

Regional rivers water quality monitoring programme: Data report 2014

Prepared by:
Asaeli Tulagi

For:
Waikato Regional Council
Private Bag 3038
Waikato Mail Centre
HAMILTON 3240

20 April 2015

Document #: 3345497

Peer reviewed by:
Bill Vant

Date June 2015

Approved for release by:
Chris McKinnon

Date June 2015

Disclaimer

This technical report has been prepared for the use of Waikato Regional Council as a reference document and as such does not constitute Council's policy.

Council requests that if excerpts or inferences are drawn from this document for further use by individuals or organisations, due care should be taken to ensure that the appropriate context has been preserved, and is accurately reflected and referenced in any subsequent spoken or written communication.

While Waikato Regional Council has exercised all reasonable skill and care in controlling the contents of this report, Council accepts no liability in contract, tort or otherwise, for any loss, damage, injury or expense (whether direct, indirect or consequential) arising out of the provision of this information or its use by you or any other party.

Acknowledgement

Thanks to Ian Weir, Macky Horotini, Kane Lynn, Claire Littler, Julia Simpson, Harriet Lees, Neil Berry, Paul Stanley, Tony Piskot, Katie Noakes, and Olivia Petrie for their commitment and reliability in undertaking field measurements and sample collection; and Ian Buchanan for co-ordinating the laboratory analyses and assisting with co-ordination of the field aspects of sample collection.

Table of contents

Acknowledgement	i
1 Introduction	1
1.1 Background	1
1.2 Report content	1
1.3 Water quality guidelines and standards	1
2 Regional rivers monitoring design	2
2.1 Sampling locations	2
2.2 Sample collection	6
2.3 Water quality parameters	6
2.4 Quality control, data storage and analysis	6
2.5 Reports	6
3 Results	7
3.1 Regional rivers monitoring programme summary statistics	7
3.2 Regional rivers monitoring programme comparison with water quality guidelines and standards	27
References	30
Appendix I: Water quality guidelines and standards	31
Appendix II: Water quality monitoring parameters	32
Field instruments and analytical methods	32

List of figures

Figure 1: Monitoring locations	5
Figure 2: Spatial contour plots of four water quality parameters (based on 5 year median values, 2010-2014); a: Total Nitrogen, b: Total Phosphorus, c: Black disk, d: Dissolved colour (Abs 340).	26

List of tables

Table 1: Guidelines and standards for physico-chemical water quality for ecological health and for human uses of water. See Appendix I for a description of the guidelines and standards used.	2
Table 2: Waikato Regional Council's sampling locations	3

1 Introduction

1.1 Background

To effectively manage water quality, the regional rivers monitoring programme addresses the following questions:

1. What is the quality of the water now?
2. Why is the water of the observed level of quality?
3. Is water quality getting better or worse? If so - what makes it change?
4. How can we improve the quality, ecological health and integrity of the region's rivers and streams?

The monitoring information allows Waikato Regional Council to:

- determine compliance with classification standards
- assess the suitability of the resource for various beneficial uses and values of the water
- monitor the impact of major discrete point source discharges on water quality
- monitor the impacts of diffuse discharges on water quality
- provide a basis for evaluating the effectiveness of resource management measures.

This dataset is invaluable for the evaluation of the region's rivers: their state, the pressures on them and our response to these pressures. We need to continue to gather comprehensive, reliable and good quality data on the region's rivers to protect and enhance their values into the future.

This report is the 19th since the implementation of the regional rivers monitoring programme (RERIMP) in 1993¹ and follows the format of the previous data report (Tulagi, 2014). Copies of reports as described in the list of references (page 30) can be obtained by contacting Waikato Regional Council (the Library) on 0800 800 401, or in electronic format from the publications page of the Waikato Regional Council website: www.waikatoregion.govt.nz/publications or email: inforeq@waikatoregion.govt.nz

1.2 Report content

The report provides information on the routine monthly monitoring of water quality at 100 locations across the Waikato region, and includes:

- year 2014 summary statistics tabulated by parameter and reported together
- spatial contour plots for four water quality parameters using spatial interpolation of the median of the previous 5 years
- summary tables identifying the number of samples meeting 'satisfactory' and 'excellent' water quality guidelines and standards.

1.3 Water quality guidelines and standards

Table 1 lists the physical, chemical (physico-chemical) and microbiological water quality guidelines and standards used to assess the condition of the region's rivers in 2014. The standards relate to either the protection of the ecological health of rivers and streams or to the suitability for direct-contact water-based recreation (for example swimming).

¹ Waikato River reported separately — see Tulagi, 2015.

Table 1: Guidelines and standards for physico-chemical water quality for ecological health and for human uses of water. See Appendix I for a description of the guidelines and standards used.

Water quality measure	Relevance ¹	Satisfactory	Excellent
Ecological health			
Dissolved oxygen (% of saturation)	aquatic life (breathing)	>80	>90
pH	aquatic life (acidity)	6.5–9	7–8
Turbidity (NTU)	plant growth (clarity)	<5	<2
Ammoniacal-N (g N/m ³)	aquatic life (toxicity)	<0.88	<0.1
Temperature (°C)	fish (spawning)	<12	<10
	(May-Sep)	<20	<16
	(Oct-Apr)	<20	<16
Total phosphorus (g/m ³)	nuisance plant growth	<0.04	<0.01
Total nitrogen (g/m ³)	nuisance plant growth	<0.5	<0.1
Human uses—recreation			
Baseflow water clarity (m)	visibility	>1.6	>4
<i>Escherichia coli</i> (no./100 mL)	human health	<550	<55
Median <i>E. coli</i> (no./100 mL)	human health	<126	<23

¹ Refer to Appendix II for further information. These guidelines and standards are also described on the Waikato Regional Council Internet site www.waikatoregion.govt.nz

In each case two values are shown. The less stringent values define water that is “satisfactory” for the desired use; these are mostly based on existing national and other guidelines and standards (Appendix I). The more stringent values identify “excellent” water, and reflect expert opinion.

2 Regional rivers monitoring design

2.1 Sampling locations

Routine water quality monitoring locations of the regional rivers monitoring programme are summarised in *Table 2* and illustrated in *Figure 1*. One hundred sites were sampled monthly by Waikato Regional Council. A further five locations form part of NIWA’s National Rivers Water Quality Network, whose data can be found on the NIWA website (www.niwa.co.nz).

The sampling locations are reasonably evenly distributed across the Waikato region (*Figure 1*). To assist assessment of water quality, sites in the region were divided into 7 water quality zones. This division is based on expert opinion, and reflects river catchments and some broad ecological features, including geology, altitude, winter temperatures, vegetation cover and land use. The boundaries of these water quality zones are shown on *Figure 1*.

Table 2: Waikato Regional Council's sampling locations

Map No.	Location	Location Id	Map Ref.
Coromandel			
1	Hikutaia River at Old Maratoto Rd	169.2	T12:471-312
2	Kauaeranga River at Smiths Cableway/Recorder	234.11	T12:404-461
9	Ohinemuri River at Queens Head	619.19	T13:576-170
8	Ohinemuri River at SH25 Bridge	619.20	T13:641-213
6	Tairua River at Morrisons Bridge Hikuia	940.10	T12:567-548
3	Tapu River at Tapu-Coroglen Rd	954.5	T11:332-658
4	Waiau River at E309 Rd Ford	1105.3	T11:357-866
10	Waitekauri River at U/S Ohinemuri Confluence	1239.32	T13:566-168
5	Waiwawa River at SH25 Coroglen	1257.3	T11:503-717
7	Wharekawa River at SH25	1312.3	T12:628-478
Hauraki			
12	Mangawhero Stm (Kaihere) at Mangawara Rd	489.2	S13:249-195
20	Oraka Stm at Lake Rd	669.6	T15:536-607
15	Piako River at Kiwitahi	749.10	T14:398-856
13	Piako River at Paeroa-Tahuna Rd Bridge	749.15	T13:318-068
17	Piakonui Stm at Piakonui Rd	753.4	T14:417-719
18	Waihou River at Okauia	1122.18	T14:602-756
21	Waihou River at Whites Rd	1122.41	T15:572-500
22	Waiohotu Stm at Waiohotu Rd (Off SH5)	1173.2	T15:665-513
19	Waiomou Stm at Matamata-Tauranga Rd	1174.4	T15:623-683
11	Waitakaruru River (Hauraki Plains) at Coxhead Rd Bridge	1230.1	S12:194-339
16	Waitoa River at Landsdowne Rd Bridge	1249.15	T14:517-783
14	Waitoa River at Mellon Rd Recorder	1249.18	T13:426-047
Tributaries to the lower Waikato River			
23	Awaroa River (Waiuku) at Otaua Rd Bridge opp Moseley Rd	41.9	R12:662-319
34	Awaroa Stm (Rotowaro) at Sansons Bridge–Rotowaro-Huntly	39.11	S14:948-997
44	Karapiro Stm at Hickey Rd Bridge	230.5	T15:331-639
37	Kirikiroa Stm at Tauhara Drive	253.4	S14:095-817
36	Komakorau Stm at Henry Rd	258.4	S14:091-949
45	Little Waipa Stm at Arapuni – Putaruru Rd	335.1	T15:489-462
39	Mangakotukutuku Stm (Rukuhia) at Peacock Rd	398.1	S14:127-743
47	Mangamingi Stm (Tokoroa) at Paraonui Rd Bridge	407.1	T16:588-302
40	Mangaone Stm at Annebrooke Rd Bridge	417.7	S14:159-744
41	Mangaonua Stm at Hoeka Rd	421.10	S14:205-776
42	Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	421.16	T14:314-731
28	Mangatangi River at SH2 Maramarua	453.6	S12:042-372
27	Mangatawhiri River at Lyons Rd at Buckingsham Bridge	459.6	S12:997-427
35	Mangawara Stm at Rutherford Rd Bridge	481.7	S13:084-023
43	Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	488.1	S15:217-653
33	Matahuru Stm at Waiterimu Rd Br	516.5	S13:083-109
25	Ohaeroa Stm at SH22 Bridge	612.9	R12:834-303
24	Opuatia Stm at Ponganui Rd	665.5	R13:773-245
46	Pokaiwhenua Stm at Arapuni-Putaruru Rd	786.2	T15:491-458
31	Waerenga Stm at Taniwha Rd	1098.1	S13:131-217
38	Waitawhiriwhiri Stm at Edgecumbe Street	1236.2	S14:102-787
26	Whakapipi Stm at SH22 Bridge	1282.8	R12:812-365
48	Whakauru Stm at U/S SH1 Bridge	1287.7	T16:614-282
29	Whangamarino River at Island Block Rd	1293.7	S12:954-308
30	Whangamarino River at Jefferies Rd Bridge	1293.9	S13:084-273
32	Whangape Stm at Rangiriri-Glen Murray Rd	1302.1	S13:950-154

Map No.	Location	Location Id	Map Ref.
Waipa River and tributaries			
50	Kaniwhaniwha Stm at Wright Rd	222.16	S15:985-680
56	Mangaohoi Stm at South Branch Maru Rd	411.9	T15:329-471
61	Mangaokewa Stm at Lawrence St Bridge	414.6	S16:998-162
51	Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	438.3	S15:093-560
58	Mangapu River at Otorohanga	443.3	S16:033-318
55	Mangatutu Stm (Waikeria) at Walker Rd Bridge	476.7	S15:203-422
52	Mangauika Stm at Te Awamutu Borough Water Supply Intake	477.10	S15:980-504
49	Ohote Stm at Whatawhata/Horotiu Rd	624.5	S14:997-794
54	Puniu River at Bartons Corner Rd Bridge	818.2	S15:115-500
62	Waipa River at Mangaokewa Rd	1191.5	S17:233-028
53	Waipa River at Pirongia-Ngutunui Rd Bridge	1191.10	S15:037-529
59	Waipa River at SH3 Otorohanga	1191.12	S16:036-322
57	Waitomo Stm at SH31 Otorohanga	1253.5	S16:022-335
60	Waitomo Stm at Tumutumu Rd	1253.7	S16:938-249
Tributaries to the upper Waikato River			
69	Kawaunui Stm at SH5 Bridge	240.5	U17:021-081
65	Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	359.1	U16:733-129
71	Mangakara Stm (Reporoa) at SH5	380.2	U17:996-003
63	Mangakino River (Whakamaru) at Sandel Rd	388.1	T17:486-013
67	Otamakokore Stm at Hossack Rd	683.4	U16:955-166
74	Pueto Stm at Broadlands Rd Bridge	802.1	U17:938-827
66	Tahunaatara Stm at Ohakuri Rd	934.1	U16:785-138
73	Torepatutahi Stm at Vaile Rd Bridge	1057.6	U17:985-965
70	Waiotapu Stm at Campbell Rd Bridge	1186.2	U17:024-082
72	Waiotapu Stm at Homestead Rd Bridge	1186.4	U17:003-000
64	Waipapa Stm (Mokai) at Tirohanga Rd Bridge	1202.7	T17:685-047
68	Whirinaki Stm at Corbett Rd	1323.1	U16:957-171
West coast			
84	Awakino River at Gribbon Rd	33.6	R17:702-918
82	Awakino River at SH3 Awakau Rd Junction	33.9	R18:588-799
81	Manganui River at Off Manganui Rd	410.4	R17:554-831
85	Mangaotaki River at SH3 Bridge	428.3	R17:764-963
79	Marokopa River at Speedies Rd (Off Te Anga Rd)	513.3	R16:708-256
83	Mokau River at Awakau Rd	556.2	R18:601-785
88	Mokau River at Mangaokewa Rd (Off SH30)	556.5	S17:096-017
86	Mokau River at Totoro Rd Recorder	556.9	R17:759-907
87	Mokauiti Stm at Three Way Point – Aria	557.5	R17:828-929
77	Ohautira River at Waingaro - Te Uku Rd	616.1	R14:842-803
78	Oparau River at Langdon Rd (Off Okupata Rd)	658.1	R15:799-494
80	Tawarau River at Off Speedies Rd	976.1	R16:718-249
75	Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	1167.4	R14:837-837
76	Waitetuna River at Te Uku-Waingaro Rd	1247.2	R14:842-742
Inflows to Lake Taupo			
91	Hinemaiaia River at SH1	171.5	U18:722-567
96	Kuratau River at Te Rae Street	282.5	T18:502-536
95	Kuratau River at SH41 Moerangi	282.4	T18:356-537
89	Mapara Stm at Off Mapara Rd (Whakaipo Reserve)	504.2	T18:681-750
92	Tauranga-Taupo River at 20 Metres U/S SH1 Bridge	971.5	T18:614-506
94	Tokaanu Power Station Tailrace Canal at SH41 Bridge	1491.1	T19:504-435
93	Tokaanu Stm at Off SH41 Turangi	1045.3	T19:517-423
99	Waihaha River at SH32	1106.4	T18:434-747
90	Waitahanui River at Blake Rd	1226.1	U18:781-627
100	Whangamata Stm (Kinloch) at Whangamata Rd	1300.1	T17:649-804
98	Whanganui Stream at Lakeside Lake Taupo	1301.1	T18:473-653
97	Whareroa Stream at Lakeside Lake Taupo	1318.4	T18:515-568

2.2 Sample collection

Sample collection occurs monthly. The 100 locations sampled by Waikato Regional Council staff are divided between 7 sampling runs. The runs are sampled in the same order each month, and by the same group of field staff. Sampling is assigned to either the second, third or fourth week of each month. A similar time of sampling (± 1 hour) is maintained for subsequent visits to a location to minimise the effect of any diurnal variation on water quality parameters, thereby increasing long term trend detection power.

2.3 Water quality parameters

Water quality of the region's rivers is assessed by measuring up to 32 parameters (16 routinely). Some parameters are measured in the field, but most are analysed by laboratories using standard analytical methods. Details of field measurements and analytical methods are given in *Appendix II*.

2.4 Quality control, data storage and analysis

Quality control measures are undertaken in accordance with Waikato Regional Council's ISO 9001:2008 standards including procedures for the collection, transport and storage of samples, and methods for data verification and quality assurance to ensure the consistency of data across the programme. Samples are sent to IANZ registered laboratories for analysis. Back-up samples are held for two months until results have been verified by routine quality assurance procedures. All data from field measurements and laboratory analyses are stored in Waikato Regional Council's new database called WISKI.

Data analysis was performed using Data Desk (version 6.0.1). For the purpose of data analysis, non-detect results (i.e. results with "less than" values) were assumed to be equal to half the corresponding limit of detection (i.e. $<x = x/2$), and results greater than the value reported were taken as equal to the value reported (i.e. $>x = x$).

