How The Point's Waterway Works

1. Waterway Operations Management
2. What is where
3. Monitoring and Reporting
4. Control of Water Levels and Flows
5. The Impact of Lake Victoria's Water Quality
6. Indices of Quarterly Water Quality – 2017 to 2026

1. Waterway Operations Management

CoGG uses the same specialist contractors / consultants that Moremac used

Waterway Operations and Maintenance

Activity	Mormac Program	CoGG Program (since May 2025)

Maintenance Supervision	• Daily and weekly checks::
	  ○ Of AFCG opening and closing,
	  ○ Of trends in instrument data for water quality, levels, flows
	  ○ For upset conditions or issues needing to be addressed
		• No change
		• A weekly / fortnightly status report to CoGG
		• Monthly operation and maintenance coordination meetings

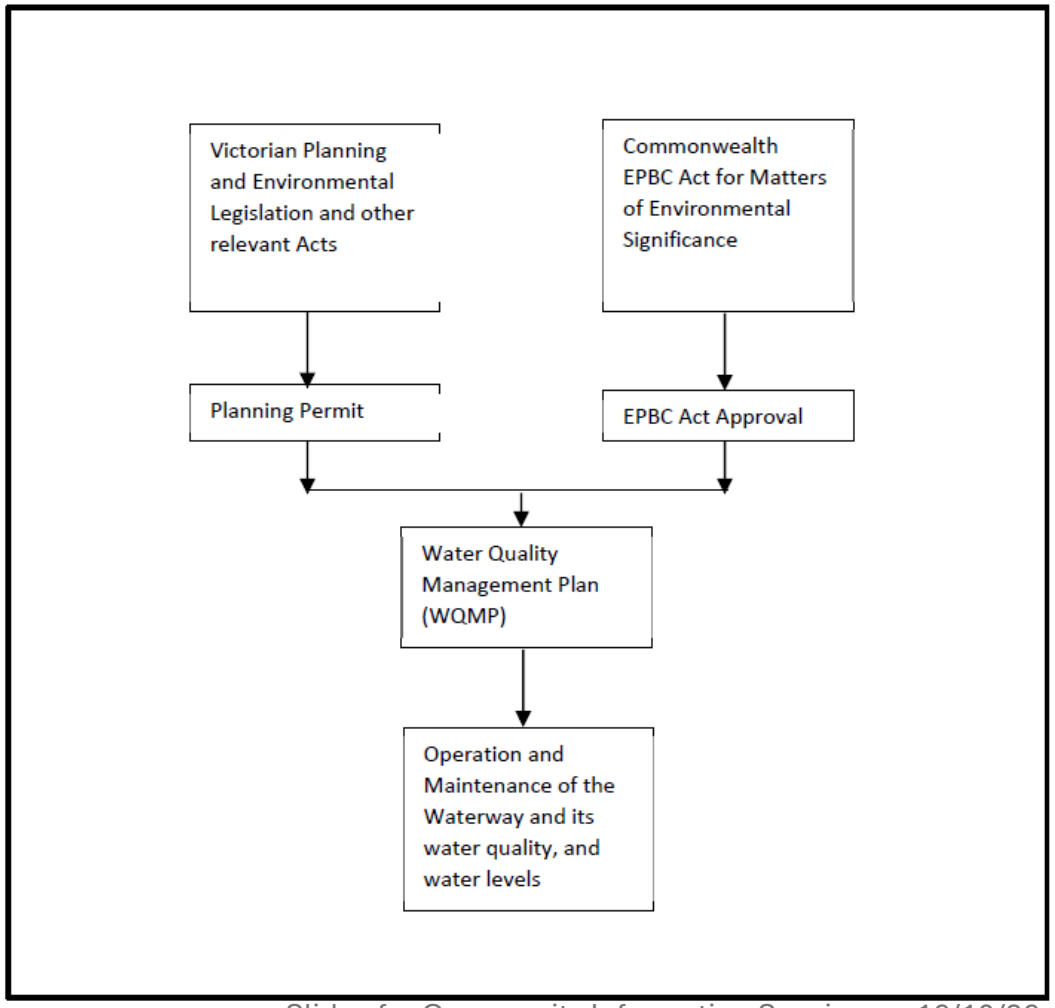
AFCG	• 6-monthly maintenance checks of the actuators for the AFCG • Monthly maintenance checks of the operation of the PLC	• Monthly operation and maintenance coordination meetings

Water quality monitoring	• 15 minute interval instrument monitoring
	  ○ Water quality (Salinity, Temp, DO, Redox, pH, Chl-a, Turbidity)
	  ○ Water levels and flows
	• Monthly checks and maintenance of instruments
	• Quarterly water sampling and testing (Salinity, Temp, DO, Redox, pH, Chl-a, Turbidity, Nutrients, BOD, COD, Suspended Solids)
		• No change to objectives, scope or methods

Water quality Management Compliance	• Annual WQMP Compliance Report (for calendar year) submitted to CoGG, DCCEEW, EPA, DEECA	• No change except Annual WQMP Compliance Report also made public
Seagrass Cutting, Algae Removal	• Four times per year, or as needed	• No change to objectives, scope or methods
Lake Victoria discharge channel (a CoGG Easement)	• No maintenance	• Floor of southern end of channel graded to slope down into Lake Victoria to encourage channel to drain back into Lake Victoria in summer
Stormwater Systems	• Maintenance checks as needed	• No change

The WQMP and the Environmental Compliance Regime

Figure 1 The Hierarchy of Planning and Environmental Controls



The WQMP states in its Section 9.1:

There will be an annual WQMP Compliance Report on the implementation of the WQMP. This report will be produced by a suitably qualified and experienced independent environmental consultant engaged by.. (The City) ..who will review the available records from operation, maintenance and monitoring of the Waterway. The report will, for the calendar year to 31 December:

- *For the purposes of the Varied EPBC Approval, be consistent with the Annual Compliance Report Guidelines, Commonwealth of Australia 2023;*
- *Summarise the incidents in the reporting year that triggered non-compliance reports (see below) plus the subsequent investigations, rectification and close-out reporting;*
- *Contain tables, graphs and explanatory text that summarise the degree of compliance with the requirements of the WQMP concerning:*
  - *The WQMP Water Quality Objective;*
  - *The Baseline Water Quality Values;*
  - *Waterway water Levels.*
- *Contain or provide links to all monitoring data collected in the reporting year;*
- *Contain an assessment of the quality of this monitoring data collected, and of any limitations the data quality implies for the assessment of compliance with the provisions of the WQMP;*
- *Contain a description of what was done to check the work in the reporting year to implement the WQMP.*

The Content of the Annual Compliance Report

At this link:
The Point Waterway | City of Greater Geelong

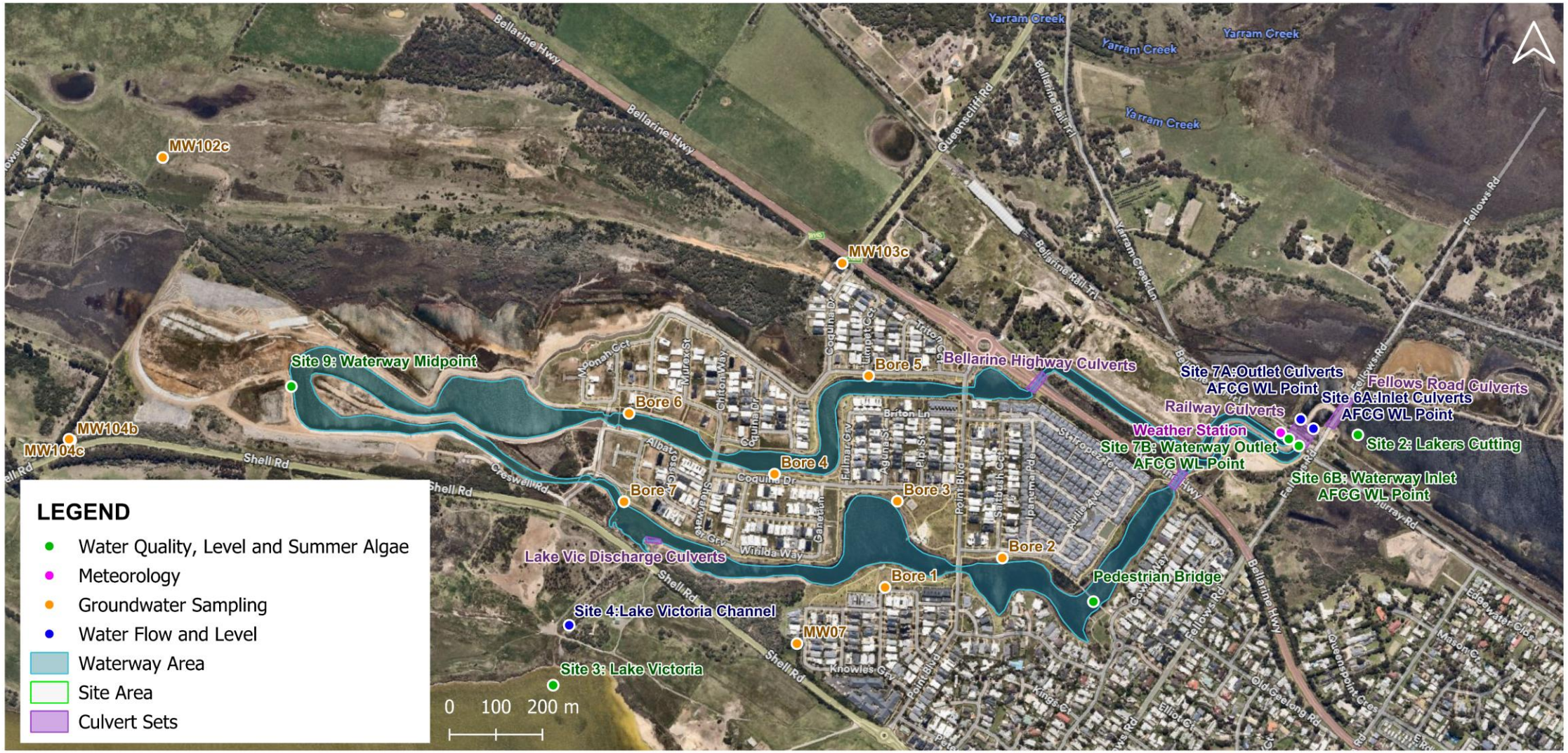
- The Point Waterway Summary Document
- The Water Quality Management Plan
- The EPBC Conditions
- The Annual Compliance Report for 2025 (3 Volumes)

