



FEEDBACK REPORT ON AECOM MID NUTRIENT MODEL REVIEW

Submitted to: Southern Rural Water (SRW)

By Friends of Gippsland Lakes Inc



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Executive Summary

Friends of Gippsland Lakes Inc. (FOGL) has conducted a thorough review of AECOM's May 2025 report on Southern Rural Water's (SRW) Macalister Irrigation District (MID) Nutrient Monitoring Model, and the revised MID Nutrient Monitoring Q3 Report

Our analysis finds AECOM and the re-issued NMR effectively addressed several critical shortcomings highlighted by FOGL's February 2025 critical analysis, notably model calibration issues, data integrity protocols, and site selection improvements.

However, we believe important gaps persist, including insufficient emphasis on comprehensive flow-weighted sampling, limited discussion on revising the 95th percentile high-flow trigger, and the absence of nitrogen (N) and subsurface nutrient monitoring.

We maintain that addressing these gaps is essential to accurately assess and manage nutrient inflows into the Gippsland Lakes.

Introduction

FOGL has critically evaluated AECOM's May 2025 review of SRW's MID Nutrient Monitoring Model. Our assessment considers technical, operational, and stakeholder-focused perspectives, building on our February 2025 critique. This document provides detailed feedback and specific recommendations to ensure that the MID monitoring framework accurately reflects nutrient dynamics and effectively guides environmental management actions.

Detailed Feedback on AECOM Report

Strengths:

Model Reliability and Calibration:

- Identified the root cause of anomalous negative phosphorus loads linked to autosampler placement.
- Recommended recalibrating phosphorus control charts using recent historical data to improve model accuracy.
- Suggested enhanced regression formulas to improve the accuracy of infill data used when real-time measurements are unavailable.

Data Integrity and Transparency:

- Advocated for enhanced data handling protocols, including explicit documentation of retroactive updates.
- Recommended automated data integrity checks and clear indicators for infilled or estimated data, increasing transparency.
- Proposed calculation of uncertainty ranges in nutrient load estimates, improving the scientific rigor of reporting.

Monitoring Site Suitability:

- Recommended relocating or adding flow gauges to match sampling points accurately and avoid tidal contamination impacts.
- Advised a comprehensive review of existing monitoring site placements to improve data representativeness.

Weaknesses and Gaps:

Absence of Nitrogen (N) Monitoring:

- AECOM did not recommend including nitrogen monitoring despite evidence demonstrating N's critical role in algal bloom management within the Gippsland Lakes.

Lack of Subsurface Nutrient Monitoring:

- The report omitted recommendations for monitoring subsurface flows, such as groundwater nutrient discharge, critical to understanding total nutrient loads.

High-Flow Event Sampling Limitations:

- Insufficient commitment to implementing comprehensive flow-weighted sampling strategies, particularly during significant high-flow events, potentially underestimating peak nutrient contributions.

Limited Review of 95th Percentile Flow Trigger:

- AECOM's review included minimal emphasis on revising the 95th percentile high-flow trigger, despite FOGL's recommendation that regular adjustments are necessary to accurately capture peak nutrient load events under variable rainfall conditions.

No statement of purpose or scope included in report

- We suggest every Nutrient Monitoring Report would benefit from the inclusion of an introductory statement including the purpose and scope of the report, and applicable targets (similar to the first paragraph in the 2.0 Background section in the AECOM report). This would allow the report to stand alone without the reader having to source and reference other documents.
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Recommendations Table

Recommendation	FOGL RESPONSE
Update phosphorus control charts with recent historical data	ACCEPT
Improve regression formulas for more accurate infill data	ACCEPT
Implement automated data integrity checks and transparency flags	ACCEPT
Add uncertainty ranges to nutrient load reporting	ACCEPT
Relocate or add monitoring gauges upstream to avoid tidal impacts	ACCEPT
Include nitrogen (N) monitoring	MODIFY (Should Implement)
Introduce subsurface (groundwater) nutrient monitoring	MODIFY (Should Implement)
Adopt comprehensive flow-weighted sampling during high-flow events	MODIFY (Should Implement)
Conduct regular reviews and adjustments of the 95th percentile flow trigger	MODIFY (Should Implement)
Limit manual overrides and clearly document any data changes	ACCEPT
Regularly review and recalibrate model parameters	ACCEPT
Include a statement of purpose, scope and applicable targets in every report.	MODIFY (Should Implement)

Conclusion

AECOM's recommendations represent valuable technical improvements to the MID Nutrient Monitoring Model; however, we believe that critical elements highlighted by FOGL remain unresolved. To achieve comprehensive, accurate, and credible nutrient monitoring essential for protecting the ecological integrity of the Gippsland Lakes, we maintain that SRW must urgently address nitrogen monitoring, subsurface nutrient assessment, comprehensive flow-weighted sampling practices, and regular reviews of the high-flow sampling trigger. FOGL strongly advises SRW to adopt these modified

recommendations promptly and implement an ongoing review process to ensure the monitoring framework remains robust and adaptive to changing environmental conditions.
