Kawhia – Quarterly River Monitoring

Sample Collection Day: 22th August 2024

North Kawhia

Water quality was Fair. Dissolved inorganic nitrogen was slightly elevated at two sites and water clarity was poor across all sites.

E. coli concentrations were very low at all sites (≤ 110) with concentrations falling well within recommended health limits for swimming (540). **Nitrate** concentrations were low, falling well below ecological toxicity levels (2.4 mg/L) at all sites. Nitrates were lowest at 31-Oparau River (0.24 mg/L) and highest at 32-Mangapapa stream (0.57 mg/L). **Ammonia** concentrations were very low at all sites (< 0.005 mg/L). **Dissolved inorganic nitrogen (DIN)** was low at 2 sites (≤ 0.43 mg/L) but was slightly elevated at 32-Mangapapa stream (0.57 mg/L) and 33-Te Kauri Stream (0.51 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 very low at all sites (≤ 0.003 mg/L). **Water clarity** was poor at all sites (≤ 1.02 m), relative to the national bottom line (1.34 m). The Oparau River had the highest water clarity (≥ 1 m) while the Awaroa river had the lowest clarity (0.64 m).

North Kawhia Date: 22-Aug-24 Lab: Analytica	Human Contact	Ecosystem Health					
		Water Quality				Sediment	
	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
31-Oparau R.	100	0.24	<0.005	0.24	<0.002	1.02	1.34
32-Mangapapa Str	78	0.57	<0.005	0.57	<0.002	1.00	1.34
33-Te Kauri Str	110	0.51	<0.005	0.51	0.002	0.56	1.34
34-Awaroa R.	100	0.43	<0.005	0.43	0.003	0.64	1.34

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

[1]Water clarity has been converted from measured turbidity using the formular ln(CLAR) = 1.21 – 0.72 ln(TURB) (Franklin, Booker & Stoffels, 2020).

[2]Guideline values to assess ecological impacts of nitrogen on freshwater life. Attribute band limits are from the NPS-FM consultation draft (2019)

Prepared by Freshwater Ecologist Merrin Whatley (PhD)

South Kawhia

Water quality was Good to Fair. E. coli and dissolved inorganic nitrogen were elevated at one site and water clarity was poor at two sites.

E. coli concentrations were low at three sites (≤ 170) and slightly elevated at 38-Mangatangi stream (430). All sites fell within recommended health limits for swimming (540). **Nitrate** concentrations were low at all sites, falling well below ecological toxicity impacts (2.4 mg/L). Nitrates were lowest at 37-Oteke stream (0.38 mg/L) and highest at 38-Mangatangi stream (0.57 mg/L). **Ammonia** concentrations were exceptionally low at 3 sites (≤ 0.005 mg/L) and highest at 36-Puaroa Stream (0.04 mg/L). **Dissolved inorganic nitrogen (DIN)** was low at all but one site, 38-Mangatangi Stream (0.57 mg/L), where concentrations fell just above concentrations which can cause ecological impacts. 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 (≤ 0.008 mg/L) but were highest at 38-Mangatangi Stream (0.008 mg/L). **Water clarity** was excellent at two sites, 36-Puaroa stream and 37-Oteke stream. Water clarity was poor at 35-Ngāhuinga stream and 38-Mangatangi Stream, relative to the national bottom line (0.61 cm).

South Kawhia Date: 22-Aug-24 Lab: Analytica	Human Contact	Ecosystem Health					
		Water Quality					
						Sediment	
	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
35-Ngāhuinga Str	170	0.42	<0.005	0.42	<0.002	0.53	0.61
36-Puaroa Str (Owhiro valley)	150	0.46	0.04	0.50	<0.002	1.07	0.61
37-Oteke Str	76	0.38	<0.005	0.38	0.005	1.05	0.61
38-Mangatangi Str	430	0.57	<0.005	0.57	0.008	0.40	0.61

[1]Water clarity has been converted from measured turbidity using the formular ln(CLAR) = 1.21 – 0.72 ln(TURB) (Franklin, Booker & Stoffels, 2020).