The water quality spatial contour plots were created using Surfer (version 12). To present the spatial contour plots the kriging spatial interpolation procedure was used to estimate the variable at unsampled locations, using weighted sums of the variable at neighbouring sample points. The procedure is designed to minimize the variance of the estimation errors. In some cases artificial sites were used at points downstream of lowland sample sites to show a catchment flow-through effect.

2.5 Reports

A report on Regional Water Quality Trends (Vant 2013) summarises the trends and patterns in regional water quality during 1993 to 2012. Waikato Regional Council's State of the Environment Report briefly summarises the state of the rivers in the region, and common pressures (Waikato Regional Council, 1999).

The data contained in these regional rivers reports is updated to the Waikato Regional Council website, which also provides a link to details of the water quality guidelines and standards used to assess the condition of the region's rivers, as well as other information relating to lakes, rivers and wetlands. View this information at

<http://www.waikatoregion.govt.nz/fresh-water-quality>

3 Results

The results are divided into two sections. Section 3.1 has a statistical summary of routine monitoring of the region's rivers in 2014 and provides the spatial contour plots using water quality data from four parameters, based on median values for the last five years. Section 3.2 compares the results with water quality guidelines and standards for compliance.

3.1 Regional rivers monitoring programme summary statistics

Absorbance of filtered sample at 340 nm (units: cm⁻¹)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	0.016	0.014	0.010	0.041	0.004	2.54	0.015
Kauaeranga River at Smiths Cableway/Recorder	11	0.014	0.009	0.007	0.043	0.006	1.82	0.012
Ohinemuri River at Queens Head	12	0.015	0.015	0.009	0.023	0.007	0.47	0.014
Ohinemuri River at SH25 Br	12	0.013	0.012	0.008	0.019	0.006	0.43	0.012
Tairua River at Morrisons Br Hikuai	12	0.015	0.014	0.009	0.035	0.005	2.07	0.014
Tapu River at Tapu-Coroglen Rd	12	0.012	0.008	0.006	0.039	0.010	1.89	0.010
Waiau River at E309 Rd Ford	12	0.017	0.014	0.011	0.034	0.009	1.23	0.014
Waitekauri River at U/S Ohinemuri Conflu	12	0.011	0.011	0.005	0.019	0.004	0.64	0.011
Waiwawa River at SH25 Coroglen	12	0.022	0.014	0.001	0.053	0.022	0.91	0.018
Wharekawa River at SH25	12	0.017	0.016	0.011	0.028	0.005	1.22	0.016
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.024	0.020	0.013	0.049	0.013	1.21	0.018
Oraka Stm at Lake Rd	12	0.016	0.015	0.009	0.025	0.011	0.22	0.012
Piako River at Kiwitahi	12	0.044	0.042	0.028	0.062	0.018	0.29	0.045
Piako River at Paeroa-Tahuna Rd Br	12	0.069	0.065	0.048	0.098	0.019	0.70	0.073
Piakonui Stm at Piakonui Rd	12	0.035	0.027	0.022	0.101	0.011	<u>2.59</u>	0.028
Waihou River at Okauia	12	0.016	0.014	0.008	0.032	0.006	1.29	0.014
Waihou River at Whites Rd	12	0.001	0.001	0.001	0.001	0.000	-1.00	0.001
Waihotu Stm at Waihotu (Off SH5)	12	0.042	0.040	0.028	0.058	0.010	0.42	0.037
Waiomou Stm at Matamata-Tauranga Rd	12	0.023	0.023	0.013	0.034	0.012	0.33	0.018
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.066	0.069	0.037	0.105	0.039	0.21	0.062
Waitoa River at Landsdowne Rd Br	12	0.042	0.045	0.020	0.056	0.015	-0.68	0.043
Waitoa River at Mellon Rd Recorder	12	0.041	0.041	0.036	0.048	0.004	0.56	0.042
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otaua Rd Br opp Moseley Rd	12	0.033	0.033	0.010	0.056	0.030	0.00	0.043
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	0.024	0.025	0.018	0.033	0.008	0.32	0.023
Karapiro Stm at Hickey Rd Bridge	12	0.053	0.053	0.037	0.074	0.010	0.38	0.050
Kirikiriara Stm at Tauhara Dr	12	0.046	0.044	0.038	0.057	0.009	0.52	0.054
Komakorau Stm at Henry Rd	12	0.133	0.129	0.068	0.240	0.045	0.91	0.114
Little Waipa Stm at Arapuni - Putaruru Rd	12	0.013	0.010	0.004	0.030	0.011	0.92	0.010
Mangakotukutuku Stm at Peacockes Rd	12	0.190	0.179	0.064	0.440	0.196	0.74	0.255
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	0.031	0.029	0.017	0.053	0.014	0.86	0.025
Mangaone Stm at Annebrooke Rd Br	12	0.047	0.041	0.033	0.115	0.006	<u>2.81</u>	0.047
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	0.032	0.030	0.023	0.066	0.005	<u>2.51</u>	0.028
Mangaonua Stm at Hoeka Rd	12	0.033	0.032	0.026	0.060	0.005	<u>2.30</u>	0.032
Mangatangi River at SH2 Maramarua	12	0.047	0.042	0.026	0.072	0.034	0.30	0.050
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.030	0.027	0.018	0.063	0.015	1.40	0.024
Mangawara Stm at Rutherford Rd Br	12	0.123	0.117	0.067	0.220	0.063	0.59	0.127
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.099	0.078	0.042	0.270	0.055	1.65	0.092
Matahuru Stm at Waiterimu Road Below Confluence	12	0.085	0.088	0.049	0.154	0.034	0.96	0.087
Ohaeroa Stm at SH22 Br	12	0.027	0.026	0.020	0.040	0.008	0.93	0.025
Opuatia Stm at Ponganui Rd	12	0.033	0.032	0.021	0.051	0.016	0.35	0.028
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	0.019	0.016	0.010	0.036	0.014	0.80	0.014
Waerenga Stm at Taniwha Rd	12	0.030	0.029	0.018	0.042	0.012	0.15	0.028
Waitawhiriwhiri Stm at Edgecumbe Street	12	0.120	0.099	0.064	0.250	0.057	1.36	0.131
Whakapipi Stm at SH22 Br	12	0.040	0.038	0.031	0.051	0.012	0.48	0.036
Whakauru Stm at U/S SH1 Br	12	0.027	0.022	0.016	0.046	0.012	0.96	0.023
Whangamarino River at Island Block Rd	12	0.126	0.110	0.047	0.240	0.092	0.48	0.107
Whangamarino River at Jefferies Rd Br	12	0.048	0.046	0.036	0.069	0.009	0.83	0.044
Whangape Stm at Rangiriiri-Glen Murray Rd	12	0.069	0.067	0.053	0.102	0.017	1.01	0.067

Absorbance of filtered sample at 440 nm (units: cm⁻¹)

Count	Mean	Median	Min	Max	IQR	Skew	Median
Coromandel							
12	0.003	0.003	0.001	0.007	0.003	1.14	0.003
11	0.002	0.002	0.001	0.007	0.002	1.36	0.002
12	0.003	0.003	0.001	0.005	0.003	0.13	0.002
12	0.002	0.002	0.001	0.004	0.003	0.21	0.002
12	0.003	0.003	0.001	0.006	0.002	0.30	0.003
12	0.002	0.001	0.001	0.008	0.002	1.56	0.001
12	0.003	0.003	0.001	0.006	0.003	0.20	0.002
12	0.002	0.001	0.001	0.004	0.001	1.28	0.002
12	0.004	0.003	0.001	0.012	0.005	1.04	0.004
12	0.003	0.003	0.002	0.005	0.001	0.67	0.003
Hauraki							
12	0.005	0.005	0.003	0.012	0.003	1.54	0.004
12	0.003	0.003	0.001	0.006	0.002	0.69	0.002
12	0.007	0.007	0.005	0.010	0.004	0.25	0.008
12	0.012	0.011	0.009	0.017	0.003	1.16	0.012
12	0.007	0.006	0.004	0.020	0.002	<u>2.41</u>	0.005
12	0.003	0.003	0.001	0.006	0.002	0.71	0.002
12	0.001	0.001	0.001	0.001	0.000	-1.00	0.001
12	0.008	0.008	0.006	0.011	0.003	0.34	0.007
12	0.005	0.004	0.001	0.008	0.002	0.17	0.003
12	0.012	0.012	0.006	0.020	0.008	0.25	0.011
12	0.007	0.008	0.003	0.010	0.003	-0.63	0.007
12	0.007	0.007	0.006	0.008	0.001	0.08	0.007
Tributaries to the lower Waikato River							
12	0.005	0.004	0.001	0.010	0.008	0.18	0.007
12	0.003	0.004	0.001	0.006	0.002	-0.06	0.004
12	0.009	0.009	0.006	0.013	0.002	0.42	0.008
12	0.007	0.007	0.005	0.010	0.002	0.47	0.008
12	0.019	0.020	0.010	0.031	0.007	0.22	0.017
12	0.003	0.002	0.001	0.006	0.004	0.51	0.002
12	0.031	0.031	0.011	0.066	0.032	0.49	0.045
12	0.006	0.006	0.003	0.010	0.003	0.43	0.005
12	0.009	0.007	0.006	0.026	0.001	<u>2.94</u>	0.008
12	0.006	0.006	0.004	0.013	0.001	<u>2.20</u>	0.005
12	0.005	0.005	0.004	0.011	0.001	<u>2.48</u>	0.005
12	0.008	0.008	0.005	0.013	0.007	0.42	0.009
12	0.006	0.006	0.002	0.012	0.003	0.75	0.005
12	0.019	0.019	0.011	0.030	0.009	0.45	0.020
12	0.016	0.013	0.006	0.040	0.010	1.30	0.014
12	0.013	0.012	0.009	0.025	0.005	1.48	0.013
12	0.005	0.005	0.004	0.007	0.002	0.18	0.004
12	0.006	0.006	0.003	0.008	0.002	0.00	0.005
12	0.004	0.004	0.001	0.008	0.002	0.79	0.003
12	0.006	0.006	0.003	0.008	0.003	-0.09	0.005
12	0.019	0.016	0.010	0.041	0.010	1.31	0.020
12	0.007	0.007	0.005	0.010	0.002	0.68	0.007
12	0.005	0.004	0.002	0.009	0.003	0.40	0.004
12	0.024	0.021	0.008	0.047	0.018	0.52	0.020
12	0.008	0.008	0.006	0.012	0.002	0.91	0.008
12	0.012	0.011	0.009	0.022	0.004	<u>1.92</u>	0.011

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Waipa River and Tributaries																
Kaniwhaniwha Stm at Wright Rd	12	0.025	0.024	0.014	0.036	0.010	-0.13	0.028	12	0.005	0.005	0.001	0.007	0.002	-0.65	0.005
Mangaohoi Stm at South Branch Maru Rd	12	0.008	0.006	0.005	0.017	0.005	1.24	0.007	12	0.001	0.001	0.001	0.004	0.000	2.56	0.001
<i>Mangaokewa Stm at Lawrence Street Br</i>	12	0.038	0.036	0.025	0.056	0.011	0.52	0.034	12	0.007	0.007	0.004	0.011	0.003	0.35	0.006
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	0.077	0.071	0.045	0.128	0.039	0.66	0.073	12	0.013	0.012	0.006	0.021	0.007	0.36	0.012
Mangapu River at Otorohanga	12	0.027	0.026	0.015	0.043	0.009	0.54	0.027	12	0.005	0.005	0.002	0.009	0.001	1.05	0.005
Mangatutu Stm (Waikeria) at Walker Rd Br	12	0.021	0.018	0.013	0.040	0.011	1.15	0.018	12	0.004	0.004	0.002	0.008	0.002	1.26	0.004
Mangauika Stm at Te Awamutu Borough W/S Intake	12	0.010	0.006	0.002	0.051	0.005	2.82	0.006	12	0.002	0.001	0.001	0.010	0.000	2.95	0.001
Ohote Stm at Whatawhata/Horotiu Rd	12	0.131	0.140	0.039	0.210	0.069	-0.28	0.162	12	0.020	0.022	0.004	0.034	0.012	-0.35	0.026
Puniu River at Bartons Corner Rd Br	12	0.031	0.029	0.021	0.044	0.015	0.54	0.028	12	0.006	0.006	0.004	0.008	0.002	0.48	0.005
Waipa River at Mangaokewa Rd	12	0.052	0.048	0.033	0.096	0.016	1.68	0.046	12	0.010	0.009	0.005	0.021	0.003	1.84	0.008
Waipa River at Pirongia-Ngutunui Rd Br	12	0.029	0.029	0.015	0.041	0.012	-0.08	0.028	12	0.005	0.006	0.002	0.008	0.002	-0.27	0.005
Waipa River at SH3 Otorohanga	12	0.028	0.024	0.019	0.060	0.007	1.82	0.025	12	0.005	0.005	0.003	0.010	0.002	1.13	0.005
Waitomo Stm at SH31 Otorohanga	12	0.018	0.018	0.011	0.026	0.005	0.17	0.019	12	0.003	0.003	0.001	0.005	0.002	-0.46	0.003
Waitomo Stm at Tumutumumu Rd	12	0.015	0.014	0.008	0.032	0.009	0.99	0.012	12	0.003	0.003	0.001	0.005	0.003	0.44	0.002
Tributaries to the upper Waikato River																
Kawaunui Stm at SH5 Br	12	0.027	0.024	0.013	0.050	0.009	1.13	0.025	12	0.005	0.004	0.001	0.012	0.002	1.00	0.004
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	0.030	0.029	0.021	0.044	0.012	0.63	0.025	12	0.005	0.005	0.003	0.008	0.003	0.36	0.005
Mangakara Stm (Reporoa) at SH5	12	0.021	0.020	0.016	0.031	0.005	1.11	0.017	12	0.004	0.004	0.002	0.007	0.002	0.91	0.003
Mangakino Stm (Whakamaru) at Sandel Rd	12	0.012	0.012	0.006	0.019	0.004	0.37	0.011	12	0.002	0.002	0.001	0.005	0.003	0.51	0.001
Otamakokore Stm at Hossack Rd	12	0.039	0.036	0.016	0.060	0.028	0.12	0.032	12	0.008	0.008	0.003	0.013	0.005	0.07	0.007
Pueto Stm at Broadlands Rd Br	12	0.010	0.010	0.009	0.014	0.002	1.31	0.010	12	0.001	0.001	0.001	0.003	0.000	2.22	0.001
Tahunaatara Stm at Ohakuri Rd	12	0.036	0.029	0.021	0.057	0.024	0.61	0.030	12	0.007	0.006	0.003	0.012	0.005	0.58	0.006
Torepatutahi Stm at Vaile Rd Br	12	0.011	0.011	0.007	0.020	0.003	1.53	0.012	12	0.002	0.001	0.001	0.005	0.001	1.76	0.002
Waiotapu Stm at Campbell Rd Br	12	0.006	0.004	0.003	0.012	0.003	1.22	0.005	12	0.002	0.001	0.001	0.004	0.001	1.71	0.001
Waiotapu Stm at Homestead Rd Br	12	0.021	0.020	0.016	0.026	0.005	0.33	0.022	12	0.003	0.003	0.001	0.005	0.002	-0.10	0.003
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	0.013	0.012	0.009	0.020	0.003	1.24	0.012	12	0.002	0.002	0.001	0.004	0.002	0.86	0.002
Whirinaki Stm at Corbett Rd	12	0.006	0.001	0.001	0.060	0.002	3.00	0.001	12	0.002	0.001	0.001	0.013	0.000	2.98	0.001
West Coast																
Awakino River at Gribbon Rd	12	0.013	0.007	0.001	0.061	0.010	2.43	0.006	12	0.002	0.001	0.001	0.012	0.002	2.55	0.001
Awakino River at SH3 Awakau Rd Junction	12	0.018	0.014	0.007	0.058	0.010	2.18	0.013	12	0.004	0.003	0.001	0.012	0.002	1.82	0.002
Manganui River at Off Manganui Rd	12	0.010	0.009	0.006	0.023	0.004	1.86	0.008	12	0.002	0.001	0.001	0.004	0.001	1.71	0.001
Mangaotaki River at SH3 Br	12	0.020	0.016	0.012	0.051	0.004	2.13	0.016	12	0.004	0.003	0.002	0.010	0.001	1.90	0.003
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	0.018	0.015	0.011	0.033	0.007	1.24	0.015	12	0.003	0.003	0.001	0.006	0.003	0.13	0.003
Mokau River at Awakau Rd	12	0.038	0.033	0.020	0.086	0.013	1.68	0.033	12	0.007	0.006	0.003	0.017	0.002	1.64	0.006
Mokau River at Mangaokewa Rd (Off SH30)	12	0.055	0.055	0.033	0.091	0.018	0.81	0.045	12	0.011	0.011	0.006	0.018	0.004	0.62	0.009
Mokau River at Totoro Rd Recorder	12	0.029	0.030	0.017	0.051	0.012	0.71	0.030	12	0.005	0.006	0.002	0.009	0.003	0.14	0.005
Mokauiti Stm at Three Way Point - Aria	12	0.056	0.052	0.029	0.107	0.022	1.08	0.053	12	0.010	0.008	0.005	0.020	0.005	1.16	0.009
Ohautira Stm at Waingaro Te Uku Rd	12	0.021	0.020	0.011	0.035	0.009	0.48	0.019	12	0.004	0.004	0.001	0.007	0.002	0.29	0.004
Oparau River at Langdon Rd (Off Okupata Rd)	12	0.019	0.016	0.010	0.035	0.011	0.82	0.016	12	0.004	0.003	0.001	0.007	0.003	0.38	0.003
Tawarau River at Off Speedies Rd	12	0.017	0.014	0.011	0.033	0.007	1.39	0.015	12	0.003	0.003	0.001	0.006	0.003	0.42	0.003
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	0.032	0.032	0.017	0.046	0.007	-0.22	0.034	12	0.006	0.006	0.001	0.010	0.002	-0.14	0.006
Waitetuna River at Te Uku-Waingaro Rd	12	0.023	0.024	0.013	0.035	0.011	-0.01	0.024	12	0.004	0.005	0.001	0.007	0.002	-0.43	0.004
Inflows to Lake Taupo																
Hinemaiaia River at SH1	12	0.017	0.014	0.010	0.027	0.011	0.64	0.012	12	0.003	0.003	0.001	0.005	0.003	0.16	0.002
Kuratau River at SH41 Moerangi	12	0.020	0.016	0.013	0.047	0.005	2.49	0.016	12	0.003	0.003	0.001	0.007	0.002	1.12	0.003
Kuratau River at Te Rae Street	12	0.021	0.021	0.006	0.041	0.008	0.82	0.020	12	0.004	0.004	0.001	0.008	0.002	0.66	0.003
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	0.036	0.035	0.029	0.052	0.005	1.53	0.037	12	0.007	0.007	0.005	0.011	0.002	1.21	0.007
Tauranga-Taupo River at 20 Metres U/S SH1 Bridge	12	0.007	0.006	0.004	0.017	0.003	2.14	0.006	12	0.001	0.001	0.001	0.003	0.000	3.02	0.001
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	12	0.007	0.006	0.004	0.014	0.002	1.73	0.005	12	0.001	0.001	0.001	0.001	0.000	-1.00	0.001
Tokaanu Stm at Off SH41 Turangi	12	0.008	0.001	0.001	0.069	0.000	2.87	0.001	12	0.002	0.001	0.001	0.011	0.000	3.02	0.001
Waihaha River at SH32	12	0.009	0.008	0.006	0.017	0.003	1.31	0.008	12	0.002	0.001	0.001	0.005	0.001	1.89	0.001
Waitahanui River at Blake Rd	12	0.005	0.002	0.001	0.036	0.004	2.88	0.001	12	0.001	0.001	0.001	0.004	0.000	3.02	0.001
Whangamata Stm (Kinloch) at Whangamata Rd	12	0.011	0.004	0.003	0.074	0.003	2.95	0.005	12	0.002	0.001	0.001	0.007	0.000	3.02	0.001
Whanganui Stm at Lakeside Lake Taupo	12	0.013	0.014	0.005	0.020	0.004	-0.38	0.013	12	0.003	0.003	0.001	0.005	0.002	-0.05	0.002
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	0.017	0.016	0.013	0.025	0.004	1.24	0.015	12	0.003	0.003	0.001	0.005	0.001	0.34	0.003

