

Mid Mokau-Piopio – Quarterly River Monitoring February

Sample Collection Day: 18th February 2025

Water quality was **Excellent** in Mokau River-above Wairere Dam (Site 7), **Good** in Mokau River-HWY 4 (Site 13) and **Fair** in Mangapehi river-HWY 4 (Site 14) and Mapara stream (Site 15).

E. coli concentrations were very low in Mokau river (Sites 7 and 13), slightly elevated in Mapara stream (500 cells per 100 mL) and very high in Mangapehi river (1,400 cells per 100 mL), exceeding recommended health guidelines for swimming (540 cells per 100 mL).

Nitrogen: Nitrate concentrations were very low across all sites (≤ 0.06 mg/L), falling well below ecological toxicity levels (2.4 mg/L). **Ammonia** concentrations were low across all sites (≤ 0.02 mg/L). **Dissolved inorganic nitrogen (DIN)** was also very low across all sites (≤ 0.07 mg/L), falling well below the ecological impact threshold (0.5 mg/L).

Phosphorus: Dissolved reactive phosphorus (DRP) concentrations were very low across all sites (≤ 0.007 mg/L).

Suspended sediment/Water Clarity: Water clarity was excellent in Mokau river-above Wairere Dam (1.79 m) and Mangapehi river-HWY 4 (1.84 m), fair in Mokau river-HWY 4 (1.42 m) and poor in Mapara stream (1.31 m), relative to the national bottom line (1.34 m).

The results in the table below have been graded according to the National Policy Statement for Freshwater Management (NPS-FM, 2020).

Mid Mokau-Piopio	Human Contact	Ecosystem Health					
		Water Quality				Sediment	
		Nitrates Toxicity (mg N/L)	Ammonia Toxicity (mg N/L)	Dissolved Inorganic Nitrogen (mg N/L) ²	Dissolved Reactive Phosphorus (mg/L)	Water Clarity (m) ¹	National Bottom Line
Sample Date: 18-Feb-25 Lab: ALS-Analytica	E. coli/100 ml						
7-Mokau R, above Wairere Dam	170	0.04	0.02	0.06	0.002	1.79	1.34
13-Mokau R. HWY 4	110	0.06	0.008	0.07	0.004	1.42	1.34
14-Mangapehi R. HWY 4	1,400	0.001	<0.005	0.001	0.003	1.84	1.34
15-Mapara Stm	500	0.06	0.009	0.07	0.007	1.31	1.34

¹Water clarity has been converted from measured turbidity using the formula $\ln(\text{CLAR}) = 1.21 - 0.72 \ln(\text{TURB})$ (Franklin, Booker & Stoffels, 2020).

²Guideline values to assess ecological impacts of nitrogen on freshwater life. Attribute band limits are from the NPS-FM consultation draft (2019)

Attribute Band		
A	Ecosystem Health	Human Contact
B		
C		
D		
E		

Mokau River – Summary of water quality collected from 15 sites across the Mokau River catchment on 18th February 2025

Most sites had low nutrient levels, but elevated E. coli and poor water clarity were common, with a few locations exceeding human health and ecological health thresholds.

E. coli: 60% of sites had elevated concentrations (between 890 and 3,100 cells per 100 mL), 20% (3 sites) had slightly elevated concentrations (between 300 and 500), and 20% had low concentrations (≤ 170).

