

## Upper Mangaokewa – Quarterly River Monitoring

Sample Collection Day: 14<sup>th</sup> November 2023

Water quality was variable between sites, ranging from good to poor due to elevated *E. coli*, nitrogen and suspended sediment.

**E. coli** concentrations were low at two sites (140) and elevated at two sites ( $\geq 330$ ). **Nitrate** concentrations were below toxicity levels at all sites but exceeded regional PC1 targets (0.525 mg/L) at 2 out of 4 sites (between 0.56 – 0.70 mg/L). Nitrate concentrations were lowest at 46-Waiteti Stream-Upper (0.09 mg/L) and highest at 5-Mangawhauwhi Stream (0.70 mg/L). **Ammonia** concentrations were low at 4-Mangaokewa Stream (viaduct) and exceeded PC1 targets (0.005 mg/L) at 3 out of 4 sites ( $\geq 0.006$  mg/L). Two out of four sites had a **dissolved inorganic nitrogen** concentration exceeding 0.5 mg/L, potentially impacting river health. **Dissolved reactive phosphorus** concentrations were low at all sites ( $\leq 0.009$  mg/L). **Water clarity** was excellent at 4-Mangaokewa Stream (2.25 m) and poor at all other sites (between 1.08 m - 1.24 m), relative to the national bottom line (1.34 m).

Upper Mangaokewa <sup>1</sup>	Human Contact	Ecosystem Health					
		Water Quality				Sediment	
	E. coli/100 ml	Nitrates (mg N/L)	Ammonia (mg N/L)	Dissolved Inorganic Nitrogen (mg N/L) <sup>3</sup>	Dissolved Reactive Phosphorus (mg/L)	Water Clarity (m) <sup>2</sup>	National Bottom Line
Sample Dates: 14-Nov-23 Lab: Analytica							
4-Mangaokewa Stm (viaduct)	140	0.41	<0.005	0.41	0.009	2.25	1.34
5-Mangawhauwhi Stm 071	330	0.70	0.01	0.71	0.005	1.09	1.34
6-Waiteti Stm (viaduct)	950	0.56	0.006	0.57	0.007	1.08	1.34
46-Waiteti stream (Upper)	140	0.09	0.007	0.10	0.009	1.24	1.34

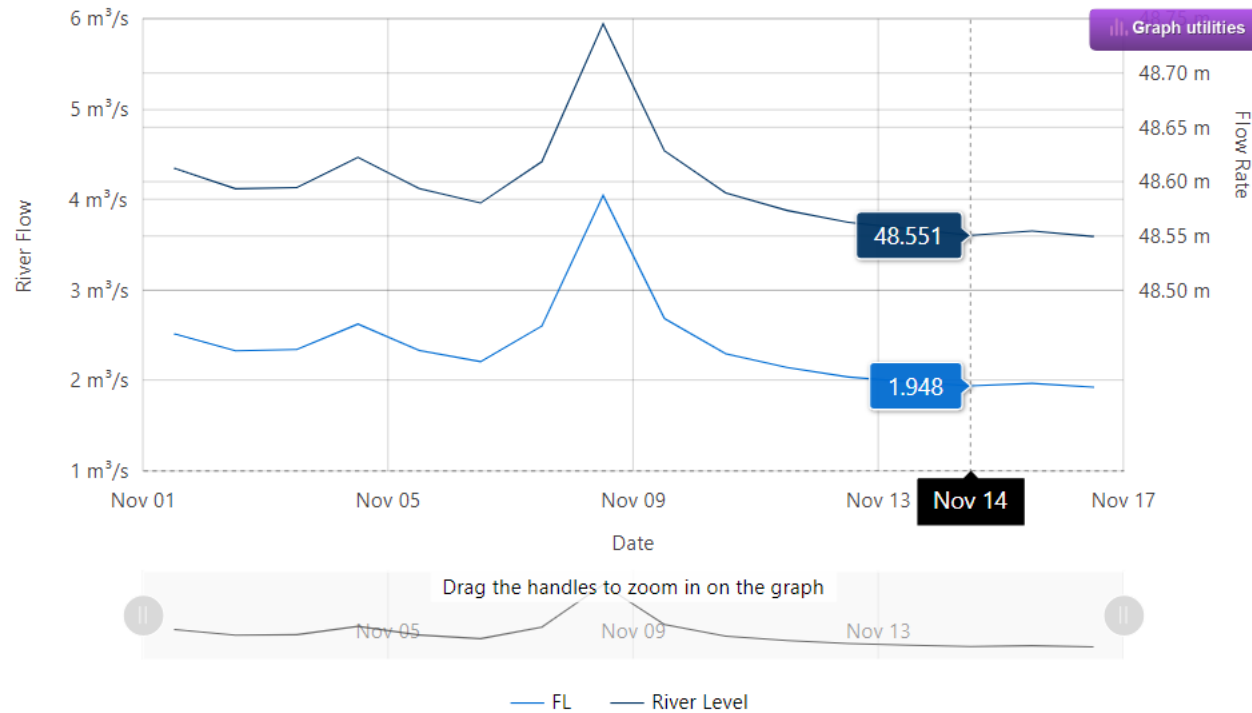
<sup>1</sup>Assessed against Short-term PC1 targets & NPS-FM National Bottom Lines - where the most stringent measures apply.

<sup>2</sup>Water clarity has been converted from measured turbidity using the formular  $\ln(\text{CLAR}) = 1.21 - 0.72 \ln(\text{TURB})$  (Franklin, Booker & Stoffels, 2020).

<sup>3</sup>Guideline 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	

## Mangaokewa Stm - Te Kuiti Pumping Station - River flow



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