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Black Disk (m)

Conductivity at 25 °C (mS m⁻¹)

Location	Black Disk (m)								Conductivity at 25 °C (mS m ⁻¹)							
	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel																
Hikutaia River at Old Maratoto Rd	12	2.93	3.36	0.17	4.50	1.11	-1.14	2.50	12	8.4	8.5	7.0	8.9	0.3	-1.50	8.3
Kauaeranga River at Smiths Cableway/Recorder	11	3.40	4.00	0.10	5.80	2.22	-0.49	3.01	11	7.9	8.3	5.2	8.8	1.1	<u>-1.74</u>	8.1
Ohinemuri River at Queens Head	12	2.89	2.92	0.29	4.70	1.02	-0.74	2.50	12	24.8	25.4	10.0	39.5	19.9	-0.07	23.1
Ohinemuri River at SH25 Br	12	2.99	3.00	0.49	4.76	0.44	-1.05	2.85	12	7.7	7.8	6.7	8.5	0.5	-0.60	7.6
Tairua River at Morrisons Br Hikuaui	-	-	-	-	-	-	-	-	12	6.2	6.3	5.0	6.6	0.5	-1.62	6.1
Tapu River at Tapu-Coroglen Rd	12	3.95	3.75	0.21	6.20	2.98	-0.46	3.50	12	10.4	10.3	7.3	11.6	1.4	-1.39	10.2
Waiau River at E309 Rd Ford	12	2.32	2.77	0.16	4.00	2.41	-0.42	2.10	12	9.5	9.9	6.7	10.3	0.9	<u>-1.98</u>	9.3
Waitekauri River at U/S Ohinemuri Conflu	12	3.23	3.50	0.35	4.80	1.52	-0.84	2.95	12	11.6	10.7	6.7	17.0	4.3	0.32	11.0
Waiwawa River at SH25 Coroglen	12	3.09	3.38	0.25	5.99	1.56	-0.13	2.76	12	6.8	6.9	4.8	7.6	1.1	-1.21	6.7
Wharekawa River at SH25	9	2.31	2.55	0.15	3.30	1.28	-1.15	2.08	12	7.4	7.5	6.4	7.9	0.6	-0.92	7.3
Hauraki																
Mangawhero Stm (Kaihere) at Mangawara Rd	12	1.23	1.36	0.30	2.31	1.13	-0.06	0.96	12	11.3	11.5	8.6	12.7	2.0	-0.69	11.4
Oraka Stm at Lake Rd	12	1.08	0.96	0.54	1.66	0.75	0.27	0.92	12	14.8	12.3	10.8	21.6	6.3	0.56	12.2
Piako River at Kiwitahi	11	1.58	1.48	0.58	3.15	0.50	0.99	1.26	12	15.5	15.4	13.7	17.6	1.4	0.29	14.7
Piako River at Paeroa-Tahuna Rd Br	12	1.16	0.96	0.58	2.99	0.27	<u>2.01</u>	0.75	12	25.5	22.8	21.7	35.1	6.1	1.11	21.6
Piakonui Stm at Piakonui Rd	12	1.61	1.57	0.24	3.11	0.87	0.04	1.29	12	8.0	7.8	6.2	10.7	2.4	0.58	7.4
Waihou River at Okauia	12	1.26	1.24	0.69	1.76	0.52	0.01	1.06	12	10.5	10.5	9.5	11.6	1.7	0.02	10.1
Waihou River at Whites Rd	12	4.83	5.12	0.68	6.81	1.71	-1.41	4.99	12	8.3	8.2	8.1	9.1	0.2	<u>2.50</u>	8.2
Waihohu Stm at Waihohu (Off SH5)	-	-	-	-	-	-	-	-	12	5.5	5.6	5.1	5.8	0.2	-0.48	5.5
Waiomou Stm at Matamata-Tauranga Rd	12	1.38	1.50	0.43	2.02	0.69	-0.54	1.10	12	7.2	7.2	6.5	8.4	0.9	0.54	7.0
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	10	0.95	0.98	0.18	1.80	0.90	0.06	0.65	12	17.5	17.2	14.1	20.9	4.0	0.16	17.1
Waitoa River at Landsdowne Rd Br	12	1.78	1.42	0.49	3.76	1.72	0.60	1.16	12	17.3	16.8	14.4	22.4	2.7	0.81	16.1
Waitoa River at Mellon Rd Recorder	12	1.21	1.22	0.67	2.13	0.55	0.68	0.98	12	30.9	30.3	22.1	40.9	7.4	0.48	27.8
Tributaries to the lower Waikato River																
Awaroa River (Waiuku) at Otatau Rd Br opp Moseley Rd	11	0.53	0.42	0.24	1.25	0.39	1.14	0.37	12	28.5	28.8	24.8	32.5	5.2	-0.09	26.4
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	0.76	0.77	0.33	1.16	0.38	0.00	0.80	12	79.0	73.7	44.6	145.9	41.8	0.73	68.9
Karapiro Stm at Hickey Rd Bridge	12	0.77	0.79	0.21	1.43	0.40	0.09	0.87	12	13.7	13.2	11.4	17.2	2.6	0.79	13.5
Kirikiri Stm at Tauhara Dr	12	0.39	0.37	0.22	0.52	0.17	0.02	0.40	12	19.8	21.4	7.2	23.5	1.9	<u>-1.99</u>	21.1
Komakorau Stm at Henry Rd	12	0.25	0.21	0.06	0.58	0.24	0.71	0.17	12	28.8	26.7	23.4	42.2	7.8	1.13	25.2
Little Waipa Stm at Arapuni - Putaruru Rd	12	1.69	1.57	0.69	3.05	0.88	0.47	1.49	12	10.4	10.2	9.8	12.4	0.6	<u>2.11</u>	10.2
Mangakotukutuku Stm at Peacockes Rd	12	0.46	0.51	0.12	0.82	0.20	-0.07	0.41	12	19.5	19.3	16.2	24.4	1.4	0.75	18.7
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	0.86	0.73	0.34	2.68	0.35	<u>2.43</u>	0.81	12	14.3	14.4	13.4	15.2	0.9	-0.12	14.1
Mangaone Stm at Annebrooke Rd Br	12	1.10	1.17	0.24	1.72	0.47	-0.70	0.92	12	26.1	26.9	20.0	27.5	1.0	<u>-2.22</u>	27.0
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	1.15	1.17	0.20	1.95	0.82	-0.27	1.20	12	10.4	9.9	8.8	12.6	2.0	0.52	9.9
Mangaonua Stm at Hoeka Rd	12	1.25	1.28	0.40	1.93	0.46	-0.46	0.83	12	20.6	21.3	17.3	22.0	1.7	-1.24	20.6
Mangatangi River at SH2 Maramarua	10	0.60	0.54	0.23	1.06	0.49	0.41	0.50	12	12.7	12.8	11.6	14.0	1.4	0.03	12.7
Mangatawhiri River at Lyons Rd At Buckingham Br	12	1.69	1.61	0.23	3.30	0.71	0.31	1.57	12	12.3	12.5	9.3	13.5	1.2	-1.27	12.2
Mangawara Stm at Rutherford Rd Br	12	0.30	0.30	0.12	0.47	0.12	-0.08	0.25	12	25.3	22.7	19.2	38.1	7.8	1.04	21.7
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.29	0.29	0.05	0.54	0.16	0.14	0.25	12	21.9	21.7	20.8	25.2	0.8	<u>2.11</u>	22.2
Matahuru Stm at Waiterimu Road Below Confluence	12	0.29	0.35	0.10	0.41	0.17	-0.82	0.27	12	15.1	14.8	12.7	20.0	2.7	1.03	13.6
Ohaeroa Stm at SH22 Br	11	0.77	0.76	0.36	1.42	0.34	0.79	0.77	12	16.8	15.9	12.4	21.3	5.4	0.22	15.7
Opuatia Stm at Ponganui Rd	12	0.73	0.64	0.17	1.33	0.65	0.29	0.51	12	24.6	18.0	16.9	47.0	12.8	1.06	16.9
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	1.35	1.27	0.57	2.23	0.91	0.31	1.19	12	10.8	10.8	10.2	11.4	0.5	-0.12	10.8
Waerenga Stm at Taniwha Rd	12	1.12	1.32	0.13	1.81	0.70	-0.75	0.75	12	12.1	11.9	10.0	14.3	1.4	0.21	12.0
Waitawhiriwhiri Stm at Edgcumbe Street	10	0.40	0.41	0.13	0.51	0.09	-1.33	0.37	12	19.3	20.6	9.4	22.1	1.1	<u>-1.81</u>	20.2
Whakapipi Stm at SH22 Br	12	1.22	1.53	0.21	1.80	0.88	-0.62	1.05	12	19.2	18.6	15.9	23.6	5.8	0.20	18.6
Whakauru Stm at U/S SH1 Br	12	0.70	0.78	0.27	1.13	0.31	-0.36	0.70	12	7.4	7.4	7.2	7.5	0.2	-0.36	7.2
Whangamarino River at Island Block Rd	12	0.26	0.22	0.10	0.49	0.10	0.86	0.20	12	17.7	16.7	15.9	22.5	2.3	1.34	16.4
Whangamarino River at Jefferies Rd Br	12	0.65	0.68	0.14	1.18	0.63	0.02	0.39	12	16.4	16.3	14.8	18.5	2.1	0.32	15.3
Whangape Stm at Rangiriri-Glen Murray Rd	12	0.21	0.20	0.11	0.45	0.05	1.62	0.17	12	23.3	21.2	17.5	34.0	7.9	0.83	20.0