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2. What is where

Waterway Layout & Operational Features







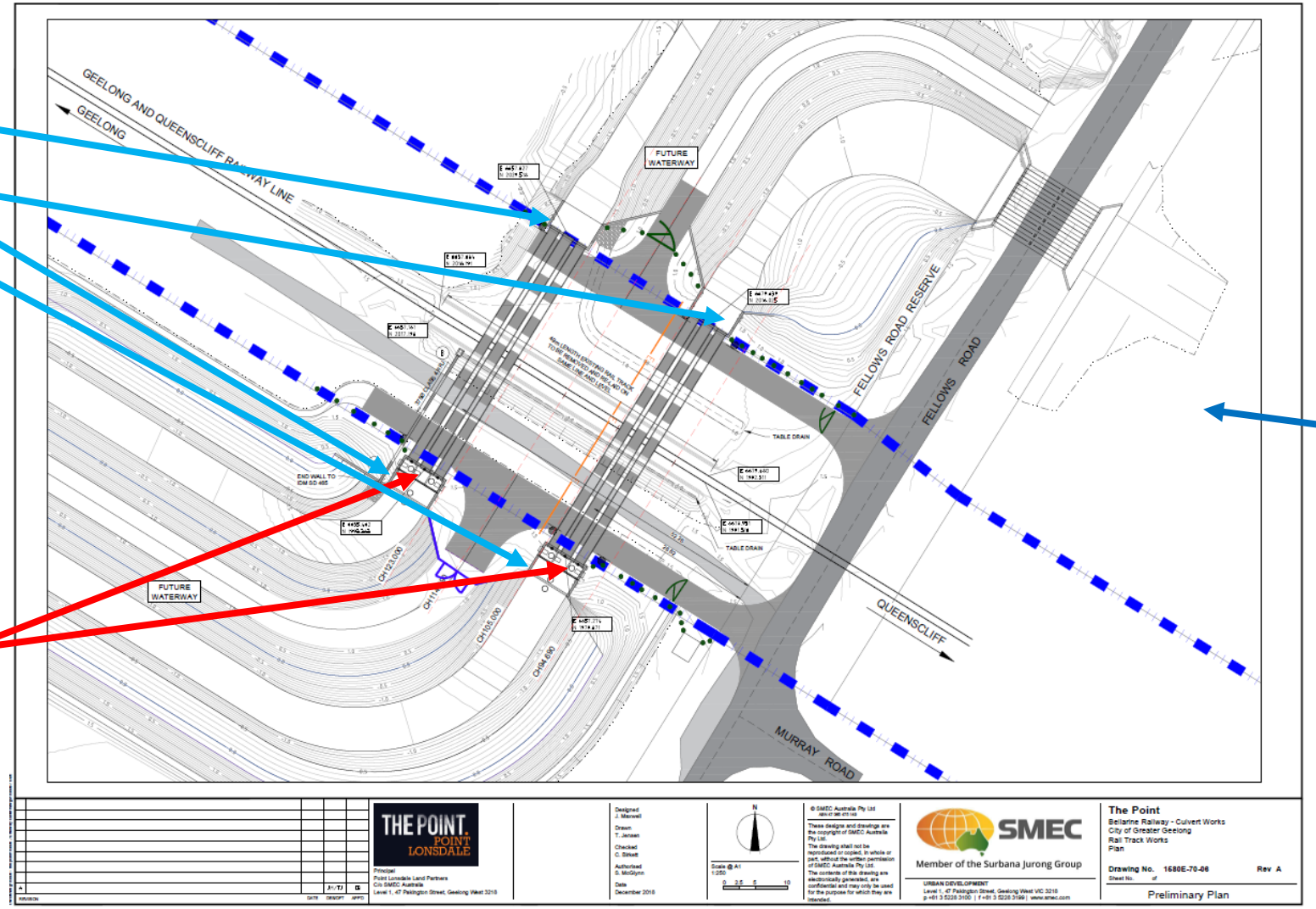
AFCG and Water Monitoring Instrument Sites 6B and 7B



AFCG System at Railway Culverts

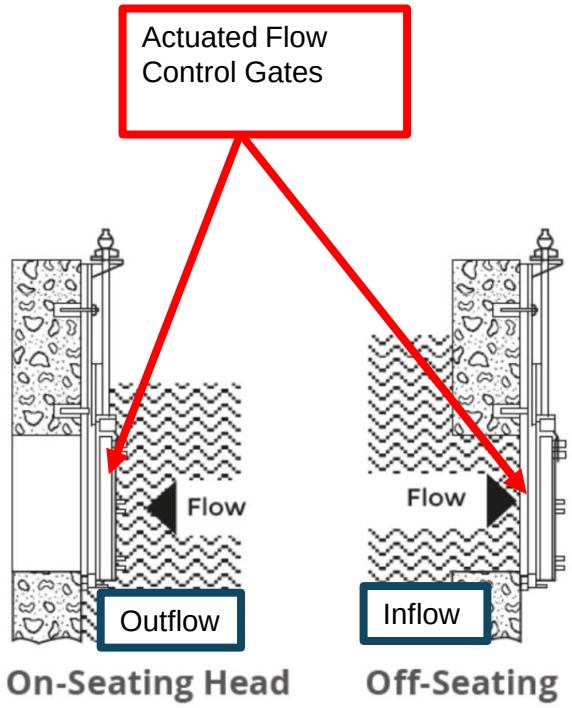
Water Level Sensors (3 per location)

