NSW Border Rivers Alluvium (GS32)

INITIAL SDL ASSESSMENT RESULT

The Authority is **confident** that the SDL continues to reflect an environmentally sustainable level of take 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 New South Wales 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 SDL Resource Unit.

Figure 1: NSW Border Rivers Alluvium (GS32) SDL Resource Unit

The Authority is assessing whether the Sustainable Diversion Limit (SDL) for the NSW Border Rivers Alluvium SDL Resource Unit (the **Unit**) continues to support environmental outcomes and reflect an environmentally sustainable level of take (ESLT).

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 environmental characteristics are met, the Authority's confidence in that assessment, and the consequence of an at risk finding. Line of Enquiry 1 – current Basin Plan implementation – has been considered as the primary line of evidence.

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 available on the MDBA website.

About this Unit (as at June 2024)

Aquifer Storage/size (GL)	3,745
SDL as at June 2025 (GL/y)	8.4
Entitlement volume (GL)	15.89
Average annual take (2012/13–2022/23, GL/y)	5.18
Significant surface connections	NSW Border Rivers (SS23)

The Water Resource Plan (WRP) that supports this Unit commenced on 24 September 2022. The WRP includes the rules and arrangements that NSW are using to manage this Unit and maintain sustainability.

Utilisation at the time of the review

The pattern of use in this Unit varies. Given the SDL is a long-term average, the Authority expects variability every year depending on the climate, water availability, licence conditions, and individual water user decisions.

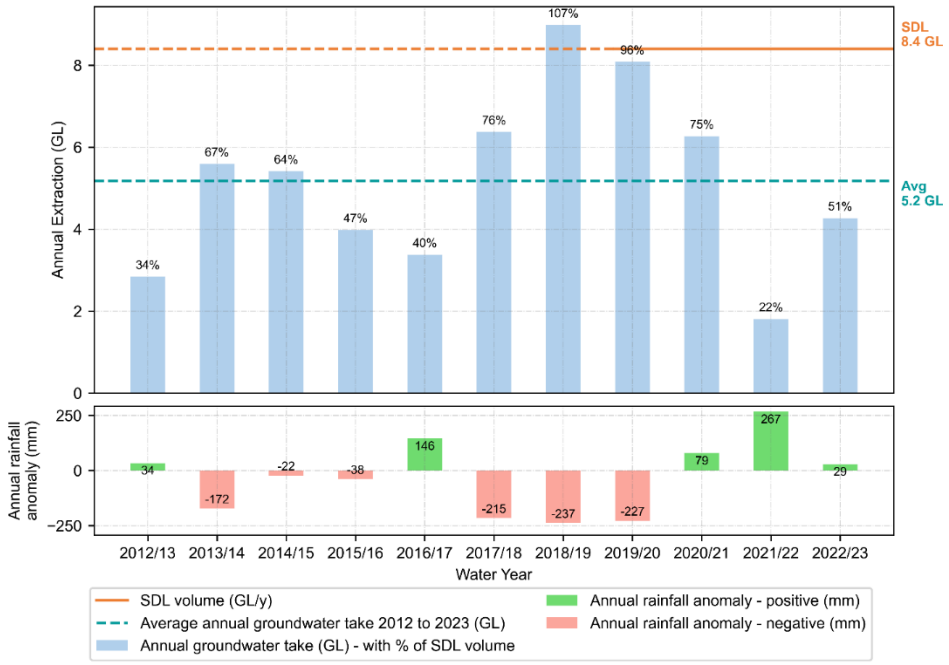

Figure 2: Utilisation for the period 2012/13 to 2022/23

Environmental outcomes at the time of the Review

Likelihood and confidence

Table 1 presents a compilation of the groundwater level and salinisation trend for this Unit, and the Authority's *confidence* in that assessment (i.e. low (L), medium (M) or high (H) surety of the finding).

Assessment characteristic	Long term (Past 40 years)		
	Rising/Stable	Declining	Confidence
Groundwater Dependent Ecosystems (GDEs)	20%	6%	●○○
Surface water – groundwater connectivity	17%	7%	●○○
Productive base	19%	7%	●○○
Water quality	0%	0%	●○○

Table 1: Groundwater level and salinisation trend assessment over the past 40 years. A declining percentage of 30% or greater indicates a risk to groundwater levels supporting the relevant assessment characteristic. Regarding confidence, a single dot indicates low confidence in the trend data, two dots indicate moderate confidence, and three dots indicate high confidence.

As can be seen, none of the groundwater characteristics have been identified as having a declining trend of 30% or greater. Confidence in the assessment is low to medium. None of the groundwater characteristics in this Unit have been assessed as being at risk.