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Waipa River and Tributaries																
Kaniwhaniwha Stm at Wright Rd	10	0.99	1.04	0.41	1.74	0.73	0.09	0.83	12	10.1	9.8	8.6	12.2	1.7	0.53	9.7
Mangaohoi Stm at South Branch Maru Rd	12	1.70	1.69	0.79	3.00	0.42	0.40	1.56	12	8.1	8.3	6.0	9.5	1.3	-0.54	8.2
<i>Mangaokewa Stm at Lawrence Street Br</i>	12	1.15	0.97	0.51	2.33	0.88	0.67	0.97	12	16.6	14.8	11.2	23.0	8.6	0.41	14.9
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	1.01	0.89	0.10	2.43	0.77	0.86	0.58	12	20.6	18.7	15.0	31.1	8.0	0.77	18.0
Mangapu River at Otorohanga	12	1.07	0.60	0.44	2.30	1.38	0.73	0.59	12	20.4	19.9	16.0	26.4	6.0	0.39	18.4
Mangatutu Stm (Waikeria) at Walker Rd Br	12	1.59	1.73	0.29	2.40	0.75	-0.83	1.50	12	6.4	6.5	5.4	7.7	1.2	0.21	6.8
Mangauika Stm at Te Awamutu Borough W/S Intake	11	4.00	3.73	2.30	5.60	1.84	0.09	3.53	12	6.5	6.5	5.6	7.4	0.8	0.09	6.4
Ohote Stm at Whatawhata/Horotiu Rd	12	0.61	0.62	0.22	0.98	0.18	-0.22	0.55	12	19.8	18.0	17.2	31.7	2.4	<u>2.17</u>	17.2
Puniu River at Bartons Corner Rd Br	-	-	-	-	-	-	-	-	12	8.1	8.4	6.9	9.1	1.6	-0.27	8.3
Waipa River at Mangaokewa Rd	12	1.65	1.82	0.32	2.61	0.59	-0.73	1.51	12	5.5	5.1	4.5	9.8	1.1	<u>2.33</u>	5.0
Waipa River at Pirongia-Ngutunui Rd Br	-	-	-	-	-	-	-	-	12	12.1	12.2	10.8	14.0	1.3	0.49	11.9
Waipa River at SH3 Otorohanga	12	1.52	1.24	0.70	3.46	1.23	0.96	1.03	12	8.2	8.2	4.4	10.6	2.0	-0.85	8.3
Waitomo Stm at SH31 Otorohanga	11	0.88	0.60	0.22	2.93	1.01	1.48	0.55	12	19.6	19.4	15.3	24.2	5.5	0.05	18.8
Waitomo Stm at Tumutumumu Rd	11	0.99	0.94	0.47	2.34	0.76	1.26	0.79	12	19.4	19.2	14.4	24.0	4.0	-0.06	18.9
Tributaries to the upper Waikato River																
Kawaunui Stm at SH5 Br	12	1.57	1.48	0.52	3.35	0.62	1.01	1.23	12	14.1	14.0	13.2	15.7	1.4	0.51	13.5
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	10	1.01	0.93	0.53	1.47	0.42	0.29	1.00	12	8.9	8.9	8.7	9.3	0.2	1.01	8.9
Mangakara Stm (Reporoa) at SH5	12	1.05	0.88	0.59	1.66	0.56	0.66	0.86	12	10.1	10.1	9.2	10.7	0.6	-0.49	9.9
Mangakino Stm (Whakamaru) at Sandel Rd	12	2.16	2.08	0.93	3.15	0.72	-0.24	1.59	12	6.7	6.7	5.9	7.4	0.7	-0.11	6.7
Otamakokore Stm at Hossack Rd	12	1.26	1.10	0.42	2.04	1.00	0.09	1.10	12	41.6	42.0	37.5	44.8	2.2	-0.38	38.1
Pueto Stm at Broadlands Rd Br	12	1.84	1.85	0.58	3.20	0.93	0.30	1.59	12	11.9	11.9	11.7	12.0	0.2	-0.21	11.6
Tahunaatara Stm at Ohakuri Rd	12	1.44	1.44	0.79	2.01	0.78	-0.13	1.23	12	7.8	7.7	7.5	8.5	0.3	<u>1.96</u>	7.6
Torepatutahi Stm at Vaile Rd Br	-	-	-	-	-	-	-	-	12	9.4	9.3	9.0	10.6	0.4	<u>2.18</u>	9.7
Waiotapu Stm at Campbell Rd Br	12	1.23	1.19	0.59	1.93	0.43	0.12	1.16	12	75.1	75.3	67.8	79.7	3.2	-0.90	68.8
Waiotapu Stm at Homestead Rd Br	-	-	-	-	-	-	-	-	12	52.3	52.7	44.8	56.9	3.8	-0.72	47.0
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	1.16	1.04	0.32	1.81	0.88	-0.04	1.11	12	44.5	44.9	42.0	45.9	1.9	-0.73	40.1
Whirinaki Stm at Corbett Rd	-	-	-	-	-	-	-	-	12	6.8	6.8	6.7	6.9	0.1	0.05	6.8
West Coast																
Awakino River at Gribbon Rd	12	1.95	1.75	0.33	3.65	2.12	0.16	1.71	12	7.0	7.0	5.7	7.9	0.5	-0.42	7.0
Awakino River at SH3 Awakau Rd Junction	12	1.29	1.31	0.35	2.81	1.15	0.47	1.25	12	13.9	13.0	8.1	20.8	4.1	0.62	12.6
Manganui River at Off Manganui Rd	12	1.11	1.09	0.06	1.80	0.96	-0.43	1.13	12	10.9	10.8	8.5	13.2	1.4	0.21	10.8
Mangaotaki River at SH3 Br	12	0.90	0.73	0.34	1.91	0.57	1.02	0.85	12	13.3	13.3	9.7	15.4	1.6	-0.91	13.3
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	1.16	1.17	0.49	1.88	0.80	0.11	0.94	12	14.4	14.3	11.5	17.0	2.8	-0.20	14.1
Mokau River at Awakau Rd	12	0.69	0.56	0.22	1.53	0.55	0.86	0.50	12	13.7	12.4	8.4	20.3	4.3	0.73	12.7
Mokau River at Mangaokewa Rd (Off SH30)	-	-	-	-	-	-	-	-	12	6.8	6.6	5.9	8.4	0.8	0.97	6.6
Mokau River at Totoro Rd Recorder	12	1.13	0.78	0.35	2.76	1.12	0.90	0.66	12	12.6	11.8	10.6	15.3	3.2	0.50	11.9
Mokauti Stm at Three Way Point - Aria	12	1.10	1.06	0.51	1.80	0.86	0.14	0.62	12	11.6	11.0	10.0	14.3	2.7	0.73	10.5
Ohautira Stm at Waingaro Te Uku Rd	12	0.97	0.92	0.33	1.73	0.76	0.20	0.77	12	13.7	13.6	11.0	16.0	2.3	-0.05	13.5
Oparau River at Langdon Rd (Off Okupata Rd)	12	1.46	1.35	0.49	2.87	0.82	0.62	1.24	12	8.9	8.6	7.1	12.4	1.9	0.98	8.3
Tawarau River at Off Speedies Rd	12	1.25	1.33	0.55	1.79	0.82	-0.35	1.15	12	13.6	13.4	10.7	16.4	2.5	-0.04	13.3
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	10	1.05	1.22	0.33	1.66	0.74	-0.29	0.67	12	15.1	14.7	12.5	18.2	3.1	0.46	14.3
Waitetuna River at Te Uku-Waingaro Rd	12	0.97	1.04	0.37	1.70	0.87	0.04	0.65	12	10.2	10.1	8.6	11.9	1.7	0.32	10.0
Inflows to Lake Taupo																
Hinemaiaia River at SH1	12	2.33	2.47	1.42	3.31	1.38	-0.08	2.09	12	6.1	6.1	5.1	7.4	0.9	0.38	6.1
Kuratau River at SH41 Moerangi	12	2.80	2.96	1.43	4.06	1.62	-0.11	2.10	12	4.5	4.5	3.9	5.3	0.6	0.66	4.4
Kuratau River at Te Rae Street	-	-	-	-	-	-	-	-	12	6.9	6.3	5.7	11.5	0.8	<u>2.44</u>	6.7
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	1.45	1.49	0.82	1.90	0.47	-0.49	1.42	12	12.5	12.5	12.3	12.9	0.2	0.99	12.4
Tauranga- Taupo River at 20 Metres U/S SH1 Bridge	12	3.67	3.73	0.71	5.19	1.86	-0.71	3.11	12	4.8	4.8	3.2	6.3	1.1	-0.10	4.8
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	-	-	-	-	-	-	-	-	12	13.1	12.7	11.4	16.1	2.2	0.90	12.6
Tokaanu Stm at Off SH41 Turangi	-	-	-	-	-	-	-	-	12	10.0	10.0	9.6	10.1	0.1	<u>-1.93</u>	10.0
Waihaha River at SH32	12	3.64	3.54	1.64	5.10	2.16	-0.16	2.89	12	4.8	4.7	4.1	5.8	0.8	0.63	4.7
Waitahanui River at Blake Rd	12	3.69	4.02	2.18	4.68	1.16	-0.59	2.75	12	7.6	7.6	7.3	8.0	0.1	1.30	7.5
Whangamata Stm (Kinloch) at Whangamata Rd	-	-	-	-	-	-	-	-	12	8.8	8.9	8.7	9.0	0.2	-0.11	8.8
Whanganui Stm at Lakeside Lake Taupo	-	-	-	-	-	-	-	-	12	5.8	5.6	4.6	7.2	1.0	0.43	5.6
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	-	-	-	-	-	-	-	-	12	7.7	7.9	6.8	8.3	0.7	-0.54	7.7

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Dissolved Oxygen (% Saturation)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	98.2	100.1	87.1	108.6	7.0	-0.25	96.2
Kauaeranga River at Smiths Cableway/Recorder	11	99.1	100.6	91.5	104.0	7.0	-0.63	100.0
Ohinemuri River at Queens Head	12	110.3	107.3	96.8	130.6	15.5	0.54	104.6
Ohinemuri River at SH25 Br	12	111.0	110.1	101.5	122.1	10.9	0.36	106.4
Tairua River at Morrisons Br Hikuai	12	102.8	99.5	91.2	148.6	8.8	<u>2.52</u>	98.9
Tapu River at Tapu-Coroglen Rd	12	103.8	105.4	92.4	107.7	4.8	-1.50	102.7
Waiau River at E309 Rd Ford	12	104.1	104.3	97.9	109.3	2.7	-0.46	101.5
Waitekauri River at U/S Ohinemuri Conflu	12	104.8	105.0	98.4	113.6	9.8	0.21	103.2
Waiwawa River at SH25 Coroglen	12	105.2	104.0	96.9	114.0	9.9	0.43	102.2
Wharekawa River at SH25	12	104.2	104.0	89.1	118.4	8.2	-0.03	98.2
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	98.4	97.7	90.5	104.9	5.8	-0.22	97.9
Oraka Stm at Lake Rd	12	91.1	90.5	74.2	101.1	10.4	-0.60	91.6
Piako River at Kiwitahi	12	78.1	91.6	38.9	98.5	36.3	-0.64	89.0
Piako River at Paeroa-Tahuna Rd Br	12	85.8	87.2	65.3	103.1	16.1	-0.25	85.8
Piakonui Stm at Piakonui Rd	12	99.9	101.1	93.8	105.0	7.6	-0.31	99.1
Waihou River at Okauia	12	94.2	93.8	85.2	100.7	5.9	-0.20	93.6
Waihou River at Whites Rd	12	103.1	102.9	93.5	110.3	6.9	-0.16	101.2
Waiohotu Stm at Waiohotu (Off SH5)	12	93.2	93.5	71.5	101.8	8.0	-1.56	93.0
Waiomou Stm at Matamata-Tauranga Rd	12	94.9	94.5	83.0	105.0	5.8	-0.16	95.4
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	92.3	94.8	71.9	102.5	11.0	-0.94	94.6
Waitoa River at Landsdowne Rd Br	12	92.9	93.3	71.9	120.0	10.8	0.41	89.3
Waitoa River at Mellon Rd Recorder	12	78.6	81.5	63.3	86.6	9.6	-0.97	77.8
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otawa Rd Br opp Moseley Rd	12	94.8	87.8	76.2	126.0	20.0	0.76	87.8
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	82.8	87.1	54.8	96.8	21.2	-0.90	85.1
Karapiro Stm at Hickey Rd Bridge	12	89.6	89.7	77.7	102.5	7.9	0.06	91.4
Kirikiri Stm at Tauhara Dr	12	71.9	72.2	58.7	86.9	15.7	-0.01	70.3
Komakorau Stm at Henry Rd	12	64.5	69.0	28.0	82.4	24.9	-0.79	60.2
Little Waipa Stm at Arapuni - Putaruru Rd	12	102.0	104.6	87.5	112.5	12.3	-0.46	101.3
Mangakotukutuku Stm at Peacockes Rd	12	92.2	92.4	82.8	96.8	4.2	-1.02	90.7
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	102.5	102.1	95.3	108.1	6.1	-0.19	101.9
Mangaone Stm at Annebrooke Rd Br	12	81.2	83.1	72.4	88.7	8.4	-0.23	81.0
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	100.8	102.7	90.6	106.2	5.7	-0.96	98.5
Mangaonua Stm at Hoeka Rd	12	81.2	85.1	68.5	90.0	13.4	-0.60	83.9
Mangatangi River at SH2 Maramara	12	88.4	86.4	75.1	103.0	11.0	0.24	89.0
Mangatawhiri River at Lyons Rd At Buckingham Br	12	110.0	111.8	92.2	129.0	10.0	0.06	109.9
Mangawara Stm at Rutherford Rd Br	12	74.8	74.5	58.7	85.2	12.1	-0.38	77.5
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	87.0	87.9	79.8	94.8	9.4	0.11	85.4
Matahuru Stm at Waiterimu Road Below Confluence	12	83.4	84.2	74.0	92.7	13.2	-0.11	86.0
Ohaeroa Stm at SH22 Br	12	96.1	96.9	85.6	105.1	8.1	-0.28	98.2
Opatia Stm at Ponganui Rd	12	93.1	97.0	39.8	103.4	8.8	<u>-2.66</u>	95.8
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	103.8	104.3	92.5	111.6	7.6	-0.44	102.7
Waerenga Stm at Taniwha Rd	12	98.6	97.1	86.3	112.6	10.2	0.41	99.1
Waitawhirihiri Stm at Edgumbe Street	12	90.1	91.8	72.9	99.3	10.0	-0.89	85.6
Whakapipi Stm at SH22 Br	12	85.8	92.3	49.5	104.4	25.6	-0.83	90.5
Whakauru Stm at U/S SH1 Br	12	99.8	98.7	91.4	107.3	5.6	0.12	98.6
Whangamarino River at Island Block Rd	12	61.3	57.2	22.9	128.0	40.1	0.86	61.1
Whangamarino River at Jefferies Rd Br	12	75.4	68.3	56.6	102.2	19.8	0.64	80.3
Whangape Stm at Rangiri-Glen Murray Rd	12	79.0	92.3	18.5	114.9	41.8	-0.69	91.7

Dissolved Oxygen (g m⁻³)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	10.0	10.4	8.6	11.4	1.6	-0.12	9.8
Kauaeranga River at Smiths Cableway/Recorder	11	9.8	9.6	8.4	11.3	1.2	0.06	9.9
Ohinemuri River at Queens Head	12	10.6	10.8	9.4	11.6	1.0	-0.37	10.3
Ohinemuri River at SH25 Br	12	10.7	10.6	9.8	11.7	1.0	0.27	10.3
Tairua River at Morrisons Br Hikuai	12	10.1	10.1	8.3	13.6	1.7	1.00	9.7
Tapu River at Tapu-Coroglen Rd	12	10.5	10.5	9.4	11.7	1.3	0.16	10.3
Waiau River at E309 Rd Ford	12	10.6	10.5	9.6	11.5	1.3	0.08	10.3
Waitekauri River at U/S Ohinemuri Conflu	12	10.3	10.2	9.1	11.7	1.3	0.17	10.1
Waiwawa River at SH25 Coroglen	12	10.4	10.4	9.0	11.6	1.4	-0.13	10.0
Wharekawa River at SH25	12	10.2	10.2	9.3	11.0	0.9	-0.07	9.8
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	10.0	10.1	8.8	11.4	1.7	0.01	9.9
Oraka Stm at Lake Rd	12	9.6	9.6	7.2	11.2	1.9	-0.35	9.5
Piako River at Kiwitahi	12	7.9	9.0	3.4	10.6	4.6	-0.55	9.0
Piako River at Paeroa-Tahuna Rd Br	12	8.7	9.2	6.3	10.4	2.0	-0.49	8.9
Piakonui Stm at Piakonui Rd	12	10.4	10.7	9.0	11.6	1.6	-0.36	10.3
Waihou River at Okauia	12	9.9	9.9	8.6	11.1	1.5	0.09	9.8
Waihou River at Whites Rd	12	10.8	10.8	9.6	11.8	1.0	-0.22	10.5
Waiohotu Stm at Waiohotu (Off SH5)	12	10.3	10.3	7.3	12.2	1.9	-0.42	9.9
Waiomou Stm at Matamata-Tauranga Rd	12	10.0	9.8	8.5	11.7	1.6	0.29	9.9
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	9.1	9.6	6.6	10.7	2.1	-0.58	9.6
Waitoa River at Landsdowne Rd Br	12	9.4	9.8	7.0	11.3	2.3	-0.44	9.1
Waitoa River at Mellon Rd Recorder	12	7.9	8.2	6.0	9.1	1.2	-0.75	7.9
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otawa Rd Br opp Moseley Rd	12	9.2	9.1	6.6	12.1	2.6	0.27	8.9
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	8.5	8.8	5.2	11.2	3.3	-0.36	8.8
Karapiro Stm at Hickey Rd Bridge	12	9.1	9.2	7.4	11.1	1.7	0.00	9.4
Kirikiri Stm at Tauhara Dr	12	7.4	7.5	5.5	9.3	2.2	-0.08	7.0
Komakorau Stm at Henry Rd	12	6.6	7.0	2.6	8.8	3.4	-0.49	6.4
Little Waipa Stm at Arapuni - Putaruru Rd	12	10.6	10.8	8.8	11.6	1.1	-0.84	10.4
Mangakotukutuku Stm at Peacockes Rd	12	9.3	9.4	7.9	10.6	1.2	-0.13	9.3
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	10.6	10.4	9.3	11.8	1.5	0.10	10.2
Mangaone Stm at Annebrooke Rd Br	12	8.4	8.5	7.3	9.6	1.5	0.08	8.5
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	10.3	10.3	8.5	11.6	1.7	-0.31	10.2
Mangaonua Stm at Hoeka Rd	12	8.4	8.6	6.5	9.9	1.8	-0.43	8.6
Mangatangi River at SH2 Maramara	12	8.6	8.3	7.1	10.7	2.0	0.45	8.6
Mangatawhiri River at Lyons Rd At Buckingham Br	12	10.6	10.5	9.1	13.1	1.7	0.81	10.5
Mangawara Stm at Rutherford Rd Br	12	7.5	7.7	5.5	9.5	2.1	0.01	7.7
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	9.0	9.0	7.8	10.3	1.6	0.09	8.8
Matahuru Stm at Waiterimu Road Below Confluence	12	8.4	8.4	7.0	10.5	1.7	0.54	8.4
Ohaeroa Stm at SH22 Br	12	9.7	9.9	8.0	11.7	1.7	0.12	10.2
Opatia Stm at Ponganui Rd	12	9.4	10.0	3.7	11.6	2.3	-1.59	9.6
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	10.9	11.0	9.3	12.0	1.1	-0.33	10.7
Waerenga Stm at Taniwha Rd	12	10.0	10.1	8.3	12.6	1.8	0.50	10.2
Waitawhirihiri Stm at Edgumbe Street	12	8.9	9.3	6.9	10.4	1.4	-0.59	8.3
Whakapipi Stm at SH22 Br	12	8.7	9.7	4.7	11.1	3.4	-0.58	9.1
Whakauru Stm at U/S SH1 Br	12	10.6	10.6	9.2	12.1	1.5	0.23	10.2
Whangamarino River at Island Block Rd	12	5.7	5.4	2.5	11.0	4.0	0.60	6.2
Whangamarino River at Jefferies Rd Br	12	7.4	7.2	5.3	10.0	2.7	0.24	7.8
Whangape Stm at Rangiri-Glen Murray Rd	12	7.9	9.6	1.6	12.1	5.1	-0.47	9.4

