installed if required.<br>• Implement ramp up and ramp down phases for flows to reduce erosion risks<br>*Note: residual risk not rated, to be addressed in relevant delivery plan* | MCMA | | Dynamic |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environment | Failure of delivery infrastructure or water monitoring assets (including water meters) may result in interruptions to watering actions, leading to failure to achieve environmental objectives. (includes failure of temporary works) | Possible | Minor | Low | • Ensure asset ownership is clear and asset owners undertake pre-event inspections and maintain assets as required*.<br>• Undertake operational monitoring during each event and respond as necessary to prevent failures. This may include float switches to prevent high water levels, and trail cameras for real time monitoring if risk level warrants.<br>• Ensure levees designs are fit for purpose and address trafficability needs or control traffic access to levees etc. to ensure safety<br>• Require inspections to ensure temporary levees are built according to specifications during construction, and prior to commencement of delivery<br>• Site selection for pump and meter to minimise potential for damage, including protection of meter from falling tree limbs or other damage if required.<br>• Develop agreed accounting process to estimate delivery volumes in the event of meter damage/data loss<br><br>**Note that insufficient resources are likely to limit the asset owner's ability to perform maintenance and inspections. Increased resources may reduce the likelihood of the risk occurring.* | MCMA / Asset Owner<br><br>VEWH/ GMW | Low | Dynamic |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Safety | Failure of levees installed as part of delivery infrastructure or water monitoring assets may result in injury to the public or staff. (includes failure of temporary works and levees)<br><br>*Note: these events could also lead to interruption/abandonment of watering actions leading to failure to achieve environmental objectives, however safety issues pose highest risk* | Possible | Major | Medium | • Ensure asset ownership is clear and asset owners undertake pre-event inspections and maintain assets as required.<br>• Undertake operational monitoring during each event and respond as necessary to prevent failures.<br>• Ensure levee designs are fit for purpose and address trafficability needs or control traffic access to temporary levees etc. to ensure safety<br>• Adapt and apply levee design standards being developed as part of VMFRP program<br>• Require inspections to ensure temporary levees are built according to specifications during construction, and prior to commencement of delivery<br><br>**Note that insufficient resources are likely to limit the asset owner's ability to perform maintenance and inspections. Increased resources may reduce the likelihood of the risk occurring.* | MCMA / Asset Owner | Low | Dynamic |
| Reputational | Noise impacts from temporary pumping installations lead to complaints and adverse publicity, and potentially EPA noise pollution enforcement actions | Unlikely | Minor | Low | • Site selection and pump placement to minimise noise impacts.<br>• Selection of quiet pumping equipment and installation of noise suppression measures.<br>• Ensure that pumping contractors check and maintain equipment<br>• Consider curtailing pumping during peak camper visitation periods for public land sites. | MCMA | Low | Dynamic |
| Safety | Water delivery infrastructure (including temporary pumps etc.) creates safety risks for public.<br><br>*Note: Water deliveries may also encourage increased visitation to particular sites.* | Possible | Moderate | Medium | • Install safety barricades and implement suitable traffic control measures<br>• Provide alert in the appropriate "changed conditions" sections of the PV website. | MCMA/ Land Mgr<br>PV | Low | Static |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environment | Changes in seasonal conditions (esp. from dry to wet) and moving to expanded watering action scenarios may lead to difficulties in planning and implementing necessary actions, limiting the potential scope of watering actions resulting in failure to achieve environmental benefits | Unlikely | Minor | Low | • Monitoring climate forecasts and developing contingency plans for possible changes to actions.<br>• Identify any potential changes to proposed actions arising through SCBEWC<br>• Communicate potential for changes to watering actions to stakeholders and the wider community.<br>• Review MCMA register of structures and ensure that structures are adjusted/operated as necessary in light of changed conditions.<br>• Implement more responsive procurement processes to allow adaptation to changing conditions (e.g. ability to promptly engage pumping contractors) | MCMA<br>VEWH<br>MCMA<br>MCMA<br>MCMA | Low | Dynamic |
| Legal | Environmental deliveries cause unauthorised inundation of private land, resulting in impacts on farm activities and assets. | Unlikely | Moderate | Low | • Update and ensure currency of any applicable agreements covering inundation of private land.<br>• Review previous watering events to identify any high-risk locations and develop specific actions as appropriate.<br>• Undertake site inspections prior to commencement of deliveries to identify new risk areas for action (including consideration of risks to property access routes).<br>• Inform landholders of intended watering actions and provide a contact number to call if they become aware of issues during the event. | MCMA | Low | Static |
| Environment | Other environmental water managers' competing priorities and objectives may limit the ability to achieve intended objectives.<br>(E.g. weir pool lowering prevents deliveries to Lindsay/Wallpolla) | Possible | Minor | Low | • Early communication of priorities and objectives to other environmental water managers, and development of combined NSW/Vic watering proposals to SCBEWC<br>• Participation and co-ordination through various forums including OAGs.<br>• Studies to quantify relative benefits and impacts of competing actions.<br>*Note - mitigations may need to be reviewed and improved or expanded to addressed increased complexity arising from new SDLAM projects (in NSW and Vic) coming on-line.* | MCMA | Low | Dynamic |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Business Costs | Insufficient resources available (including staff, funding for maintenance of roads, regulators, pumping etc), across partner organisations to deliver all planned environmental watering actions, leading to cancellation or interruptions of deliveries and/or impacts to roads and infrastructure etc (esp. in PV areas).<br>*Note:*<br>*- This risk relates to unplanned resource shortfalls, for example where Parks staff are diverted to bushfire duties with no advance warning.*<br><br>*- Causes of risk may also include shortage of service providers, rather than just staff shortages.*<br>*Assessment relates to 2026-27 conditions* | Possible | Minor | Low | • Partners notify the CMA and VEWH of resourcing constraints in advance of deliveries and VEWH convenes OAG meetings to consider implications and potential solutions<br>• Continue to actively prioritise actions to match available resources and ensure key actions are delivered.<br>• Reallocation of tasks and available funding.<br>• *Note: also requires site specific assessments* | MCMA<br><br>MCMA<br><br>MCMA | Low | Dynamic |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environment | The time required to for planning, approvals, procurement and implementation of watering actions may delay or prevent timely commencement of spring watering actions, limiting achievement of environmental objectives.<br><br>*Note: This issue may affect multiple locations - moderate consequence. Construction activities associated with the VMFRP are also likely to shorten the available window for deliveries.*<br>*For 2024-25, additional cultural heritage risk assessments will need to be undertaken to assess flood impacts.* | Likely | Moderate | Medium | • Early planning and prioritisation of actions, including early advice on funding availability to inform planning<br>• Providing advice and early warning to each organisation of the actions proposed to understand the approvals expected to be required from each organisation.<br>• Land managers to provide confirmation of approval requirements.<br>• Streamlining annual watering plan approvals process.<br>• Ensuring minimum water levels are maintained in critical wetlands prior to the end of the water year to provide a buffer against delays.<br>• Undertake on-ground inspections to assess changes to landform due to flood related erosion that may impact e-water delivery routes. Consider need for LIDAR survey in some locations significantly impacted.<br><br>*Note: Especially relevant for PV environmental and cultural access approvals.* | MCMA<br>MCMA<br><br>Land Managers<br>VEWH<br><br>MCMA<br><br>MCMA | Low | Dynamic |
| Service Delivery | Environmental water deliveries may impact adversely on infrastructure or land management works (e.g. fire mgmt. works, kangaroo census and culls etc.) that are being undertaken by other stakeholders. | Likely | Moderate | Medium | • Early planning and communications of proposed actions with land managers and other stakeholders to minimise likelihood of impacts, and scheduling of proposed works outside of planned delivery periods.<br><br>*- residual risk not rated, to be addressed in relevant delivery plan* | MCMA | | Static |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environment | Environmental deliveries create improved conditions for existing non-native species (e.g. carp, invasive species, feral animals) and over-abundant native species (e.g. kangaroos, red gum encroachment) leading to adverse environmental impacts.<br><br>Note: The likelihood of this risk increases when a sequence of dry years concentrate pest animal on environmental watering sites. | Likely | Moderate | Medium | • Study/understand life history of species and develop high level management strategies.<br>• Develop and implement site specific management strategies aimed at eradication/control of existing populations (e.g. carp management strategy, willow removal program, water-lily spraying program, feral animal programs) in high risk locations. This mitigation may also require collaborative effort from private landholders and could offer opportunities for community participation but may be limited by availability of resources by partners.<br>• Implement pest reduction efforts prior to delivery of water, to ensure increases in populations remain within "tolerable" levels<br><br>*Note that insufficient resources are likely to limit the land manager's ability to perform these actions. Increased resources may reduce the likelihood of the risk occurring. - effectiveness of this mitigation may be limited in these circumstances<br><br>Note: residual risk based on expected incremental contribution of env. water deliveries in 26-27 conditions. Watering decisions need to balance impacts of not watering assets vs potential pest plant/animal risks | DEECA<br><br>MCMA or Land Manager | Low | Static |
| Environment | Introduction of pest plants through works (including importation of fill) to establish pump sites and levees results in environmental impacts. | Possible | Major | Medium | • Ensure machinery is cleaned in accordance with PV plant hygiene protocols.<br>• Use weed free or appropriately treated fill that complies with PV specifications.<br>• Where possible, stockpile temporary levee fill on site and reuse to avoid importing weeds<br>• Provide advice to PV of intended works and ensure their inclusion in the PV environmental access agreement. | MCMA | Low | Static |

