

## Upper Mangaokewa – Quarterly River Monitoring

Sample Collection Day: 13 August 2024

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

**E. coli** concentrations were very low at all sites ( $\leq 98$ ), falling well within recommending health levels for swimming (540). **Nitrate** concentrations were low at 46-Waiteti stream-Upper (0.36 mg/L) but elevated at the other three sites, where concentrations were above regional, PC1 targets (0.525 mg/L), however, all sites fell well below ecological toxicity levels (2.4 mg/L). Nitrates were lowest at 46-Waiteti Stream-Upper (0.36 mg/L) and highest at 5-Mangawhauwhi stream (1.01 mg/L). **Ammonia** concentrations were low at all sites ( $\leq 0.02$  mg/L) but exceeded PC1 targets (0.005 mg/L) at three out of four sites. **Dissolved inorganic nitrogen (DIN)** concentrations were low at 46-Waiteti Stream-Upper (0.37 mg/L), slightly elevated at 4-Mangaokewa stream and 6-Waiteti stream-viaduct ( $\geq 0.71$  mg/L) and elevated at 5-Mangawhauwhi stream (1.02 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. **Dissolved reactive phosphorus** concentrations were low at all sites ( $\leq 0.01$  mg/L). **Water clarity** was excellent at 5-Mangawhauwhi Stream (1.9 m), good at 4-Mangaokewa stream (1.64 m) and poor in the two Waiteti stream sites, relative to the national bottom line (1.34 m).

Upper Mangaokewa <sup>1</sup>	Human Contact	Ecosystem Health					
		Water Quality				Sediment	
		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 Date: 13-Aug-24 Lab: Analytica	E. coli/100 ml						
4-Mangaokewa Stm (viaduct)	80	0.71	<0.005	0.71	0.01	1.64	1.34
5-Mangawhauwhi Stm 071	76	1.01	0.009	1.02	0.003	1.90	1.34
6-Waiteti Stm (viaduct)	98	0.70	0.02	0.72	0.004	0.79	1.34
46-Waiteti stream (Upper)	60	0.36	0.01	0.37	0.004	0.68	1.34

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

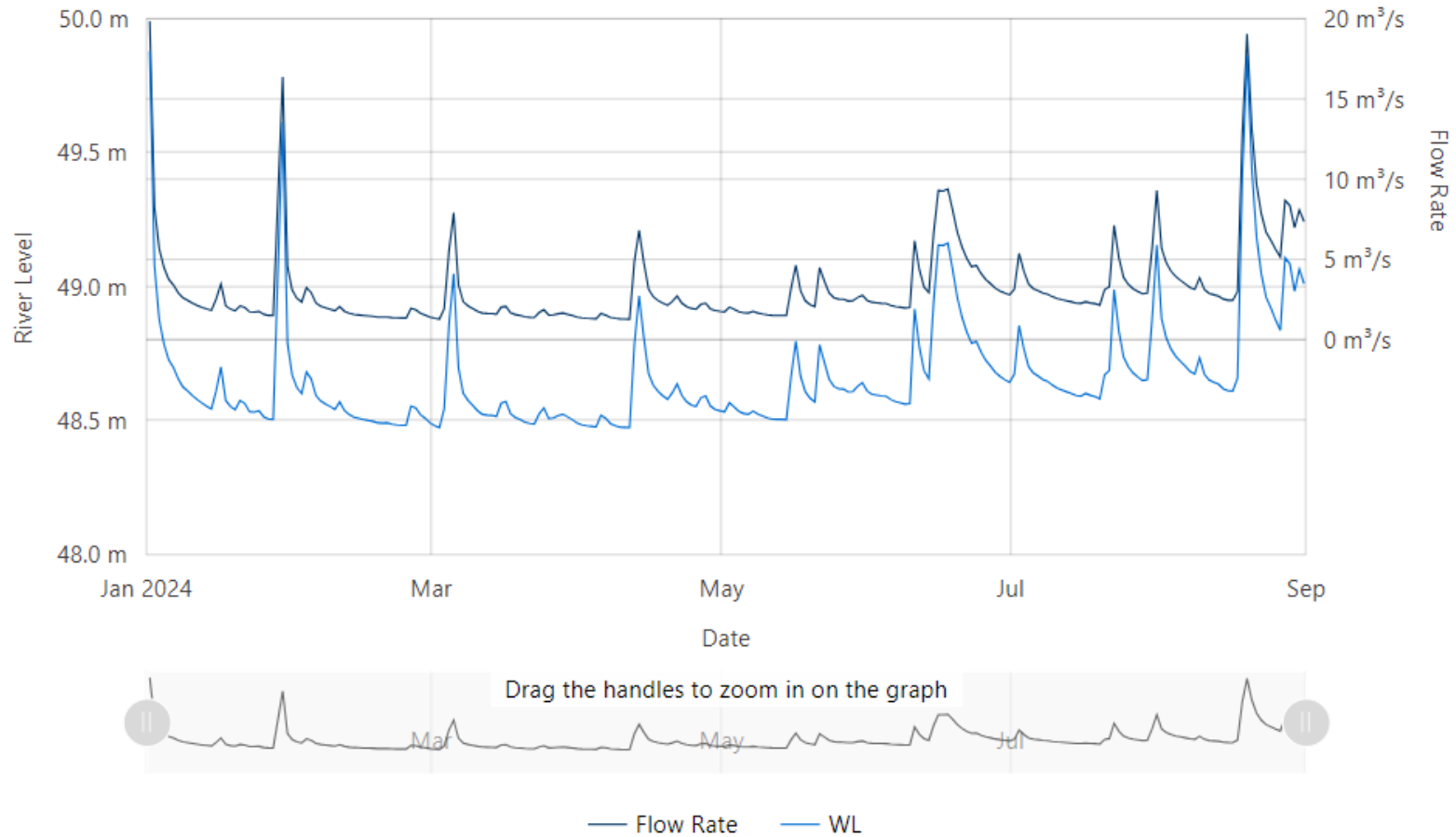
<sup>2</sup>Water clarity has been converted from measured turbidity using the formular  $\ln(\text{CLAR}) = 1.21 - 0.72 \ln(\text{TURB})$  (Franklin, Booker & Stoffels, 2020).

