

Wimmera-Mallee (surface water) (SS9)

INITIAL SDL ASSESSMENT RESULT

The Authority is **confident** that the SDL reflects an environmentally sustainable level of take for this Unit and **proposes the SDL is maintained.**

It is recognised that the extent, nature of and planning for continued monitoring, evaluation and assessment is tailored by the Victorian government for the management of local and site-specific areas of concern to maintain environmental outcomes.

It is important that the impacts of a changing climate continue to be actively considered for this Unit.

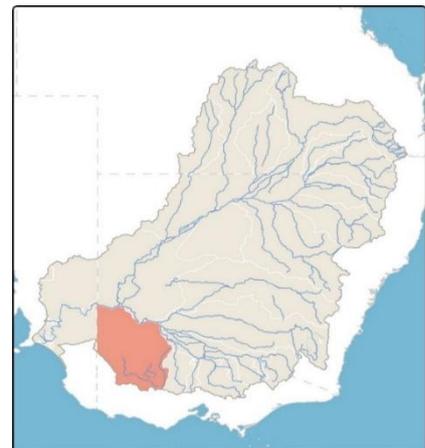


Figure 1: Wimmera-Mallee (surface water) (SS9) SDL Resource Unit

The Authority is assessing whether the Sustainable Diversion Limit (SDL) for the Wimmera-Mallee SDL Resource Unit (the **Unit**) continues to support environmental outcomes and reflect an environmentally sustainable level of take (ESLT). This initial assessment refers only to outcomes in this Unit.

This Assessment Summary provides an overview of the factors which are relevant to that work and the Authority's initial view. The summary draws on three 'Lines of Enquiry', engaging with the likelihood that flow regimes support environmental outcomes, the Authority's confidence in that assessment, and the consequence of an at risk finding. Line of Enquiry 2 – full Basin Plan implementation – has been considered as the primary line of enquiry. Assumptions for each Line of Enquiry are documented in the *Summary of Assessment Approach* available on the MDBA website.

Information on the Lines of Enquiry and methodology used in this assessment is available in the *Summary of Assessment Approach* and the *SDL Assessment and Response Framework*. Information on the *Basin Plan Review Discussion Paper* and process for making a submission are also available on the MDBA website.

About this Unit (as at June 2024)

Ramsar sites	Lake Albacutya, Kerang Wetlands (Lake Bael Bael and Avoca Marshes) ¹
Contribution to Basin water	1.7% of the total water available in the Murray-Darling Basin
Key waterways	Wimmera River (278km), Avoca River (270km)
Water storages	Lake Bellfield (79 GL), Lake Fyans (19 GL), Lake Lonsdale (66 GL), Lake Wartook (29 GL), Taylors Lake (27 GL), Lake Toolondo (92 GL)
Significant groundwater connections	None

¹ The majority of Kerang Wetlands Ramsar site is within Victorian Murray Resource Unit (SS2)

The Water Resource Plan (WRP) that supports this Unit commenced on [24 September 2019](#). The WRP includes the rules and arrangements that Victoria are using to manage this Unit and maintain sustainability. Further information on water recovery for this SDL Resource Unit is available at the Department of Climate Change, Energy, the Environment and Water’s [surface water recovery factsheet](#).

Current condition

Figure 2 below summarises the observed environmental condition in the Unit (as at June 2024).

The Authority assessed that *waterbirds* are in **poor** condition whilst all other themes are considered to be in **moderate** condition. The Authority has medium confidence in the condition assessment of *flows and connectivity*, *native fish* and *native vegetation* with lower confidence in the condition assessment of all other themes.

This condition assessment covers the entirety of this Unit. The terminal lakes at the end of the Wimmera River (including Lake Hindmarsh and the Ramsar site Lake Albacutya) are reliant on large, natural flow events. Lake Albacutya only receives water in exceptionally wet periods. In practice, it is not feasible environmental water to contribute to outcomes in these terminal lakes. Environmental water only has the capacity to support system condition along the Wimmera River (as a wildlife corridor) and the Wimmera-Mallee Pipeline wetlands through the system. This leads to geographic differences in the drivers of environmental condition in the terminal lakes when compared to wetlands throughout the system. This spatial variation is noted throughout this assessment.

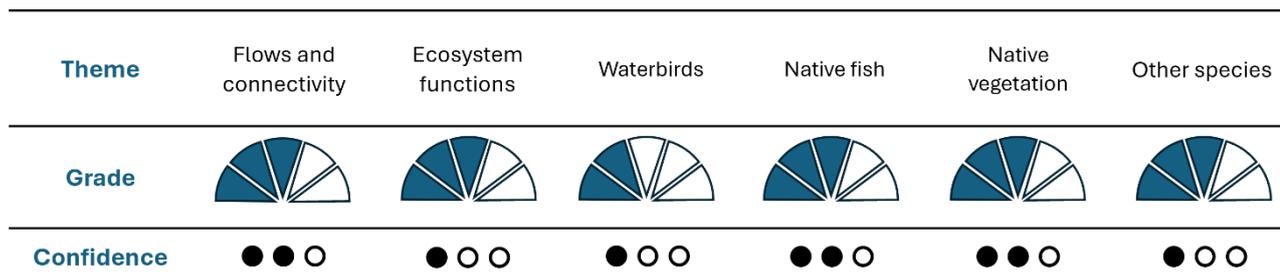


Figure 2. Environmental condition assessment in the Unit. Across each theme environmental condition is graded as *Very Poor*, *Poor*, *Moderate*, *Good* or *Very Good* (as indicated by segments) and confidence in this grading is assessed as *Low*, *Medium* or *High* (as indicated by dots). Other species refers to animals including frogs, platypuses and turtles.