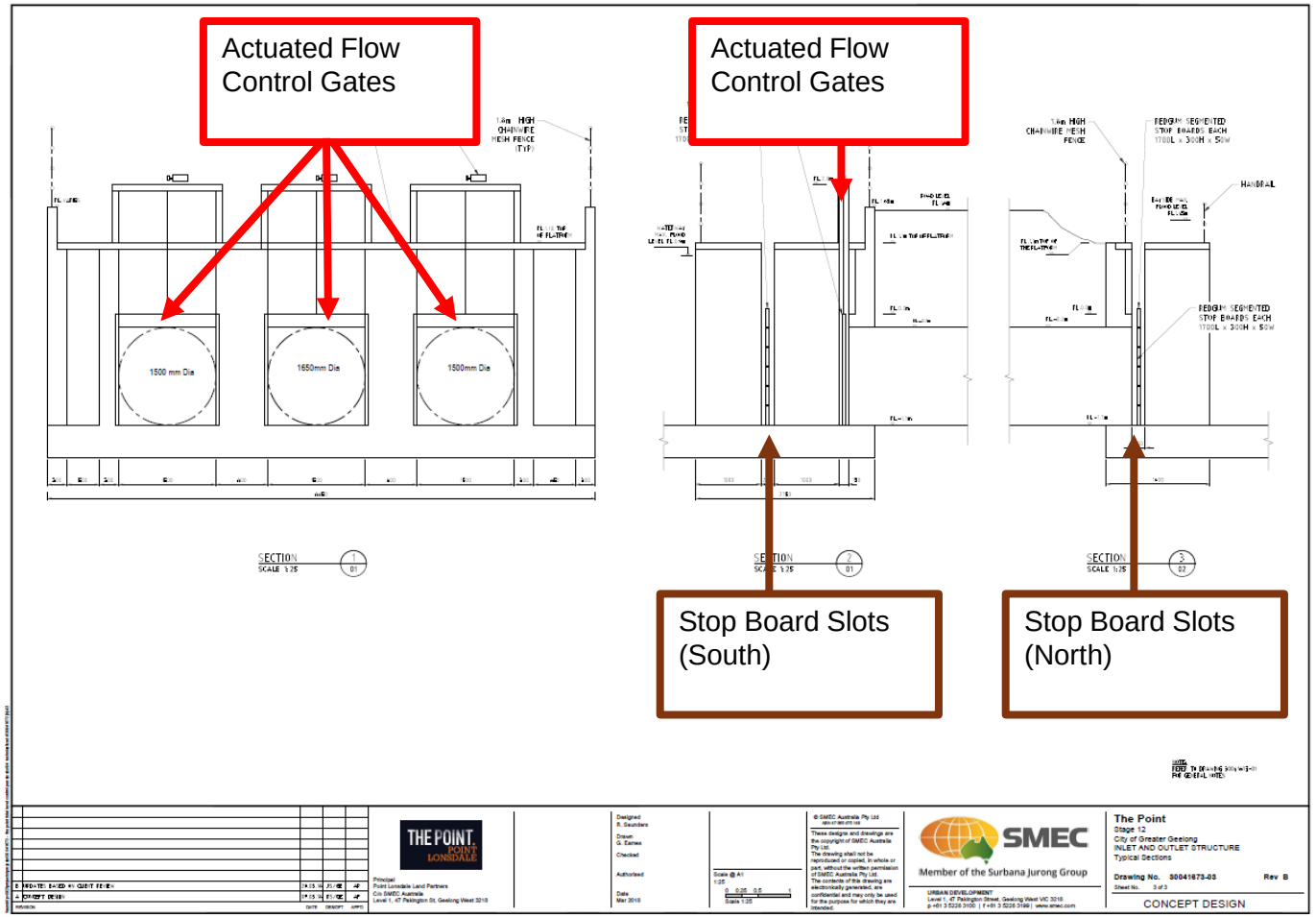
Actuated Flow Control Gates



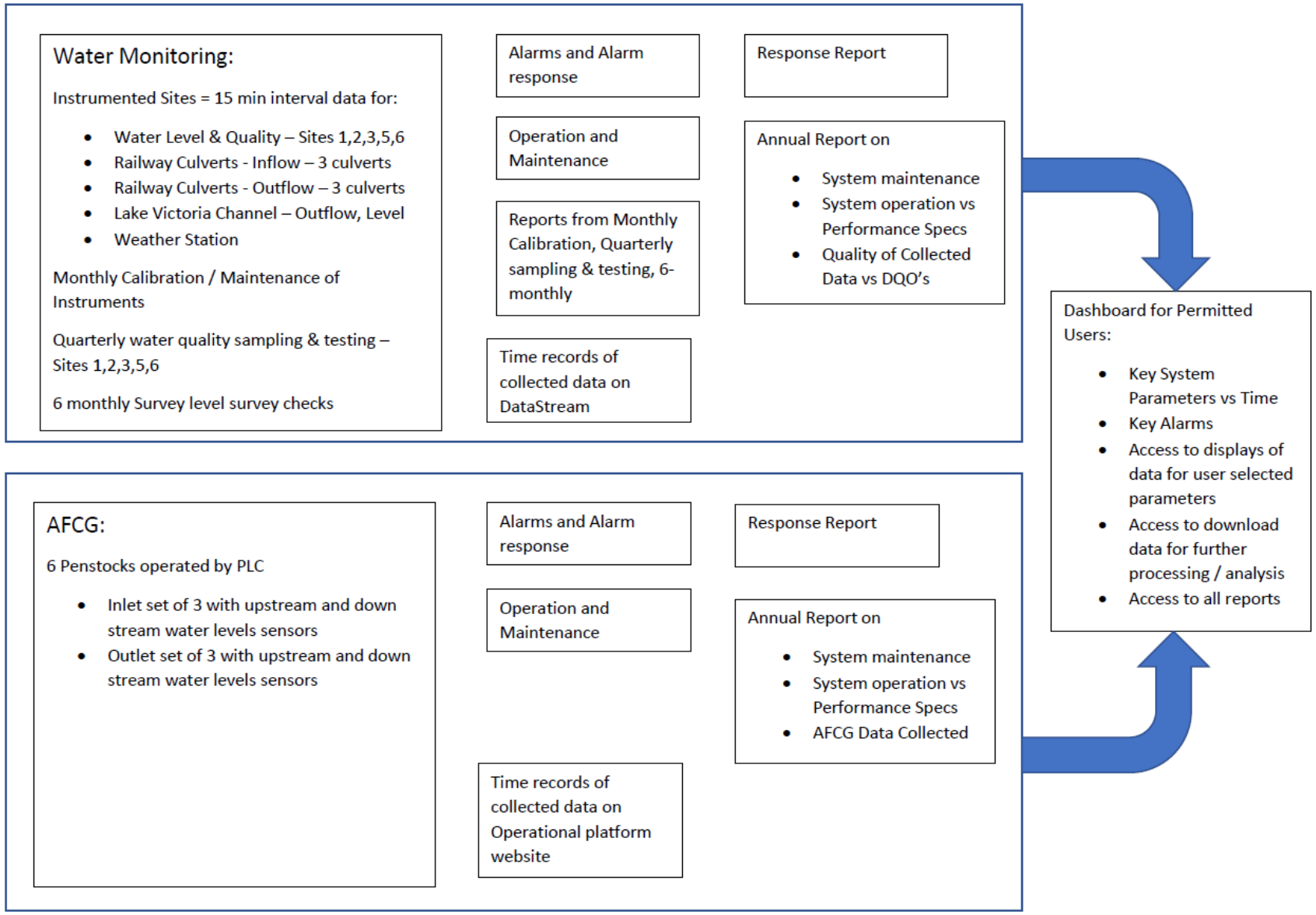
Lakers Cutting

AFCG and Stop-Logs





3. Monitoring and Reporting



Daily checks of Dashboard graphs

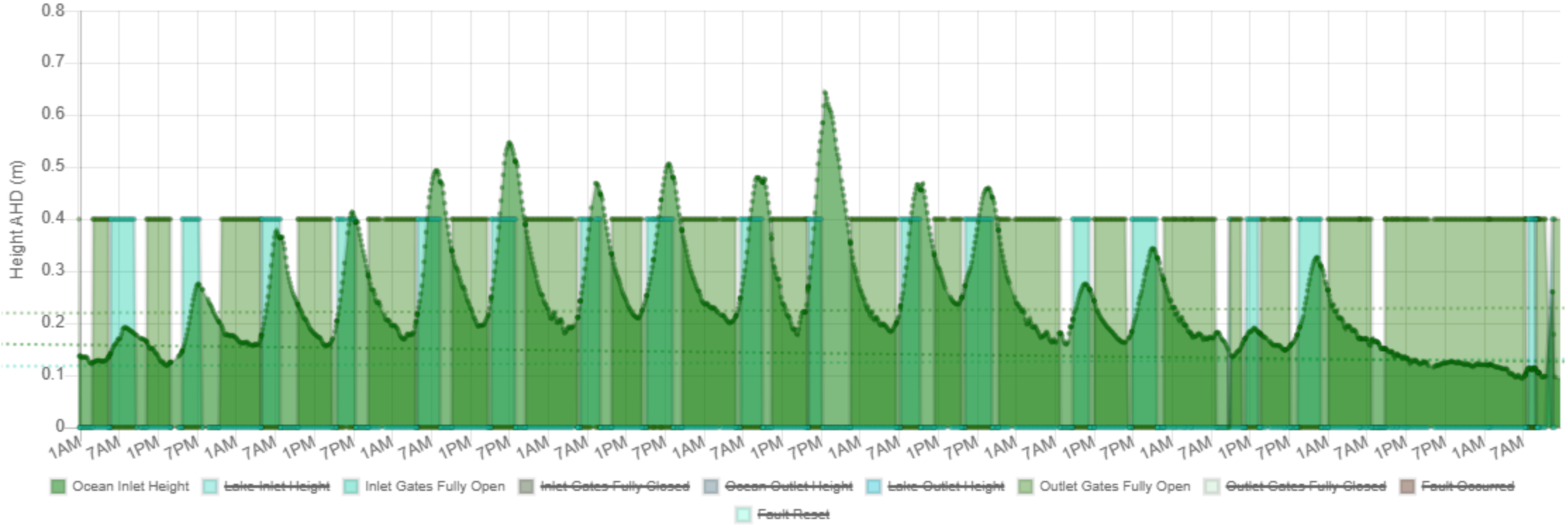
A status report to CoGG each 7 to 10 days

A monthly progress and planning meeting .

An annual WQMP compliance report – produced for each calendar year.

4. Control of Water Levels and Flows

Tidal Control of Inlet and Outlet Gates

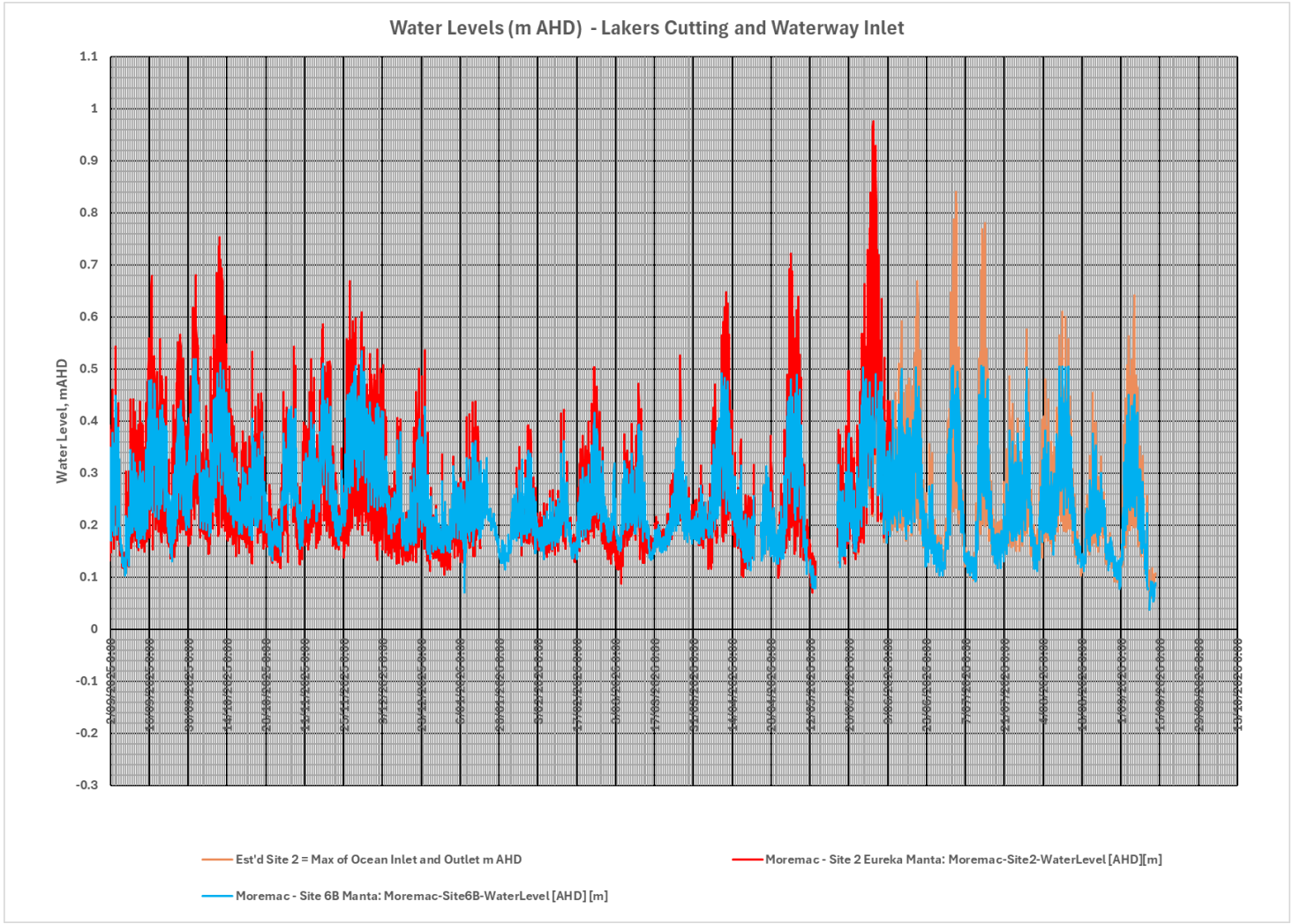


AFCG Water Level and Flushing Control

- Normal Tides
- Major Catchment Discharge – No Storm Surge in Lakers Cutting
- Storm Surge Conditions

Laker Cutting and Waterway Inlet Water Levels Sept 2025 to Sept 2026

Waterway levels controlled to not exceed 0.5m AHD



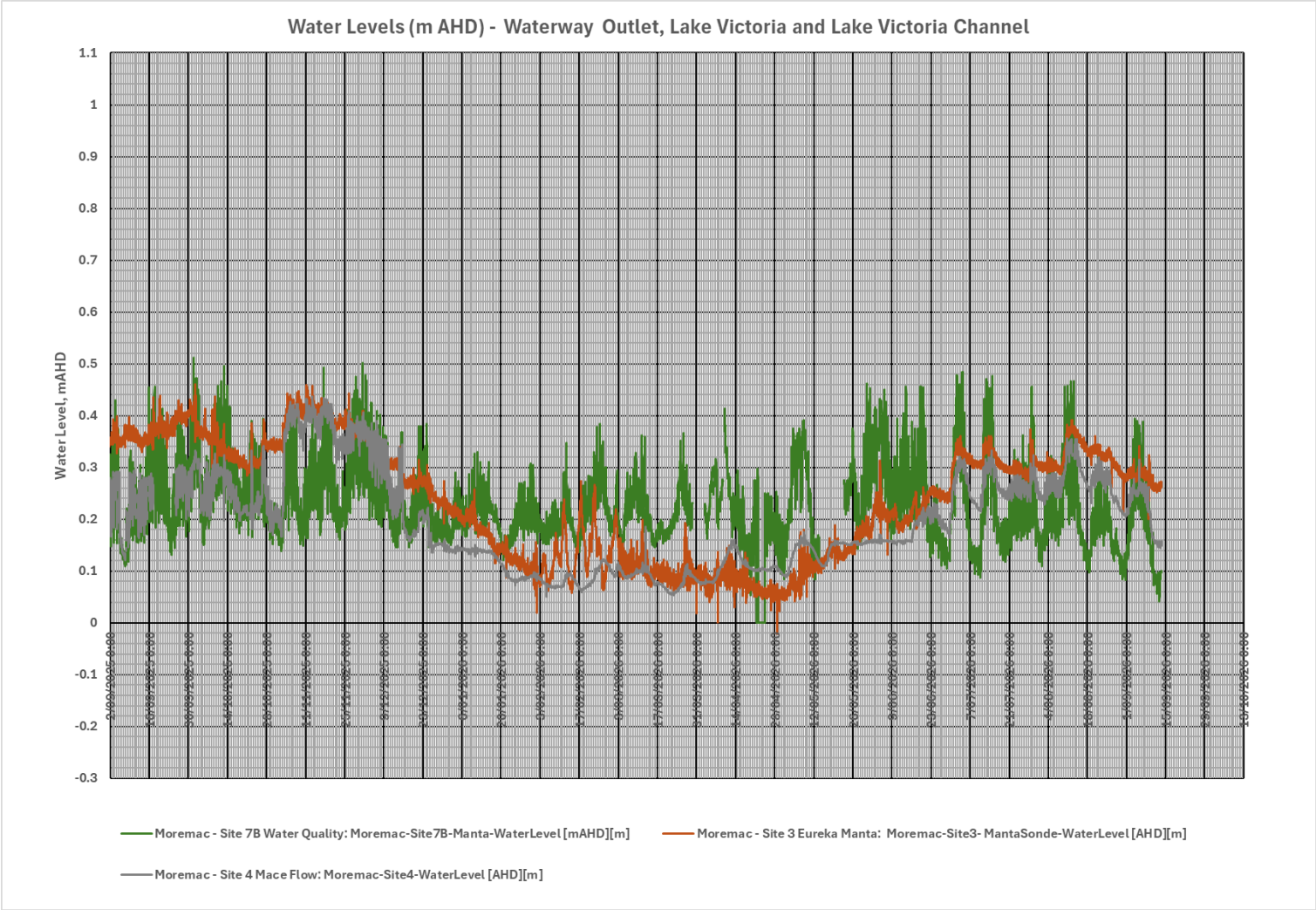
Lakers Cutting

Waterway Inlet

Lake Victoria and Waterway Outlet Water Levels Sept 2025 to Sept 2026

Lake Victoria's water levels vary seasonally

Lake Victoria discharges when its water levels are higher than the water levels in the waterway



