

## Upper Mangaokewa – Quarterly River Monitoring

Sample Collection Day: 19<sup>th</sup> November 2024

Water quality was Poor. *E. coli* was elevated at all sites, nutrients and suspended sediment were elevated at 75% of sites.

**E. coli** concentrations were elevated at all sites (between 320 and 690) falling above the recommending health level for swimming (540) at one site, 6-Waiteti stream (viaduct). *E. coli* concentrations were lowest at 4-Mangaokewa stream and highest at 6-Waiteti stream (viaduct). **Nitrate** concentrations exceeded regional, PC1 targets (0.525 mg/L) at two sites, 4-Mangaokewa stream and 5-Mangawhauwhi stream. However, all sites fell well below ecological toxicity levels (2.4 mg/L). Nitrates were lowest at 46-Waiteti stream-Upper (0.26 mg/L) and highest at 5-Mangawhauwhi stream (0.78 mg/L). **Ammonia** concentrations were low at all sites ( $\leq 0.01$  mg/L), however, all sites exceeded PC1 targets (0.005 mg/L). **Dissolved inorganic nitrogen (DIN)** concentrations were low at 46-Waiteti Stream-Upper (0.27 mg/L), but were slightly elevated at the other three sites (between 0.52 and 0.79 mg/L). DIN concentrations greater than 0.5 mg/L can cause ecological impacts like excessive growth of algae and aquatic plants, and loss of sensitive species. DIN concentrations were highest at 5-Mangawhauwhi stream. **Dissolved reactive phosphorus** concentrations were low at all sites ( $\leq 0.010$  mg/L). **Water clarity** was good at 5-Mangawhauwhi stream (1.64 m), low at 4-Mangaokewa stream (1.48 m) and poor at all the other two sites, relative to the national bottom line (1.34 m). The lowest water clarity was recorded at 6-Waiteti stream (0.68 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: 19-Nov-24 Lab: Analytica							
4-Mangaokewa Stm (viaduct)	320	0.57	0.009	0.58	0.01	1.48	1.34
5-Mangawhauwhi Stm 071	350	0.78	0.01	0.79	0.003	1.64	1.34
6-Waiteti Stm (viaduct)	690	0.51	0.01	0.52	0.005	0.68	1.34
46-Waiteti stream (Upper)	360	0.26	0.008	0.27	0.004	1.01	1.34

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

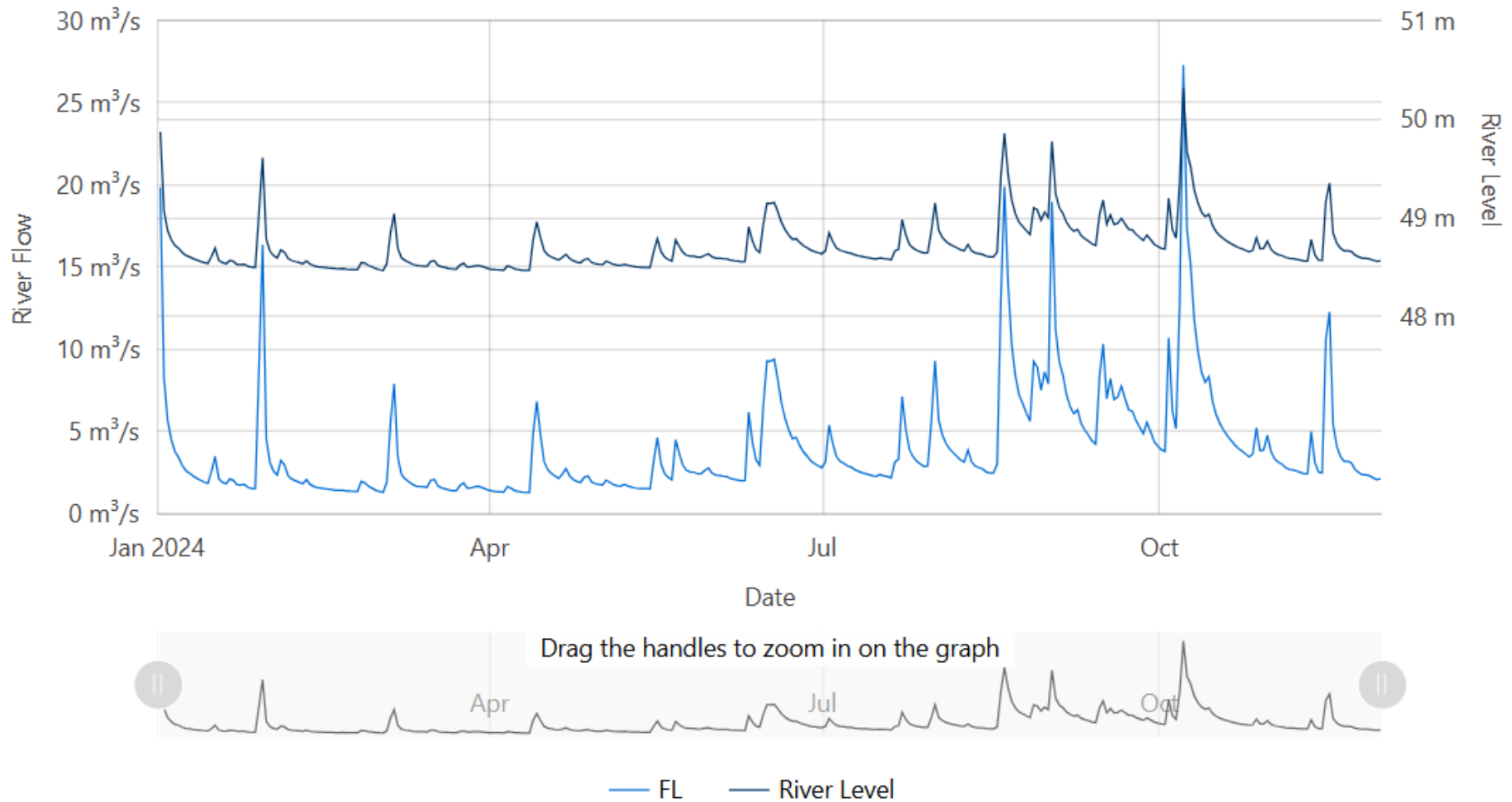
<sup>2</sup>Water clarity has been converted from measured turbidity using the formular  $\ln(\text{CLAR}) = 1.21 - 0.72 \ln(\text{TURB})$  (Franklin, Booker & Stoffels, 2020).

