Mapiu-Mapara – Quarterly River Monitoring May

Sample Collection Day: 15th May 2025

*Water quality was **Fair** across all sites – Mapara stream (Site 15), Mangaiti stream (Site 19), Mapiu stream (Site 20) and Puputaha stream (Site 26).*

E. coli concentrations were low in Mapara stream and Mapiu stream (≤ 230 cells per 100 mL), slightly elevated in Mangaiti stream (440 cells per 100 mL) and elevated in Puputaha stream (690 cells per 100 mL), exceeding swimming guidelines (540 cells per 100 mL).

Nitrogen: Nitrate concentrations were low across all sites (≤ 0.43 mg/L), falling well below ecological toxicity levels (2.4 mg/L). Mapiu stream had the lowest concentration (0.23 mg/L) and Puputaha stream had the highest concentration (0.43 mg/L). **Ammonia** concentrations were low across all sites (≤ 0.05 mg/L). **Dissolved inorganic nitrogen (DIN)** was low across all sites (≤ 0.43 mg/L), falling below the ecological impact threshold (0.5 mg/L).

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

Suspended sediment/Water Clarity: Water clarity was *Excellent* in Puputaha stream (1.84 m) but was *Poor* in the other three sites (≤ 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).

Mapiu-Mapara	Human Contact	Ecosystem Health					
		Water Quality				Sediment	
Sample Dates: 15-May-25 Lab: 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
15-Mapara Stm	210	0.38	<0.005	0.38	0.006	1.15	1.34
19-Mangaiti Stm	440	0.26	0.05	0.26	<0.002	0.84	1.34
20-Mapiu Stm	230	0.23	0.02	0.23	0.003	0.85	1.34
26-Puputaha Stream	690	0.43	0.008	0.43	0.007	1.84	1.34

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

[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)

Prepared by Freshwater Ecologist Merrin Whatley (PhD)

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

Water quality was Fair across the Mokau River Catchment. While most sites had low to moderate levels of E. coli, nitrogen, and phosphorus, and water clarity was good at over half the locations, a few sites exceeded ecological thresholds for nutrients and water clarity.

E. coli (Microbial Contamination):

- Most sites (60%) had low concentrations (≤ 230 cells per 100 mL) low risk for swimming.
- Two sites (13%) had very low concentrations (< 100), considered safe for livestock drinking water[1].
- A third of sites (33%) had slightly elevated concentrations (370 - 490 cells per 100 mL).
- One site (Puputaha stream) had high levels (690 cells per 100 mL) which could pose a health risk, especially when swimming.

Nitrogen

Nitrate:

- All 15 sites had low to moderate concentrations (0.06 - 0.80 mg/L), falling well below ecological toxicity thresholds (2.4 mg/L) for native fish and invertebrates.
- However, 4 sites exceeded ecological impact thresholds (0.5 mg/L), which can affect stream health.

Ammonia:

- All sites had very low concentrations (<0.005 - 0.08 mg/L), little concern for aquatic life.

Dissolved Inorganic Nitrogen (DIN):

- Most sites (73%) had low concentrations (≤ 0.46 mg/L).
- Four sites (27%) were slightly elevated (0.63 - 0.80 mg/L), exceeding the ecological impact threshold of (0.5 mg/L).

Phosphorus

Dissolved Reactive Phosphorus (DRP):

- Two-thirds of sites (67%) had low levels (<0.002 - 0.009 mg/L).
- Five sites (33%) were slightly elevated (0.011 – 0.014 mg/L) which can contribute to problematic plant and algae growth if levels stay high.

Suspended Sediment / Water Clarity:

- Over half of sites (53%) had *Good* water clarity (A or B band).
- Two sites (13%) had *Fair* water clarity (C band).
- A third of sites (33%) had *Poor* water clarity (D band).