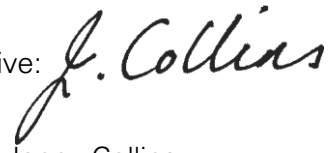
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environment | Under either wet or dry conditions, access to temporary pumping sites in parks will deteriorate, reducing access and limiting watering actions<br><br>*Note: delays in obtaining approvals for track maintenance works noted in risk ID NOMC2020-08 are also relevant* | Possible | Moderate | Medium | • Coordination and advice PV on proposed delivery sites.<br>• Repair track damage, including targeted fixes | MCMA<br><br>PV | Low | Static |
| Reputational | Failure to demonstrate the benefits of environmental watering and/or community concerns over environmental watering actions reduce community support for environmental watering. | Likely | Moderate | Medium | • Communicate the key objectives and benefits of environmental watering to the community through a range of channels.<br>• Publicise watering activities undertaken or in progress and ensure LMW has information on watering actions in a form that can be provided to their customers.<br>• Install explanatory signage on environmental watering at key sites.<br>• Share communications materials and key messages between partners.<br>• If needed, tailor messaging for 26-27 to explain why watering after floods is positive | MCMA<br><br>MCMA<br><br>Land mgr. or MCMA<br><br>All | Low | Static |
| Cultural Heritage | Environmental water deliveries and/or associated operational and monitoring actions result in damage to unknown cultural heritage sites. | Possible | Moderate | Medium | • Apply MCMA standard cultural heritage operational assessment procedures to proposed watering sites.<br>• Targeted site inspections with Traditional Owners, with regard to potential erosion and flood impacts from 22-23<br>• PV assessment of cultural heritage aspects of watering proposals | MCMA<br><br>MCMA<br><br>PV | Low | Static |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Safety | People camping on floodplains may be displaced by environmental water deliveries and may be aggressive towards e-water staff as a result<br><br>N*ote: Where English is not a first language, individuals may be concerned and feel frightened or threatened, and react accordingly* | Possible | Moderate | Medium | • Timely sharing of information on known aggressive individuals or groups amongst all partners.<br>• Share incident reports promptly to all partners<br>• Ensure operational staff are informed of issues/risks and appropriate responses<br>• Ensure safe operational procedures for staff are followed<br>• Providing information on watering actions in multiple languages | All | Low | Static |
| Environment | Volumes delivered are insufficient to meet hydrologic targets due to multiple factors, for example high losses at very dry sites, | Unlikely | Minor | Low | • Review delivery plans to allow for higher losses, which will be managed within the total volumes available for all Murray system sites.<br>• If losses exceed maximum pumping rates, consider cessation of deliveries<br>• Seek approval from VEWH for reallocation of water between sites and/or watering statements as required. | MCMA | Low | Dynamic |
| Legal | Inappropriate operation of Mullaroo Ck. regulator may result in lower flows compared to previous watering events and lead to elevated salinity levels, with potential impacts on irrigation users in Lindsay River | Unlikely | Moderate | Low | • Ensure agree operating rules for river system and regulators are being implemented.<br>• Undertake planning and communications to co-ordinate regulator operations with other river management activities (e.g. weir pool level manipulations)<br>• Monitoring of event and provision of advice to river operators if adverse water quality conditions are developing.<br>• Adjust flows to dilute high salinity water.<br>• Adjust river operations to minimise impacts on other users, including maintaining entitlement flows to SA. | MCMA<br><br>MCMA<br><br><br>MCMA<br><br><br>MDBA<br>MDBA | Low | Static |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environment | Inappropriate operation of Mullaroo Ck. regulator may result in lower flows compared to previous watering events and lead to elevated salinity levels and potential impacts on water quality and habitat conditions for Murray cod populations and other species.<br><br>Risk ratings based on 25-26 conditions | Possible | Moderate | Medium | • Ensure agreed operating rules for river system and regulators are being implemented.<br>• Undertake planning and communications to co-ordinate regulator operations with other river management activities (e.g. weir pool level manipulations)<br>• Monitoring of event and provision of advice to river operators if adverse water quality conditions are developing.<br>• Adjust flows to dilute high salinity water.<br>• Adjust river operations to minimise impacts on other users, including maintaining entitlement flows to SA | MCMA<br><br>MDBA<br>MDBA | Low | Static |
| Environment | A failure to effectively co-ordinate watering actions in the Lindsay, Wallpolla and Mulcra area may lead to Lock 7-9 weir pools being below the levels needed to deliver planned watering actions, resulting in a failure to achieve planned environmental outcomes.<br>*Note: Coordination will sometimes mean not all desired actions can be undertaken when balancing competing demands.* | Possible | Minor | Low | • Coordination of watering actions through OAG meetings and also through SCBEWC as necessary<br><br>*Note: This risk is also likely to have reputational consequences. The overall rating for reputational risk is also Medium, and the mitigation identified above is applicable for addressing both the environmental and reputational risks.* | MCMA (& VEWH) | Low | Static |
| Safety | Access routes into public park areas may be inundated by delivery of environmental water, leading to potential safety risks for park users and Parks Vic staff (e.g. by driving through flooded waterways). | Unlikely | Moderate | Low | • Erect warning signage and implement road closures supported by public advice on changed conditions.<br>• Consider installation of track closure gates and gauge boards at high-risk sites<br>• Undertake information programs to warn the public not to drive through flood water.<br>• Identify non-flooded alternative sites for public use. | Parks Vic | Low | Static |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Safety | A failure to share information regarding potential site-specific safety concerns in relation to negative community sentiment in relation to government decisions/actions creates a safety risk for staff involved in environmental watering actions<br><br>**This is statewide risk, but may not apply in all systems - the risk rating will reflect local risk levels* | Possible | Moderate | Medium | • Share intelligence around any known instances of risky or aggressive behaviour at watering sites between partners.<br><br>*Note: Accountability for individual staff safety lies with the employing agency via implementation of their own OHS safe work requirements and other associated policy and procedures. This risk is therefore not addressed within this assessment.* | All | Low | Static |
| Business Costs | Incorrect or inaccurate meter readings from temporary pump sites may lead to incorrect usage data being used for updating water usage data in the Victorian Water Register and/or impact assessment of return flow volumes for water accounting. | Possible | Moderate | Medium | • Follow any updated or amended procedures developed by VEWH/CMA<br>• Where metering is done by a CMA or other third party, provide photographic evidence of start and finish meter readings using the continual mode, reporting to three decimal places, and meter serial number identification.<br>• Review the timing and validation process for metered data prior to posting water use and return flows on the Victorian Water Register | CMA<br><br>VEWH/CMA | Low | Static |

# 10 Approval

| WATERWAY MANAGER APPROVAL OF THE SEASONAL WATERING PROPOSAL |
| --- |
| I, the authorised representative of the agency shown below approve the Seasonal Watering Proposal for the Lindsay-Mulcra-Wallpolla system in 2026-27 and declare that:<br>• The information provided in this proposal is true and correct,<br>• All required approvals and endorsements from storage managers, land managers, Traditional Owners or other relevant party have been granted, and<br>• Unless otherwise stated, any consent/s required to use or reproduce Traditional Owner language and knowledge has been obtained for the purpose of Seasonal Water Planning.<br>SIGNED FOR AND ON BEHALF OF MALLEE CATCHMENT MANAGEMENT AUTHORITY<br>Signature of authorised representative: <br>Name of authorised representative: Jenny Collins<br>Position of authorised representative: Chief Executive Officer<br>Date: 28/04/2026 |

# 11 References


DELWP. (2019). *Risk Management Guidelines by the Victorian Managed Insurance Authority (VMIA).* Department of Environment, Land, Water and Planning.

Mallee CMA. (2021a). *Lindsay-Mulcra-Wallpolla Islands Environmental Water Management Plan.* Mildura, Victoria: Prepared by the Mallee Catchment Management Authority.

Mallee CMA. (2021b). *Lindsay-Mulcra-Wallpolla Icon Site Watering Guide.* Mildura: Mallee Catchment Managment Authority.

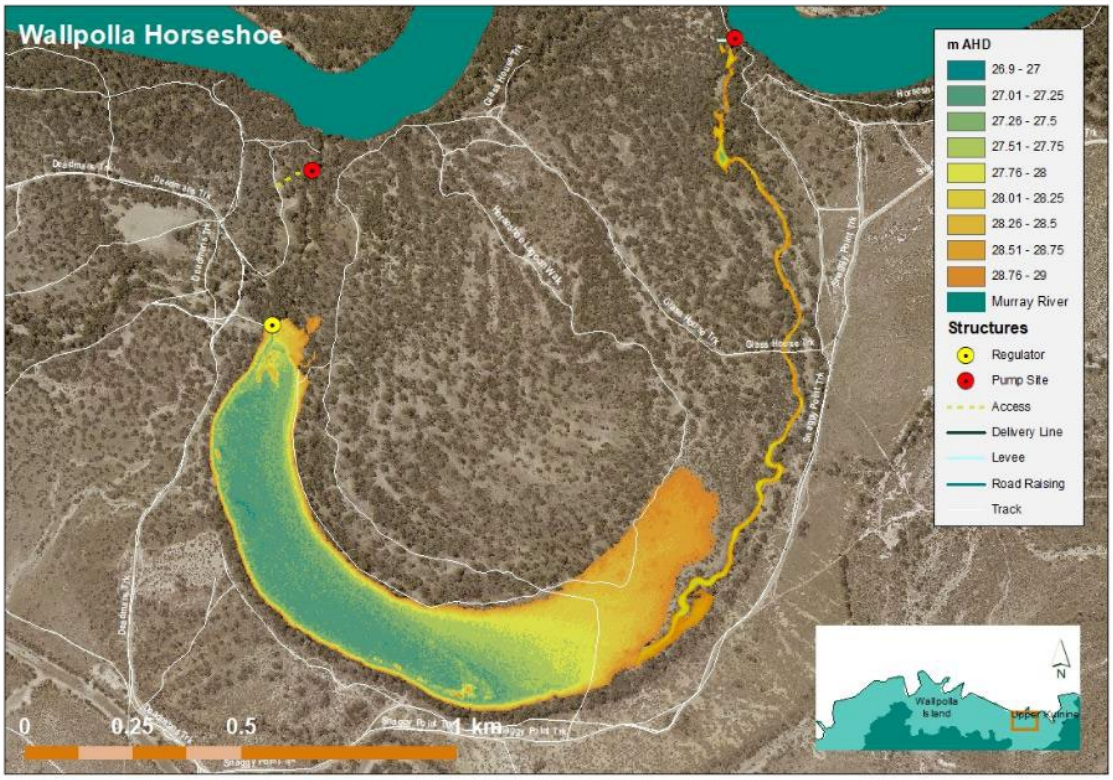
Mallee CMA. (2022). *Lindsay-Mulcra-Wallpolla Icon Site- Operating Plan.* Mildura, Victoria: Mallee Catchment Management Authority.

