LTAAEL compliance assessment for Lachlan Regulated River Water Source

Executive Summary

This report describes the methods used to assess if extractions in the Lachlan 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 2021-22 water year.

Background and purpose

The water sharing plan for the Lachlan Regulated River Water Source requires an assessment of compliance with a Long-term Average Annual Extraction Limit (LTAAEL). The LTAAEL 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. LTAAEL compliance requires two scenario models; one to represent the LTAAEL and one to represent current conditions. The long-term results from both models are compared to assess compliance.

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

This report summarises a compliance assessment for the Lachlan Regulated River Water Source. The assessment was based on best available models, using climate data from 1895 to 2022.

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 Lachlan Regulated River Water Source, the selected model scenarios reported in Table 1 are the most appropriate for LTAAEL compliance purposes.

The scenario models 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 LTAAEL, and the annual permitted take model used for sustainable diversion limit compliance assessment for the Basin Plan.

Table 1: Model scenarios selected for Lachlan river regulated water source for LTAAEL assessment purposes

Model scenario	System file
Cap conditions	LACHC022.sqq
Water Sharing Plan conditions	LachBD15_WSP_2022.sqq
Current conditions	LachAPT123_Current_2022_new.sqq

LTAAEL compliance results

LTAAEL assessment

The LTAAEL is the modelled long-term average annual extraction limit calculated over the duration of the available climate record using either the Cap scenario model or the Water Sharing Plan scenario model, whichever is the lesser. For this assessment, the modelling period 1895-2022 is used. The results of this analysis are reported in Table 2. The LTAAEL for 2021/22 water year for Lachlan regulated water source Is 270.3 gigalitres per year (GL/y) based on the water sharing plan scenario model. There are also unmodelled extractions (for water taken under basic landholder rights) estimated at 1.2 GL/y. These unmodelled estimates have not changed and are not included in LTAAEL compliance assessment.

Table 2: Modelled and unmodelled long term average annual extractions (1895-2022) for Cap and WSP scenario models (GL/y)

Extraction category	Cap scenario model	WSP scenario model
Modelled extractions		
General security	209.0	231.3
High security	11.7	10.3
Supplementary access	53.6	n/a
Conveyance	n/a	15.2
Local Water Utility	10.0	8.0
Stock and Domestic	9.0	5.5
Total modelled extractions	**293.3**	**270. 3**
Unmodelled estimates		
Basic rights	1.2	1.2

This water sharing plan will be revised to include all water take components such as plantation forestry and harvestable right dams to harmonise with reporting required under the Basin Plan. In this regulated river water sharing plan area, the water source boundary is defined by the bank of the regulated river and hence plantation forestry and harvestable rights dams are located within the adjacent unregulated river water source.

In addition, water taken under a basic landholder right has been excluded from the compliance assessment. This is because any unmodelled estimates are excluded if no assessment of change has been made.

Compliance assessment

Compared to the LTAAEL 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 if:

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

Note: LTAAEL compliance is assessed on total extractions and not by individual forms of take. The results in Table 3 show current levels of extractions less than LTAAEL, and therefore extractions in the Lachlan Regulated River Water Source are compliant with the LTAAEL.

The key reasons for differences between current and LTAAEL scenario results are primarily from analysis of surveys undertaken after the millennium drought that indicated changes in crop types and areas planted in response to water availability.

Table 3: Modelled long term average annual extractions (1895-2022) for LTAAEL and Current scenario models (GL/y)

Extraction category	LTAAEL scenario model	Current scenario model
Modelled extractions		
General security	231.3	148.8
High security	10.3	11.3
Conveyance	15.2	13.9
Local Water Utility	8.0	8.3
Stock and Domestic	5.5	4.9
HEW – General security	n/a	48.7
HEW – High security	n/a	2.3
Total modelled extractions	**270.3**	**238.2**

Modelled compliance action

No compliance action is required as the LTAAEL 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 Current and LTAAEL scenario models (GL/y)

Extraction category	LTAAEL scenario model	Current scenario model
Modelled extractions		
General security	234.7	150.2.
High security	10.3	11.4
Conveyance	15.2	14.0
Local Water Utility	8.0	8.3
Stock and Domestic	5.5	4.9
HEW – General security	0.0	49.1
HEW – High security	0.0	2.3
Total modelled extractions	**273.7**	**240.2**