Lake Victoria

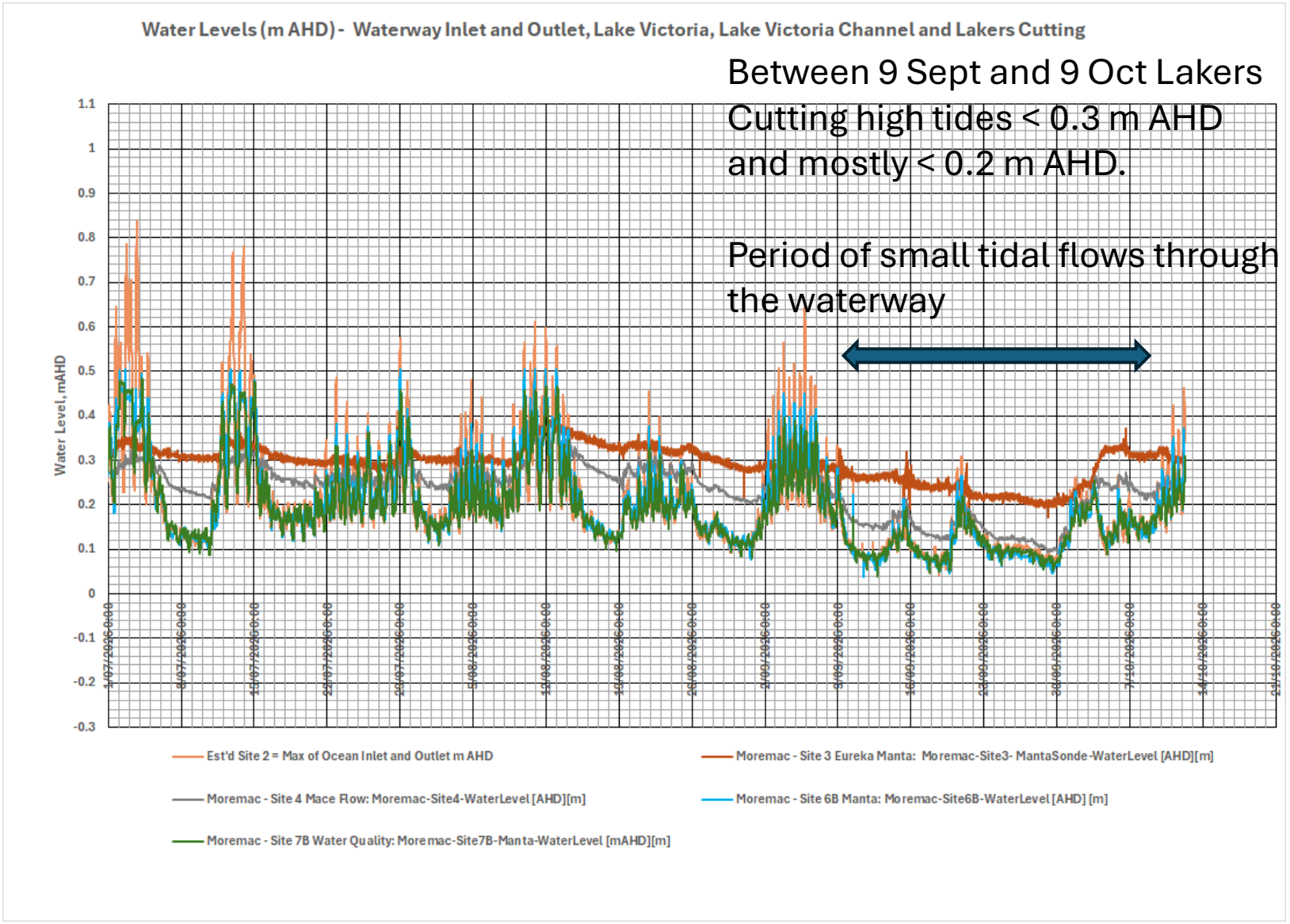
Lake Victoria Channel

Waterway Outlet

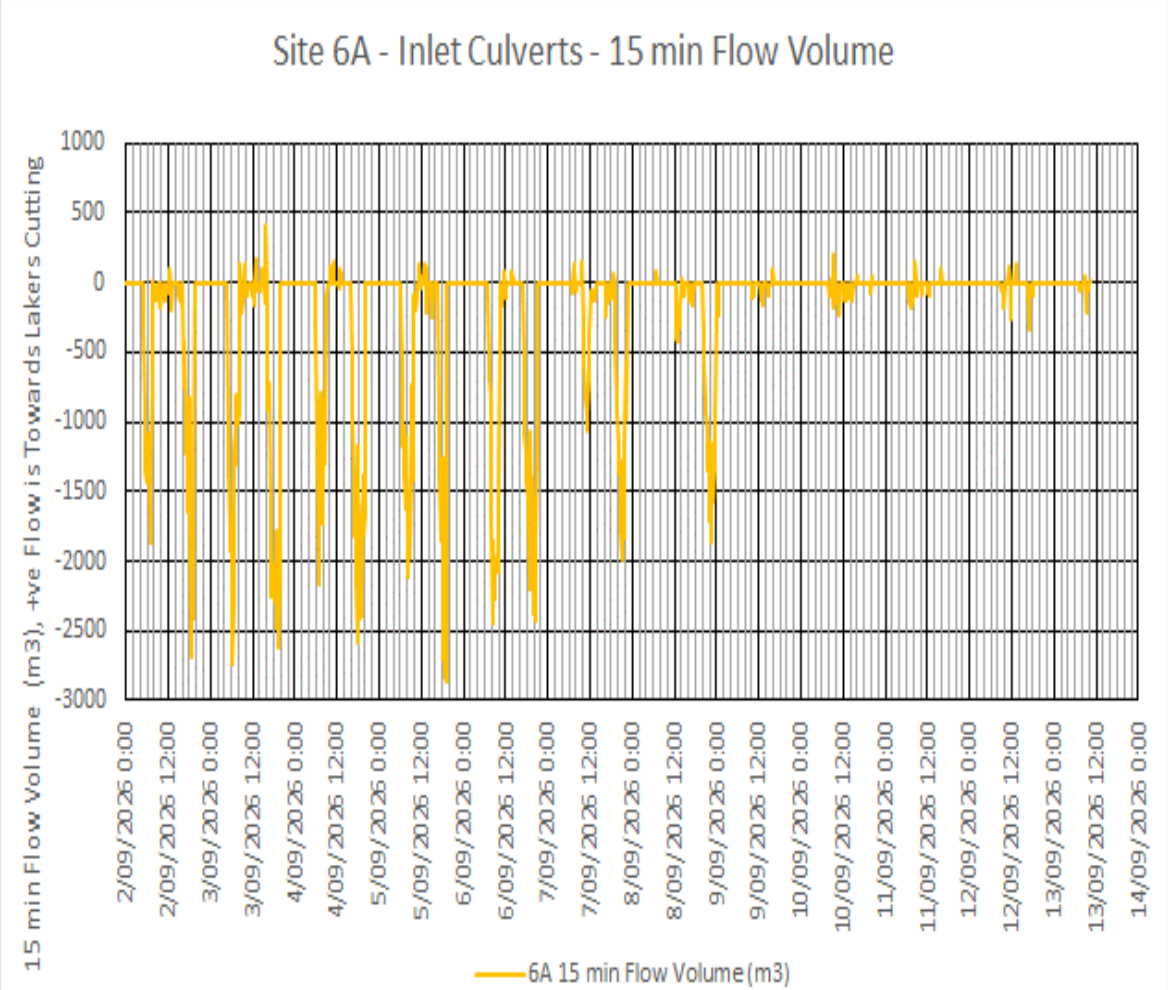
Water Levels 1 July 2026 to 12 October 2026

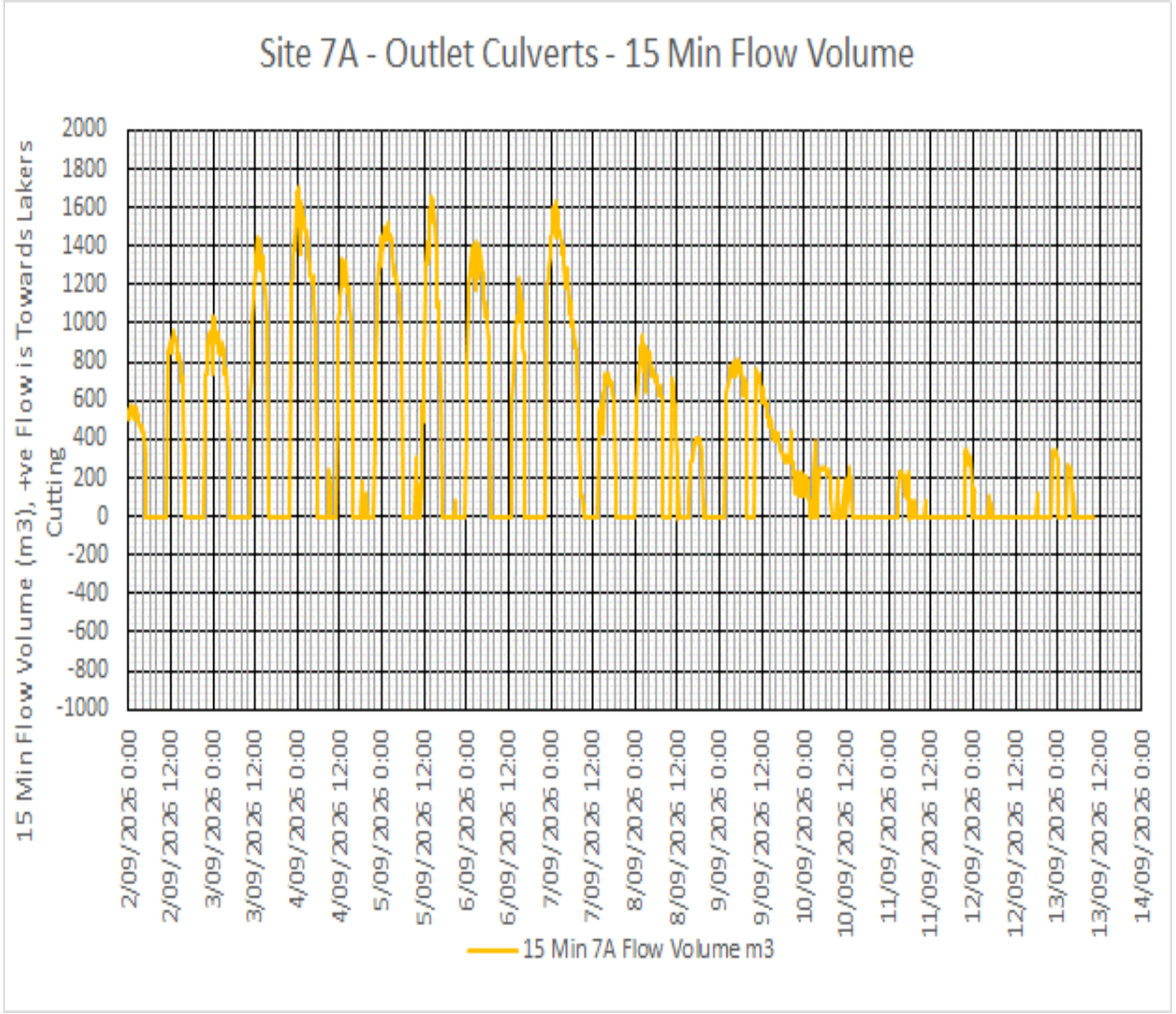
Lake Victoria Discharging

Waterway water level currently limited to 0.5m AHD, when Lakers Cutting's tides higher than this

