

Mokauiti-Aria – Quarterly River Monitoring

Sample Collection Day: 28th February 2024

Overall, water quality was Good, except for slightly elevated *E. coli* at one site and poor water clarity at two sites.

E. coli concentrations were low at 3 sites (≤ 200) and slightly elevated at 22-Huioteko stream (320). All sites fell within recommend health limits for swimming (540). **Nitrate** concentrations were very low at all sites, and well below ecological toxicity levels (2.4 mg/L). Nitrates were lowest at 28-Mokauiti stream (0.06 mg/L) and highest at 23-Whareroa stream (0.12 mg/L). **Ammonia** concentrations were low at all sites (≤ 0.02 mg/L). **Dissolved inorganic nitrogen** was low at all sites (≤ 0.12 mg/L). **Dissolved reactive phosphorus** concentrations were low at all sites (≤ 0.01 mg/L). **Water clarity** was excellent at 23-Whareroa stream and 27-Ramaroa stream (≥ 1.42 m), slightly low at 22-Huioteko stream (0.72 m) and poor at 28-Mokauiti stream (0.72 m), relative to the national bottom line (NBL). Note the NBL is 1.34 m at 28-Mokauiti Stream and 0.61 m at all other sites.

Mokauiti-Aria	Human Contact	Ecosystem Health					
		Water Quality				Sediment	
Sample Date: 28-Feb-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
22-Huioteko Stm-248	320	0.10	0.02	0.12	0.003	0.72	0.61
23-Whareroa Stm-231	36	0.12	<0.005	0.12	<0.002	1.42	0.61
27-Ramaroa stream	46	0.10	<0.005	0.10	0.01	1.60	0.61
28-Mokauiti stream	200	0.06	0.007	0.07	0.004	0.72	1.34

¹Water clarity has been converted from measured turbidity using the formula $\ln(\text{CLAR}) = 1.21 - 0.72 \ln(\text{TURB})$ (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 (≤ 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 (≤ 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.