

LTAAEL compliance assessment for Namoi Regulated River Water Source

Executive Summary

This report describes the methods used to assess if extractions in the Namoi Regulated River are compliant with the limit described in the Water Sharing Plan. The assessment has found that long term average annual extractions are not compliant for the 2023-2024 water year.

Background and Purpose

The Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Source (hereafter Namoi Regulated River Water Source) requires an assessment of compliance with a Long-term Annual Average Extraction Limit (LTAAEL) which is sometimes referred to as 'plan limit'.

The assessment is to be carried out annually by the Department¹ on behalf of the Minister following the end of each water year. LTAAEL compliance assessment requires two scenario models; one to represent the LTAAEL and one to represent current conditions. The long-term results from both scenario models are compared to assess compliance.

Each water sharing plan defines the plan limit, 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 Namoi Regulated River Water Source. The assessment was based on best available models, using climate data from 1895 to 2024.

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 criteria², including whether these had been documented and independently reviewed, how appropriate the management and levels of

¹ Refers to the current Department of Climate Change, Energy, the Environment and Water (DEECCW), as well as its predecessor(s) and likely successor(s) over the lifecycle of each Water Sharing Plan.

²

<https://publications.water.nsw.gov.au/watergroupjspui/bitstream/100/2592/1/Guidelines%20to%20select%20scenario%20models%20for%20assessing%20compliance%20to%20long-term%20average%20annual%20extraction%20limits.pdf>

development are, and consistency of the hydrology. For the Namoi Regulated River Water Source, the selected scenario models reported in Table 1 are the most appropriate for LTAAEL compliance. Cap, Water Sharing Plan and Current Condition scenario models are consistently based on the same model. This is a new model that is more recently built, compared to the previous model in the 'IQQM' modelling platform (used in 2020-21 compliance report). This new model was approved as the best available model for 2021-2022 compliance assessment and is also used for 2023-2024 compliance assessment.

The recently completed model in the 'Source' modelling platform is of a superior calibration as it is based on an extended climatic period and more accurate development data. The model independent review is now completed with the external reviewer's (Alluvium) endorsement (INT24/79189) received on 02/08/2024. The review *"endorse(s) the modelling as being the best currently available for undertaking both growth in use and floodplain harvesting entitlement assessments..."*. In addition, we have also had a second review that covers aspects outside the first review, carried out by OD Hydrology (INT24/46409). The second review was completed on 27/02/2024, which *"...finds that the model has been developed using the best available data, a logical approach ..., and that it is fundamentally consistent with the Australian Hydrologic Modelling Practice Notes ..."*. One major improvement of the new model is the ability to estimate floodplain harvesting take. This is an updated method and is part of the modelled component. In prior compliance assessments, a fixed estimate of floodplain harvesting as reported in the Basin Plan was used instead.

Table 1 Scenario models selected for Namoi Regulated River Water Source for LTAAEL assessment purposes

Scenario model	System file	Scenario Input Set
Cap conditions	NAMO_APT_004_5.20.0 .12549.rsproj	LongTerm_Scenarios.CAP_93_94...CAP Reach Share Fix
Water Sharing Plan conditions		LongTerm_Scenarios.BDL_99_00...BDL_Supp_Annual_Usage_Limit
Current conditions		LongTerm_Scenarios.CurrentConditions_15_16...HEW_IRRI
Current conditions with Supplementary AWD reduction		LongTerm_Scenarios.CurrentConditions_15_16...HEW_IRRI. Supp_AWD_Reduction.Supp_37_AWD

LTAAEL compliance results

LTAAEL assessment

The LTAAEL is the modelled long-term average annual extractions calculated over the duration of the available climate record using either the Cap or the Water Sharing Plan scenario model, whichever is the lesser. For this assessment the modelling period 1895-2024 is used. The results of this analysis are reported in Table 2. The LTAAEL modelled components for 2023-2024 water year for the Namoi Regulated River Water Source is 233.2 GL/y based on the water sharing plan scenario model. Unmodelled extractions are not considered for this assessment.