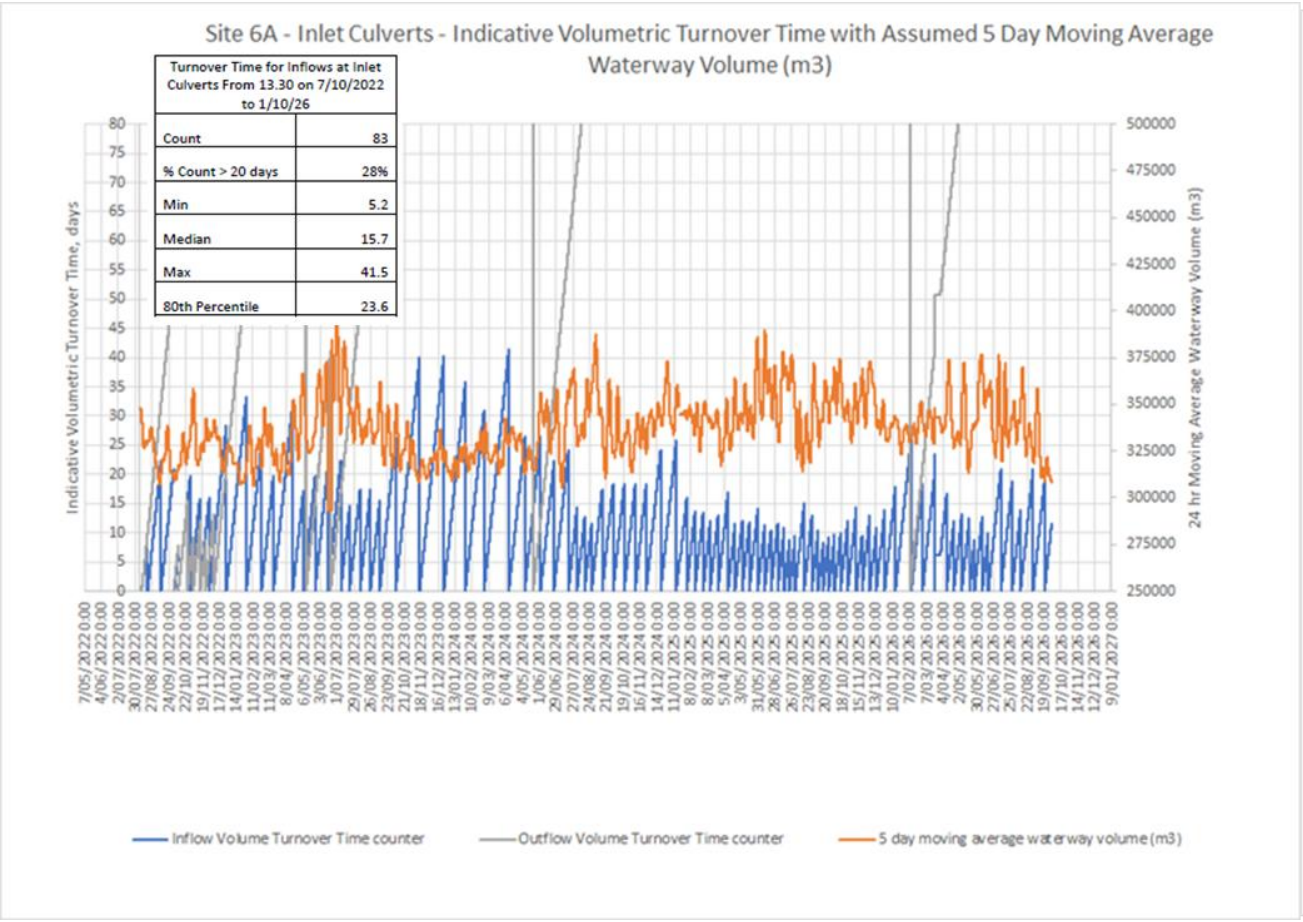


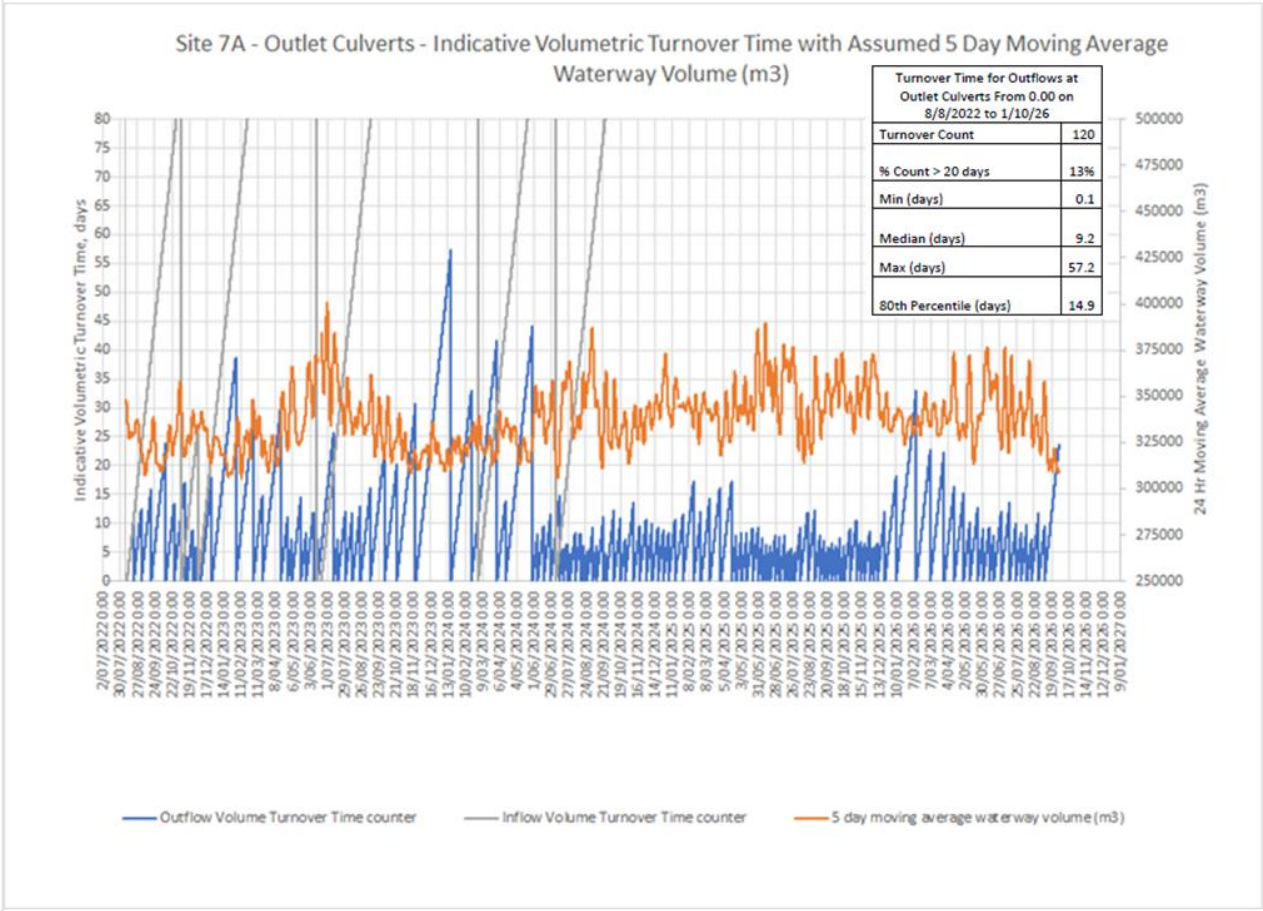
Inflows and Outflows – 2 September to 13 September 2026





Waterway Volume Turnover Times – July 2022 to September 2026





5. The Impact of Lake Victoria's Water Quality

Aerial Image - 10 February 2023



Aerial Image - 29 January 2024



Aerial Image - 23 April 2024



Note the change colour of Lake Victoria from January 2024 – indicative of algal bloom

Aerial Image - 12 February 2025



Note the persistence of the algal bloom in Lake Victoria

Aerial Image - 3 February 2026



Aerial Image – 22 March 2026



Note the persistence of the algal bloom in Lake Victoria

Aerial Image - 13 September 2026



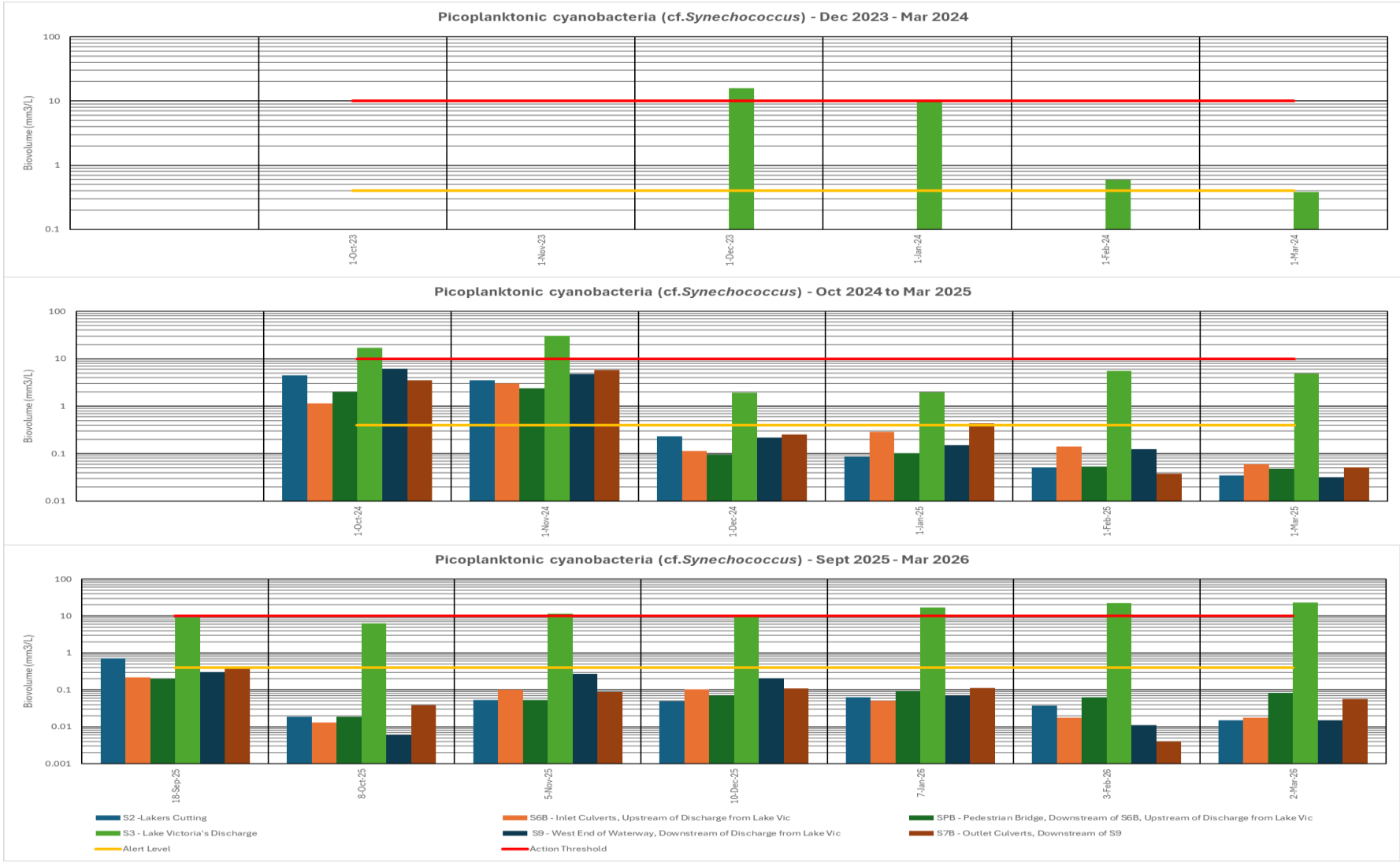
Note the persistence of the algal bloom in Lake Victoria, and the presence of an algal bloom in the Waterway and Lakers Cutting in a period of small tides in Lakers Cutting