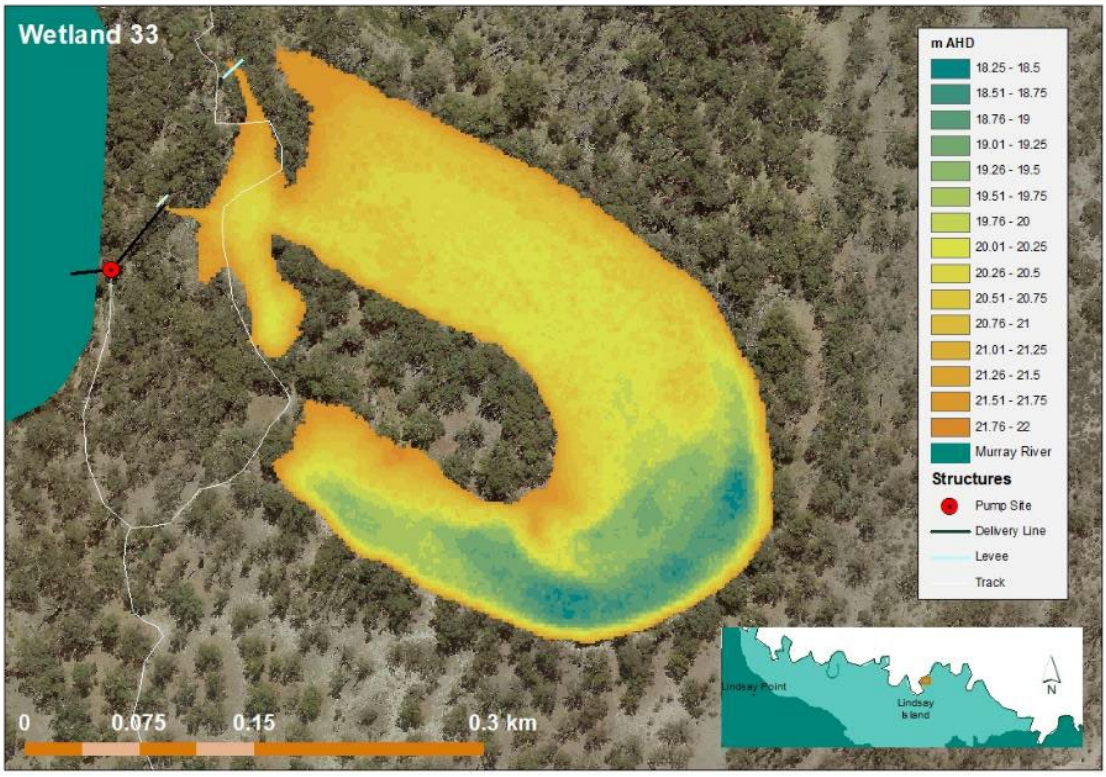
Tonkin, Z., Kitchingman, A., Moloney, P., Hackett, G., O'Mahony, J., & Lyon, J. (2019). *Murray cod movement and population structure inthe Lindsay Island anabranch system.* Heidelberg, Victoria: Arthur Rylah Institute for Environmental Research.

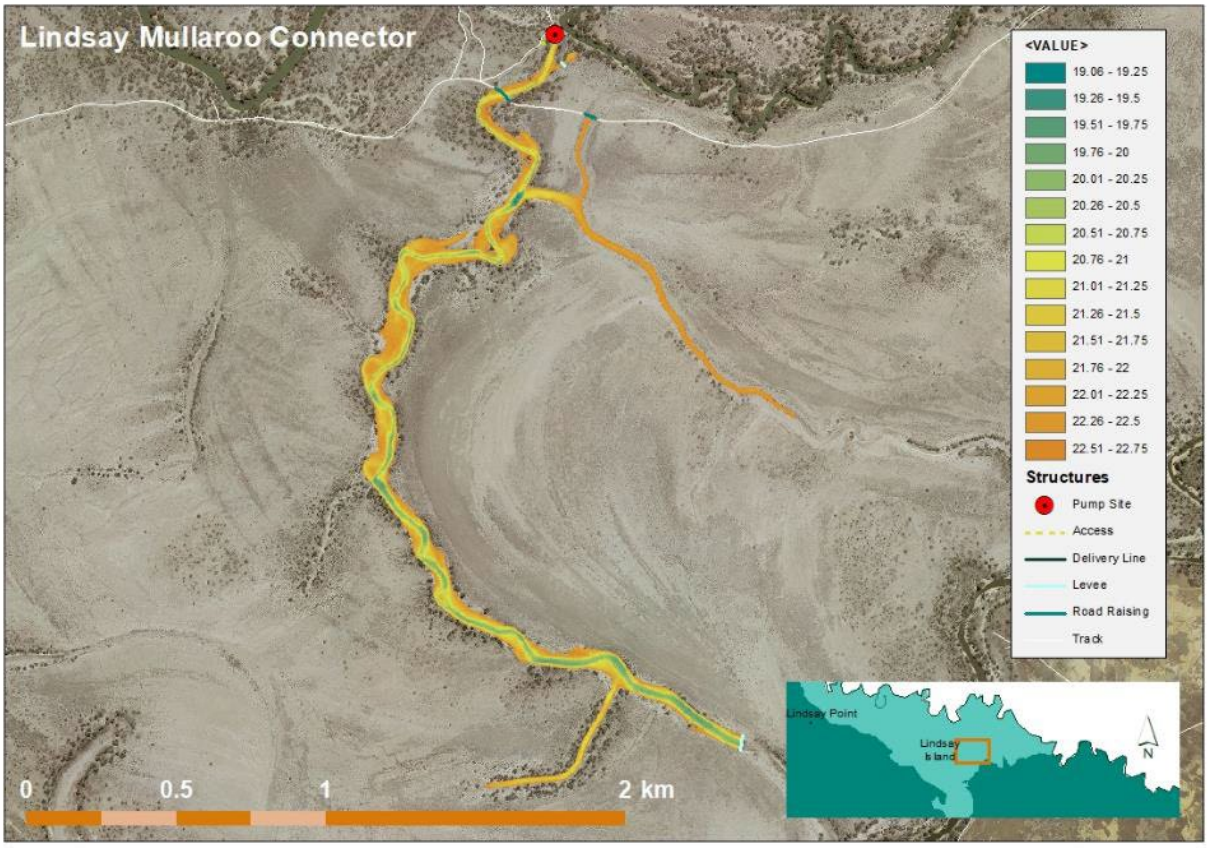
VEWH (2024). *Victorian Environmental Watering Program Risk Management Framework.* Victorian Environmental Water Holder.