Noting there is limited monitoring data on changes in groundwater salinity, the assessment does not indicate risk to water quality.

Tables 2 and 3 below provide a summary of recharge information, and an assessment of the likelihood of full utilisation of the SDL. This information is relevant because it informs an assessment of recharge relative to take (current and by reference to the SDL) and how sensitive the Unit is to change in recharge (i.e. variability in conditions year to year) and increases in actual take.

In considering Table 2 below, note that:

- The 'proportions' can also be interpreted as a percentage. For example, a proportion of 1.29 indicates that the SDL is 129% of (or, 29% above) the recharge rate.
- If the SDL as a proportion of recharge is 1:1 they are equal, and if it is more than 0.9, risk is indicated because take is approaching the level of recharge.
- 'Buffering' relates to how big total aquifer storage is compared to recharge. An aquifer with a very large total storage will offer high buffering because it will take a long time for changes in recharge to affect overall groundwater levels. In that scenario, the aquifer is described as having 'low' sensitivity to changes in recharge. The reverse applies where total aquifer storage is relatively small. In that case it would have 'high' sensitivity to changes in recharge.

Recharge information						
Status of recharge knowledge base (SY2)	Proportion of SDL to recharge (SY2)	Proportion of SDL to CMB recharge (CMB)	Proportion of aquifer storage to recharge estimate			Proportion of average annual take to recharge (SY2)
			SY2	Buffering	Sensitivity	
Best available	1.43 Risk indicated	1.92	640	High	Low	0.88

Table 2: SY2 diffuse recharge estimates as a proportion of the SDL, total aquifer storage and average annual actual take.

Potential *likelihood* of full utilisation of the SDL						
Very unlikely	**Unlikely**	**About as likely as not**	**More likely than not**	**Likely**	**Very likely**	**% Average annual take**
		●				62

Table 3: Likelihood of take increasing to the SDL

Tables 2 and 3 reflect that SDL is greater than recharge, that total aquifer storage provides a high degree of buffering against and low sensitivity to changes in re-charge. The assessment also shows that current average annual take is more than half of the SDL and that full utilisation up to the SDL is *as likely as not*.

Environmental outcomes under a fully utilised SDL and climate impacted future

Full use of the SDL

It is important that the work of the review is conducted against the backdrop of a fully utilised SDL, reflecting that it is the SDL that must reflect an ESLT. As summarised in Tables 2 and 3, the initial assessment has considered a scenario where take increases and use reaches up to the SDL. This analysis considered new information about diffuse recharge as a proportion of the SDL, our knowledge of total aquifer storage and average annual actual take.

Climate change through to the 2036 Basin Plan Review and 2050

Table 4 presents a summary of the anticipated environmental impacts of climate change for the Unit by reference to the future recharge estimates.

SY2 climate scenario	Trend towards 2036		SY2 climate scenario	Trend towards 2050	
	Recharge greater than SDL **Low Risk**	Recharge less than SDL **High Risk**		Recharge greater than SDL **Low Risk**	Recharge less than SDL **High Risk**
Warmer and slightly wetter		●	Hotter and slightly wetter		●
Warmer and drier		●	Hotter and drier		●
Warmer and much drier		●	Hotter and much drier		●

Table 4: Risk to assessment characteristics at full use of SDL using estimates of future recharge under future climate

Noting the low degree of certainty associated with the climate scenarios, this analysis showed risk to groundwater levels across six of the six climate scenarios as recharge is less than the SDL.

Initial Assessment

As noted, the assessment reflects that groundwater characteristics are currently supported under current levels of take and the SDL. While this Unit is not yet displaying any at risk assessment characteristics, it is anticipated that risks may emerge over the coming decades in relation to climate change which bear ongoing monitoring and evaluation.

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 with none of the groundwater characteristics having been identified as at risk under the primary line of evidence. While potential risks to assessment characteristics are indicated under full utilisation of the SDL and/or future climate scenarios, the assessment noted the high level of uncertainty in groundwater recharge estimates and plausible future climate scenarios.

It is recognised that ongoing monitoring, evaluation and assessment will be important, as will planning for and supporting maintenance of groundwater levels and quality.

Consideration of Response

It is recognised that ongoing monitoring, evaluation and assessment will be important to maintain environmental outcomes. Whilst this assessment has not identified any at risk assessment characteristics, the Discussion Paper engages with well-known challenges at a sub-Basin and Basin scale including river connectivity, salinity and groundwater re-charge.

Evidence summary

The standard evidence sources in the *Summary of Assessment Approach* available on the MDBA website were used to assess this unit.