Concentrations of Picoplanktonic Cyanobacteria

Dec 23 – Mar 24

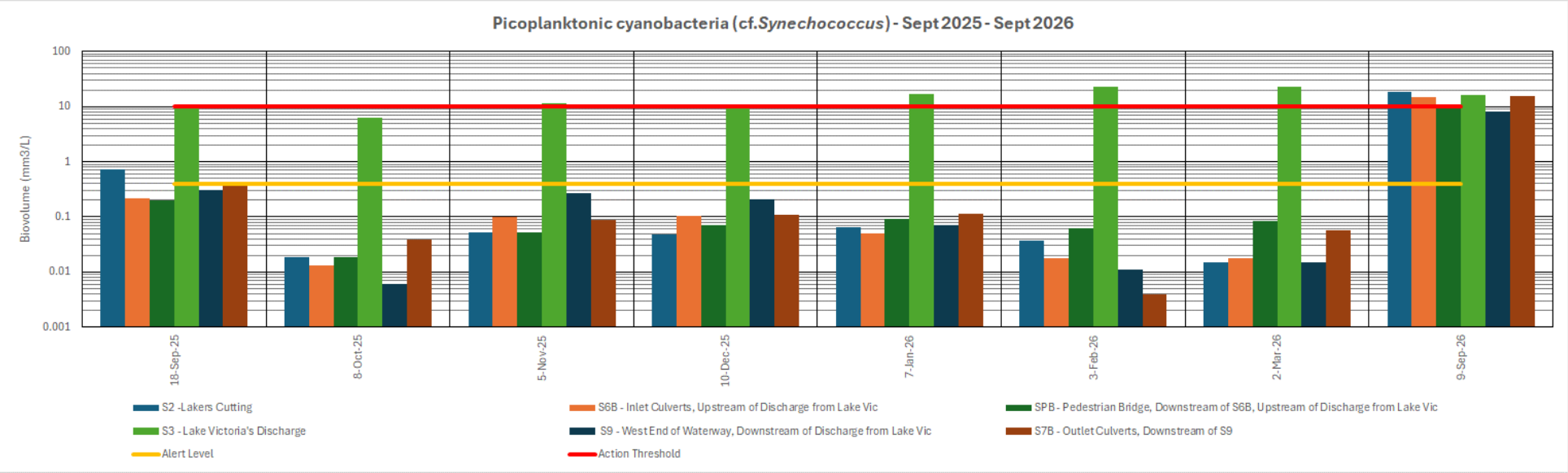
Oct 24 – Mar 25

Sept 25 – Mar 26



Note when Lake Vic > Action Threshold

Sept 2026 Concentrations of Picoplanktonic Cyanobacteria

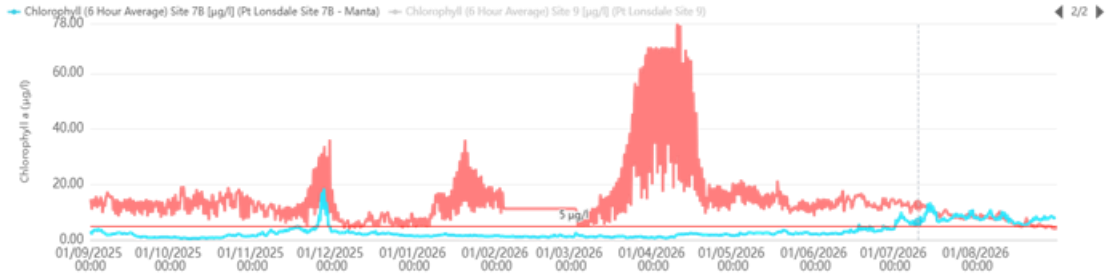


- The bloom is a result of conditions being favourable for their proliferation. This includes factors such as temperature, sunlight, salinity, dissolved oxygen and nutrients.
- The major component of the bloom (*Synechococcus*) is ubiquitous in salt water, and its growth is usually nitrogen limited.
- Nutrient-laden inflows and nutrient accumulation in Lake Victoria are the primary cause of the bloom
- The bloom and nutrients from Lake Victoria have been to the waterway and Lakers Cutting after autumn and spring rainfall.
- This has caused BGA biovolumes in the waterway and Lakers Cutting to rise.

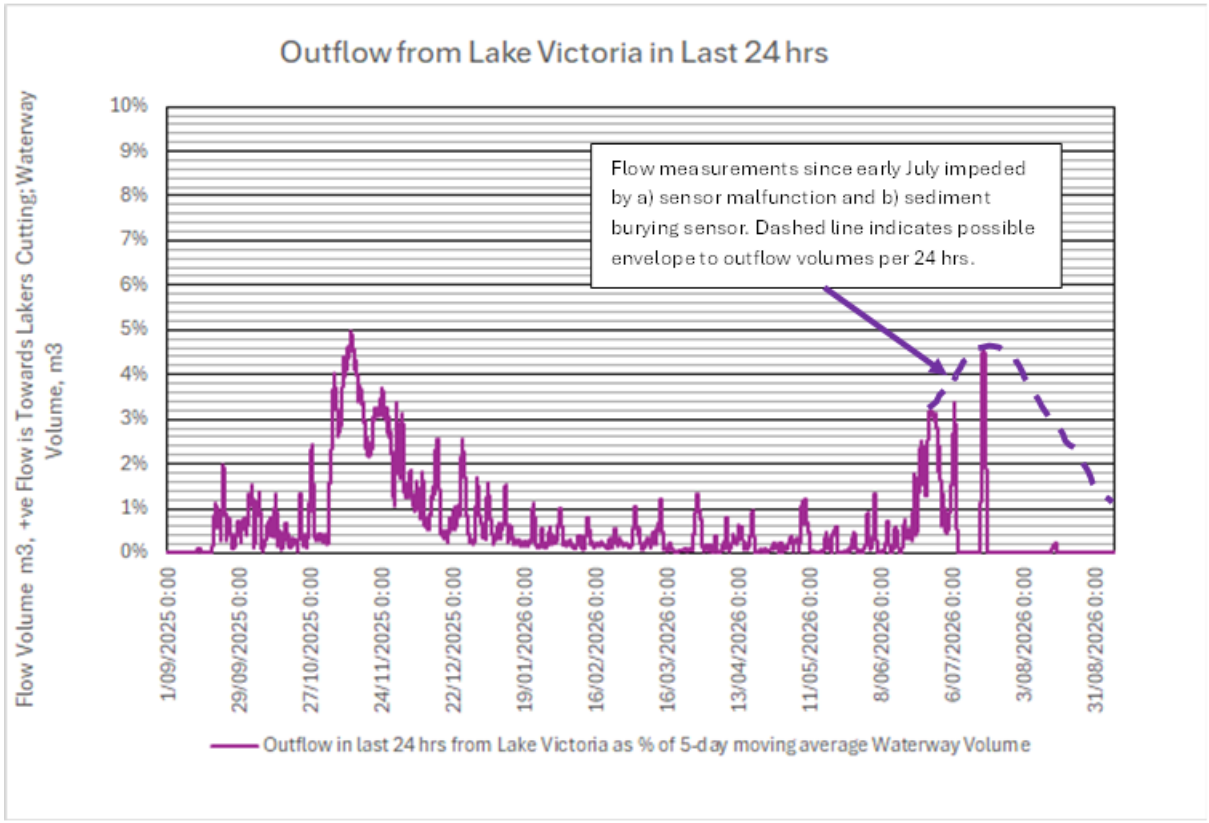
Lake Victoria Outflows and Chlorophyll-a in Lake Victoria & at Waterway Outlet – Sept 2025 to Aug 2026

Chlorophyll-a in Lake Victoria

Chlorophyll-a at Waterway Outlet



Outflow per 24 hrs from Lake Victoria as % of Waterway volume



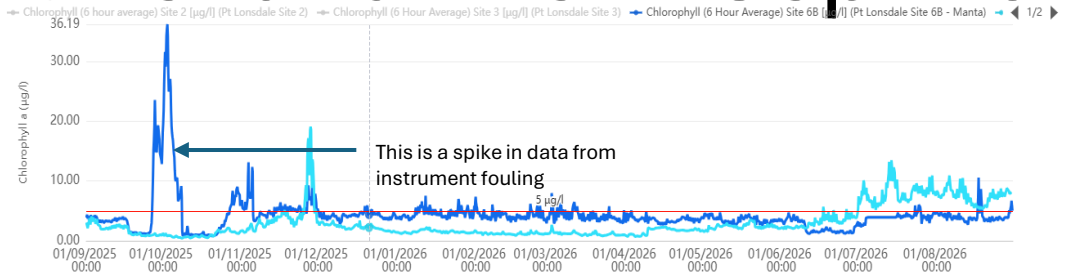
Note:

1. The rise in Chlorophyll- a concentrations at Waterway outlet when there is discharge from Lake Victoria
2. Low Chlorophyll- a concentrations at Waterway outlet when there is no discharge from Lake Victoria

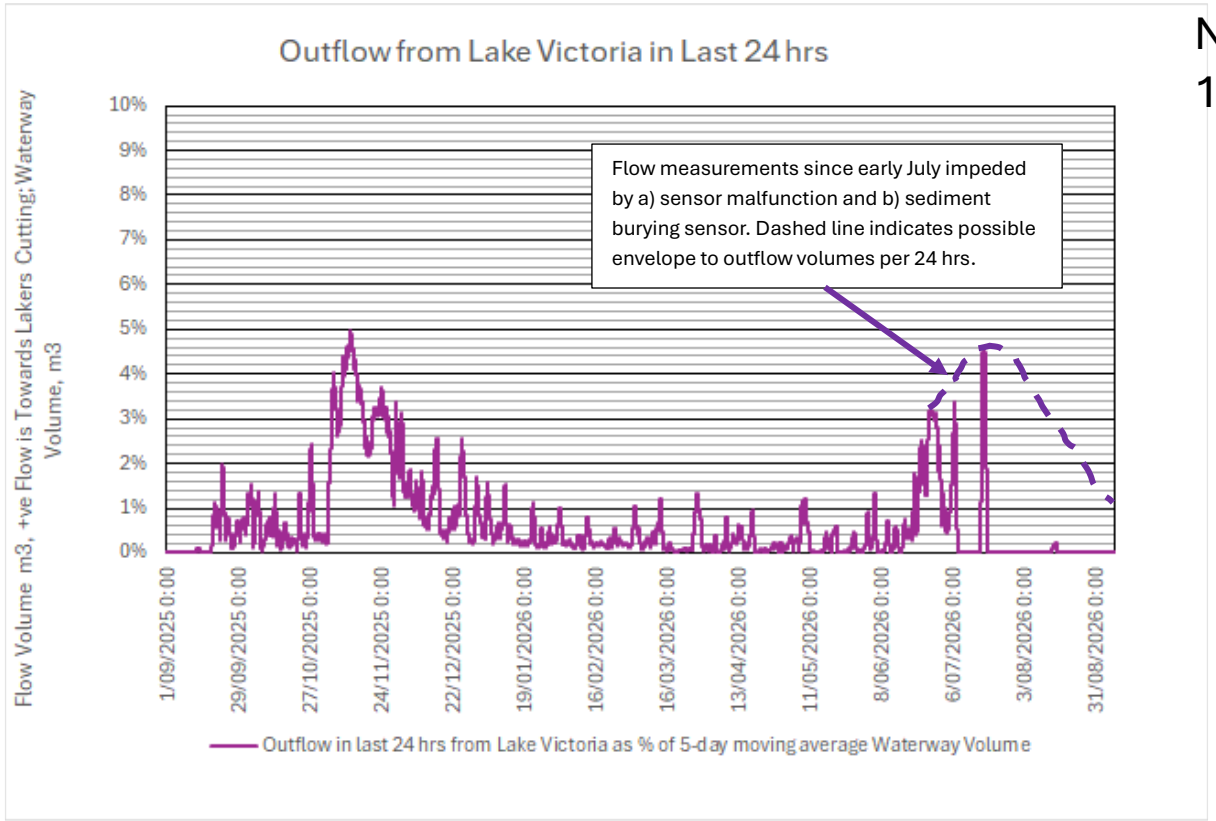
Lake Victoria Outflows and Chlorophyll-a in at Waterway Outlet and Inlet – Sept 2025 to Aug 2026

Chlorophyll-a at Waterway Inlet

Chlorophyll-a at Waterway Outlet



Outflow per 24 hrs from Lake Victoria as % of Waterway volume



Note:

1. Chlorophyll- a concentrations at Waterway outlet are at or below those at Waterway inlet except when there is discharge from Lake Victoria

This is consistent with experience 2023 to 2025

From The WQMP Compliance Report For 2025

Although the quality of water in Lake Victoria is not a compliance matter for the purpose of this WQMP compliance report, the quality of water in Lake Victoria is highly pertinent to the quality of water in The Point waterway and Lakers Cutting.

