Upper Mokau & Mangapehi – Quarterly River Monitoring

Sample Collection Day: 18th February 2025

*Water quality was **Good** in Mokau river-HWY 4 (Site 13) and Mangapehi river (Site 18) and **Fair** in Mangapehi river-HWY 4 (Site 14).*

E. coli concentrations were very low in Mokau river (110 cells per 100 mL), slightly elevated in Mangapehi river (300 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 very low across all sites (≤ 0.008 mg/L). **Dissolved inorganic nitrogen (DIN)** was also very low across all sites (≤ 0.13 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 (≤ 0.006 mg/L).

Suspended sediment/Water Clarity: Water clarity was excellent in Mangapehi river (range = 1.84 to 1.97 m), and fair in Mokau river-HWY 4 (1.42 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).

Upper Mokau-Mangapehi	Human Contact	Ecosystem Health					
		Water Quality				Sediment	
Sample Dates: 18-Feb-25 Lab: ALS-Analytica	E. coli/100 ml	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
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
18-Mangapehi R.	300	0.13	<0.005	0.13	0.006	1.97	1.34

[1]Water clarity has been converted from measured turbidity using the formular ln(CLAR) = 1.21 – 0.72 ln(TURB) (Franklin, Booker & Stoffels, 2020).
[2]Guideline 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	Human Contact only	

Prepared by Freshwater Ecologist Merrin Whatley (PhD)

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.

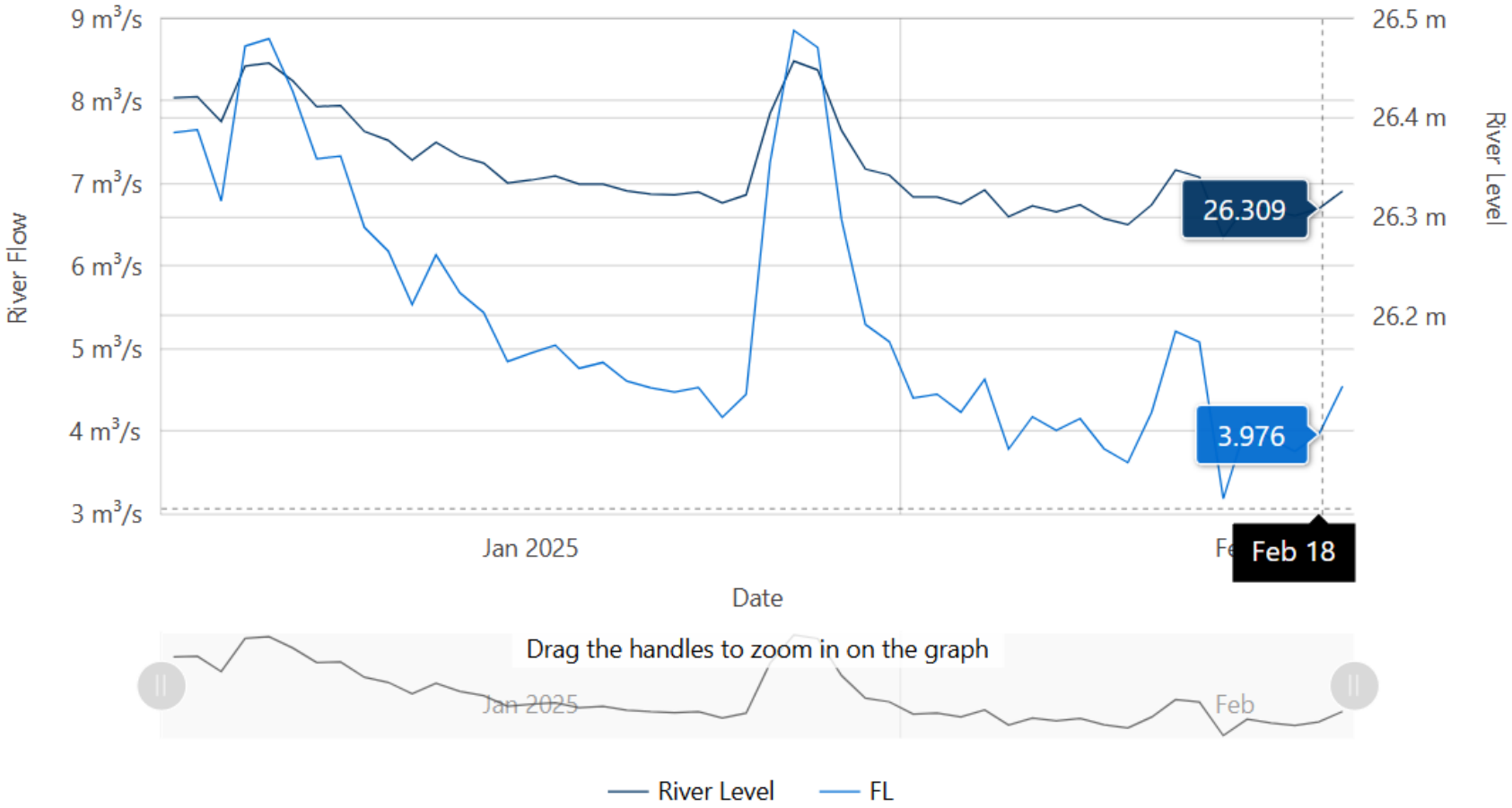
Phosphorus: Dissolved Reactive Phosphorus (DRP): 80% of sites had low concentrations (between <0.002 and 0.009 mg/L), 13% (2 sites) were slightly elevated (0.011 – 0.012 mg/L), and 7% (1 site) returned a very high concentration (0.024 mg/L).

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.

Prepared by Freshwater Ecologist Merrin Whatley (PhD)

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)