[2]Guideline 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	

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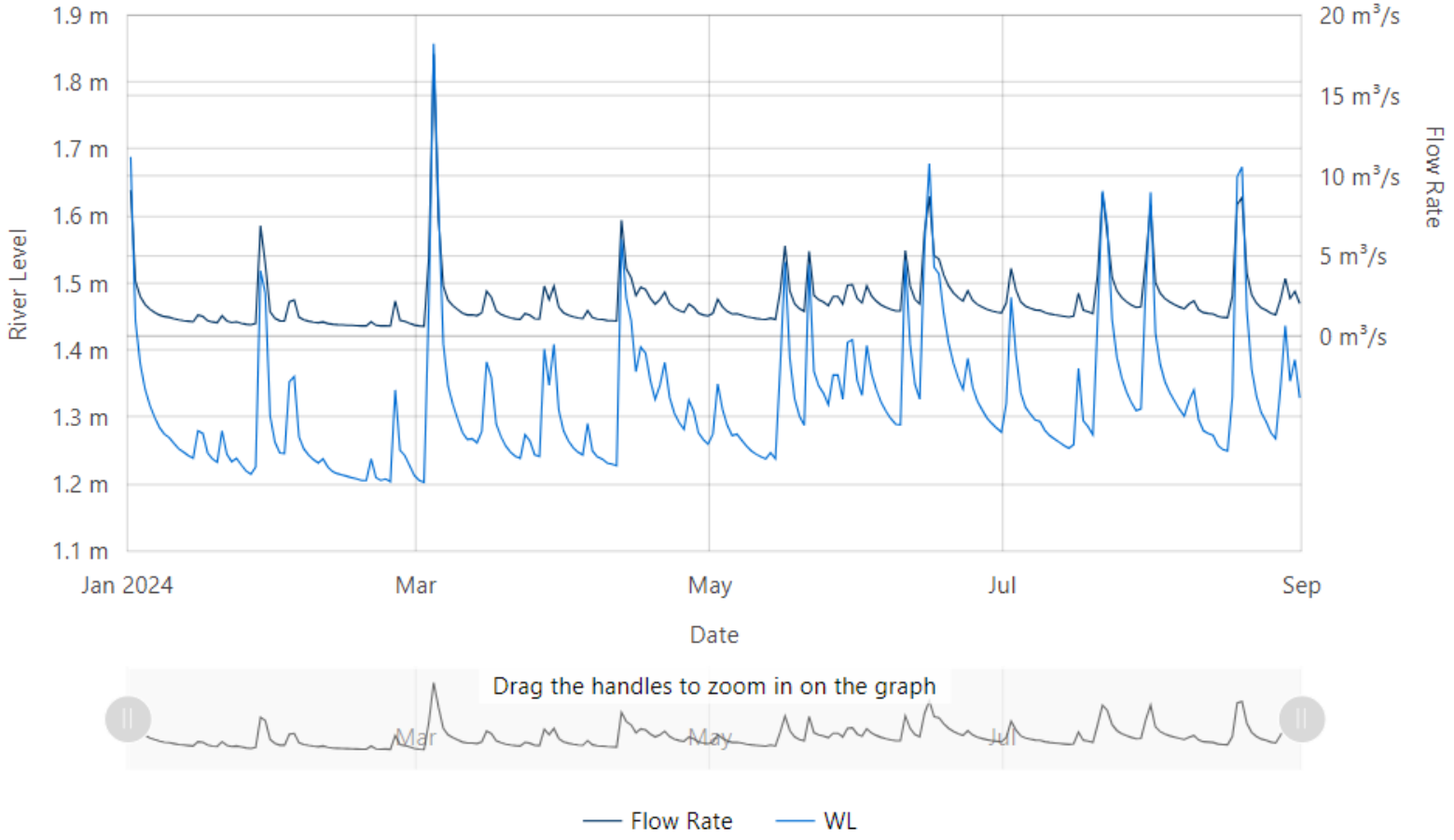
River Level and Flow Rate – Oparau River Langdon Rd (Off Okupata Rd)

The below charts present continuous data collected by the Waikato Regional Council for Oparau River between 1st January and 31st August 2024. River Level and Flow Rate on the day of sampling (22-August) are highlighted on the second chart.