Table 2 Long term average annual extractions (1895-2024) for Cap and WSP scenario models (GL/y)

Extraction category	Cap scenario	Water Sharing Plan scenario
Modelled Extractions		
General security	127.5	146.9
Supplementary access	63.5	33.7
High security and Stock and Domestic	4.4	4.7
Floodplain harvesting	39.0	48.0
Total modelled extractions	234.5	233.2
Unmodelled extractions		
Stock and Domestic rights ³	1.9	1.9
Total extractions	236.5	235.2⁴

This water sharing plan includes all water take components such as plantation forestry 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.

³ Clause 17 of Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016 (2015 SI 631) accessed 31 May 2023

⁴ We have done the calculation based on non-rounded numbers. The report is based on rounded figures, which may lose the resolution when summing up.

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.

Rainfall runoff harvesting exempt under the Water Management (General) Regulation 2018 (Clause 39B; Schedule 4 Part 1 Section 17C) is not included in the definition of floodplain harvesting and has been also excluded from the compliance assessment.

Compliance assessment

Compared to the LTAAEL scenario, the modelled long term average annual extractions from the current condition scenario model are reported in Table 3. The extraction categories include provision for managing growth in extractions from the Peel regulated river water source by Tamworth Regional Council (TRC). The water sharing plan specifies that 95% of growth in TRC extractions is managed in the Namoi regulated river water source.

Our analysis reported in the Peel Regulated River Water Source plan limit assessment report estimated TRC extractions increased by 0.23 GL/y (from 8.36 GL/y to 8.59 GL/y). The volume to be managed in the Namoi Regulated River Water Source is therefore 0.22 GL/y.

The current water sharing plan specifies that there is non-compliance where:

- 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 that plan limit compliance is assessed on total extractions and not by individual forms of take.

Including the estimated extraction by TRC, the results in Table 3 show current levels of extractions of 241.6 GL/y. This is 3.6% more than LTAAEL of 233.2 GL/y. Therefore, the Namoi Regulated River Water Source is not compliant with the LTAAEL.

Table 3 Modelled long term average annual extractions (1895-2024) for Current and LTAAEL scenarios (GL/y)

Extraction category	LTAAEL scenario	Current conditions scenario
General security	146.9	140.7
Supplementary access	33.7	39.0
High security and Stock and Domestic	4.7	5.0
Floodplain harvesting	48.0	56.6

Extraction category	LTAAEL scenario	Current conditions scenario
Total modelled extractions	233.2	241.3
Tamworth Regional Council growth	n/a	0.2
Total extractions including TRC growth	233.2	241.6 ⁴

Modelled compliance action

At the time of writing, floodplain harvesting licencing framework is not yet in place. The water sharing plan specifies what action is required where there is non-compliance. The current plan requires that the maximum available water determination made for supplementary water access licences is reduced to bring total extractions back to the limit. This AWD is normally 1.00 ML/share however an AWD of 0.37 ML/share is required to bring total extractions back to the limit. The current condition scenario with the reduced AWD indicates long term modelled extractions of 233.4 GL/y (Table 4). This is slightly higher than LTAAEL; however, with a modelling tolerance of up to 0.1% agreed for practical reasons, the result is deemed LTAAEL compliant.

Table 4 Modelled long term average annual extractions (1895-2024) for Current and LTAAEL scenarios (GL/y)

Extraction category	LTAAEL scenario	Current conditions with Supplementary AWD of 0.37ML/share
General security	146.9	142.3
Supplementary access	33.7	26.9
High security and Stock and Domestic	4.7	5.0
Floodplain harvesting	48.0	59.1
Total modelled extractions	233.2	233.2
Tamworth Regional Council growth	n/a	0.2
Total extractions including TRC growth	233.2	233.4 ⁴

Supporting information

Results over Basin Plan assessment period

The Namoi results over the Basin Plan assessment period of 1895-2009 are included for reference only. These results will be used to track significance of future model updates.

Table 5 Modelled long term average annual extractions over the Basin Plan reference period 1895-2009 (GL/y)

Extraction category	LTAAEL scenario	Current conditions scenario
General security	149.8	144.3
Supplementary access	33.7	39.2
High security and Stock and Domestic	4.7	5.0
Floodplain harvesting	48.3	56.6
Total modelled extractions	236.5	244.9