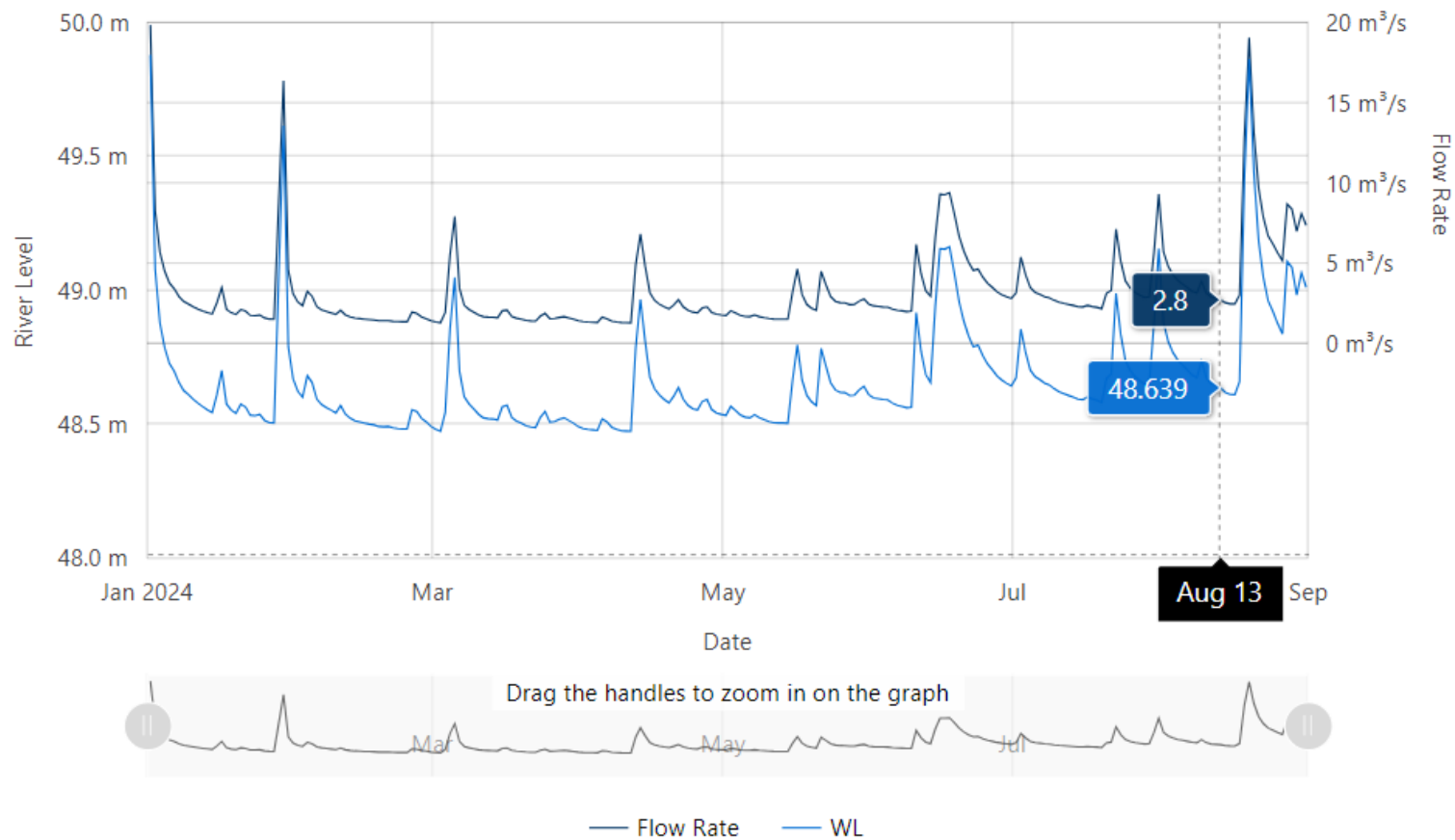
<sup>3</sup>Guideline values to assess ecological impacts of nitrogen on freshwater life. Attribute band limits are from the NPS-FM consultation draft (2019)

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 31<sup>st</sup> August 2024. River Level and Flow Rate on the day of sampling (13-August) are highlighted on the second chart.





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