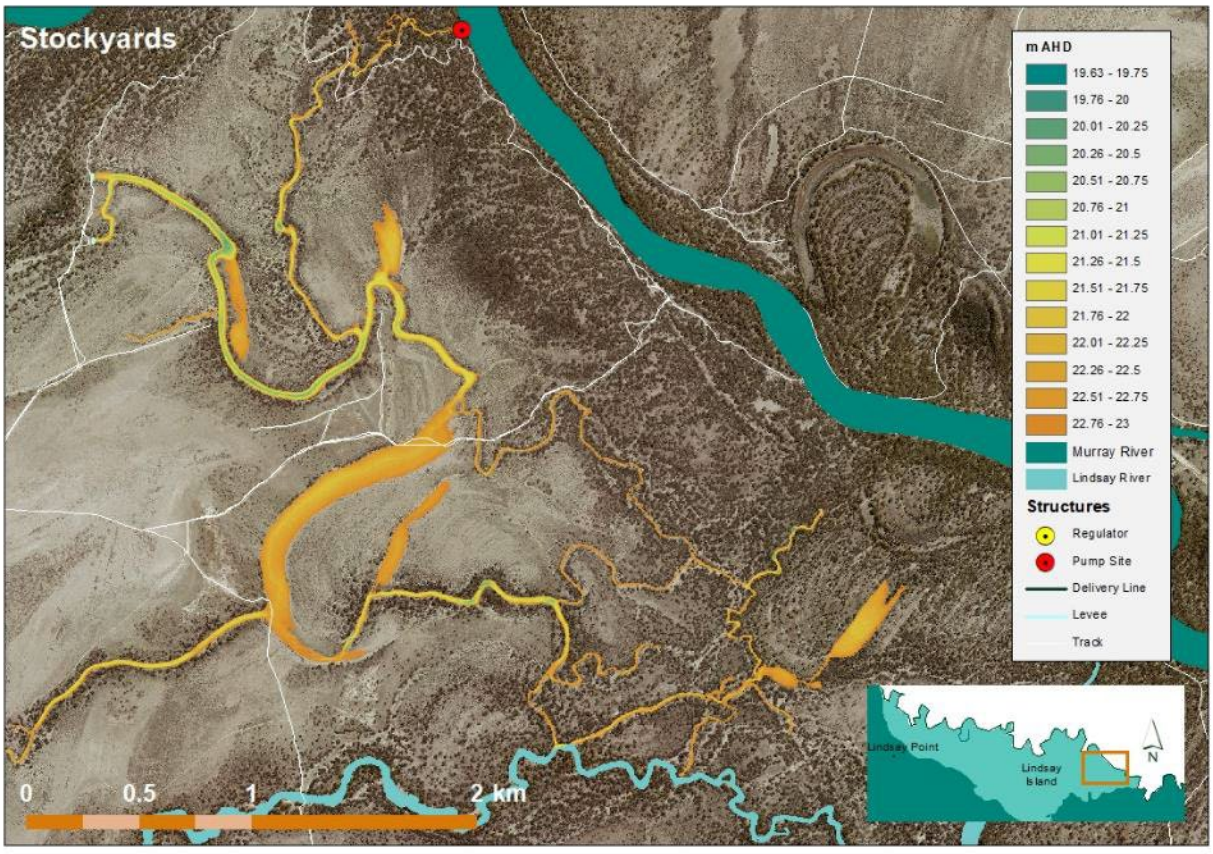
# 12 Appendices

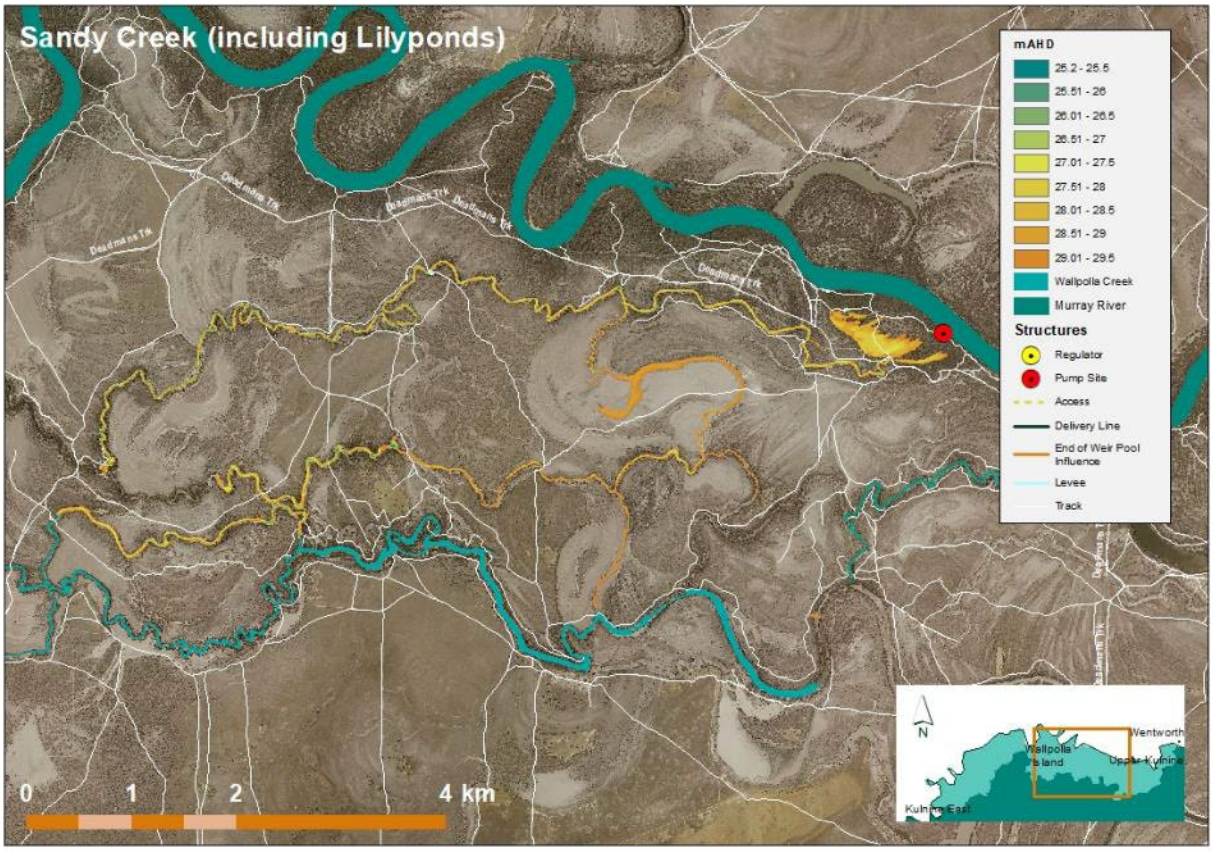
## Appendix 1 - Site maps for pumped wetlands

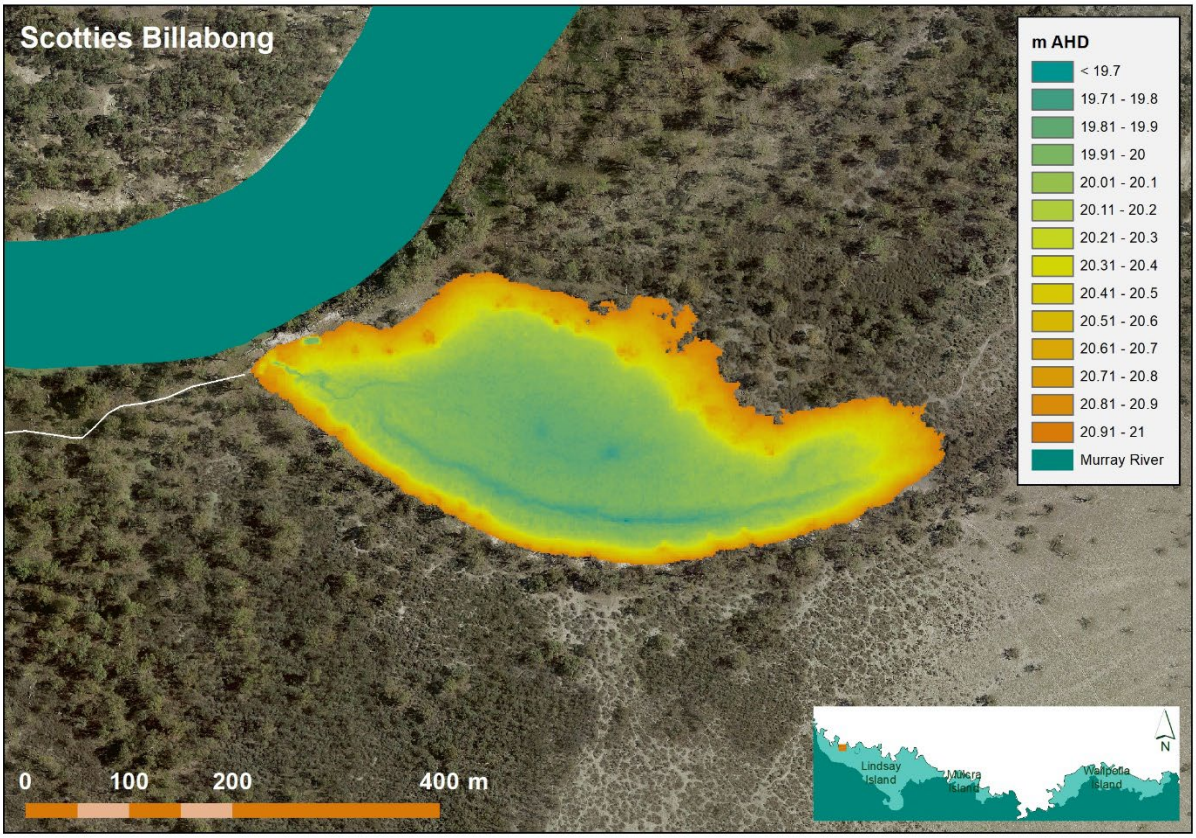


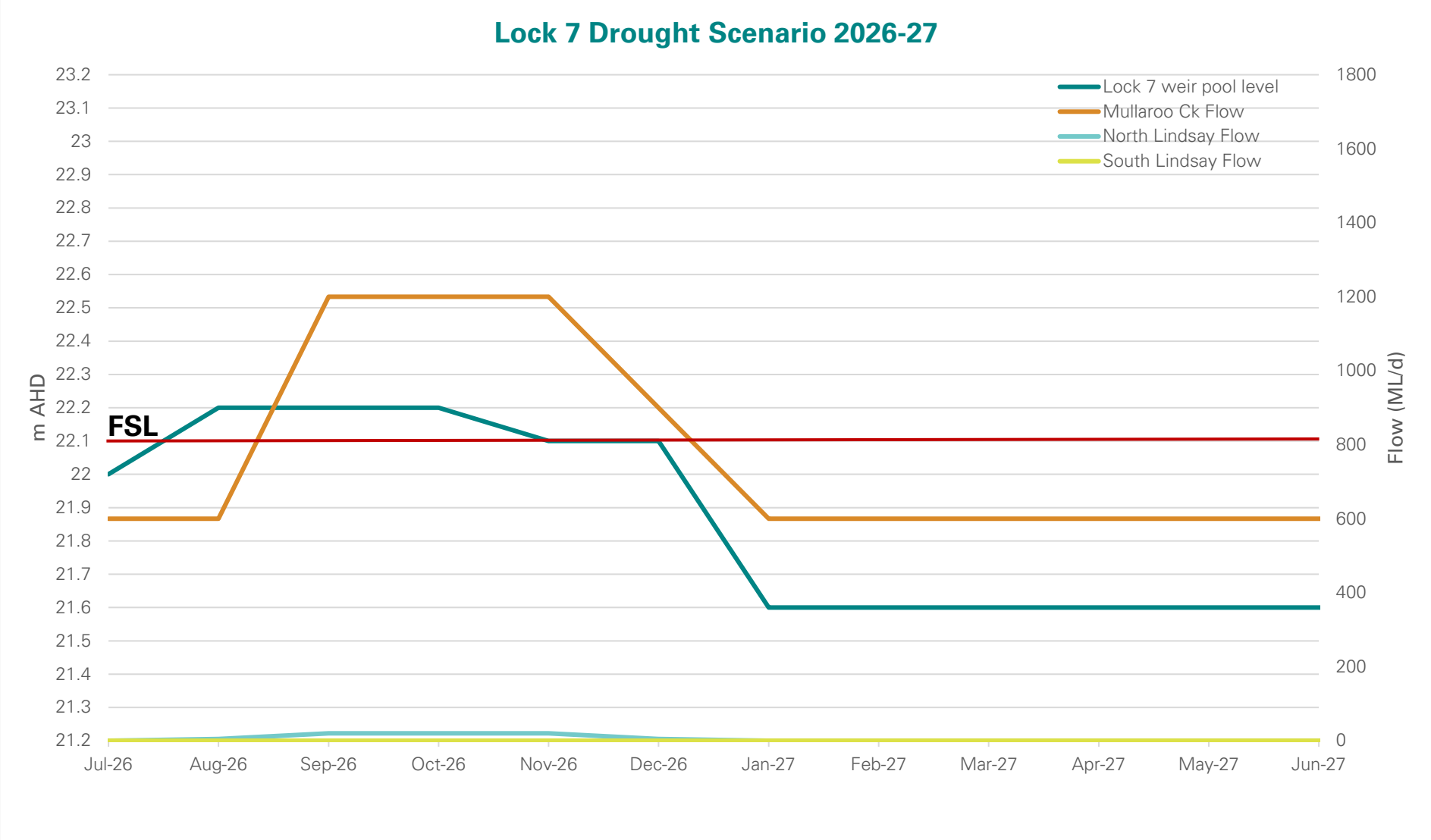

Lindsay Mullaroo Connector
<VALUE>
19.06 - 19.25
19.26 - 19.5
19.51 - 19.75
19.76 - 20
20.01 - 20.25
20.26 - 20.5
20.51 - 20.75
20.76 - 21
21.01 - 21.25
21.26 - 21.5
21.51 - 21.75
21.76 - 22
22.01 - 22.25
22.26 - 22.5
22.51 - 22.75
Structures
Pump Site
Access
Delivery Line
Levee
Road Raising
Track
0
0.5
1
2 km
Lindsay Point
Lindsay Island
N