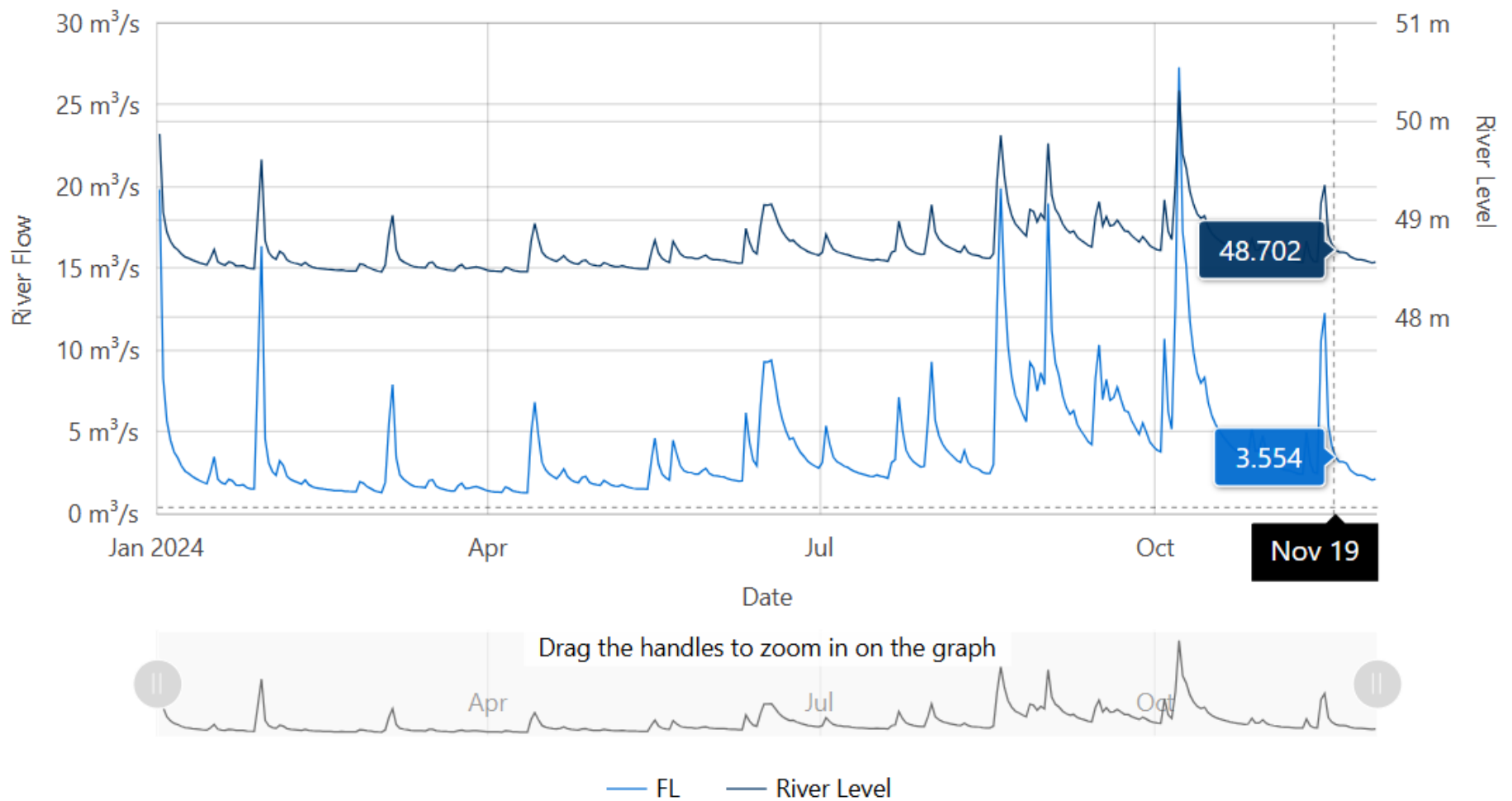
<sup>3</sup>Guideline values to assess ecological impacts of nitrogen on freshwater life. Attribute band limits are from the NPS-FM consultation draft (2019)

Attribute		
A	Ecosystem Health	Human Contact
B		
C		
D		
E	Human Contact only	

### River Level and Flow Rate – Mangaokewa Stream, Te Kuiti

The below charts present continuous data collected by the Waikato Regional Council for Mangaokewa between 1<sup>st</sup> January and 30<sup>th</sup> November 2024. River Level and Flow Rate on the day of sampling (19-November) are highlighted on the second chart.





Data source: Waikato Regional Council [envirohub website](https://www.waikato.govt.nz/environ) for environmental data.

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