

Upper Mangaokewa – Quarterly River Monitoring

Sample Collection Day: Most sites were sampled on 14th May 2024. Site 4-Mangaokewa stream was sampled on 20th June 2024.

Overall water quality was Fair. Nitrogen parameters and suspended sediment were elevated at some sites.

E. coli concentrations were low at all sites (≤ 190), falling within recommending health levels for swimming (540). **Nitrate** concentrations were low at two sites (≤ 0.41) and elevated at 4-Mangaokewa stream and 5-Mangawhauwhi stream, where they were above regional PC1 targets (0.525 mg/L). All sites fell well below ecological toxicity levels (2.4 mg/L). Nitrates were lowest at 46-Waiteti Stream-Upper (0.15 mg/L) and highest at 4-Mangaokewa stream (0.83 mg/L). **Ammonia** concentrations were low at two sites (<0.005 mg/L) but exceeded PC1 targets (0.005 mg/L) at the two Waiteti stream sites. **Dissolved inorganic nitrogen** concentrations were low at the two Waiteti stream sites (≤ 0.41 mg/L) and slightly elevated at the other two sites, potentially impacting ecological health by promoting excessive growth of algae, aquatic weeds and impacting sensitive aquatic life. **Dissolved reactive phosphorus** concentrations were low at all sites (≤ 0.007 mg/L). **Water clarity** was excellent at 5-Mangawhauwhi Stream (3.13 m) and good at the two Waiteti stream sites. Water clarity was poor at 4-Mangaokewa stream (1.14 m), relative to the national bottom line (1.34 m).

Upper Mangaokewa ¹ Sample Dates: 14-May-24 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 (20.06.24)	100	0.83	<0.005	0.83	0.007	1.14	1.34	
5-Mangawhauwhi Stm 071	190	0.74	<0.005	0.74	0.006	3.13	1.34	
6-Waiteti Stm (viaduct)	110	0.41	0.009	0.41	0.003	1.69	1.34	
46-Waiteti stream (Upper)	22	0.15	0.006	0.16	0.006	1.56	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	