

Upper Mangaokewa – Quarterly River Monitoring

Sample Collection Day: 18th February 2025

Water quality was **Fair** across all sites – Mangaokewa stream-viaduct (Site 4), Mangawhauhi stream (Site 5), Waiteti stream-viaduct (Site 6) and Waiteti stream-upper (Site 46).

E. coli concentrations were low in Waiteti stream-upper (150 cells per 100 mL), slightly elevated in Mangaokewa stream (350 cells per 100 mL) and very high in Mangawhauhi stream (2,000 cells per 100 mL) and Waiteti stream-viaduct (3,100 cells per 100 mL), exceeding recommended health guidelines for swimming (540 cells per 100 mL).

Nitrogen: Nitrate concentrations were very low across all sites, falling well below ecological toxicity levels (2.4 mg/L) and Waikato, Plan Change One targets (0.525 mg/L). Mangawhauhi stream had the lowest nitrate concentrations (0.08 mg/L) and Waiteti stream-viaduct had the highest concentrations (0.4 mg/L). **Ammonia** concentrations were very low in Waiteti stream-viaduct (0.005 mg/L) and slightly higher in the other three sites, exceeding Plan Change One targets (0.005 mg/L). **Dissolved inorganic nitrogen (DIN)** was also low across all sites (≤ 0.40 mg/L), falling below the ecological impact threshold (0.5 mg/L).

Phosphorus: Dissolved reactive phosphorus (DRP) concentrations were low in Waiteti stream (0.007 mg/L), slightly elevated in Mangaokewa stream-viaduct (0.012 mg/L) and Waiteti stream-upper (0.014 mg/L) and very high in Mangawhauhi stream (0.022 mg/L).

Suspended sediment/Water Clarity: Water clarity was excellent in Mangaokewa stream and Mangawhauhi stream (1.97 m), fair in Waiteti stream-viaduct (1.42 m) and poor Waiteti stream-upper (1.15 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) and Waikato Plan Change One (PC1, 2020), using the strictest applicable measure.

Upper Mangaokewa ¹ Sample Dates: 18-Feb-25 Lab: Analytica	Human Contact	Ecosystem Health					
	E. coli/100 ml	Water Quality				Sediment	
		Nitrates (mg N/L)	Ammonia (mg N/L)	Dissolved Inorganic Nitrogen (mg N/L) ³	Dissolved Reactive Phosphorus (mg/L)	Water Clarity (m) ²	National Bottom Line
4-Mangaokewa Stm (viaduct)	350	0.29	0.020	0.31	0.012	1.97	1.34
5-Mangawhauhi Stm 071	2,000	0.08	0.008	0.09	0.022	1.97	1.34
6-Waiteti Stm (viaduct)	3,100	0.40	<0.005	0.40	0.007	1.42	1.34
46-Waiteti stream (Upper)	150	0.37	0.010	0.38	0.014	1.15	1.34

¹Assessed against Short-term PC1 targets & NPS-FM National Bottom Lines - where the most stringent measures apply.

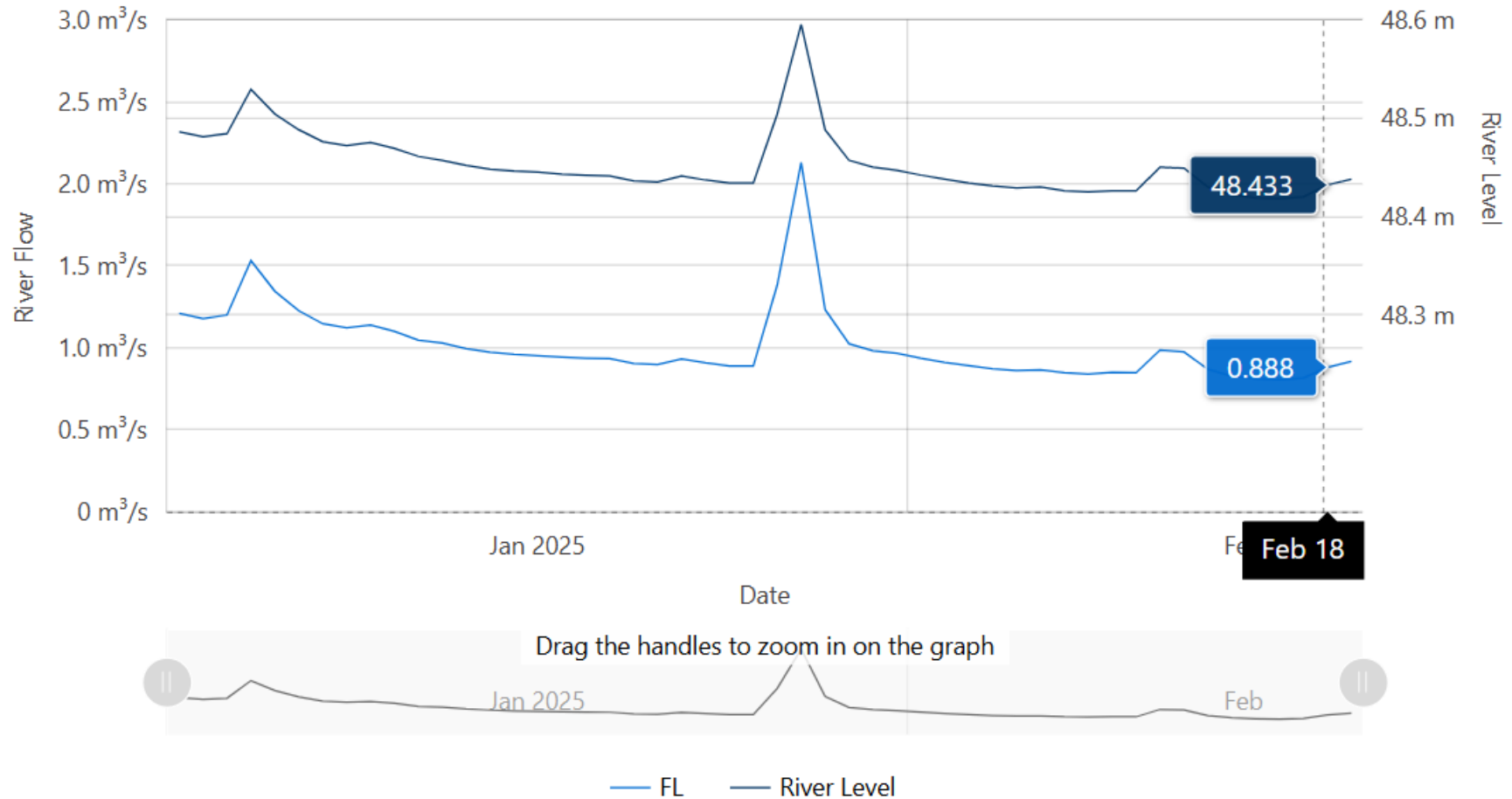
²Water clarity has been converted from measured turbidity using the formula $\ln(\text{CLAR}) = 1.21 - 0.72 \ln(\text{TURB})$ (Franklin, Booker & Stoffels, 2020).

³Guideline values to assess ecological impacts of nitrogen on freshwater life. Attribute band limits are from the NPS-FM consultation draft (2019)

Attribute		
A	Ecosystem Health	Human Contact
B		
C		
D		
E	Human Contact only	

River Level and Flow Rate – Mangaokewa Stream, Te Kuiti

The below chart presents continuous data collected by the Waikato Regional Council for Mangaokewa 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)