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Waipa River and Tributaries																
Kaniwhaniwha Stm at Wright Rd	12	85.9	87.4	66.2	97.1	11.9	-0.75	86.8	12	8.7	8.5	6.3	11.0	2.3	0.05	9.0
Mangaohoi Stm at South Branch Maru Rd	12	101.3	100.3	94.5	107.2	6.9	0.04	100.3	12	10.2	10.1	9.1	11.5	1.1	0.31	10.1
Mangaokewa Stm at Lawrence Street Br	12	96.1	98.5	78.0	104.6	9.9	-1.01	95.7	12	10.0	10.1	7.8	12.3	2.3	-0.17	10.2
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	111.9	99.1	81.3	156.1	41.4	0.67	95.3	12	10.9	10.7	8.5	13.4	2.4	0.30	9.6
Mangapu River at Otorohanga	12	97.2	96.3	89.1	105.4	4.4	0.47	95.1	12	9.7	9.7	8.3	11.4	1.4	0.28	9.4
Mangatutu Stm (Waikeria) at Walker Rd Br	12	96.4	96.9	90.8	102.3	5.8	0.00	95.9	12	10.0	10.2	8.8	11.4	1.5	0.07	9.6
Mangauika Stm at Te Awamutu Borough W/S Intake	12	102.7	102.3	98.4	107.9	5.8	0.16	99.7	12	10.7	10.5	9.9	11.9	1.3	0.35	10.4
Ohote Stm at Whatawhata/Horotiu Rd	12	48.7	50.4	8.5	81.3	37.9	-0.24	52.4	12	5.0	5.1	0.8	8.7	4.4	-0.14	5.1
Puniu River at Bartons Corner Rd Br	12	95.3	95.9	84.3	103.0	6.7	-0.61	95.2	12	9.7	9.6	8.6	10.8	0.8	0.22	9.4
Waipa River at Mangaokewa Rd	12	104.7	105.7	93.0	110.6	6.1	-1.04	101.8	12	10.5	10.3	9.0	12.3	1.9	0.20	10.2
Waipa River at Pirongia-Ngutunui Rd Br	12	90.3	92.0	75.3	99.7	10.5	-0.75	91.2	12	9.1	9.1	6.9	10.9	2.3	-0.15	9.1
Waipa River at SH3 Otorohanga	12	103.9	103.1	97.7	112.2	4.3	0.65	101.5	12	10.5	10.3	9.0	12.1	1.3	0.21	10.3
Waitomo Stm at SH31 Otorohanga	12	101.0	100.6	93.6	108.0	6.7	0.17	98.7	12	10.1	10.0	9.4	11.2	0.7	0.79	9.9
Waitomo Stm at Tumutumu Rd	12	106.3	105.5	97.6	116.5	4.8	0.49	102.4	12	10.9	11.0	10.1	11.6	0.9	-0.25	10.5
Tributaries to the upper Waikato River																
Kawaunui Stm at SH5 Br	12	86.3	86.1	76.5	92.2	3.9	-0.90	86.1	12	8.7	8.7	7.1	9.9	0.9	-0.31	8.6
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	95.5	95.0	87.2	100.8	6.4	-0.31	94.3	12	10.0	10.0	8.7	11.2	1.2	0.23	9.8
Mangakara Stm (Reporoa) at SH5	12	93.3	92.7	84.4	99.5	6.0	-0.29	91.9	12	9.8	9.8	8.4	11.2	1.6	0.16	9.5
Mangakino Stm (Whakamaru) at Sandel Rd	12	100.8	101.8	73.2	110.9	4.4	<u>-2.14</u>	102.1	12	10.7	10.6	8.1	12.4	1.8	-0.36	10.7
Otamakokore Stm at Hossack Rd	12	101.2	101.9	91.9	107.1	7.2	-0.48	99.5	12	8.7	8.8	8.0	9.3	0.7	-0.34	8.8
Pueto Stm at Broadlands Rd Br	12	94.7	94.1	85.6	101.3	9.5	-0.02	93.9	12	9.7	9.7	8.3	10.9	1.3	0.01	9.5
Tahunaatara Stm at Ohakuri Rd	12	105.3	106.2	99.4	110.4	6.7	-0.31	103.6	12	11.0	10.8	9.7	12.2	1.3	0.25	10.6
Torepatutahi Stm at Vaile Rd Br	12	100.9	99.8	92.4	115.1	7.8	0.91	100.4	12	10.2	10.2	8.9	11.5	1.6	0.01	10.0
Waiotapu Stm at Campbell Rd Br	12	89.6	88.4	82.1	98.5	6.1	0.40	87.9	12	6.8	6.6	6.1	7.7	1.0	0.50	6.7
Waiotapu Stm at Homestead Rd Br	12	91.1	90.3	83.7	99.4	8.8	0.22	90.3	12	8.4	8.3	7.5	10.4	0.6	1.42	8.2
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	101.0	99.3	91.4	112.3	7.0	0.38	99.7	12	8.6	8.6	7.6	9.6	1.0	0.23	8.5
Whirinaki Stm at Corbett Rd	12	99.1	98.4	90.4	106.1	8.6	-0.06	96.9	12	10.4	10.3	9.3	11.2	1.1	-0.12	10.1
West Coast																
Awakino River at Gribbon Rd	12	105.2	106.0	91.1	111.7	4.4	-1.51	103.2	12	11.0	10.8	9.3	12.9	1.5	0.02	10.7
Awakino River at SH3 Awakau Rd Junction	12	109.2	108.8	90.3	125.1	12.5	-0.32	107.5	12	11.2	11.2	8.7	13.1	1.8	-0.35	11.0
Manganui River at Off Manganui Rd	12	103.5	104.7	88.3	111.9	6.4	-1.17	101.9	12	10.8	10.5	8.9	12.7	1.6	0.09	10.4
Mangaotaki River at SH3 Br	12	105.7	105.9	90.5	112.7	7.7	-1.15	103.3	12	11.0	10.6	9.1	13.1	1.9	0.22	10.6
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	106.9	106.5	103.5	112.5	4.3	0.68	104.9	12	11.0	11.0	10.0	12.5	0.9	0.62	10.7
Mokau River at Awakau Rd	12	97.4	97.7	78.8	104.5	7.4	-1.57	95.5	12	9.9	9.8	7.4	12.0	2.1	-0.29	9.7
Mokau River at Mangaokewa Rd (Off SH30)	12	101.9	102.3	88.5	107.8	5.5	-1.45	99.1	12	10.6	10.2	8.9	12.3	1.6	0.09	10.3
Mokau River at Totoro Rd Recorder	12	105.5	106.2	89.9	112.5	6.7	-1.39	102.9	12	10.8	10.6	8.9	12.9	2.3	0.06	10.4
Mokauiti Stm at Three Way Point - Aria	12	98.4	100.0	76.5	114.3	11.4	-0.66	94.5	12	9.8	10.2	7.1	11.9	1.8	-0.50	9.5
Ohautira Stm at Waingaro Te Uku Rd	12	95.9	96.6	84.2	103.8	9.4	-0.56	95.0	12	10.0	10.1	8.2	12.0	2.1	0.00	10.1
Oparau River at Langdon Rd (Off Okupata Rd)	12	109.7	109.2	103.4	117.6	6.1	0.45	107.3	12	11.1	11.0	10.0	12.7	1.0	0.66	10.7
Tawarau River at Off Speedies Rd	12	107.3	108.1	101.6	112.5	3.1	-0.58	104.4	12	11.1	10.8	10.3	12.6	1.2	0.69	10.6
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	96.2	98.4	81.7	106.4	8.7	-0.71	96.5	12	9.7	9.8	7.5	11.7	2.1	-0.23	9.8
Waitetuna River at Te Uku-Waingaro Rd	12	97.4	98.4	85.4	105.1	12.7	-0.52	96.6	12	10.0	10.1	8.0	12.0	2.4	-0.17	10.3
Inflows to Lake Taupo																
Hinemaiaia River at SH1	12	101.3	101.9	91.4	108.6	4.5	-0.73	100.4	12	10.8	11.0	9.2	12.3	1.4	-0.18	10.7
Kuratau River at SH41 Moerangi	12	95.1	95.0	85.2	103.7	4.1	-0.35	93.8	12	10.2	10.2	8.7	11.6	1.5	0.03	9.9
Kuratau River at Te Rae Street	12	102.0	101.6	81.7	114.3	7.1	-0.88	101.6	12	10.5	10.8	7.8	12.6	2.0	-0.38	10.3
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	88.6	88.2	81.2	96.2	4.7	0.33	88.7	12	9.5	9.4	8.5	11.0	1.2	0.51	9.5
Tauranga- Taupo River at 20 Metres U/S SH1 Bridge	12	99.5	99.3	89.7	106.6	4.1	-0.57	99.0	12	10.8	10.9	9.2	12.4	1.6	-0.02	10.6
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	12	105.7	106.6	96.6	113.9	8.7	-0.27	104.4	12	10.8	11.0	9.5	12.5	1.4	0.10	10.5
Tokaanu Stm at Off SH41 Turangi	12	82.6	82.3	77.0	88.4	3.1	0.23	83.4	12	8.5	8.4	8.0	9.2	0.5	0.66	8.5
Waihaha River at SH32	12	102.7	102.2	97.7	111.9	4.2	1.14	102.4	12	10.7	10.7	9.7	12.2	1.5	0.34	10.5
Waitahanui River at Blake Rd	12	100.1	99.9	91.1	107.4	4.9	-0.38	99.4	12	10.8	10.8	9.7	11.9	1.2	0.18	10.7
Whangamata Stm (Kinloch) at Whangamata Rd	12	96.8	97.0	87.9	103.7	4.9	-0.28	96.1	12	10.6	10.3	9.4	11.9	1.2	0.43	10.3
Whanganui Stm at Lakeside Lake Taupo	12	99.7	99.1	93.5	108.9	7.3	0.54	101.4	12	10.5	10.3	9.0	12.5	1.8	0.54	10.6
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	97.2	97.1	90.1	104.5	3.9	0.21	96.1	12	10.4	10.2	9.4	12.0	1.7	0.50	10.1

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Dissolved Reactive Phosphorus (g m⁻³)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	0.006	0.003	0.002	0.040	0.002	<u>2.96</u>	0.002
Kauaeranga River at Smiths Cableway/Recorder	11	0.002	0.002	0.002	0.002	0.000	-1.00	0.002
Ohinemuri River at Queens Head	12	0.003	0.002	0.002	0.014	0.000	<u>2.56</u>	0.002
Ohinemuri River at SH25 Br	12	0.004	0.002	0.002	0.013	0.003	<u>2.27</u>	0.004
Tairua River at Morrisons Br Hikuai	12	0.002	0.002	0.002	0.006	0.000	<u>3.02</u>	0.002
Tapu River at Tapu-Coroglen Rd	12	0.003	0.002	0.002	0.011	0.000	<u>3.02</u>	0.002
Waiiau River at E309 Rd Ford	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.002
Waitekauri River at U/S Ohinemuri Conflu	12	0.002	0.002	0.002	0.005	0.000	<u>1.97</u>	0.002
Waiwawa River at SH25 Coroglen	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.002
Wharekawa River at SH25	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.002
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.036	0.038	0.018	0.052	0.016	-0.28	0.036
Oraka Stm at Lake Rd	12	0.108	0.096	0.064	0.200	0.043	1.18	0.089
Piako River at Kiwitahi	12	0.048	0.048	0.024	0.095	0.016	1.36	0.047
Piako River at Paeroa-Tahuna Rd Br	12	0.332	0.275	0.053	0.690	0.366	0.35	0.198
Piakonui Stm at Piakonui Rd	12	0.013	0.013	0.008	0.021	0.005	0.50	0.011
Waihou River at Okauia	12	0.064	0.064	0.048	0.080	0.008	-0.02	0.063
Waihou River at Whites Rd	12	0.074	0.075	0.068	0.078	0.005	-0.58	0.074
Waiohotu Stm at Waiohotu (Off SH5)	12	0.013	0.013	0.009	0.018	0.004	0.31	0.012
Waiomou Stm at Matamata-Tauranga Rd	12	0.019	0.018	0.016	0.026	0.003	1.23	0.019
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.023	0.021	0.018	0.038	0.007	1.26	0.023
Waitoa River at Landsdowne Rd Br	12	0.023	0.025	0.005	0.039	0.018	-0.33	0.024
Waitoa River at Mellon Rd Recorder	12	0.049	0.050	0.031	0.069	0.008	0.20	0.051
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otawa Rd Br opp Moseley Rd	12	0.005	0.003	0.002	0.028	0.003	<u>2.80</u>	0.004
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	0.003	0.002	0.002	0.009	0.000	<u>2.66</u>	0.002
Karapiro Stm at Hickey Rd Bridge	12	0.049	0.046	0.024	0.082	0.019	0.61	0.042
Kirikiri River at Tauhara Dr	12	0.011	0.010	0.007	0.017	0.006	0.58	0.014
Komakorau Stm at Henry Rd	12	0.009	0.009	0.002	0.020	0.006	0.55	0.010
Little Waipa Stm at Arapuni - Putaruru Rd	12	0.065	0.058	0.042	0.175	0.015	<u>2.76</u>	0.051
Mangakotukutuku Stm at Peacocks Rd	12	0.202	0.114	0.038	0.810	0.216	<u>2.03</u>	0.213
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	0.313	0.300	0.250	0.430	0.050	1.15	0.290
Mangaone Stm at Annebrooke Rd Br	12	0.060	0.061	0.040	0.082	0.019	0.09	0.063
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	0.016	0.016	0.006	0.026	0.007	-0.01	0.015
Mangaonua Stm at Hoeka Rd	12	0.013	0.013	0.007	0.026	0.008	1.07	0.012
Mangatangi River at SH2 Maramarua	12	0.021	0.020	0.010	0.036	0.014	0.49	0.021
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.013	0.013	0.006	0.020	0.005	0.08	0.011
Mangawara Stm at Rutherford Rd Br	12	0.053	0.044	0.014	0.136	0.053	0.85	0.047
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.044	0.025	0.014	0.162	0.034	<u>1.93</u>	0.040
Matahuru Stm at Waiterimu Road Below Confluence	12	0.022	0.021	0.014	0.038	0.009	0.88	0.023
Ohaeroa Stm at SH22 Br	12	0.008	0.007	0.004	0.012	0.004	0.44	0.008
Opuatia Stm at Ponganui Rd	12	0.006	0.006	0.002	0.016	0.002	1.31	0.006
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	0.094	0.091	0.080	0.128	0.011	<u>1.75</u>	0.087
Waerenga Stm at Taniwha Rd	12	0.027	0.020	0.004	0.099	0.023	<u>1.86</u>	0.019
Waitawhiriwhiri Stm at Edgecumbe Street	12	0.029	0.021	0.008	0.088	0.019	<u>1.84</u>	0.031
Whakapipi Stm at SH22 Br	12	0.028	0.025	0.014	0.046	0.023	0.29	0.022
Whakauru Stm at U/S SH1 Br	12	0.029	0.028	0.018	0.059	0.009	<u>1.96</u>	0.019
Whangamarino River at Island Block Rd	12	0.007	0.007	0.002	0.018	0.008	0.86	0.006
Whangamarino River at Jefferies Rd Br	12	0.031	0.029	0.018	0.044	0.010	0.28	0.030
Whangape Stm at Rangiriri-Glen Murray Rd	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.002

