

## Upper Mapiu-Mapara – Quarterly River Monitoring

Sample Collection Day: 12<sup>th</sup> September 2023

Overall, water quality was fair on 12<sup>th</sup> September. Nutrients were low, however, *E. coli* and suspended sediment were elevated at many sites.

*E. coli* was exceptionally low at 21-Waewaepitau Stream (64), while concentrations were elevated at all other sites ( $\geq 270$ ). **Nitrate** concentrations were below toxicity levels at all sites being lowest at 21-Waewaepitau Stream (0.07 mg/L) and highest at 26-Puputaha Stream (0.52 mg/L). **Ammonia** concentrations were low at all sites ( $\leq 0.02$  mg/L). 26-Puputaha Stream had a **dissolved inorganic nitrogen** concentration exceeding 0.5 mg/L, potentially impacting the health of the river. **Dissolved reactive phosphorus** concentrations were exceptionally low at all sites ( $\leq 0.006$  mg/L). **Water clarity** was excellent at 21-Waewaepitau Stream (1.98 m) and 20-Mapiu stream (1.86 m) but scored poorly at all sites ( $\leq 0.94$  m), relative to the national bottom line (1.34 m).

Mapiu-Mapara	Human Contact	Ecosystem Health					
		Water Quality				Sediment	
		Nitrates Toxicity (mg N/L)	Ammonia Toxicity (mg N/L)	Dissolved Inorganic Nitrogen (mg N/L) <sup>2</sup>	Dissolved Reactive Phosphorus (mg/L)	Water Clarity (m) <sup>1</sup>	National Bottom Line
Sample Dates: 12-Sep-23 Lab: Analytica	E. coli/100 ml						
15-Mapara Stm	310	0.40	0.01	0.41	0.004	0.60	1.34
19-Mangaiti Stm	1200	0.27	0.02	0.29	<0.002	0.86	1.34
20-Mapiu Stm	270	0.36	0.01	0.37	<0.002	1.86	1.34
21-Waewaepitau Stm	64	0.07	0.007	0.08	0.004	1.98	1.34
26-Puputaha Stream	380	0.52	0.007	0.53	0.006	0.94	1.34

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

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

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

## Mokau River – All sites in all sub-catchments

Summary of water quality collected at 16 sites located across the Mokau River catchment sampled on 12<sup>th</sup> or 13<sup>th</sup> of September.

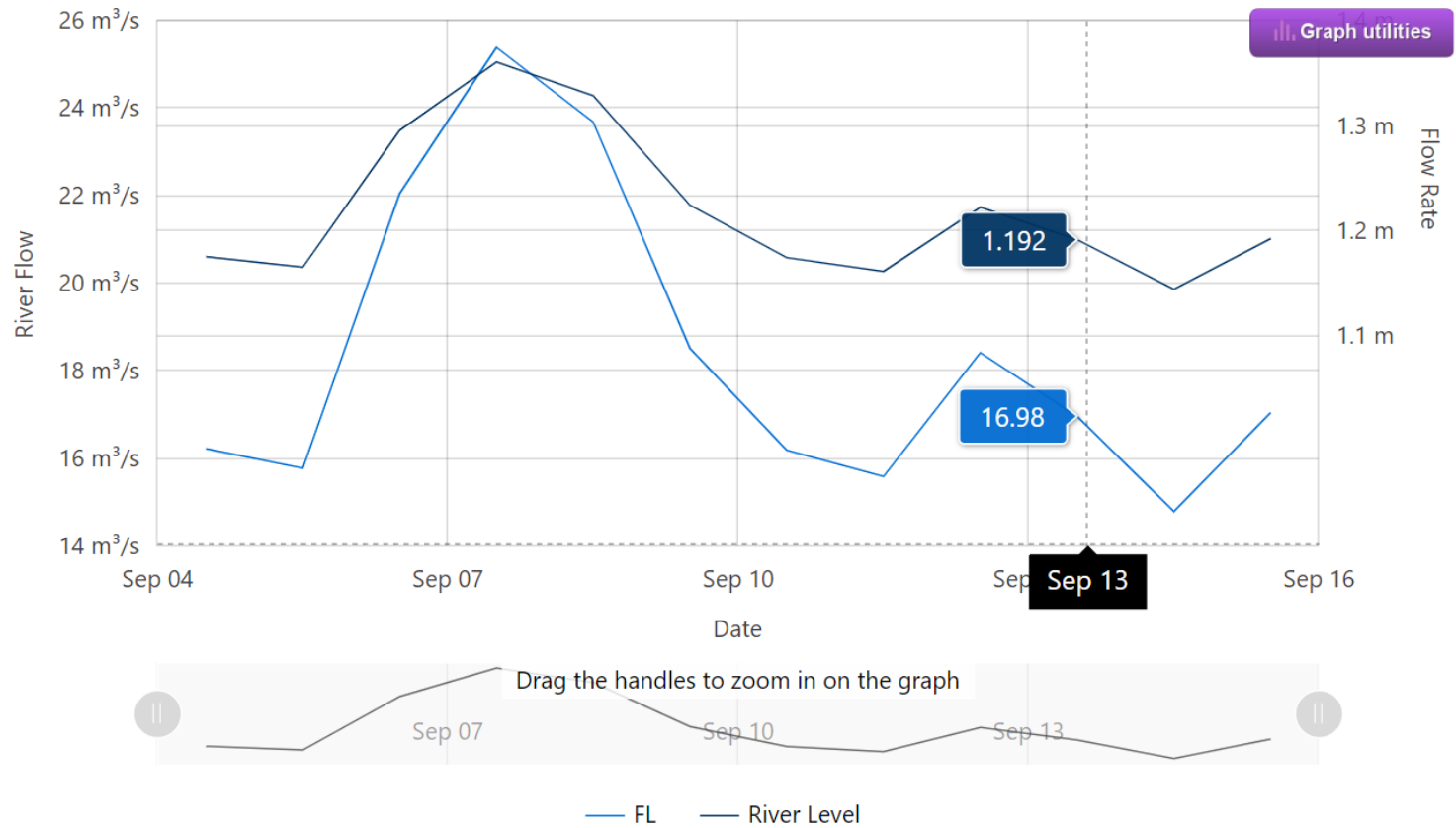
***E. coli***: 63% of all sites had low concentrations ( $\leq 220$ ), 25% had slightly elevated concentrations (between 270 - 380) and 13% of sites had elevated concentrations ( $> 550$ ). **Nitrate and Ammonia**: 100% of sites had concentrations below toxicity levels (Nitrate  $\leq 0.79$  mg/L; Ammonia  $\leq 0.09$ ). However, 50% of sites had Dissolved Inorganic Nitrogen (DIN) concentrations over 0.5 mg/L. Ecological impacts, including problematic growth of algae and/or aquatic plants and loss of sensitive aquatic species are likely when the combined concentration of DIN regularly exceed 0.5 mg/L.

**Dissolved reactive phosphorus**: 94% of sites had low concentrations ( $\leq 0.009$  mg/L) and one site (16%) had an elevated concentration (0.011 mg/L).

**Water clarity**: 56% of sites had good water clarity (A or B band) and 44% of sites had poor clarity (D band). Bands for each site relate to the national bottom line for water clarity, which is either 1.34 m or 0.61 m, and is dependent on the local geology, climate and elevation.

**Scale:**

- Logarithmic Scale     Display River Level



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

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