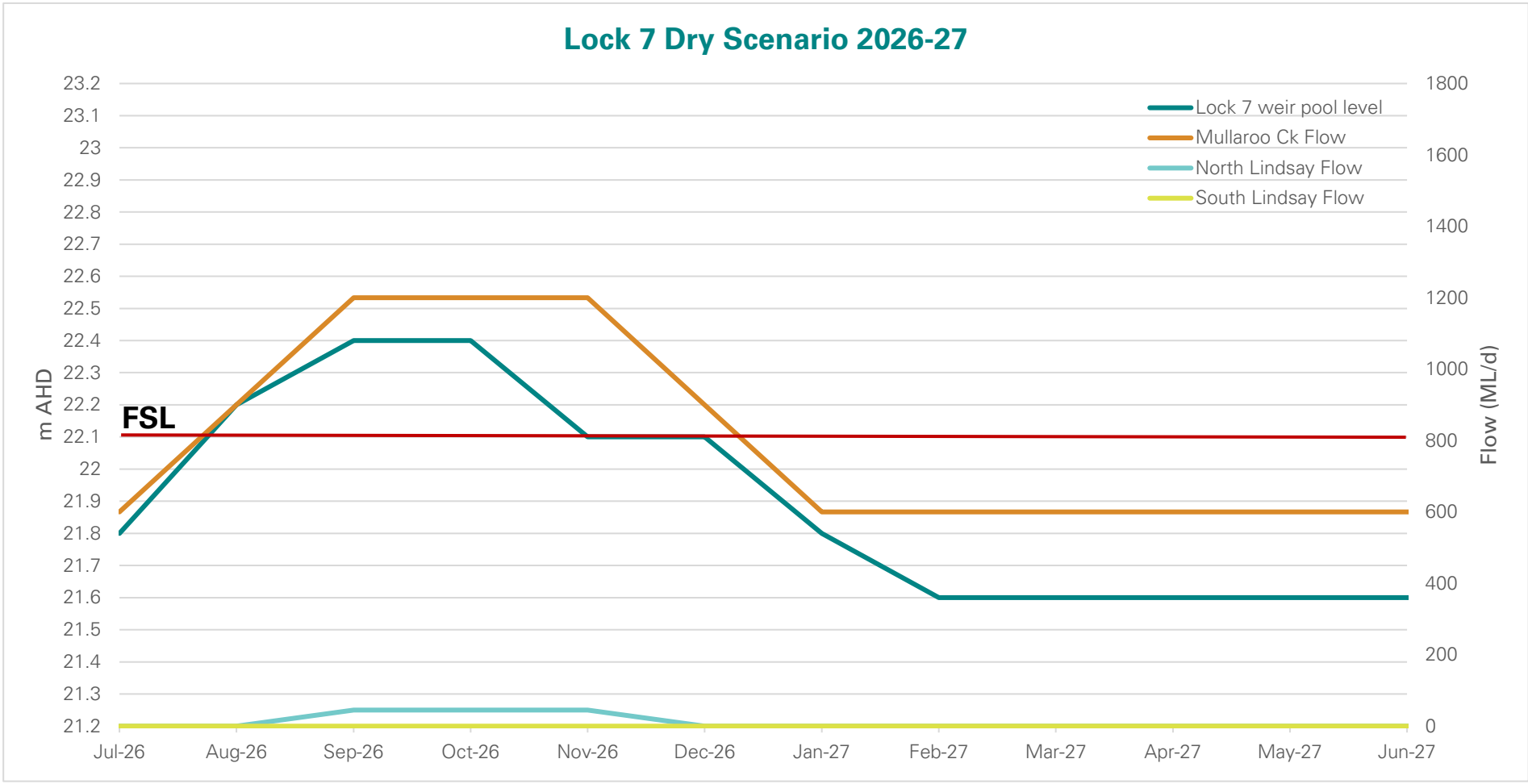

Stockyards
m AHD
19.63 - 19.75
19.76 - 20
20.01 - 20.25
20.26 - 20.5
20.51 - 20.75
20.76 - 21
21.01 - 21.25
21.26 - 21.5
21.51 - 21.75
21.76 - 22
22.01 - 22.25
22.26 - 22.5
22.51 - 22.75
22.76 - 23
Murray River
Lindsay River
Structures
Regulator
Pump Site
Delivery Line
Levee
Track
0
0.5
1
2 km
Lindsay Point
Lindsay Island
N

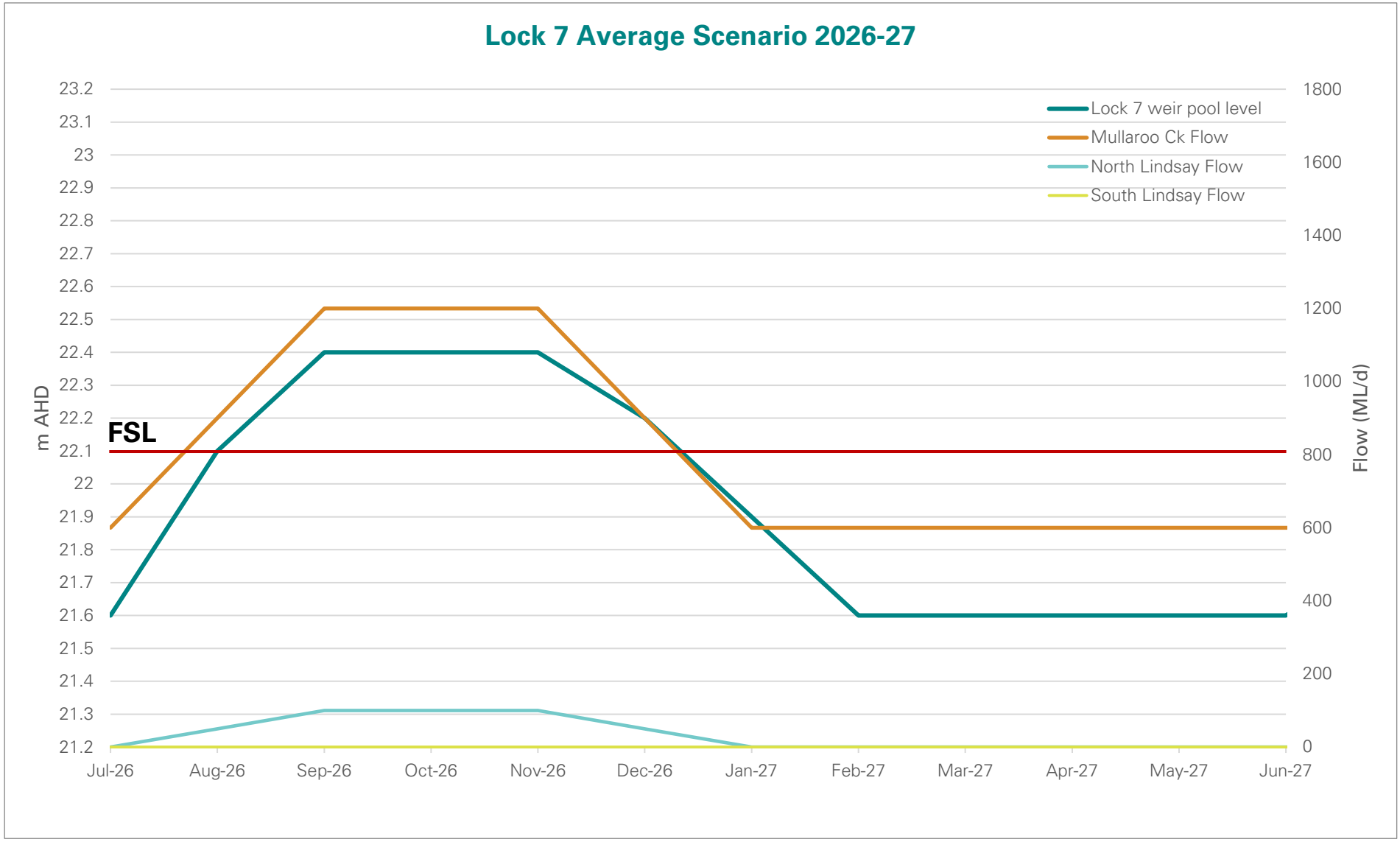

Sandy Creek (including Lilyponds)
mAHD
25.2 - 25.5
25.51 - 26
26.01 - 26.5
26.51 - 27
27.01 - 27.5
27.51 - 28
28.01 - 28.5
28.51 - 29
29.01 - 29.5
Wallpolla Creek
Murray River
Structures
Regulator
Pump Site
Access
Delivery Line
End of Weir Pool Influence
Levee
Track
0
1
2
4 km
N
Wentworth
Wallpolla Island
Kulnine East

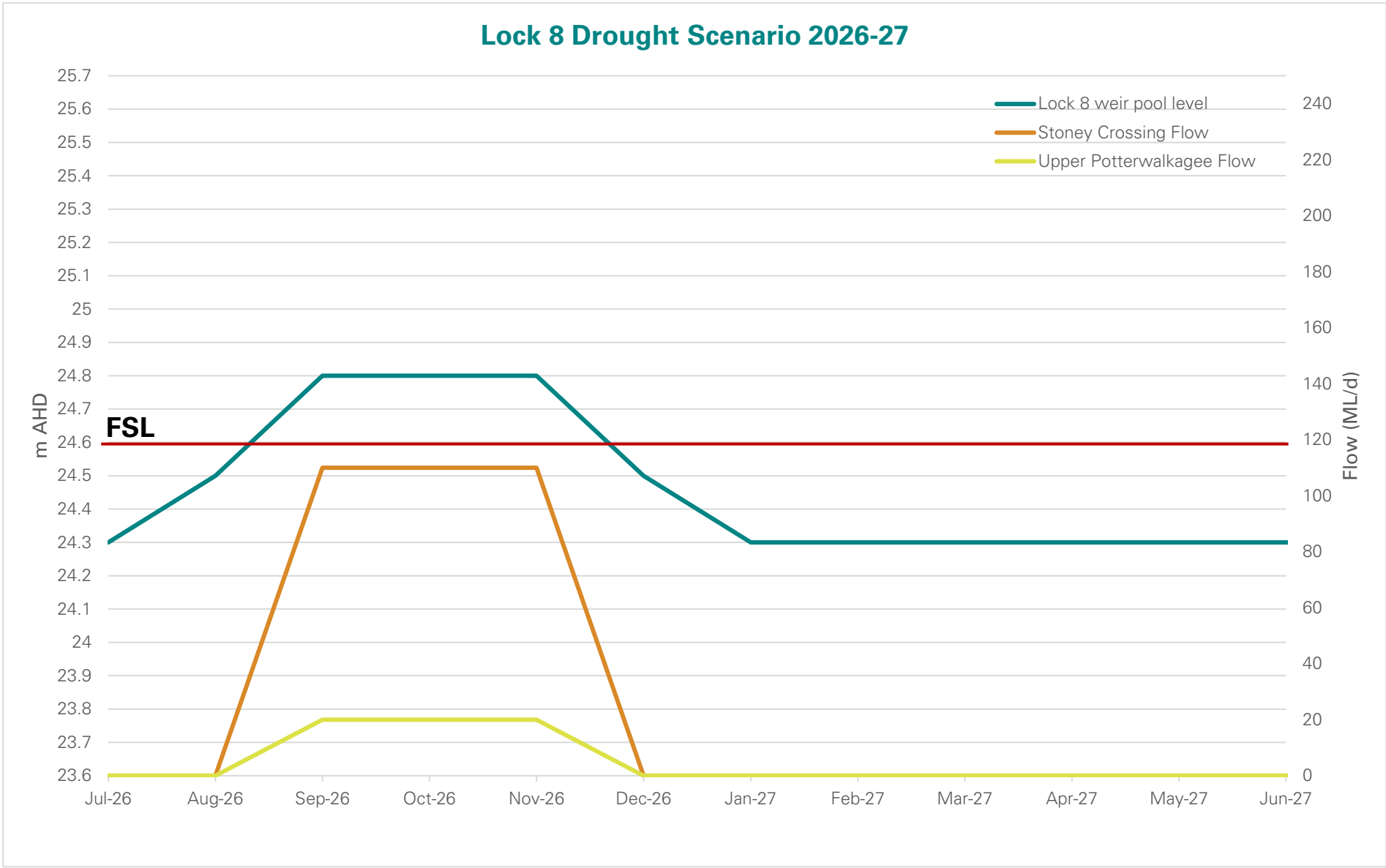

Scotties Billabong
m AHD
< 19.7
19.71 - 19.8
19.81 - 19.9
19.91 - 20
20.01 - 20.1
20.11 - 20.2
20.21 - 20.3
20.31 - 20.4
20.41 - 20.5
20.51 - 20.6
20.61 - 20.7
20.71 - 20.8
20.81 - 20.9
20.91 - 21
Murray River
0
100
200
400 m
N
Lindsay Island
Mildura Island
Wallpolla Island