Total Phosphorus (g m⁻³)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	0.017	0.008	0.004	0.102	0.007	<u>2.78</u>	0.008
Kauaeranga River at Smiths Cableway/Recorder	11	0.011	0.002	0.002	0.090	0.002	<u>2.84</u>	0.004
Ohinemuri River at Queens Head	12	0.016	0.010	0.004	0.076	0.006	<u>2.57</u>	0.011
Ohinemuri River at SH25 Br	12	0.011	0.008	0.002	0.038	0.004	<u>2.20</u>	0.011
Tairua River at Morrisons Br Hikuai	12	0.008	0.004	0.002	0.034	0.003	<u>1.76</u>	0.004
Tapu River at Tapu-Coroglen Rd	12	0.006	0.003	0.002	0.034	0.002	<u>2.87</u>	0.002
Waiiau River at E309 Rd Ford	12	0.008	0.005	0.002	0.032	0.008	<u>1.97</u>	0.005
Waitekauri River at U/S Ohinemuri Conflu	12	0.008	0.006	0.002	0.030	0.007	<u>1.74</u>	0.006
Waiwawa River at SH25 Coroglen	12	0.005	0.002	0.002	0.020	0.004	<u>2.31</u>	0.002
Wharekawa River at SH25	12	0.007	0.005	0.002	0.036	0.005	<u>2.72</u>	0.004
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.047	0.048	0.030	0.055	0.011	-0.89	0.047
Oraka Stm at Lake Rd	12	0.144	0.123	0.091	0.280	0.041	<u>1.77</u>	0.121
Piako River at Kiwitahi	12	0.071	0.069	0.042	0.138	0.028	1.42	0.077
Piako River at Paeroa-Tahuna Rd Br	12	0.361	0.340	0.088	0.690	0.318	0.23	0.270
Piakonui Stm at Piakonui Rd	12	0.028	0.021	0.014	0.070	0.018	<u>1.80</u>	0.020
Waihou River at Okauia	12	0.084	0.085	0.070	0.107	0.014	0.73	0.084
Waihou River at Whites Rd	12	0.115	0.077	0.074	0.510	0.007	<u>3.00</u>	0.075
Waiohotu Stm at Waiohotu (Off SH5)	12	0.023	0.024	0.016	0.032	0.007	0.06	0.024
Waiomou Stm at Matamata-Tauranga Rd	12	0.035	0.032	0.024	0.065	0.010	1.52	0.036
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.058	0.054	0.024	0.118	0.040	0.73	0.062
Waitoa River at Landsdowne Rd Br	12	0.041	0.047	0.012	0.074	0.029	-0.14	0.052
Waitoa River at Mellon Rd Recorder	12	0.084	0.082	0.048	0.130	0.038	0.38	0.109
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otawa Rd Br opp Moseley Rd	12	0.040	0.034	0.008	0.111	0.034	1.30	0.047
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	0.013	0.011	0.002	0.028	0.008	0.71	0.012
Karapiro Stm at Hickey Rd Bridge	12	0.093	0.093	0.046	0.126	0.037	-0.34	0.086
Kirikiri River at Tauhara Dr	12	0.060	0.061	0.042	0.104	0.018	1.49	0.063
Komakorau Stm at Henry Rd	12	0.126	0.078	0.052	0.550	0.047	<u>2.82</u>	0.090
Little Waipa Stm at Arapuni - Putaruru Rd	12	0.096	0.083	0.049	0.290	0.023	<u>2.54</u>	0.068
Mangakotukutuku Stm at Peacocks Rd	12	0.454	0.400	0.094	1.250	0.433	1.11	0.415
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	0.366	0.345	0.290	0.460	0.105	0.26	0.325
Mangaone Stm at Annebrooke Rd Br	12	0.113	0.103	0.078	0.230	0.028	<u>2.02</u>	0.118
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	0.035	0.028	0.018	0.115	0.013	<u>2.68</u>	0.028
Mangaonua Stm at Hoeka Rd	12	0.046	0.043	0.022	0.090	0.019	1.25	0.053
Mangatangi River at SH2 Maramarua	12	0.064	0.053	0.024	0.104	0.065	0.16	0.072
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.026	0.024	0.010	0.054	0.009	1.35	0.023
Mangawara Stm at Rutherford Rd Br	12	0.177	0.169	0.103	0.270	0.122	0.40	0.210
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.156	0.148	0.102	0.230	0.063	0.58	0.161
Matahuru Stm at Waiterimu Road Below Confluence	12	0.114	0.090	0.055	0.350	0.054	<u>2.38</u>	0.098
Ohaeroa Stm at SH22 Br	12	0.035	0.025	0.014	0.138	0.015	<u>2.63</u>	0.026
Opuatia Stm at Ponganui Rd	12	0.029	0.024	0.011	0.072	0.017	1.42	0.031
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	0.111	0.107	0.094	0.162	0.013	<u>1.98</u>	0.106
Waerenga Stm at Taniwha Rd	12	0.053	0.046	0.010	0.117	0.037	0.77	0.046
Waitawhiriwhiri Stm at Edgecumbe Street	12	0.086	0.081	0.064	0.130	0.025	1.10	0.091
Whakapipi Stm at SH22 Br	12	0.060	0.050	0.029	0.122	0.026	1.27	0.051
Whakauru Stm at U/S SH1 Br	12	0.062	0.054	0.026	0.143	0.040	1.11	0.042
Whangamarino River at Island Block Rd	12	0.136	0.138	0.058	0.270	0.066	0.86	0.152
Whangamarino River at Jefferies Rd Br	12	0.085	0.069	0.045	0.184	0.065	1.09	0.089
Whangape Stm at Rangiriri-Glen Murray Rd	12	0.126	0.110	0.048	0.200	0.099	0.26	0.122

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions.

Waipa River and Tributaries																
Kaniwhaniwha Stm at Wright Rd	12	0.007	0.007	0.002	0.011	0.003	-0.17	0.007	12	0.018	0.017	0.006	0.029	0.003	0.25	0.029
Mangaohoi Stm at South Branch Maru Rd	12	0.043	0.042	0.016	0.065	0.021	-0.13	0.043	12	0.057	0.056	0.026	0.108	0.022	0.87	0.053
<i>Mangaokewa Stm at Lawrence Street Br</i>	12	0.015	0.015	0.006	0.021	0.006	-0.58	0.014	12	0.036	0.034	0.021	0.068	0.010	1.38	0.036
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	0.179	0.121	0.060	0.410	0.211	0.82	0.115	12	0.261	0.265	0.108	0.500	0.183	0.43	0.240
Mangapu River at Otorohanga	12	0.022	0.018	0.014	0.042	0.011	1.28	0.023	12	0.041	0.040	0.028	0.062	0.011	0.77	0.059
Mangatutu Stm (Waikeria) at Walker Rd Br	12	0.008	0.008	0.002	0.011	0.002	-1.18	0.009	12	0.018	0.018	0.008	0.033	0.006	0.90	0.020
Mangauika Stm at Te Awamutu Borough W/S Intake	12	0.003	0.002	0.002	0.006	0.002	1.27	0.002	12	0.007	0.008	0.002	0.012	0.004	-0.19	0.008
Ohote Stm at Whatawhata/Horotiu Rd	12	0.018	0.017	0.002	0.032	0.012	0.14	0.020	12	0.070	0.062	0.030	0.139	0.033	0.90	0.076
Puniu River at Bartons Corner Rd Br	12	0.020	0.020	0.008	0.032	0.007	-0.02	0.022	12	0.055	0.044	0.027	0.146	0.018	<u>1.95</u>	0.048
Waipa River at Mangaokewa Rd	12	0.006	0.006	0.002	0.018	0.004	<u>2.03</u>	0.005	12	0.021	0.016	0.009	0.067	0.010	<u>2.31</u>	0.016
Waipa River at Pirongia-Ngutunui Rd Br	12	0.015	0.014	0.008	0.030	0.005	1.38	0.014	12	0.044	0.041	0.019	0.102	0.018	1.55	0.049
Waipa River at SH3 Otorohanga	12	0.007	0.007	0.002	0.014	0.005	0.36	0.008	12	0.020	0.018	0.008	0.049	0.013	1.56	0.023
Waitomo Stm at SH31 Otorohanga	12	0.009	0.007	0.002	0.031	0.008	<u>1.69</u>	0.006	12	0.033	0.022	0.010	0.141	0.022	<u>2.47</u>	0.031
Waitomo Stm at Tumutumu Rd	12	0.011	0.010	0.006	0.031	0.002	<u>2.66</u>	0.010	12	0.030	0.018	0.011	0.135	0.007	<u>2.63</u>	0.022
Tributaries to the upper Waikato River																
Kawaunui Stm at SH5 Br	12	0.050	0.048	0.039	0.072	0.014	0.93	0.054	12	0.073	0.073	0.057	0.108	0.021	1.00	0.082
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	0.032	0.032	0.027	0.035	0.003	-0.55	0.031	12	0.050	0.050	0.033	0.068	0.011	0.14	0.048
Mangakara Stm (Reporoa) at SH5	12	0.049	0.050	0.037	0.058	0.009	-0.49	0.048	12	0.071	0.068	0.053	0.087	0.019	0.06	0.074
Mangakino Stm (Whakamaru) at Sandel Rd	12	0.041	0.040	0.030	0.054	0.012	0.45	0.039	12	0.048	0.049	0.035	0.058	0.009	-0.51	0.047
Otamakokore Stm at Hossack Rd	12	0.162	0.165	0.128	0.186	0.031	-0.35	0.153	12	0.153	0.148	0.133	0.176	0.022	0.36	0.137
Pueto Stm at Broadlands Rd Br	12	0.072	0.072	0.065	0.078	0.003	-0.60	0.074	12	0.086	0.087	0.071	0.101	0.009	-0.19	0.092
Tahunaatara Stm at Ohakuri Rd	12	0.035	0.034	0.028	0.045	0.008	0.44	0.031	12	0.047	0.044	0.041	0.062	0.012	0.81	0.045
Torepatutahi Stm at Vaile Rd Br	12	0.083	0.085	0.075	0.091	0.010	-0.19	0.082	12	0.094	0.092	0.078	0.111	0.019	0.32	0.096
Waiotapu Stm at Campbell Rd Br	12	0.003	0.002	0.002	0.005	0.001	1.28	0.002	12	0.063	0.064	0.024	0.094	0.018	-0.51	0.0505
Waiotapu Stm at Homestead Rd Br	12	0.030	0.032	0.015	0.044	0.016	-0.11	0.034	12	0.092	0.093	0.052	0.134	0.0435	-0.21	0.058
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	0.104	0.099	0.076	0.135	0.041	0.20	0.086	12	0.102	0.099	0.078	0.144	0.025	0.84	0.082
Whirinaki Stm at Corbett Rd	12	0.060	0.061	0.055	0.064	0.004	-0.69	0.061	12	0.063	0.062	0.057	0.069	0.004	0.47	0.063
West Coast																
Awakino River at Gribbon Rd	12	0.012	0.012	0.005	0.016	0.004	-0.71	0.012	12	0.019	0.016	0.009	0.057	0.008	<u>2.35</u>	0.016
Awakino River at SH3 Awakau Rd Junction	12	0.008	0.008	0.002	0.014	0.006	-0.21	0.008	12	0.023	0.016	0.006	0.067	0.018	1.35	0.017
Manganui River at Off Manganui Rd	12	0.013	0.013	0.010	0.018	0.004	0.32	0.012	12	0.042	0.022	0.013	0.260	0.012	<u>2.96</u>	0.022
Mangaotaki River at SH3 Br	12	0.009	0.010	0.002	0.014	0.005	-0.75	0.010	12	0.026	0.024	0.010	0.076	0.012	<u>1.94</u>	0.025
Marokopa River at Speedies Rd (Off Te Angra Rd)	12	0.015	0.015	0.011	0.020	0.007	0.35	0.013	12	0.023	0.022	0.014	0.034	0.006	0.43	0.024
Mokau River at Awakau Rd	12	0.006	0.007	0.002	0.010	0.005	-0.47	0.006	12	0.031	0.028	0.013	0.090	0.020	<u>1.99</u>	0.033
Mokau River at Mangaokewa Rd (Off SH30)	12	0.018	0.017	0.010	0.033	0.013	0.49	0.014	12	0.037	0.032	0.024	0.074	0.013	1.57	0.034
Mokau River at Totoro Rd Recorder	12	0.009	0.010	0.002	0.016	0.003	-0.16	0.010	12	0.026	0.023	0.011	0.062	0.013	1.59	0.028
Mokauti Stm at Three Way Point - Aria	12	0.008	0.007	0.005	0.014	0.003	1.14	0.008	12	0.026	0.025	0.010	0.043	0.015	0.25	0.038
Ohautira Stm at Waingaro Te Uku Rd	12	0.019	0.019	0.010	0.027	0.006	0.05	0.018	12	0.036	0.036	0.027	0.050	0.012	0.51	0.036
Oparau River at Langdon Rd (Off Okupata Rd)	12	0.154	0.006	0.002	1.780	0.003	<u>3.02</u>	0.006	12	0.156	0.014	0.002	1.740	0.010	<u>3.01</u>	0.013
Tawarau River at Off Speedies Rd	12	0.017	0.015	0.012	0.027	0.006	1.02	0.014	12	0.024	0.023	0.014	0.042	0.006	1.18	0.025
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	0.011	0.010	0.007	0.016	0.004	0.67	0.009	12	0.030	0.030	0.019	0.046	0.008	0.66	0.032
Waitetuna River at Te Uku-Waingaro Rd	12	0.012	0.012	0.006	0.017	0.004	0.13	0.012	12	0.034	0.031	0.019	0.098	0.009	<u>2.57</u>	0.032
Inflows to Lake Taupo																
Hinemaiaia River at SH1	12	0.029	0.029	0.021	0.036	0.008	0.00	0.027	12	0.035	0.035	0.026	0.042	0.008	0.00	0.034
Kuratau River at SH41 Moerangi	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.002	12	0.003	0.002	0.002	0.008	0.003	1.30	0.004
Kuratau River at Te Rae Street	12	0.004	0.002	0.002	0.020	0.002	<u>2.77</u>	0.002	12	0.012	0.011	0.008	0.021	0.005	1.12	0.012
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	0.122	0.125	0.108	0.134	0.018	-0.18	0.124	12	0.140	0.140	0.127	0.155	0.014	0.14	0.145
Tauranga- Taupo River at 20 Metres U/S SH1 Bridge	12	0.013	0.014	0.010	0.016	0.002	-0.50	0.013	12	0.016	0.015	0.011	0.030	0.004	<u>1.89</u>	0.015
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	12	0.003	0.002	0.002	0.007	0.000	<u>2.42</u>	0.002	12	0.012	0.010	0.008	0.025	0.003	<u>2.21</u>	0.012
Tokaanu Stm at Off SH41 Turangi	12	0.075	0.075	0.071	0.079	0.002	-0.20	0.076	12	0.078	0.078	0.072	0.082	0.005	-0.30	0.076
Waihaha River at SH32	12	0.020	0.018	0.012	0.031	0.007	0.90	0.019	12	0.024	0.023	0.016	0.033	0.006	0.25	0.023
Waitahanui River at Blake Rd	12	0.044	0.043	0.042	0.046	0.003	0.43	0.043	12	0.046	0.046	0.042	0.050	0.004	-0.06	0.045
Whangamata Stm (Kinloch) at Whangamata Rd	12	0.065	0.065	0.059	0.072	0.006	0.26	0.064	12	0.070	0.070	0.062	0.079	0.007	0.00	0.071
Whanganui Stm at Lakeside Lake Taupo	12	0.010	0.009	0.006	0.017	0.005	0.86	0.009	12	0.013	0.014	0.006	0.020	0.005	0.01	0.014
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	0.020	0.021	0.016	0.024	0.005	-0.13	0.020	12	0.029	0.029	0.024	0.034	0.006	-0.01	0.031

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions.

