

LTADEL compliance assessment for Murrumbidgee Regulated River Water Source

Executive summary

This report describes the methods used to assess if extractions in the Murrumbidgee Regulated River are compliant with the limit described in the water sharing plan. The assessment has found that long term average annual extractions are compliant for the 2020-21 water year.

Background and purpose

The water sharing plan for the Murrumbidgee Regulated River Water Source requires an assessment of compliance with a Long-term Average Annual Extraction Limit (LTADEL), which is sometimes referred to as the 'plan limit'.

The assessment is to be carried out annually by the Department of Planning and Environment - Water (DPE Water), following the end of each water year. LTADEL compliance requires two models: one to represent the LTADEL and one to represent current conditions. The long-term results from both models are compared to assess compliance.

Each water sharing plan defines the LTADEL, how the compliance assessment is to be completed, triggers for non-compliance and subsequent compliance action. The LTADEL includes multiple types of water use. However, the compliance assessment is based on the total.

This report summarises a compliance assessment for the Murrumbidgee Regulated River Water Source. The assessment was based on best available models using climate data from 1895 to 2021.

Scenarios and agreed model version

Model scenarios for Cap, water sharing plan and current conditions were selected based on evaluation against multiple [scenario model selection criteria](#), including whether these had been documented and independently reviewed, how appropriate the management and levels of development are, and consistency of the hydrology. For the Murrumbidgee Regulated River Water Source, the selected model scenarios reported in Table 1 are the most appropriate for LTADEL compliance purposes.

The scenarios are based on the accredited model scenario used for the Cap and the derived model scenario used for the water sharing plan to set the LTADEL, and the annual permitted take model used for sustainable diversion limit compliance assessment for the Basin Plan.

Table 1. Model scenarios selected for Murrumbidgee Regulated River Water Source for LTADEL assessment purposes

Model scenario	System file
Cap conditions	BidgC109.sqq
Water Sharing Plan conditions	BidgP103.sqq
Current conditions	BIDGPBPA.sqq

LTAEL compliance results

LTAEL assessment

The water sharing plan specifies that different LTAELs are to be calculated for Murrumbidgee and Lowbidgee extractions:

- For the Murrumbidgee, the LTAEL is the lesser of the Cap scenario or the water sharing plan scenario.
- For the Lowbidgee, the LTAEL is based on the Cap.

The LTAEL is a long-term average modelled result calculated over the duration of the available climate record. For this assessment the modelling period 1895-2021 is used. The modelled results of this analysis are reported in Table 2. The LTAEL for Murrumbidgee extractions is 1,858 gigalitres per year (GL/y) based on the water sharing plan scenario. The LTAEL for Lowbidgee extractions is 287 GL/y.

Table 2. Modelled long term average annual extractions (1895-2021) for Cap and water sharing plan scenario models (GL/y)

Extraction category	Cap scenario model	Water sharing plan scenario model
Modelled extractions		
Murrumbidgee	1,968	1,858
Lowbidgee	287	262
Total modelled extractions	2,255	2,119

Compliance assessment

Compared to the LTAEL scenario, the modelled long term average annual extractions from the current conditions model scenario are reported in Table 3.

The current water sharing plan defines non-compliance in the Murrumbidgee if:

- Current condition extractions exceed LTAEL by 3% or more.
- Current condition extractions exceed the average of Cap and LTAEL.
- Current condition extractions exceed Cap extractions.

It defines non-compliance in the Lowbidgee if:

- Current condition exceeds LTAEL by 3% or more.

The results in Table 3 show current levels of extractions for both Murrumbidgee and Lowbidgee are less than their respective LTAEL. Therefore, the long-term extractions in the Murrumbidgee Regulated River Water Source are compliant with LTAEL.

Table 3. Modelled long term average annual extractions (1895-2021) for LTAEL and Current scenario model (GL/y)

Extraction category	LTAEL	Current scenario model
Modelled extractions		
Murrumbidgee (WSP)	1,858	1,819
Lowbidgee (Cap)	287	274
Total modelled extractions	n/a¹	2,093

Modelled compliance action

No compliance action is required, as the LTAEL assessment shows compliance.

Supporting information

Results over Basin Plan assessment period

The results over the Basin Plan assessment period of 1895-2009 reported in Table 4 are included for reference only. These results will be used to track the degree to which future model updates change these long-term averages.

Table 4. Modelled long term average annual extractions (1895-2009) for LTAEL and Current scenario model (GL/y)

Extraction category	LTAEL	Current scenario model
Modelled extractions		
Murrumbidgee	1,886	1,849
Lowbidgee	294	282
Total modelled extractions	n/a²	2,130

¹ Total diversions not shown as these are from two different scenario models and valley total not subject of LTAEL compliance