

Upper Mokau & Mangapehi – Quarterly River Monitoring

Sample Collection Days: 22nd and 28th February 2024

Overall, water quality Excellent!

E. coli concentrations was low at all sites (260) and well within recommend health limits for swimming (540). **Nitrate** concentrations were low at all sites and well below ecological toxicity levels (2.4 mg/L). Nitrates were lowest at 13-Mokau R. HWY 4 (0.08 mg/L) and highest at 18-Mangapehi River (0.34 mg/L). **Ammonia** concentrations were very low at all sites (< 0.005 mg/L). **Dissolved inorganic nitrogen** concentrations were low at all sites (\leq 0.34 mg/L). **Dissolved reactive phosphorus** concentrations were very low at all sites (\leq 0.003 mg/L). Water clarity was excellent at 13-Mokau River and 18-Mangapehi River (\geq 1.79 m) and good at 14-Mangapehi River 1.56 m), relative to the national bottom line (1.34 m).

Upper Mokau-Mangapehi	Human Contact	Ecosystem Health					
		Water Quality					Sediment
		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	
Sample Dates: 22 & 28-Feb-24 Lab: Analytica	E. coli/100 ml						
13-Mokau R. HWY 4	260	0.08	<0.005	0.08	0.003	1.79	1.34
14-Mangapehi R. HWY 4	240	0.10	<0.005	0.10	0.003	1.56	1.34
18-Mangapehi R.	230	0.34	<0.005	0.34	0.002	1.97	1.34

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

²Guideline 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 February 2024

Nutrient concentrations (nitrate, ammonia and dissolved reactive phosphorus) were low at most sites. Key contaminants were *E. coli* and suspended sediment.

E. coli: 60% of all sites had low concentrations (\leq 260) and 40% had slightly elevated concentrations (between 300 - 450). **Nitrate and Ammonia:** 100% of sites were well below toxicity levels. Nitrate range (0.04 – 0.53 mg/L); Ammonia range (<0.005 - 0.03). **Dissolved inorganic nitrogen:** 87% of sites had low concentrations (\leq 0.4 mg/L) and 13% (2 sites) fell above the ecological impact threshold of 0.5 mg/L with the highest concentration being 0.54 mg/L. **Dissolved reactive phosphorus:** 100% of sites had low concentrations (between <0.002 - 0.01 mg/L). **Water clarity:** 53% of sites had good water clarity (A or B band), 13% (2 sites) had reduced water clarity (C band) and 33% of sites 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.