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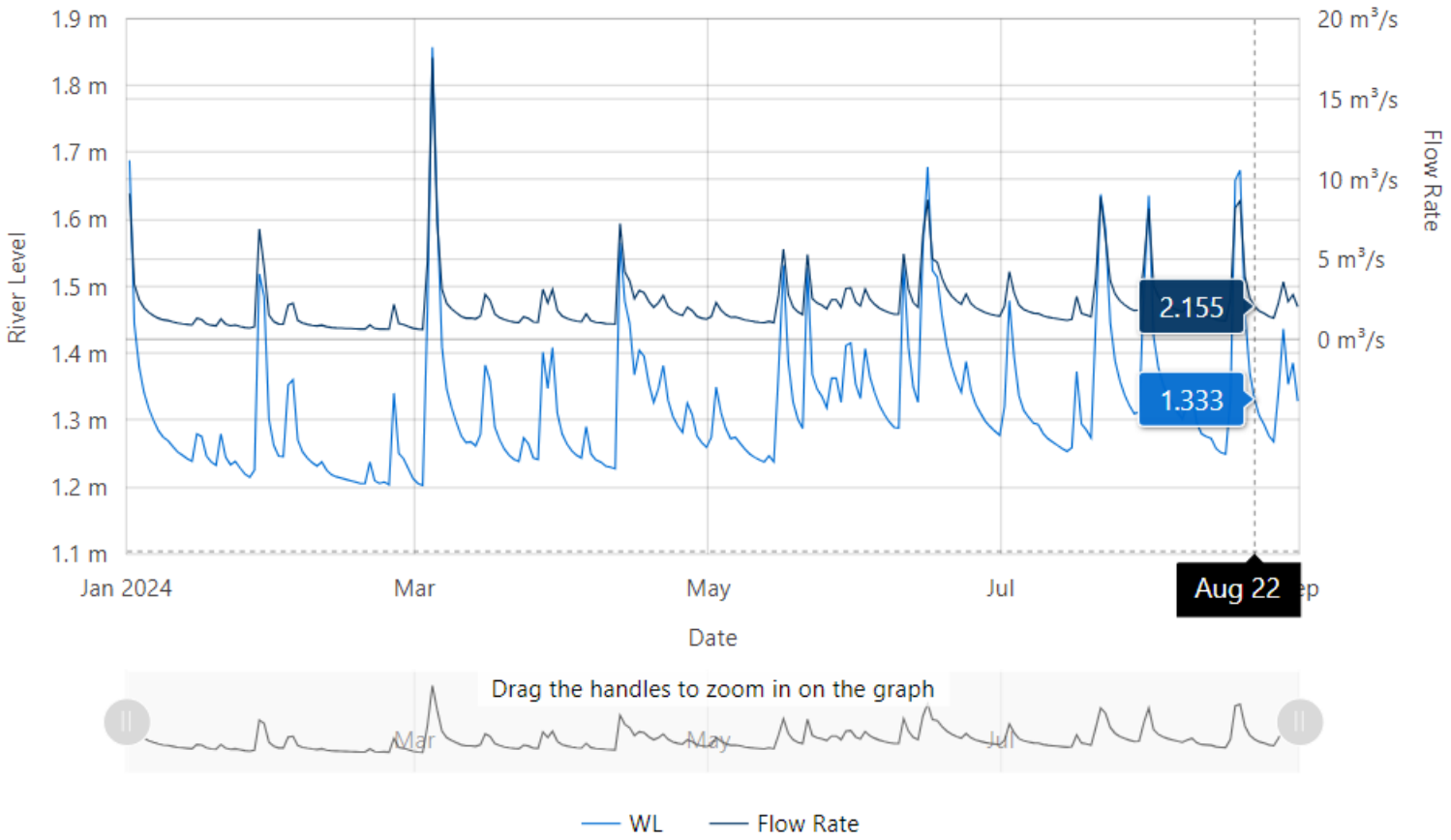

Data source: Waikato Regional Council [envirohub website] for environmental data.

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