Upper Mapiu-Mapara – Quarterly River Monitoring

Sample Collection Day: 14 May 2024

Overall, water quality was Good, except for water clarity which was low at all but one site.

E. coli was low at all sites (≤ 140) and well within recommended health levels for swimming (540). **Nitrate** concentrations were low at all sites and well below ecological toxicity levels (2.4 mg/L). Nitrates were lowest at 19-Mangaiti stream (0.18 mg/L) and highest at 26-Puputaha Stream (0.44 mg/L). **Ammonia** concentrations were low at all sites (≤ 0.01 mg/L). **Dissolved inorganic nitrogen** was low at all sites (≤ 0.44 mg/L). **Dissolved reactive phosphorus** concentrations were very low at all sites (≤ 0.005 mg/L). **Water clarity** was excellent at 26-Puputaha stream (2.29 m), low at 15-Mapara stream (1.45 m) and poor at the other two sites (≤ 1.28 m), relative to the national bottom line (1.34 m).

Mapiu-Mapara	Human Contact	Ecosystem Health					
		Water Quality				Sediment	
Sample Date: 14-May-24 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	94	0.30	<0.005	0.30	0.004	1.45	1.34
19-Mangaiti Stm	100	0.18	0.01	0.19	<0.002	1.28	1.34
20-Mapiu Stm	100	0.26	<0.005	0.26	<0.002	1.07	1.34
26-Puputaha Stream	140	0.44	<0.005	0.44	0.005	2.29	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	

Mokau River – *Summary of water quality collected at 15 sites across the Mokau River catchment May 2024*

E. coli and Nutrients (nitrate, ammonia and dissolved reactive phosphorus) were low at most sites. The key contaminant was suspended sediment.

***E. coli*:** 93% of all sites had low concentrations (≤240) and 7% (1 site) had elevated concentrations (510). **Nitrate and Ammonia:** 100% of sites were well below toxicity levels. Nitrate range (0.15 – 0.79 mg/L); Ammonia range (<0.005 - 0.02). **Dissolved inorganic nitrogen:** 73% of sites had low concentrations (≤0.44 mg/L) and 27% (4 sites) fell above the ecological impact threshold of 0.5 mg/L with the highest concentration being 0.79 mg/L. **Dissolved reactive phosphorus**: 100% of sites had low concentrations (between <0.002 - 0.008 mg/L). **Water clarity:** 60% of sites had good water clarity (A or B band), 20% (3 sites) had reduced water clarity (C band) and the remaining 20% had poor water clarity (D band). Bands for each site relate to the national bottom line (NBL) for water clarity and are dependent on landscape characteristics including geology, climate and elevation. The NBL for Mokau River's monitoring sites are either 1.34 m or 0.61 m, dependant the local landscape characteristics.

Prepared by Freshwater Ecologist Merrin Whatley (PhD)