Ammoniacal Nitrogen (g N m⁻³)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	0.01	0.01	0.01	0.05	0.00	<u>3.02</u>	0.005
Kauaeanga River at Smiths Cableway/Recorder	11	0.01	0.01	0.01	0.02	0.00	<u>2.85</u>	0.005
Ohinemuri River at Queens Head	12	0.07	0.03	0.01	0.29	0.10	1.31	0.044
Ohinemuri River at SH25 Br	12	0.01	0.01	0.01	0.04	0.00	<u>2.90</u>	0.005
Tairua River at Morrisons Br Hikuai	12	0.01	0.01	0.01	0.02	0.00	<u>2.06</u>	0.005
Tapu River at Tapu-Coroglen Rd	12	0.01	0.01	0.01	0.02	0.00	<u>3.02</u>	0.005
Waiau River at E309 Rd Ford	12	0.01	0.01	0.01	0.02	0.00	<u>3.02</u>	0.005
Waitekauri River at U/S Ohinemuri Conflu	12	0.01	0.01	0.01	0.04	0.00	<u>2.65</u>	0.005
Waiwawa River at SH25 Coroglen	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005
Wharekawa River at SH25	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.005
Oraka Stm at Lake Rd	12	0.11	0.02	0.01	0.62	0.05	<u>1.93</u>	0.028
Piako River at Kiwitahi	12	0.06	0.01	0.01	0.52	0.03	<u>2.94</u>	0.009
Piako River at Paeroa-Tahuna Rd Br	12	0.03	0.02	0.01	0.09	0.06	0.65	0.034
Piakonui Stm at Piakonui Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005
Waihou River at Okauia	12	0.02	0.01	0.01	0.15	0.01	<u>2.72</u>	0.010
Waihou River at Whites Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005
Waiohotu Stm at Waiohotu (Off SH5)	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005
Waiomou Stm at Matamata-Tauranga Rd	12	0.02	0.01	0.01	0.07	0.02	<u>1.91</u>	0.008
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.03	0.01	0.01	0.11	0.03	<u>1.76</u>	0.017
Waitoa River at Landsdowne Rd Br	12	0.02	0.02	0.01	0.04	0.03	0.10	0.011
Waitoa River at Mellon Rd Recorder	12	0.04	0.03	0.01	0.14	0.04	1.35	0.040
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otua Rd Br opp Moseley Rd	12	0.04	0.03	0.01	0.09	0.03	0.46	0.048
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	0.04	0.03	0.01	0.08	0.03	0.71	0.034
Karapiro Stm at Hickey Rd Bridge	12	0.02	0.02	0.01	0.05	0.01	1.34	0.018
Kirikiriua Stm at Tauhara Dr	12	0.30	0.31	0.04	0.52	0.16	-0.55	0.255
Komakorau Stm at Henry Rd	12	0.66	0.73	0.23	1.10	0.66	-0.19	0.690
Little Waipa Stm at Arapuni - Putaruru Rd	12	0.09	0.02	0.01	0.73	0.04	<u>2.73</u>	0.005
Mangakotukutuku Stm at Peacocks Rd	12	0.18	0.19	0.07	0.37	0.15	0.41	0.187
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	0.22	0.19	0.01	0.70	0.29	1.04	0.186
Mangaone Stm at Annebrooke Rd Br	12	0.02	0.02	0.01	0.07	0.01	<u>2.30</u>	0.019
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005
Mangaonua Stm at Hoeka Rd	12	0.07	0.07	0.02	0.12	0.04	-0.19	0.087
Mangatangi River at SH2 Maramarua	12	0.02	0.01	0.01	0.11	0.01	<u>1.92</u>	0.012
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.01	0.01	0.01	0.03	0.01	0.97	0.005
Mangawara Stm at Rutherford Rd Br	12	0.30	0.27	0.13	0.61	0.22	0.71	0.290
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.10	0.09	0.03	0.20	0.04	0.89	0.101
Matahuru Stm at Waiterimu Road Below Confluence	12	0.08	0.05	0.02	0.25	0.08	1.43	0.037
Ohaeroa Stm at SH22 Br	12	0.01	0.01	0.01	0.02	0.01	0.45	0.005
Opuatia Stm at Ponganui Rd	12	0.01	0.01	0.01	0.02	0.01	0.95	0.011
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	0.01	0.01	0.01	0.03	0.00	<u>2.32</u>	0.005
Waerenga Stm at Taniwha Rd	12	0.02	0.01	0.01	0.07	0.02	1.67	0.011
Waitawhiriwhiri Stm at Edgecumbe Street	12	0.57	0.61	0.10	0.77	0.12	-1.36	0.590
Whakapipi Stm at SH22 Br	12	0.02	0.02	0.01	0.08	0.01	<u>1.99</u>	0.013
Whakauru Stm at U/S SH1 Br	12	0.01	0.01	0.01	0.03	0.01	1.13	0.005
Whangamarino River at Island Block Rd	12	0.09	0.08	0.01	0.32	0.12	1.16	0.030
Whangamarino River at Jefferies Rd Br	12	0.04	0.03	0.01	0.15	0.07	1.04	0.024
Whangape Stm at Rangiriri-Glen Murray Rd	12	0.12	0.01	0.01	0.98	0.10	<u>2.78</u>	0.012

Nitrate/Nitrite (g m⁻³)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	0.089	0.012	0.001	0.660	0.078	<u>2.64</u>	0.021
Kauaeanga River at Smiths Cableway/Recorder	11	0.032	0.010	0.001	0.168	0.037	<u>2.10</u>	0.022
Ohinemuri River at Queens Head	12	0.685	0.730	0.157	1.200	0.730	-0.25	0.940
Ohinemuri River at SH25 Br	12	0.424	0.340	0.165	0.820	0.365	0.67	0.465
Tairua River at Morrisons Br Hikuai	12	0.031	0.010	0.001	0.167	0.044	<u>2.00</u>	0.016
Tapu River at Tapu-Coroglen Rd	12	0.010	0.004	0.001	0.083	0.004	<u>2.96</u>	0.003
Waiau River at E309 Rd Ford	12	0.042	0.013	0.005	0.260	0.032	<u>2.50</u>	0.023
Waitekauri River at U/S Ohinemuri Conflu	12	0.103	0.056	0.001	0.410	0.158	1.35	0.094
Waiwawa River at SH25 Coroglen	12	0.011	0.005	0.001	0.075	0.007	<u>2.78</u>	0.006
Wharekawa River at SH25	12	0.063	0.021	0.001	0.340	0.084	<u>1.98</u>	0.046
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.299	0.295	0.187	0.420	0.105	0.15	0.335
Oraka Stm at Lake Rd	12	1.988	2.000	1.540	2.200	0.175	-1.46	2.100
Piako River at Kiwitahi	12	0.884	0.680	0.026	3.300	1.281	1.15	0.855
Piako River at Paeroa-Tahuna Rd Br	12	1.315	1.080	0.023	4.000	0.950	1.38	1.275
Piakonui Stm at Piakonui Rd	12	0.186	0.140	0.098	0.480	0.119	<u>1.69</u>	0.210
Waihou River at Okauia	12	1.141	1.070	0.970	1.580	0.260	1.22	1.130
Waihou River at Whites Rd	12	0.748	0.750	0.720	0.760	0.020	-0.96	0.730
Waiohotu Stm at Waiohotu (Off SH5)	12	0.128	0.122	0.076	0.187	0.067	0.33	0.160
Waiomou Stm at Matamata-Tauranga Rd	12	0.577	0.520	0.280	1.110	0.425	0.68	0.510
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.265	0.085	0.006	1.010	0.412	1.23	0.190
Waitoa River at Landsdowne Rd Br	12	1.486	1.405	1.030	2.700	0.560	1.43	1.470
Waitoa River at Mellon Rd Recorder	12	1.735	1.610	0.980	3.000	1.165	0.42	2.100
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otua Rd Br opp Moseley Rd	12	1.191	1.305	0.059	2.100	1.240	-0.32	1.410
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	0.634	0.675	0.138	1.160	0.585	0.04	0.700
Karapiro Stm at Hickey Rd Bridge	12	0.597	0.450	0.119	1.750	0.585	1.20	0.520
Kirikiriua Stm at Tauhara Dr	12	0.868	0.765	0.480	2.400	0.365	<u>2.31</u>	0.815
Komakorau Stm at Henry Rd	12	1.978	1.195	0.870	5.900	0.405	<u>1.75</u>	1.310
Little Waipa Stm at Arapuni - Putaruru Rd	12	1.623	1.555	1.440	2.100	0.215	1.37	1.580
Mangakotukutuku Stm at Peacocks Rd	12	0.879	0.750	0.410	1.820	0.085	1.53	0.800
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	2.850	2.750	2.400	3.300	0.700	0.14	2.800
Mangaone Stm at Annebrooke Rd Br	12	2.458	2.450	1.790	3.000	0.250	-0.51	2.600
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	0.518	0.420	0.220	1.330	0.350	1.37	0.485
Mangaonua Stm at Hoeka Rd	12	1.494	1.445	1.090	2.200	0.225	1.32	1.505
Mangatangi River at SH2 Maramarua	12	0.333	0.060	0.001	1.430	0.553	1.30	0.110
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.120	0.013	0.001	0.740	0.067	<u>1.92</u>	0.013
Mangawara Stm at Rutherford Rd Br	12	1.498	0.730	0.250	5.600	0.790	1.68	0.765
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	1.880	1.820	1.630	2.600	0.210	<u>1.74</u>	2.100
Matahuru Stm at Waiterimu Road Below Confluence	12	0.822	0.715	0.040	2.400	0.645	1.11	0.715
Ohaeroa Stm at SH22 Br	12	1.465	1.495	1.070	1.740	0.220	-0.53	1.525
Opuatia Stm at Ponganui Rd	12	0.560	0.605	0.066	0.830	0.280	-0.89	0.740
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	1.760	1.735	1.580	2.000	0.180	0.55	1.755
Waerenga Stm at Taniwha Rd	12	0.662	0.735	0.250	1.320	0.555	0.31	0.820
Waitawhiriwhiri Stm at Edgecumbe Street	12	0.805	0.775	0.580	0.960	0.130	-0.50	0.880
Whakapipi Stm at SH22 Br	12	2.868	3.000	1.210	3.800	1.150	-0.70	3.500
Whakauru Stm at U/S SH1 Br	12	0.354	0.370	0.220	0.510	0.165	0.05	0.260
Whangamarino River at Island Block Rd	12	0.264	0.157	0.001	1.180	0.234	<u>1.69</u>	0.075
Whangamarino River at Jefferies Rd Br	12	0.773	0.530	0.015	2.700	1.016	1.18	0.625
Whangape Stm at Rangiriri-Glen Murray Rd	12	0.185	0.004	0.001	1.140	0.223	<u>1.84</u>	0.004

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Waipa River and Tributaries																
Kaniwhaniwha Stm at Wright Rd	12	0.01	0.01	0.01	0.03	0.01	1.16	0.016	12	0.371	0.265	0.001	1.100	0.582	0.72	0.350
Mangaohoi Stm at South Branch Maru Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	0.185	0.153	0.083	0.320	0.158	0.42	0.230
Mangaokewa Stm at Lawrence Street Br	12	0.01	0.01	0.01	0.02	0.01	0.18	0.010	12	0.517	0.435	0.210	1.030	0.470	0.69	0.530
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	0.04	0.02	0.01	0.15	0.05	1.35	0.045	12	1.363	1.305	0.052	2.900	1.050	0.28	1.410
Mangapu River at Otorohanga	12	0.02	0.02	0.01	0.04	0.02	0.33	0.026	12	0.757	0.770	0.137	1.630	0.670	0.42	0.860
Mangatutu Stm (Waikeria) at Walker Rd Br	12	0.01	0.01	0.01	0.02	0.00	<u>1.68</u>	0.005	12	0.343	0.205	0.004	0.930	0.448	0.84	0.380
Mangauika Stm at Te Awamutu Borough W/S Intake	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	0.194	0.205	0.039	0.270	0.048	-1.49	0.210
Ohote Stm at Whatawhata/Horotiu Rd	12	0.07	0.05	0.03	0.15	0.03	1.46	0.062	12	0.520	0.420	0.027	1.370	0.776	0.57	0.495
Puniu River at Bartons Comer Rd Br	12	0.01	0.01	0.01	0.04	0.02	0.97	0.017	12	0.661	0.510	0.178	1.440	0.615	0.72	0.650
Waipa River at Mangaokewa Rd	12	0.01	0.01	0.01	0.03	0.01	0.93	0.005	12	0.334	0.285	0.195	0.770	0.176	1.62	0.380
Waipa River at Pirongia-Ngutunui Rd Br	12	0.02	0.02	0.01	0.06	0.01	1.43	0.018	12	0.659	0.480	0.148	1.610	0.869	0.72	0.565
Waipa River at SH3 Otorohanga	12	0.01	0.01	0.01	0.03	0.01	1.57	0.005	12	0.471	0.270	0.064	1.530	0.582	1.20	0.370
Waitomo Stm at SH31 Otorohanga	12	0.02	0.01	0.01	0.04	0.02	0.78	0.013	12	0.542	0.515	0.194	0.990	0.295	0.41	0.520
Waitomo Stm at Tumutumu Rd	12	0.01	0.01	0.01	0.03	0.00	<u>1.79</u>	0.005	12	0.592	0.585	0.340	0.760	0.175	-0.42	0.630
Tributaries to the upper Waikato River																
Kawaunui Stm at SH5 Br	12	0.01	0.02	0.01	0.02	0.01	-0.13	0.016	12	2.583	2.550	2.300	2.900	0.150	0.55	2.600
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	0.01	0.01	0.01	0.03	0.01	1.49	0.005	12	0.458	0.440	0.330	0.630	0.185	0.43	0.525
Mangakara Stm (Reporoa) at SH5	12	0.03	0.03	0.02	0.04	0.00	0.78	0.019	12	1.241	1.245	1.080	1.360	0.150	-0.21	1.300
Mangakino Stm (Whakamaru) at Sandel Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	0.657	0.645	0.510	0.850	0.095	0.62	0.650
Otamakokore Stm at Hossack Rd	12	0.01	0.01	0.01	0.02	0.00	<u>2.28</u>	0.005	12	0.644	0.600	0.460	0.810	0.185	0.02	0.740
Pueto Stm at Broadlands Rd Br	12	0.01	0.01	0.01	0.02	0.01	-0.65	0.005	12	0.420	0.415	0.350	0.470	0.050	-0.20	0.450
Tahunaatara Stm at Ohakuri Rd	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.005	12	0.550	0.520	0.360	0.750	0.225	0.25	0.555
Torepatutahi Stm at Vaile Rd Br	12	0.01	0.01	0.01	0.02	0.01	0.95	0.005	12	0.440	0.440	0.340	0.520	0.115	-0.12	0.500
Waiotapu Stm at Campbell Rd Br	12	1.00	1.00	0.88	1.10	0.07	0.16	0.860	12	0.939	0.935	0.800	1.100	0.135	0.21	0.915
Waiotapu Stm at Homestead Rd Br	12	0.33	0.35	0.03	0.55	0.35	-0.36	0.315	12	1.240	1.205	0.980	1.550	0.090	0.66	1.285
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	1.221	1.210	0.970	1.360	0.150	-0.74	1.210
Whirinaki Stm at Corbett Rd	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.005	12	0.764	0.765	0.670	0.820	0.050	-0.80	0.770
West Coast																
Awakino River at Gribbon Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	0.092	0.112	0.005	0.183	0.115	-0.08	0.106
Awakino River at SH3 Awakau Rd Junction	12	0.01	0.01	0.01	0.04	0.01	<u>2.39</u>	0.005	12	0.207	0.197	0.004	0.510	0.260	0.36	0.202
Manganui River at Off Manganui Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	0.127	0.120	0.005	0.290	0.177	0.31	0.118
Mangaotaki River at SH3 Br	12	0.01	0.01	0.01	0.02	0.00	<u>2.22</u>	0.005	12	0.631	0.665	0.290	1.050	0.420	0.25	0.630
Marokopa River at Speedies Rd (Off Te Anka Rd)	12	0.01	0.01	0.01	0.01	0.00	1.38	0.005	12	0.255	0.245	0.126	0.390	0.139	0.15	0.250
Mokau River at Awakau Rd	12	0.01	0.01	0.01	0.03	0.01	0.88	0.012	12	0.395	0.355	0.065	0.880	0.476	0.62	0.420
Mokau River at Mangaokewa Rd (Off SH30)	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.005	12	0.325	0.310	0.148	0.630	0.217	0.61	0.270
Mokau River at Totoro Rd Recorder	12	0.01	0.01	0.01	0.02	0.01	0.95	0.005	12	0.541	0.490	0.197	1.120	0.475	0.74	0.505
Mokauiti Stm at Three Way Point - Aria	12	0.01	0.01	0.01	0.04	0.01	1.00	0.016	12	0.270	0.164	0.003	0.960	0.424	1.09	0.270
Ohautira Stm at Waingaro Te Uku Rd	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.005	12	0.246	0.285	0.008	0.500	0.359	-0.02	0.285
Oparau River at Langdon Rd (Off Okupata Rd)	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	0.122	0.090	0.003	0.360	0.195	0.61	0.095
Tawarau River at Off Speedies Rd	12	0.01	0.01	0.01	0.01	0.00	1.28	0.005	12	0.308	0.290	0.153	0.450	0.135	0.05	0.290
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	0.01	0.01	0.01	0.02	0.01	1.32	0.005	12	0.367	0.400	0.001	0.910	0.645	0.25	0.405
Waitetuna River at Te Uku-Waingaro Rd	12	0.01	0.01	0.01	0.02	0.01	0.45	0.008	12	0.324	0.305	0.051	0.650	0.365	0.07	0.325
Inflows to Lake Taupo																
Hinemaiaia River at SH1	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	0.065	0.071	0.003	0.112	0.071	-0.32	0.071
Kuratau River at SH41 Moerangi	12	0.01	0.01	0.01	0.03	0.00	<u>3.02</u>	0.005	12	0.348	0.285	0.210	0.580	0.200	0.56	0.135
Kuratau River at Te Rae Street	12	0.01	0.01	0.01	0.03	0.00	<u>2.56</u>	0.005	12	0.614	0.575	0.340	1.080	0.325	0.60	0.615
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	0.01	0.01	0.01	0.02	0.01	0.35	0.005	12	0.799	0.785	0.700	0.910	0.135	0.06	0.770
Tauranga- Taupo River at 20 Metres U/S SH1 Bridge	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	0.051	0.051	0.031	0.081	0.024	0.36	0.062
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	12	0.01	0.01	0.01	0.07	0.01	<u>2.69</u>	0.005	12	0.003	0.001	0.001	0.010	0.005	1.04	0.002
Tokaanu Stm at Off SH41 Turangi	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	0.409	0.410	0.370	0.460	0.030	0.61	0.450
Waihaha River at SH32	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	0.101	0.098	0.072	0.139	0.041	0.33	0.109
Waitahanui River at Blake Rd	12	0.01	0.01	0.01	0.06	0.00	<u>3.02</u>	0.005	12	0.421	0.425	0.390	0.460	0.035	0.00	0.440
Whangamata Stm (Kinloch) at Whangamata Rd	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.005	12	1.517	1.550	1.360	1.670	0.185	-0.37	1.615
Whanganui Stm at Lakeside Lake Taupo	12	0.01	0.01	0.01	0.02	0.00	<u>3.02</u>	0.005	12	0.283	0.285	0.193	0.370	0.080	0.21	0.320
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	0.01	0.01	0.01	0.01	0.00	1.00	0.005	12	0.653	0.595	0.480	0.890	0.300	0.52	0.715