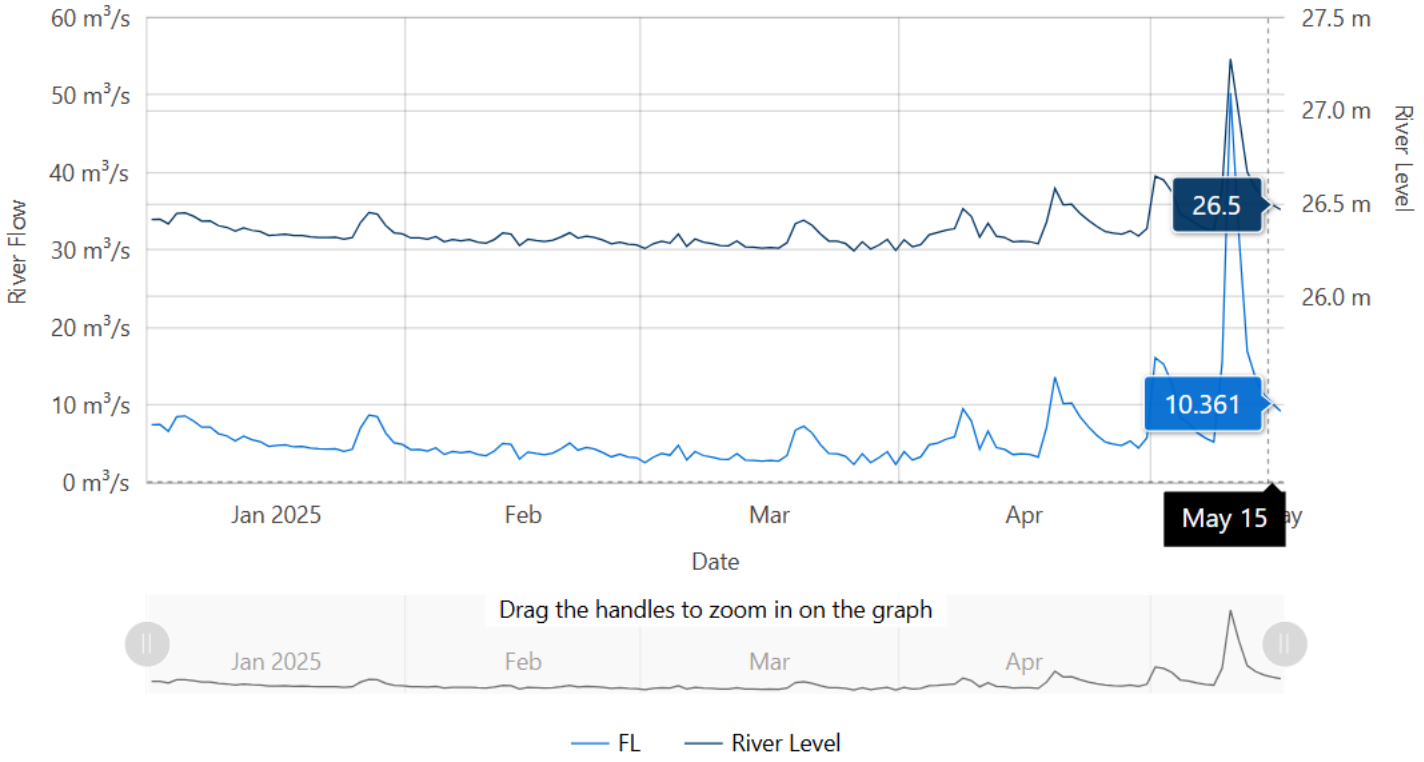
Water clarity bands for each site are based on the National Bottom Line (NBL), which varies depending on local landscape characteristics (e.g. geology, climate, and elevation). For Mokau River sites, the NBL is either 1.34 m or 0.61 m, depending on location.

[1] Drinking water for livestock should contain < 100 cfu/100 mL (median value) of E. coli. Livestock Drinking Water Guidelines (2023), Australian & New Zealand Guidelines for Fresh & Marine Water Quality.

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 16th May 2025. River Level and Flow Rate on the day of sampling (15-May) are highlighted.



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

Prepared by Freshwater Ecologist Merrin Whatley (PhD)