Environmental outcomes under a fully implemented Basin Plan

Table 1 presents a compilation of:

- the *likelihood* that flows will support environmental outcomes for the six surface water themes for this Unit; and
- the Authority’s *confidence* in that assessment, i.e. low (L), medium (M) or high (H) surety of the finding.

The likelihood that the pattern and volume of flow will support the objectives for each ecological theme

Theme	Line of enquiry	Very unlikely	Unlikely	About as likely as not	More likely than not	Likely	Very likely	Confidence
Flows and connectivity	LoE 1			●				● ● ○
	LoE 2			●				● ● ○
Ecosystem functions	LoE 1				●			● ● ○
	LoE 2				●			● ● ○
Waterbirds	LoE 1		●					● ● ○
	LoE 2		●					● ● ○
Native fish	LoE 1				●			● ● ●
	LoE 2				●			● ● ●
Native vegetation	LoE 1		●					● ○ ○
	LoE 2		●					● ○ ○
Other species	LoE 1				●			● ● ●
	LoE 2				●			● ● ●

Table 1: Initial likelihood assessment of the flows supporting the objectives for ecological themes in Unit. Note: LoE 1 refers to Line of Enquiry 1 - current Basin Plan implementation and LoE 2 refers to Line of Enquiry 2 - full Basin Plan implementation. Other species refers to animals including frogs, platypuses and turtles.

Under both Line of Enquiry 1 and Line of Enquiry 2 it is assessed as **unlikely** that the flow requirements are supporting objectives for *waterbirds* (with medium confidence) and *native vegetation* (with low confidence). The *waterbirds* and *native vegetation* themes are considered ‘at risk’ and were taken through to a further consequence assessment step.

This assessment also reflects that it is **about as likely as not** that the flow requirements are supporting objectives for *flows and connectivity* under Lines of Enquiry 1 and 2, with a medium level of confidence. Outcomes for all other themes have been identified as **more likely than not** to be supported by the pattern and volume of flow under Lines of Enquiry 1 and 2, with medium to high confidence.

Consequence assessment

Condition assessments and modelled flow data indicate potential risks to the *flows and connectivity*, *waterbirds* and *native vegetation* themes. A consequence assessment, primarily considering Line of Enquiry 2, has been undertaken for these themes (Table 2).

Theme	Nature of impact	Spatial scale of impact	Impact on values	Final Rating
Flows and connectivity	Lack of flows to maintain longitudinal connectivity (supporting native fish, the wildlife corridor, and local wetlands). Lack of flows through to terminal lakes (supporting waterbirds and native vegetation).	Low – local or site scale	No – Ramsar site and BWS outcomes are beyond regulated flow delivery.	LOW
Waterbirds	Changes to flow patterns have reduced the frequency, extent and duration of flooding in the terminal	Low – local or site scale	No – Ramsar site and BWS outcomes for waterbirds are not	LOW

	and floodplain wetlands and lakes, limiting available habitat for waterbirds.		impacted — these sites are beyond regulated flow delivery.	
Native vegetation	Species richness of native vegetation has been impacted by land clearing throughout the system, with small corridors remaining along watercourses. Riparian and floodplain vegetation are threatened by invasive plant species.	Low – local or site scale	No – BWS identifies water-dependent vegetation; Ramsar site potentially impacted; but both are beyond regulated flow delivery	LOW

Table 2: Consequence assessment results.

Drivers of impact

In this Unit, *flows and connectivity*, *waterbirds* and *native vegetation* have been rated as **low** in the consequence assessment. River regulation, the inherent channel capacity, a drying climate, and extractions upstream have altered the hydrology of the terminal lakes (Lake Hindmarsh and Lake Albacutya), with filling events rarely occurring. Operating and infrastructure constraints limit managed overbank flows and floodplain inundation in the Unit, where watering of wetlands is limited to those that can receive environmental water deliveries via infrastructure such as the Wimmera-Mallee Pipeline, and large flood, rainfall or catchment runoff events.

These impacts have led to risks for *native vegetation* on the floodplain, with riparian and floodplain vegetation outcomes also threatened by land clearing and invasive plant species.

This initial assessment has identified a risk that flow is not supporting *waterbird* outcomes, but this risk is not consequential for the Basin Plan. Other risks to waterbirds (such as connectivity, water quality and habitat loss) are described in the *Discussion Paper* and will be further explored with stakeholders during the Basin Plan Review consultation process. The Authority will test this assessment and the relative contribution of different drivers to this result.