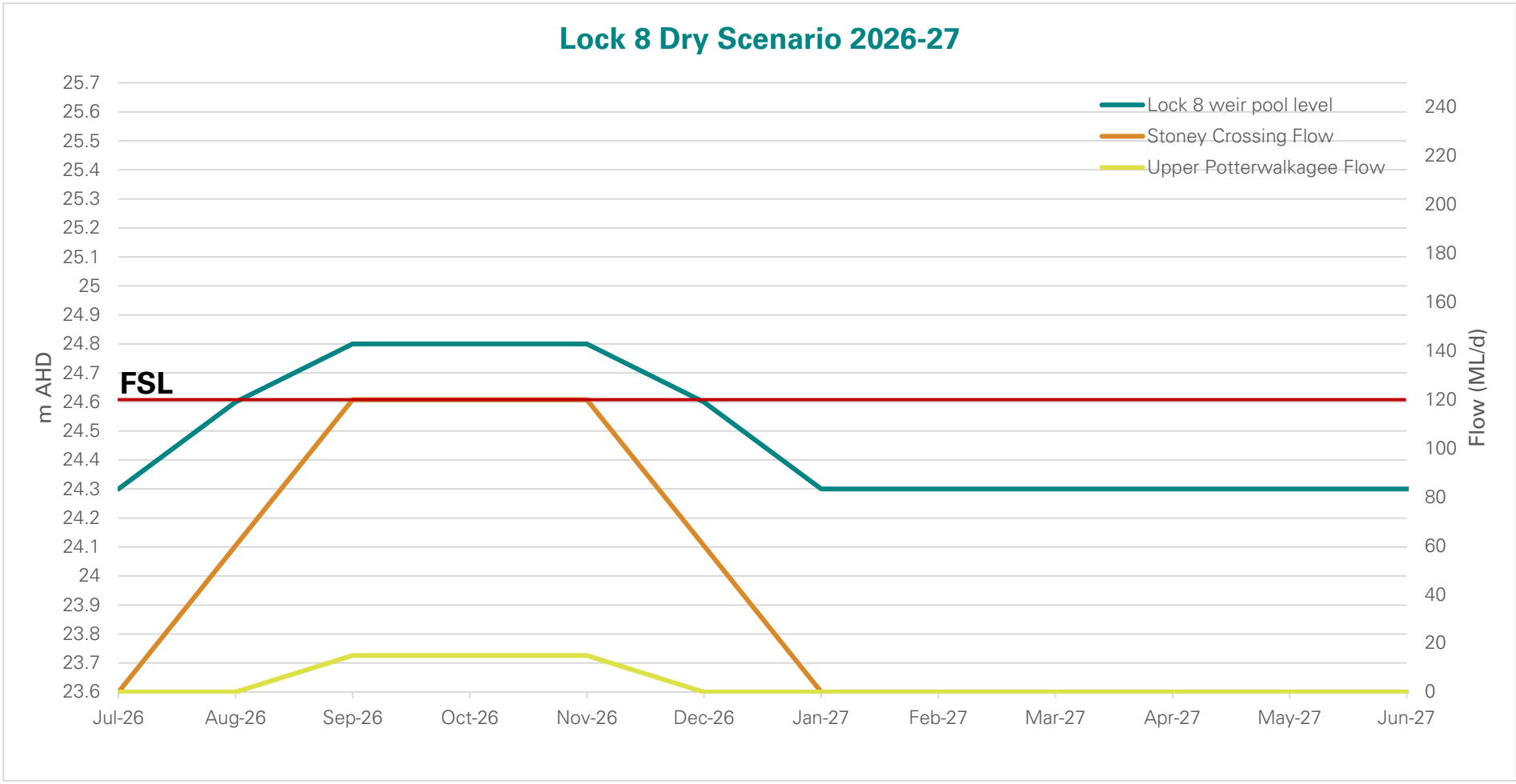
# Appendix 2 - Proposed hydrographs



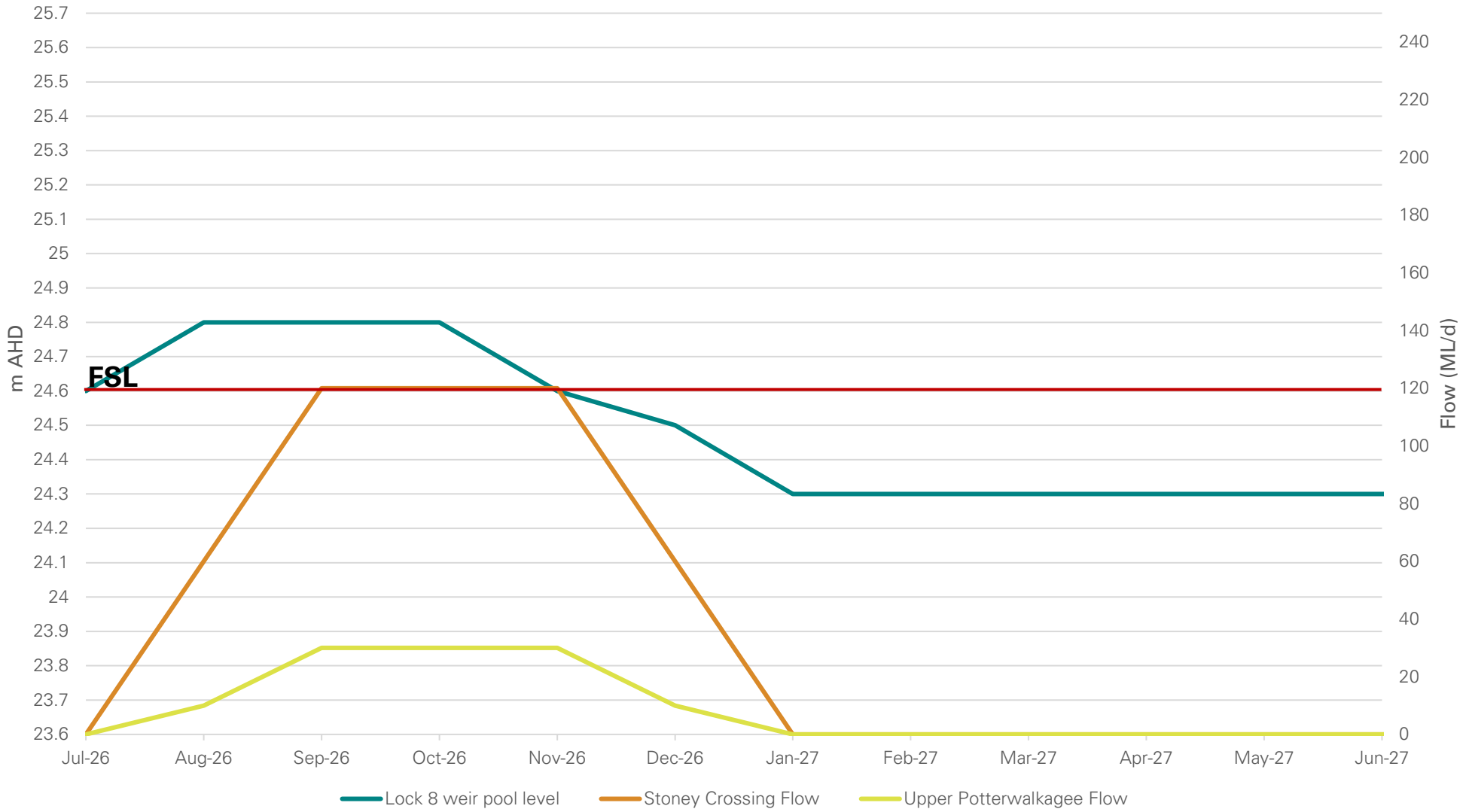

Lock 7 Dry Scenario 2026-27
m AHD
Flow (ML/d)
FSL
Lock 7 weir pool level
Mullaroo Ck Flow
North Lindsay Flow
South Lindsay Flow
23.2
23.1
23
22.9
22.8
22.7
22.6
22.5
22.4
22.3
22.2
22.1
22
21.9
21.8
21.7
21.6
21.5
21.4
21.3
21.2
1800
1600
1400
1200
1000
800
600
400
200
0
Jul-26
Aug-26
Sep-26
Oct-26
Nov-26
Dec-26
Jan-27
Feb-27
Mar-27
Apr-27
May-27
Jun-27