The current quality of water in Lake Victoria has become of concern; with potentially worrying implications for the future quality of water in The point Waterway and in Lakers Cutting unless measures are taken by those responsible for managing inflows to Lake Victoria and Lake Victoria itself, to improve this water quality in ways that are durable.

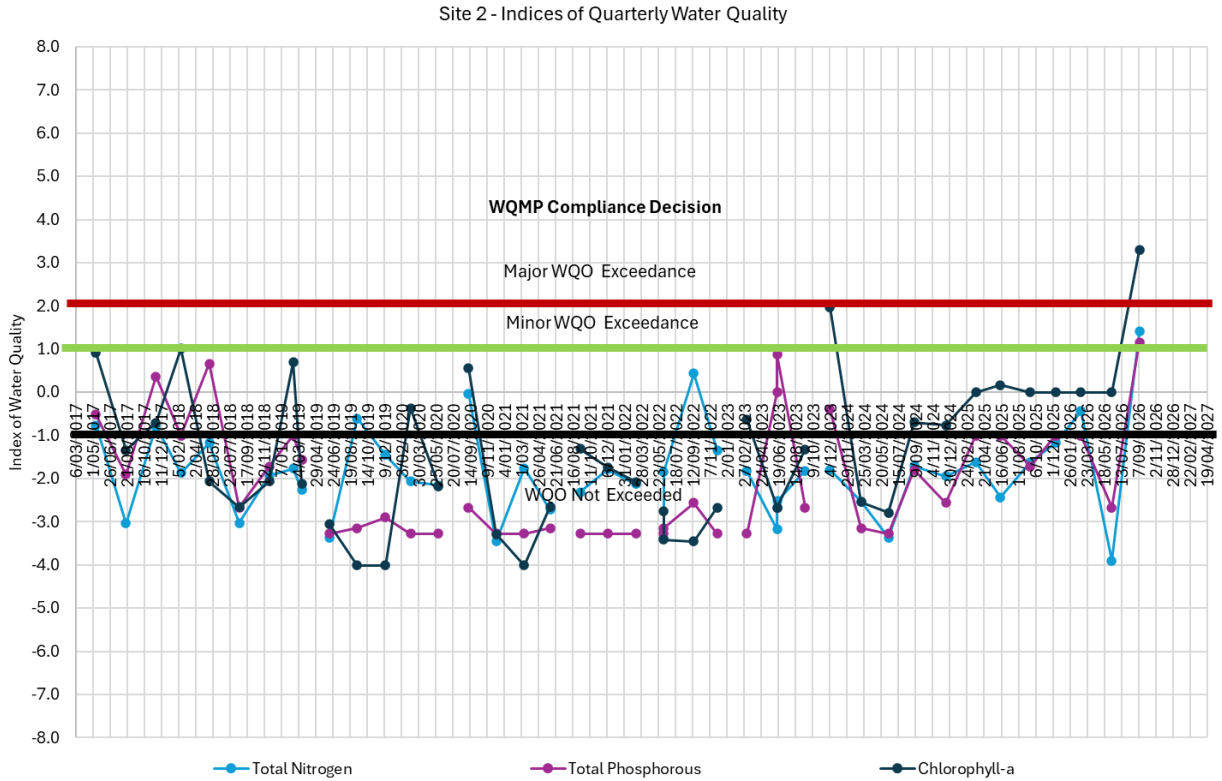
The described water quality observations are consistent with The Point waterway exhibiting impacts from blue green algae exported from Lake Victoria. Tidal flows through the waterway can transport these algae. It follows that to protect the water quality of Lakers Cutting, the quality of water in Lake Victoria needs to be improved and kept in better condition throughout the year.

The prediction of blue green algae blooms in a water body is difficult, with many factors involved. However, it is reasonable to assume that the presence of greater concentrations of nutrients and blue green algae in a waterbody or its inputs will increase the risk of a bloom occurring, in addition to the other risk factors involved. From this, the risk of blue green algae blooms at Lakers Cutting in certain conditions can be expected to be greater if influenced by poor water quality from Lake Victoria, than if those inflows do not contain elevated nutrient and blue green algae concentrations.
In view of this situation:

- ***the current season of monthly algal monitoring will continue through until March or April 2026; and.***
- ***The next season of monthly algal monitoring will commence in September 2026***

6. Indices of Quarterly Water Quality 2017 to 2026

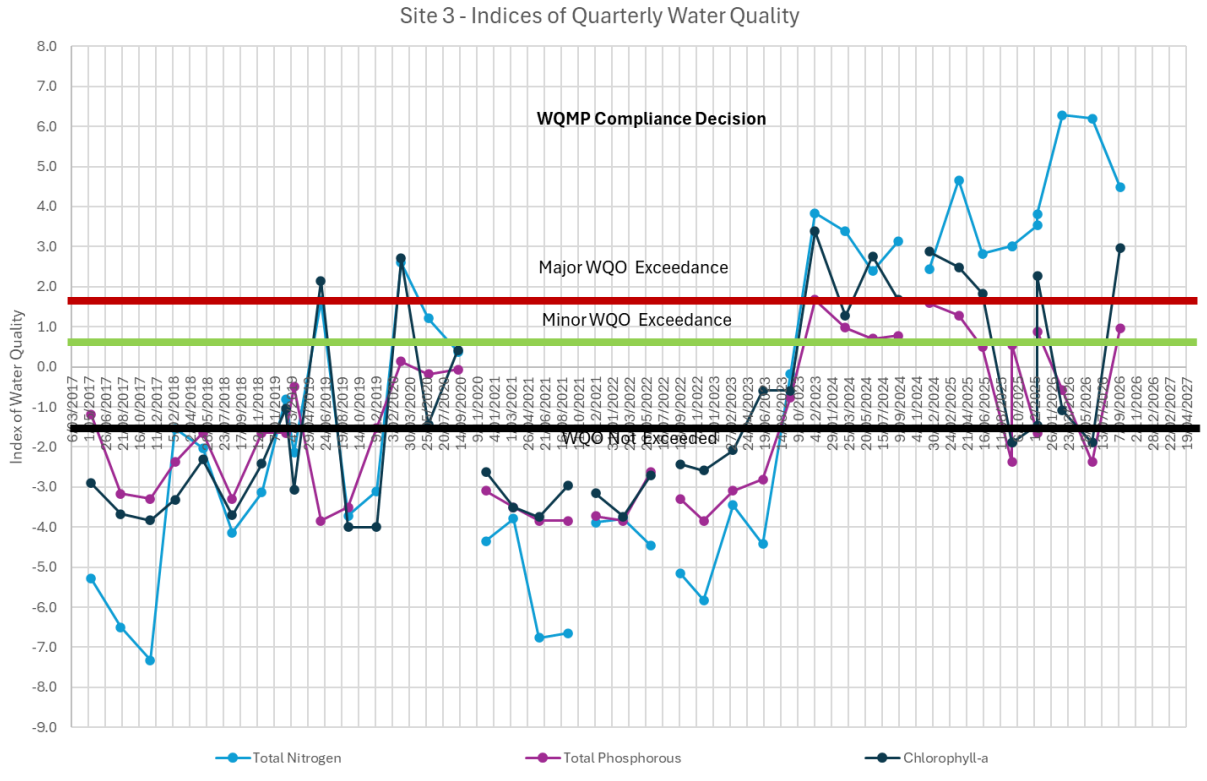
Indices of Quarterly Water Quality – 5/2017 to 9/2026 Lakers Cutting and Lake Victoria



Water Quality Concentrations Assessed Against Lakers Cutting WQO Using Criteria in Table 4 of the WQMP.

The graphed index values are the differences between the WQO's and Measured Concentrations, expressed as RPDs and divided by the assessed representative RPD from the available quality control data. The formula is $100 \times |(\text{Max } C_q - \text{WQO})| / ((\text{Max } C_q + \text{WQO})/2)/\text{RPD}_{ave}$, where Max C_q = the maximum of the quarterly parameter concentration; WQO = the Water Quality Objective for the parameter; and RPD_{ave} = the average over time of the Relative % Differences for parameter concentrations measured on duplicate samples, with a default value of 50% in the absence of data

Index Values < -1 imply WQO not exceeded; Values < 1, >-1 imply uncertain if WQO exceeded; Values > 1, <= 2 imply minor WQO exceedance; Values > 2 imply major WQO exceedance. For purposes of WQMP compliance Values < 1 interpreted to mean WQO not exceeded.

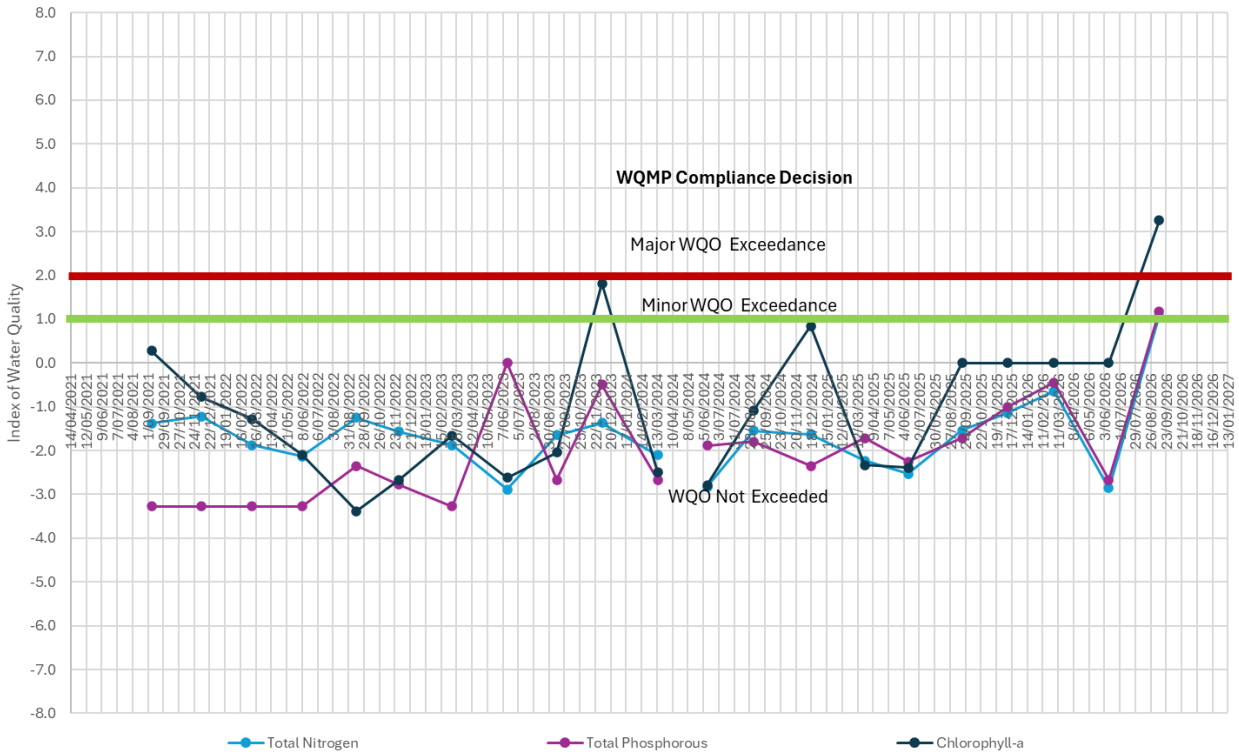


Water Quality Concentrations Assessed Against Lakers Cutting WQO Using Criteria in Table 4 of the WQMP.