Environmental outcomes under a climate impacted future

For a description of anticipated climate impacts across the Basin see the *Summary of Assessment Approach* available on the MDBA website.

Table 3 presents a summary of the anticipated environmental impacts of climate change for the Unit by reference to the likelihood of flow regimes being met for the six environmental themes. The shaded bars represent the plausible range of future climates, and the black dots represent the anticipated likelihood under a median (50th percentile) future climate scenario.

The likelihood that the pattern and volume of flow will support the objectives for each ecological theme

Theme	Line of enquiry	Very unlikely	Unlikely	About as likely as not	More likely than not	Likely	Very likely	Confidence
Flows and connectivity	LoE 3 (~2030s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○
	LoE 3 (~2050s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○
Ecosystem functions	LoE 3 (~2030s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○
	LoE 3 (~2050s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○
Waterbirds	LoE 3 (~2030s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○
	LoE 3 (~2050s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○
Native fish	LoE 3 (~2030s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○
	LoE 3 (~2050s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○
Native vegetation	LoE 3 (~2030s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○
	LoE 3 (~2050s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○
Other species	LoE 3 (~2030s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○
	LoE 3 (~2050s)	◀●▶		◀●▶	◀●▶	◀●▶	◀●▶	●○○

Table 3: Assessment of the flows supporting the objectives for ecological themes at 2030 and 2050 levels of global warming in the Unit. Note: LoE 3 (~2030s) refers to Line of Enquiry 3 - possible future 2030s hydroclimate sequences and LoE 3 (~2050s) refers to Line of Enquiry 3 - possible future 2050s hydroclimate sequences. Confidence in this grading is assessed as *Low*, *Medium* or *High*. Other species refers to animals including frogs, platypuses and turtles.

The results in Table 3 indicate that there is a substantial range in the plausible ecological impacts of climate change for this Unit, such that the precise impacts will depend on the nature of the future climate, demonstrated by the wide range of possibilities across themes.

For this Unit, a consistent finding across the plausible range is that *waterbirds* and *native vegetation* are anticipated to be the themes most exposed to climate change. The 2025 Sustainable Yields and the MDB Outlook demonstrated that water availability and runoff are *very likely* to decline throughout the southern Basin, with these impacts of climate change already evident in the Unit (DEECA 2025a). The Wimmera-Mallee is experiencing reduced rainfall and streamflow over recent decades and streamflow in many areas has failed to recover from the Millennium drought (DEECA 2025b). This drying trend is predicted to continue, and temperatures will also increase (DEECA 2025b). This would be expected to result in more frequent and prolonged low-flow periods and an increase in the likelihood and severity of bushfires due to drier fuels and longer high fire risk seasons.

These conditions increase the risk of habitat contraction, loss of channel connectivity, and declining water quality. Flow-dependent ecosystems face heightened vulnerability due to exceedances of ecologically tolerable thresholds (such as dissolved oxygen and water temperatures), reduced breeding and vegetation recruitment opportunities and survival rates, restricted migration, and shrinking refuge habitats during drought sequences.

Initial Assessment

On the balance of all three Lines of Enquiry, **the Authority is confident that the SDL reflects an environmentally sustainable level of take and is supporting the Basin Plan’s environmental outcomes under full implementation conditions.** The *flows and connectivity*, *waterbirds* and *native vegetation* themes were found to be at risk, but these risks are not consequential for the Basin Plan.

This is an initial assessment and will be further explored with stakeholders during the Basin Plan Review consultation process.

As Basin Plan implementation is still underway, the MDBA has made assumptions about water recovery under the 450GL program, the completion of infrastructure and rules projects under the SDL Adjustment Mechanism (SDLAM), and the completion of the 2026 SDLAM Reconciliation. The analysis demonstrates that additional water recovery in the southern Basin (beyond the recovery status as of June 2024) would yield improved environmental benefits in this Unit.

Consideration of response

The Authority recognises that ongoing monitoring, evaluation and assessment will be important, as will planning for and supporting delivery of environmental watering events to maintain environmental outcomes.

Whilst this assessment has not identified any at-risk themes that are consequential for the Basin Plan, the Discussion Paper engages with well-known challenges at a sub-Basin and Basin scale including river connectivity and the connection between rivers and their floodplains, water delivery challenges and physical constraints, native fish decline and the impacts of invasive species. The risks of a changing climate continue to be actively considered in the Basin; it will be important to evaluate and respond to any emerging risks. The Authority notes the local Wimmera Catchment Management Authority are investing in actions and structure maintenance that support ecosystem resilience in response to the established trend towards a hotter and drier climate.

High-level response options currently under consideration for this Unit include the need to review and change environmental objectives and outcomes in the instruments under Chapter 8 (commencing with those in the Basin-wide Environmental Watering Strategy) in recognition of the ongoing impacts of climate change.

Evidence summary

In addition to the standard evidence sources presented in the *Summary of Assessment Approach* on the MDBA website, the following specific evidence sources were used for this Unit:

- DEECA 2025a, [Victorias-water-resources-under-a-changing-climate-Sep-2025.pdf](#)
- DEECA 2025b, [Guidelines for assessing the impact of climate change on water availability in Victoria.](#)