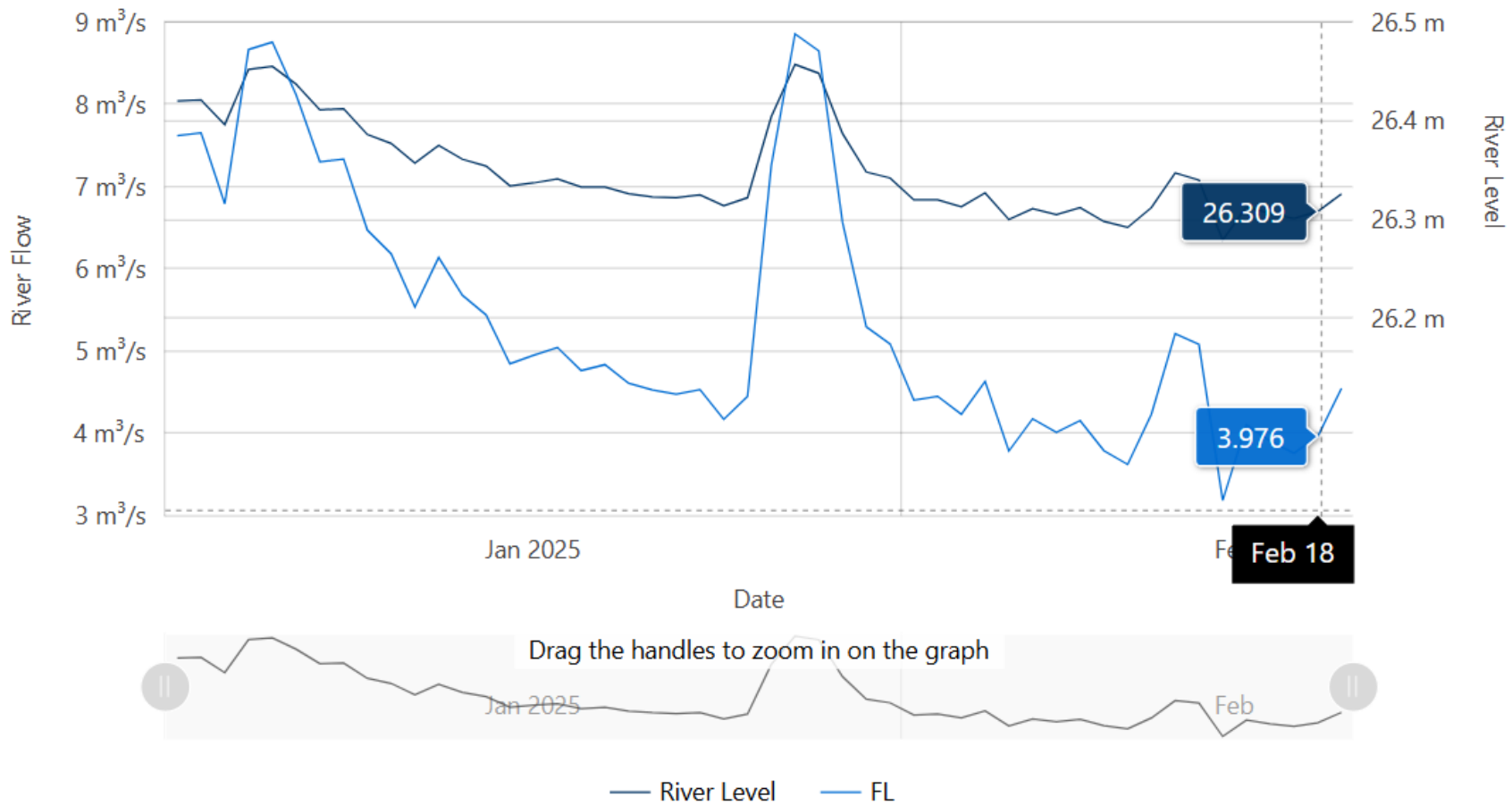
Nitrogen: Nitrate: 100% of sites had low concentrations (range = 0.001 to 0.56 mg/L). **Ammonia:** 100% of sites were low to moderate (range = <0.005 to 0.200 mg/L). **Dissolved Inorganic Nitrogen (DIN):** 93% of sites had low concentrations (≤ 0.50 mg/L), and 7% (1 site) was slightly elevated (0.58 mg/L), exceeding the ecological impact threshold of 0.5 mg/L.

Phosphorus: Dissolved Reactive Phosphorus (DRP): 80% of sites had low concentrations (between <0.002 and 0.009 mg/L), 13% (2 sites) were slightly elevated (0.011 – 0.012 mg/L), and 7% (1 site) returned a very high concentration (0.024 mg/L).

Suspended Sediment / Water Clarity: 47% of sites had good water clarity (A or B band), 7% (1 site) had fair water clarity (C band), and the remaining 47% had poor water clarity (D band). Bands for each site relate to the National Bottom Line (NBL) for water clarity and depend on landscape characteristics including geology, climate, and elevation. The NBL for Mokau River monitoring sites is either 1.34 m or 0.61 m, depending on local landscape characteristics.

River Level and Flow Rate – Mokau River, Totoro Road

The below chart presents continuous data collected by the Waikato Regional Council for Mokau River between 1st January and 19th February 2025. River Level and Flow Rate on the day of sampling (18-Feb) are highlighted.



Data source: Waikato Regional Council [envirohub website](#) for environmental data.

Prepared by Freshwater Ecologist Merrin Whatley (PhD)