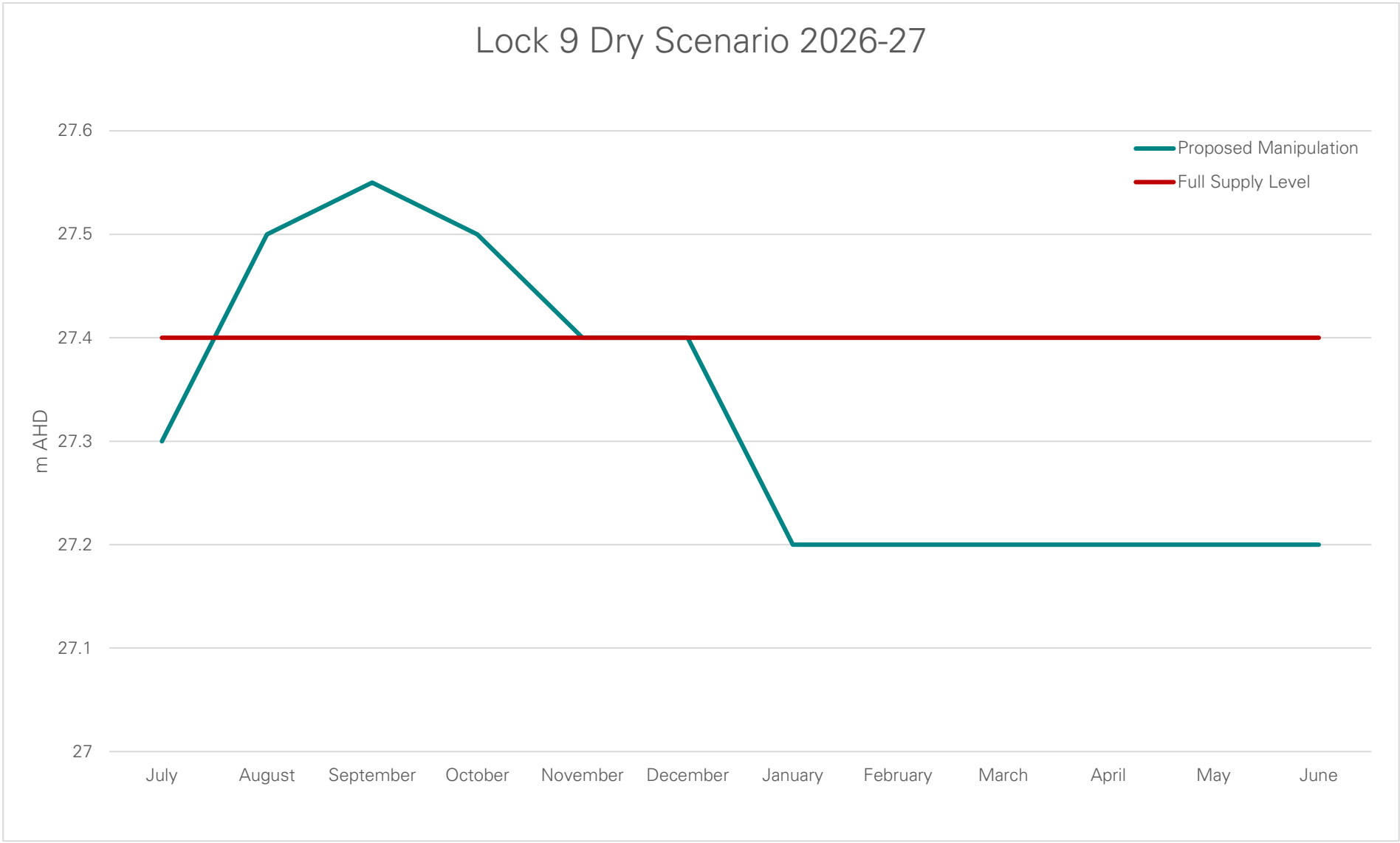

Lock 7 Average Scenario 2026-27
m AHD
Flow (ML/d)
FSL
Lock 7 weir pool level
Mullaroo Ck Flow
North Lindsay Flow
South Lindsay Flow
23.2
23.1
23
22.9
22.8
22.7
22.6
22.5
22.4
22.3
22.2
22.1
22
21.9
21.8
21.7
21.6
21.5
21.4
21.3
21.2
1800
1600
1400
1200
1000
800
600
400
200
0
Jul-26
Aug-26
Sep-26
Oct-26
Nov-26
Dec-26
Jan-27
Feb-27
Mar-27
Apr-27
May-27
Jun-27

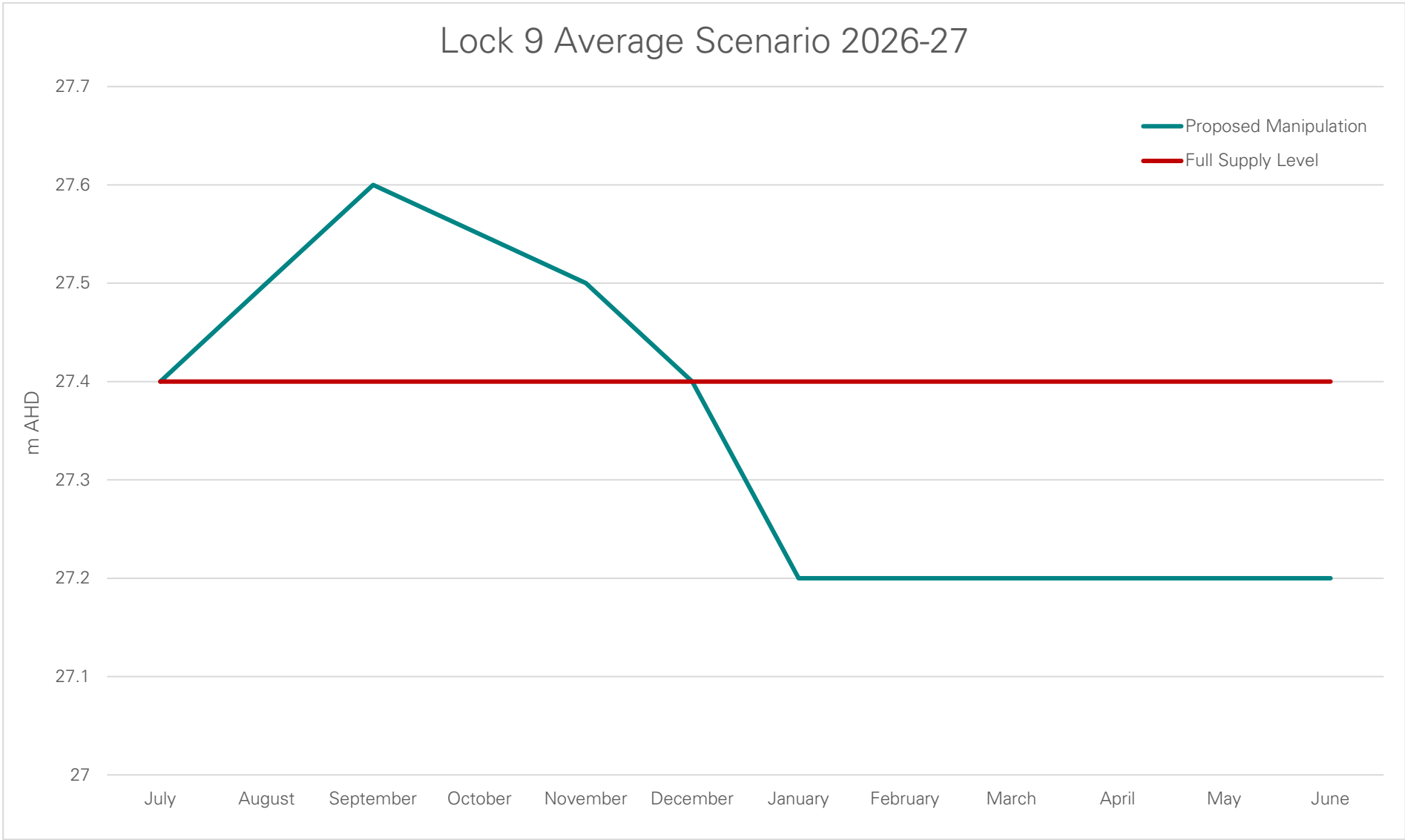

Lock 8 Drought Scenario 2026-27
Lock 8 weir pool level
Stoney Crossing Flow
Upper Potterwalkagee Flow
FSL
m AHD
Flow (ML/d)
25.7
25.6
25.5
25.4
25.3
25.2
25.1
25
24.9
24.8
24.7
24.6
24.5
24.4
24.3
24.2
24.1
24
23.9
23.8
23.7
23.6
240
220
200
180
160
140
120
100
80
60
40
20
0
Jul-26
Aug-26
Sep-26
Oct-26
Nov-26
Dec-26
Jan-27
Feb-27
Mar-27
Apr-27
May-27
Jun-27


Lock 8 Dry Scenario 2026-27
m AHD
Flow (ML/d)
FSL
Lock 8 weir pool level
Stoney Crossing Flow
Upper Potterwalkagee Flow
25.7
25.6
25.5
25.4
25.3
25.2
25.1
25
24.9
24.8
24.7
24.6
24.5
24.4
24.3
24.2
24.1
24
23.9
23.8
23.7
23.6
240
220
200
180
160
140
120
100
80
60
40
20
0
Jul-26
Aug-26
Sep-26
Oct-26
Nov-26
Dec-26
Jan-27
Feb-27
Mar-27
Apr-27
May-27
Jun-27

## Lock 8 Average Scenario 2026-27




Lock 9 Dry Scenario 2026-27
27.6
27.5
27.4
27.3
27.2
27.1
27
m AHD
Proposed Manipulation
Full Supply Level
July
August
September
October
November
December
January
February
March
April
May
June


Lock 9 Average Scenario 2026-27
27.7
27.6
27.5
27.4
27.3
27.2
27.1
27
m AHD
Proposed Manipulation
Full Supply Level
July
August
September
October
November
December
January
February
March
April
May
June

# Appendix 3 - Acronyms, Abbreviations and Glossary

## Acronyms and abbreviations

| Abbreviation | Description |
|---|---|
| AHD | Australian Height Datum |
| DEECA | Department of Energy, Environment & Climate Action |
| EPBC | *Environment Protection and Biodiversity Conservation Act 1999* |
| EVC | Ecological Vegetation Class |
| EWMP | Environmental Water Management Plan |
| FFG | *Flora and Fauna Guarantee Act 1988* |
| GMW | Goulburn-Murray Water |
| LMW | Lower Murray Water |
| LTWP | Long-term Watering Plan |
| Mallee CMA | Mallee Catchment Management Authority |
| MDB | Murray-Darling Basin |
| MDBA | Murray-Darling Basin Authority |
| MDBC | Murray-Darling Basin Commission |
| ML/d | Megalitres per day |
| POE | Probability of Exceedance |
| SA Water | South Australian Water |
| VEWH | Victorian Environmental Water Holder |
| VMFRP | Victorian Murray Floodplain Restoration Project |
| WPM | Weir Pool Manipulation |