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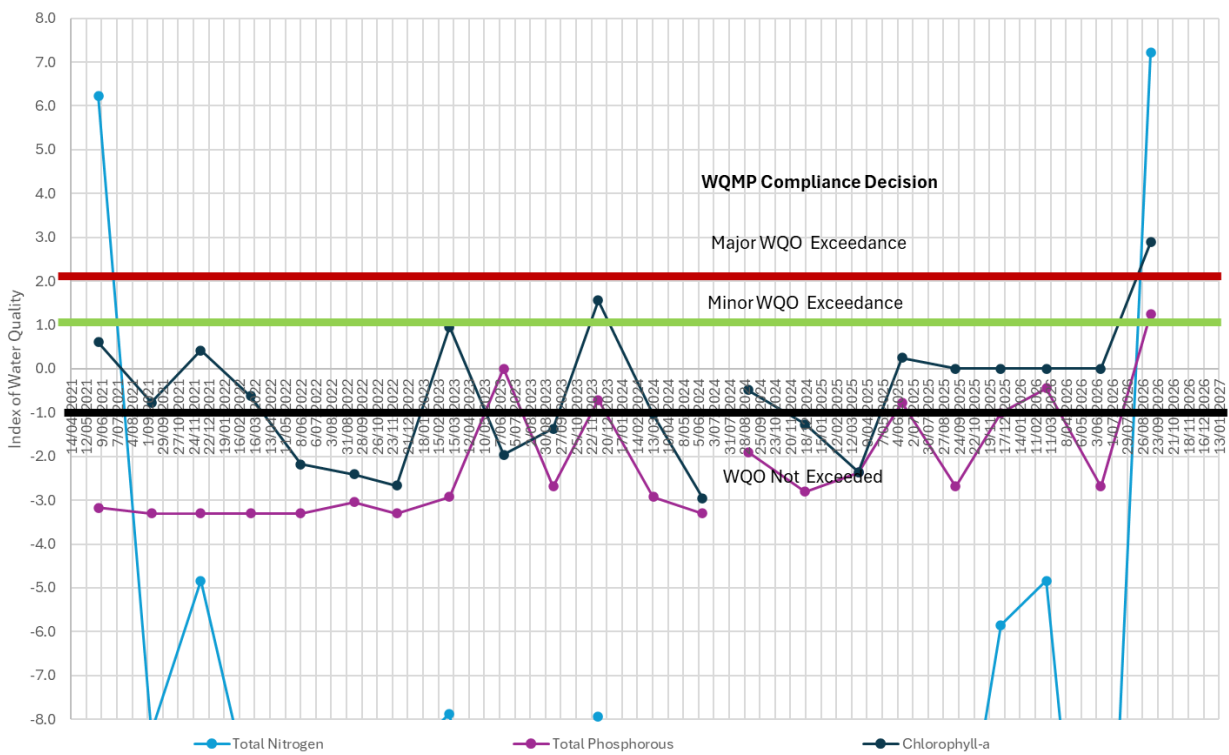
Indices of Quarterly Water Quality – 5/2017 to 9/2026 Waterway Inlet and Outlet



Water Quality Concentrations Assessed Against Lakers Cutting WQO Using Criteria in Table 4 of the WQMP.

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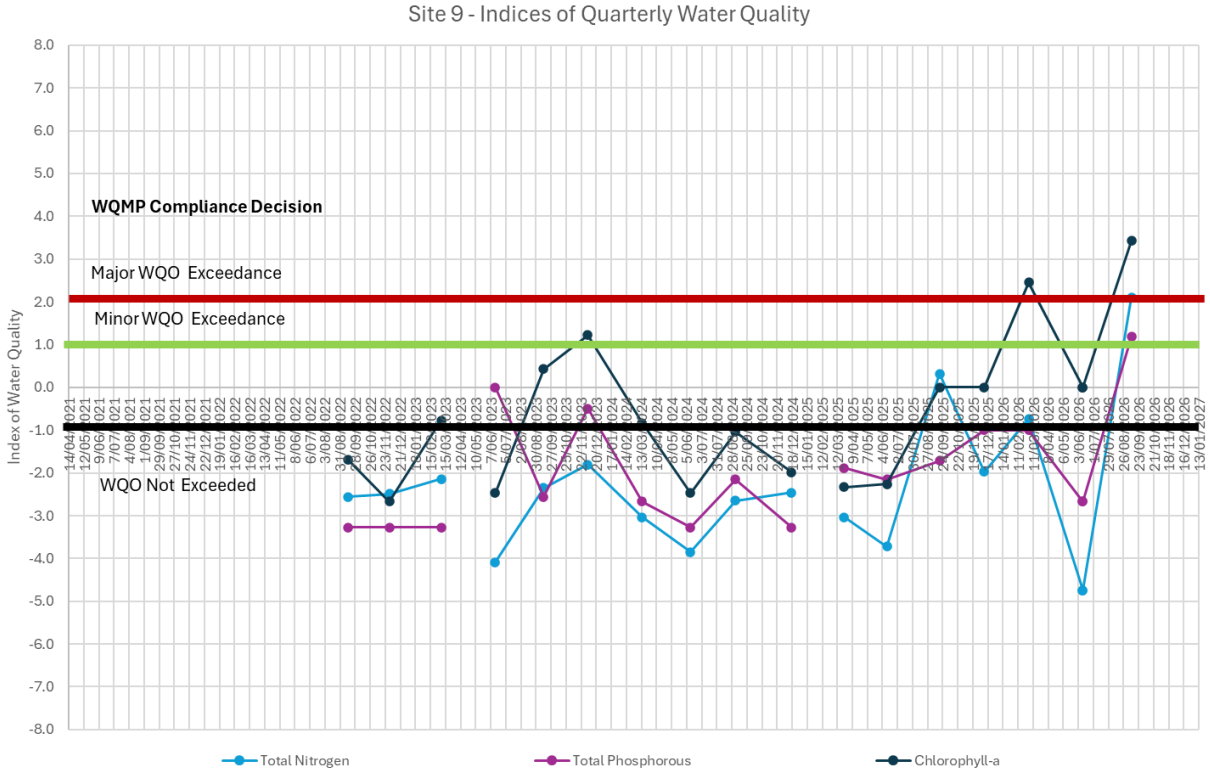


Water Quality Concentrations Assessed Against Lakers Cutting WQO Using Criteria in Table 4 of the WQMP.

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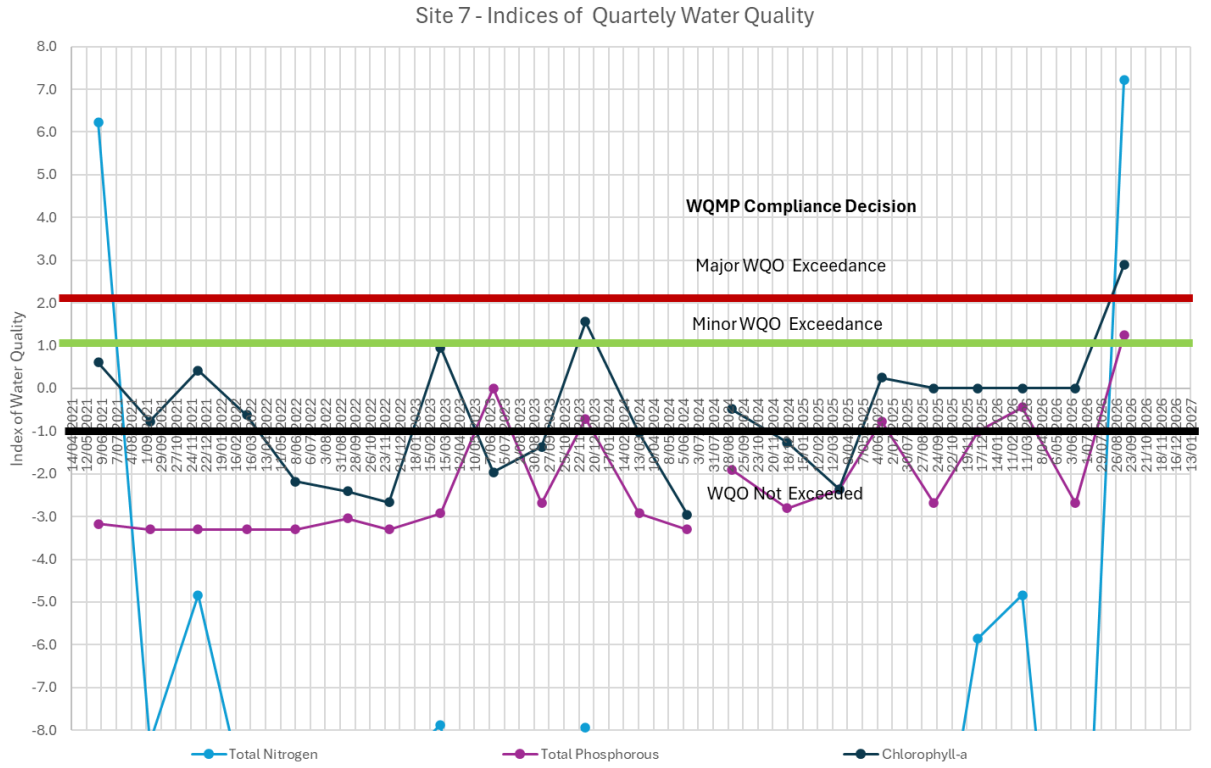
Indices of Quarterly Water Quality – 5/2017 to 6/2026
Site 9 and Waterway Outlet



Water Quality Concentrations Assessed Against Lakers Cutting WQO Using Criteria in Table 4 of the WQMP.

The graphed index values are the differences between the WQO's and Measured Concentrations, expressed as RPDs and divided by the assessed representative RPD from the available quality control data. The formula is 100 x | (Max C_q - WQO) | /((Max C_q +WQO)/2)/RPD_{ave}, where Max C_q = the maximum of the quarterly parameter concentration; WQO = the Water Quality Objective for the parameter; and RPD_{ave} = the average over time of the Relative % Differences for parameter concentrations measured on duplicate samples, with a default value of 50% in the absence of data

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