## Glossary

| Term | Description |
|---|---|
| Australian Height Datum (AHD) | The Australian Height Datum is the official national vertical height datum in Australia. It refers to a number of previously used height datums and passes through the approximate mean sea level. |
| Blackwater | A natural occurrence caused by the breakdown of plant matter causing the water to discolour. The water appears black and in some instances may have very low levels of dissolved oxygen, which can stress or kill fish and other animals that breathe underwater. |
| Carryover | Unused water of which entitlement holders are allowed to retain ownership into the following season, according to specified rules. |
| Consumptive water | Water owned by water corporations or private entitlement holders held in storages and actively released to meet domestic, stock, town and irrigation needs. |

| Term | Description |
|---|---|
| Drawdown | Water released from a dam or reservoir at the end of the irrigation season for the purposes of its operation and/or maintenance. |
| Environmental objectives | Measurable target outcomes for each environmental value in the system, to be achieved by ongoing implementation of one or more watering actions as well as complementary actions (such as controlling invasive species or installing fishways). Target outcomes may take years or several decades to achieve. |
| Environmental Water Management Plan | A plan developed by a waterway manager setting long-term environmental objectives and based on consultation with key stakeholders, local community, and advisory groups to inform the seasonal watering proposal for the particular system. |
| Expected watering effect | The physical, chemical, biological, or behavioural effect expected from a potential environmental watering action. Each potential environmental watering action will have one or more expected watering effects. |
| Land manager | An agency or authority responsible for conserving natural and cultural heritage on public land including parks and reserves (such as Parks Victoria and DEECA). |
| Low flow | A relatively stable, sustained, and low flow in a river, generally being its minimum natural level. |
| Megalitre | One million (1,000,000) litres. |
| Operational release | A release made from a major storage to enable the water distribution system to operate or to make water available to consumptive water users |
| Potential environmental watering action | An environmental flow component that has been identified for a particular system in a particular year. |
| Program partners | Are those organisations with a responsibility for delivering some part of the environmental watering program. It includes waterway managers, storage managers, land managers, environmental water holders. In some areas, Traditional Owners, scientists, and community members may also be program partners. |
| Recruitment | The increase in plants or animals when they survive to the settlement or maturity stage. |
| Seasonal watering plan | The VEWH's annual operational document, that outlines potential environmental watering across the state in the forthcoming water year. |
| Seasonal watering proposal | This document. An annual proposal outlining the regional priorities for the use of water for the environment in each water year that is submitted by waterway managers to the VEWH for consideration in its seasonal watering plan. |
| Seasonal watering statement | A statement by the VEWH authorising a CMA to apply or use water from its water for the environment entitlements consistently with the seasonal watering plan. |
| Shared benefits | The many cultural, economic, recreational, social and Traditional Owner benefits of environmental watering. |
| Stakeholders | Are those organisations or individuals with a keen interest in the environmental watering program, who are engaged by one of the program partners during planning, delivery or reporting. |

| Term | Description |
|---|---|
| Storage manager | An organisation appointed by the Minister for Water to operate major water storages in a particular river basin, to deliver water to entitlement holders |
| Tier 1 | Potential environmental watering actions that are required this year to achieve intended environmental objectives, given current environmental conditions and the planned environmental watering strategies under each climate scenario. |
| Unregulated or Natural flow | A natural streamflow that cannot be captured in a major reservoir or storage. |
| Victorian Environmental Water Holder (VEWH) | The independent statutory body responsible for holding and managing Victorian water for the environment entitlements and allocations. |
| *Water Act 1989* | The legislation that governs water entitlements and establishes the mechanisms for managing Victoria's water resources. |
| Water entitlement | The right to a volume of water that can (usually) be stored in reservoirs and taken and used under specific conditions. |
| Water for the environment | Water available for environmental purposes including entitlements held by the VEWH, passing flows and unregulated flows. |
| Water year | The same as a financial year: from 1 July to 30 June the next year. |
| Waterway manager | The agency or authority (such as a CMA or Melbourne Water) responsible for the environmental management of a catchment or waterway. |
| Waterway or Wetland | A river, wetland, creek, floodplain, estuary, or other body of water. |

# Appendix 4 - Guidance Material

*Table 12.1 Risk likelihood rating table adapted from (DELWP, 2019)*

| Likelihood | | Description | Probability |
|---|---|---|---|
| Almost certain | 1 | • The event is expected to occur in most circumstances and/or<br>• Risk will occur within the next 6 months/or several times a year and/or<br>• Controls associated with the risk are extremely weak and/or non-existent and<br>without control improvement the risk will eventuate. | 75-100 |
| Likely | 2 | • The event is likely to occur in most circumstances and/or<br>• Risk will occur in the next 12 months/or once or twice a year and/or<br>• The majority of the controls associated with the risk are weak and without control<br>improvement it is likely the risk will eventuate. | 50-74 |
| Possible | 3 | The event might occur and/or<br>• Risk will occur in the next 24 months/or once in two years and/or<br>• Some controls need improvement and if there is no improvement it is possible the<br>risk will eventuate. | 25-49 |
| Unlikely | 4 | • The event could occur at some time and/or<br>• Risk will occur in the next 60 months/or once in five years and/or<br>• Controls environment is strong with few control gaps and requires assurance check<br>to maintain control effectiveness. | 0-24 |

*Table 12.2 Risk rating matrix (DELWP, 2019)*

| Likelihood | | Consequence | | | |
|---|---|---|---|---|---|
| | | Minor | Moderate | Major | Extreme |
| | | 1 | 2 | 3 | 4 |
| Almost certain | 4 | Medium (4) | High (8) | Extreme (12) | Extreme (16) |
| Likely | 3 | Low (3) | Medium (6) | High (9) | Extreme (12) |
| Possible | 2 | Low (2) | Medium (4) | Medium (6) | High (8) |
| Unlikely | 2 | Low (1) | Low (2) | Low (3) | Medium (4) |

*Table 12.3 Risk consequence (DELWP, 2019)*

| Rating Risk | | Environment | Business Costs | People | | Political/ Reputational | Legal | Service Delivery | Cultural Heritage |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety and Wellbeing | People and Culture | | | | |
| **Minor** | **1** | • Limited effect on the natural and/or built environment and/or the environment suffers harm for up to 5 years.<br>• Environmental recovery on a minor scale up to 5 years.<br>• Mostly impacts environmental values at a single location in an individual system. | Cost impact on total budget of up to 5%. | • Minor injuries or illness (physical/ mental) requiring first aid or medical attention of staff, visitor, contractor, or member of the public. | • Staff complaints, passively upset, and uncooperative.<br>• 10-15% staff turnover with minor loss of skills, knowledge, and expertise. | • Adverse localised public and political interest.<br>• Limited attention on a single issue in local media over a short period. | Non-compliance with legislation or breach of duty of care, identified externally and either:<br>• resolved internally with no further escalation; or<br>• resulting in minor compensation, and/or negative precedent. | • Minor short-term impact on business unit's delivery of services/functions.<br>• Customers/stakeholders/ communities slightly inconvenienced.<br>• Up to 1 day impact on business unit's critical activities.<br>• Minor impact (up to 10% delay) on project or program milestones. | • Limited potential impact on heritage sites/artefacts<br>• Exposure of previously unknown cultural heritage items |
| **Moderate** | **2** | • Moderate effect on the natural and/or built environment and/or environment suffers harm for 5-10 years.<br>• Environmental recovery on a small scale and/or over a period 5-10 years.<br>• Impacts environmental values at multiple locations in an individual system. | Cost impact on total budget between 5-10%. | • Significant injury or illness (physical/ mental) requiring inpatient hospitalisation of staff member, visitor, contractor, or member of the public. | • Low morale, disengagement, increased absenteeism, and workplace conflict.<br>• 15-25% staff turnover with loss with resignations of some key staff. | • Adverse localised negative public and political attention.<br>• Short term negative local media attention.<br>• Local community concern on a single issue over a sustained period. | Non-compliance with legislation or breach of duty of care resulting in:<br>• external investigation or report to responsible authority; and/or<br>• prosecution or civil action, with one of moderate level of compensation or moderate level of negative precedent. | • Moderate impact on business unit's delivery of services/functions.<br>• Customers/stakeholders/ communities inconvenienced.<br>• Up to 3 days impact on business unit's critical activities.<br>• Significant impact (10-20% delay) on project or program milestones. | • Moderate potential impact on heritage sites/artefacts<br>• Damage to previously unknown cultural heritage items or values |
| **Major** | **3** | • Major effect on the natural and/or built environment and/or environment suffers harm for 10-20 years.<br>• Environmental recovery on a large scale and/or over a period of 10-20 years.<br>• Impacts regional environmental values or affects connected systems. | Cost impact on total budget between 10- 20%. | • Extensive and/or permanent injury or illness (physical/ mental) of staff member, visitor, contractor, or member of the public. | • Major morale issues, high absenteeism.<br>• 25-50% staff turnover with resignations of key staff.<br>• Staff are not skilled to meet priorities. | • Serious adverse public attention at State/National level.<br>• Negative State/National media on one or more issues over a prolonged period.<br>• Repeated displeasure by the Minister.<br>• Medium-term negative public interest (correspondence and phone calls) and political interest (in Parliament). | Non-compliance with legislation or breach of duty of care resulting in:<br>• external investigation or report to responsible authority;<br>• public inquiry (i.e. Royal Commission/ Parliamentary Committee);<br>• prosecution or civil action with high level compensation and high-level negative precedent; and/or<br>• sanctions imposed by external regulator. | • Ongoing difficulties in delivering the business unit's services/functions.<br>• Major impact on customers/ stakeholders/ communities<br>• Up to 10 days impact on business unit's critical activities<br>• Major impact (20-50% delay) on project or program milestones | • Major potential impact on heritage sites/artefacts<br>• Damage to known cultural heritage items or values |
| **Extreme** | **4** | • Very serious effect on the natural and/or built environment and/or environment suffers long term harm (20+ years).<br>• Environmental recovery on a very large scale and/or | Cost impact on total budget between >20%. | • Single or multiple deaths or severe permanent disability or illness (physical/mental) of staff, visitor, | • Organisation wide morale issues and absenteeism.<br>• >50% staff turnover.<br>• Staff are not skilled to meet | • Very serious public outcry at State/National level.<br>• Negative State/National media over a prolonged period.<br>• Breakdown of public confidence in the Government / department / Minister or key project/program. | Non-compliance with legislation or breach of duty of care resulting in:<br>• prosecution or civil action leading to imprisonment of an officer;<br>• public inquiry (i.e. Royal Commission/ Parliamentary Committee) | • Long term and severe impact on delivery of services/functions<br>• Severe impact on customers /stakeholders/communities<br>• More than 10 days impact on business unit's critical activities<br>• Vital or very serious delays (>50% delay) to program/project | • Very serious potential impact on heritage sites/artefacts<br>• Destruction of cultural |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | over a long period (20+ years).<br>• Impacts environmental values state-wide. | | contractor, or member of the public. | core corporate outputs. | • On-going or prolonged negative public interest (correspondence and phone calls) and political interest (in Parliament). | • uninsured compensation payments<br>• negative precedent requiring very serious impact and major reform to the department; and/or<br>• severe sanctions imposed by external regulator. | delivery or project/program objective is not met | heritage items or values |



mallee
catchment management authority

Cnr Koorlong Ave & Eleventh St, Irymple
03 5001 8600 | info@malleecma.com.au
www.malleecma.com.au