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Total Kjeldahl Nitrogen (g m⁻³)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	0.10	0.07	0.03	0.54	0.03	<u>2.87</u>	0.07
Kauaeranga River at Smiths Cableway/Recorder	11	0.06	0.03	0.03	0.32	0.04	<u>2.64</u>	0.07
Ohinemuri River at Queens Head	12	0.27	0.19	0.10	0.64	0.34	0.76	0.27
Ohinemuri River at SH25 Br	12	0.11	0.12	0.06	0.21	0.05	0.94	0.13
Tairua River at Morrisons Br Hikuai	12	0.07	0.05	0.03	0.21	0.07	1.31	0.06
Tapu River at Tapu-Coroglen Rd	12	0.06	0.06	0.03	0.21	0.05	<u>1.94</u>	0.06
Waiiau River at E309 Rd Ford	12	0.08	0.08	0.03	0.23	0.04	<u>1.73</u>	0.07
Waitekauri River at U/S Ohinemuri Conflu	12	0.10	0.09	0.03	0.25	0.03	1.19	0.10
Waiwawa River at SH25 Coroglen	12	0.06	0.04	0.03	0.19	0.04	<u>1.88</u>	0.07
Wharekawa River at SH25	12	0.08	0.08	0.03	0.26	0.02	<u>2.19</u>	0.07
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.13	0.12	0.09	0.22	0.06	1.09	0.13
Oraka Stm at Lake Rd	12	0.39	0.25	0.16	1.02	0.22	1.45	0.31
Piako River at Kiwitahi	12	0.38	0.33	0.16	1.04	0.15	<u>2.02</u>	0.36
Piako River at Paeroa-Tahuna Rd Br	12	0.51	0.45	0.37	0.80	0.19	0.96	0.58
Piakonui Stm at Piakonui Rd	12	0.18	0.15	0.06	0.55	0.09	<u>1.93</u>	0.16
Waihou River at Okauia	12	0.20	0.18	0.12	0.46	0.09	<u>2.05</u>	0.20
Waihou River at Whites Rd	12	0.03	0.03	0.03	0.05	0.00	<u>3.02</u>	0.03
Waiohotu Stm at Waiohotu (Off SH5)	12	0.11	0.12	0.07	0.16	0.04	0.01	0.13
Waiomou Stm at Matamata-Tauranga Rd	12	0.18	0.16	0.10	0.41	0.10	1.44	0.19
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.41	0.34	0.18	0.84	0.38	0.74	0.36
Waitoa River at Landsdowne Rd Br	12	0.34	0.37	0.19	0.46	0.15	-0.37	0.40
Waitoa River at Mellon Rd Recorder	12	0.40	0.37	0.25	0.66	0.17	0.85	0.49
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otawa Rd Br opp Moseley Rd	12	0.49	0.49	0.18	0.78	0.14	0.13	0.54
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	0.26	0.26	0.18	0.33	0.05	0.17	0.28
Karapiro Stm at Hickey Rd Bridge	12	0.33	0.29	0.18	0.65	0.12	1.36	0.30
Kirikiriira Stm at Tauhara Dr	12	0.62	0.59	0.38	1.00	0.28	0.53	0.66
Komakorau Stm at Henry Rd	12	1.68	1.74	0.98	2.40	1.06	-0.02	1.64
Little Waipa Stm at Arapuni - Putaruru Rd	12	0.28	0.17	0.09	1.12	0.23	<u>2.32</u>	0.18
Mangakotukutuku Stm at Peacocks Rd	12	0.94	0.78	0.44	1.75	0.80	0.62	1.09
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	0.65	0.60	0.35	1.26	0.41	0.78	0.61
Mangaone Stm at Annebrooke Rd Br	12	0.42	0.31	0.22	1.40	0.12	<u>2.61</u>	0.40
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	0.26	0.20	0.09	0.85	0.13	<u>2.25</u>	0.22
Mangaonua Stm at Hoeka Rd	12	0.32	0.30	0.21	0.47	0.16	0.43	0.40
Mangatangi River at SH2 Maramarua	12	0.35	0.29	0.12	0.78	0.25	0.93	0.35
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.17	0.15	0.08	0.40	0.06	<u>2.27</u>	0.14
Mangawara Stm at Rutherford Rd Br	12	1.11	1.08	0.52	2.00	0.62	0.61	1.10
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.73	0.61	0.50	1.30	0.35	1.12	0.76
Matahuru Stm at Waiterimu Road Below Confluence	12	0.71	0.59	0.35	1.67	0.43	1.39	0.58
Ohaeroa Stm at SH22 Br	12	0.33	0.30	0.18	0.82	0.09	<u>2.38</u>	0.30
Opuatia Stm at Ponganui Rd	12	0.32	0.32	0.18	0.58	0.11	1.13	0.32
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	0.20	0.18	0.11	0.34	0.12	0.73	0.23
Waerenga Stm at Taniwha Rd	12	0.29	0.22	0.17	0.74	0.11	<u>1.95</u>	0.26
Waitawhiriwhiri Stm at Edgecumbe Street	12	1.01	1.06	0.57	1.25	0.21	-1.06	1.22
Whakapipi Stm at SH22 Br	12	0.40	0.37	0.28	0.67	0.18	0.83	0.41
Whakauru Stm at U/S SH1 Br	12	0.25	0.20	0.12	0.64	0.13	1.55	0.19
Whangamarino River at Island Block Rd	12	1.66	1.71	0.84	2.30	0.53	-0.32	1.61
Whangamarino River at Jefferies Rd Br	12	0.50	0.38	0.23	1.08	0.34	1.10	0.43
Whangape Stm at Rangiriri-Glen Murray Rd	12	2.20	2.35	0.80	3.90	1.73	0.03	2.00

Total Nitrogen (g m⁻³)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	0.19	0.08	0.03	1.20	0.09	<u>2.83</u>	0.11
Kauaeranga River at Smiths Cableway/Recorder	12	0.09	0.06	0.00	0.49	0.05	<u>2.80</u>	0.09
Ohinemuri River at Queens Head	12	0.96	1.02	0.27	1.77	0.91	0.05	1.27
Ohinemuri River at SH25 Br	12	0.54	0.45	0.30	1.03	0.31	0.96	0.61
Tairua River at Morrisons Br Hikuai	12	0.10	0.06	0.03	0.36	0.05	1.66	0.08
Tapu River at Tapu-Coroglen Rd	12	0.07	0.06	0.03	0.29	0.05	<u>2.43</u>	0.07
Waiiau River at E309 Rd Ford	12	0.12	0.09	0.03	0.49	0.03	<u>2.63</u>	0.10
Waitekauri River at U/S Ohinemuri Conflu	12	0.20	0.15	0.07	0.62	0.12	<u>1.87</u>	0.23
Waiwawa River at SH25 Coroglen	12	0.07	0.05	0.03	0.27	0.04	<u>2.28</u>	0.08
Wharekawa River at SH25	12	0.15	0.10	0.06	0.60	0.07	<u>2.60</u>	0.11
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.43	0.41	0.34	0.60	0.10	0.98	0.46
Oraka Stm at Lake Rd	12	2.38	2.31	2.03	2.94	0.21	1.06	2.40
Piako River at Kiwitahi	12	1.26	1.35	0.19	3.65	1.51	0.80	1.34
Piako River at Paeroa-Tahuna Rd Br	12	1.83	1.49	0.48	4.80	1.23	1.38	1.92
Piakonui Stm at Piakonui Rd	12	0.37	0.30	0.18	0.77	0.21	1.12	0.38
Waihou River at Okauia	12	1.34	1.27	1.10	1.78	0.36	0.78	1.38
Waihou River at Whites Rd	12	0.77	0.78	0.75	0.81	0.02	-0.15	0.77
Waiohotu Stm at Waiohotu (Off SH5)	12	0.24	0.24	0.20	0.29	0.04	0.24	0.29
Waiomou Stm at Matamata-Tauranga Rd	12	0.76	0.72	0.39	1.40	0.48	0.69	0.71
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.67	0.59	0.19	1.85	0.55	1.10	0.64
Waitoa River at Landsdowne Rd Br	12	1.83	1.72	1.29	3.10	0.61	1.25	1.82
Waitoa River at Mellon Rd Recorder	12	2.14	2.00	1.27	3.66	1.26	0.51	2.59
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otawa Rd Br opp Moseley Rd	12	1.68	1.89	0.57	2.49	1.24	-0.35	2.10
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	0.89	0.94	0.37	1.49	0.64	0.10	0.99
Karapiro Stm at Hickey Rd Bridge	12	0.93	0.74	0.37	2.08	0.89	0.82	0.86
Kirikiriira Stm at Tauhara Dr	12	1.49	1.23	0.91	3.40	0.48	<u>2.18</u>	1.49
Komakorau Stm at Henry Rd	12	3.65	2.96	2.12	8.30	1.22	1.60	2.90
Little Waipa Stm at Arapuni - Putaruru Rd	12	1.90	1.80	1.53	2.77	0.47	1.14	1.78
Mangakotukutuku Stm at Peacocks Rd	12	1.82	1.53	0.90	3.57	0.73	1.22	1.88
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	3.50	3.62	2.81	4.03	0.72	-0.41	3.50
Mangaone Stm at Annebrooke Rd Br	12	2.88	2.84	2.57	3.42	0.25	0.94	3.06
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	0.78	0.63	0.42	1.75	0.40	1.36	0.66
Mangaonua Stm at Hoeka Rd	12	1.81	1.74	1.54	2.63	0.30	1.67	1.91
Mangatangi River at SH2 Maramarua	12	0.68	0.35	0.13	2.21	0.79	1.25	0.49
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.29	0.16	0.09	0.92	0.08	<u>1.73</u>	0.18
Mangawara Stm at Rutherford Rd Br	12	2.61	1.77	0.77	7.53	1.12	1.60	1.89
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	2.61	2.43	2.17	3.90	0.46	1.55	2.93
Matahuru Stm at Waiterimu Road Below Confluence	12	1.53	1.29	0.39	3.41	1.24	0.79	1.31
Ohaeroa Stm at SH22 Br	12	1.79	1.80	1.35	2.08	0.24	-0.54	1.83
Opuatia Stm at Ponganui Rd	12	0.88	0.95	0.41	1.11	0.25	-1.08	1.06
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	1.96	1.91	1.74	2.27	0.27	0.55	2.01
Waerenga Stm at Taniwha Rd	12	0.95	0.93	0.47	1.56	0.72	0.43	1.12
Waitawhiriwhiri Stm at Edgecumbe Street	12	1.81	1.87	1.35	2.16	0.26	-0.73	2.11
Whakapipi Stm at SH22 Br	12	3.27	3.49	1.76	4.09	1.09	-0.73	3.88
Whakauru Stm at U/S SH1 Br	12	0.61	0.57	0.37	1.15	0.33	0.99	0.47
Whangamarino River at Island Block Rd	12	1.92	1.85	0.84	3.48	0.78	0.72	1.83
Whangamarino River at Jefferies Rd Br	12	1.27	0.90	0.34	3.78	1.24	1.22	1.09
Whangape Stm at Rangiriri-Glen Murray Rd	12	2.39	2.35	1.22	3.90	1.04	0.27	2.12

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Waipa River and Tributaries																	
Kaniwhaniwha Stm at Wright Rd	12	0.16	0.16	0.11	0.26	0.06	0.83	0.19	12	0.53	0.41	0.14	1.36	0.64	0.79	0.59	
Mangaohoi Stm at South Branch Maru Rd	12	0.13	0.11	0.07	0.29	0.03	<u>1.75</u>	0.13	12	0.31	0.26	0.19	0.56	0.20	0.83	0.37	
<i>Mangaokewa Stm at Lawrence Street Br</i>	12	0.24	0.21	0.15	0.41	0.09	1.15	0.24	12	0.76	0.68	0.38	1.31	0.57	0.58	0.78	
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	0.76	0.56	0.36	2.30	0.37	<u>1.77</u>	0.60	12	2.12	1.95	0.41	5.20	1.36	1.03	2.10	
Mangapu River at Otorohanga	12	0.25	0.26	0.13	0.36	0.13	-0.08	0.33	12	1.01	0.99	0.27	1.98	0.79	0.31	1.24	
Mangatutu Stm (Waikeria) at Walker Rd Br	12	0.15	0.13	0.07	0.35	0.10	1.26	0.16	12	0.49	0.33	0.08	1.13	0.52	0.83	0.51	
Mangauika Stm at Te Awamutu Borough W/S Intake	12	0.08	0.04	0.03	0.36	0.09	<u>2.10</u>	0.07	12	0.28	0.25	0.14	0.57	0.10	1.35	0.28	
Ohote Stm at Whatawhata/Horotiu Rd	12	0.60	0.55	0.38	1.23	0.13	<u>2.35</u>	0.74	12	1.12	1.04	0.41	2.29	0.84	0.72	1.32	
Puniu River at Bartons Corner Rd Br	12	0.29	0.23	0.12	0.97	0.15	<u>2.12</u>	0.26	12	0.95	0.73	0.37	2.13	0.69	1.00	0.91	
Waipa River at Mangaokewa Rd	12	0.22	0.19	0.14	0.54	0.07	<u>2.40</u>	0.18	12	0.55	0.48	0.36	1.04	0.23	1.34	0.59	
Waipa River at Pirongia-Ngutunui Rd Br	12	0.29	0.25	0.15	0.73	0.10	<u>2.07</u>	0.27	12	0.95	0.77	0.32	2.00	1.20	0.58	0.86	
Waipa River at SH3 Otorohanga	12	0.18	0.16	0.10	0.34	0.10	1.07	0.19	12	0.65	0.42	0.20	1.77	0.67	1.11	0.60	
Waitomo Stm at SH31 Otorohanga	12	0.22	0.18	0.13	0.53	0.13	1.62	0.22	12	0.76	0.69	0.35	1.32	0.47	0.48	0.76	
Waitomo Stm at Tumutumu Rd	12	0.19	0.12	0.07	0.69	0.11	<u>2.16</u>	0.12	12	0.78	0.73	0.53	1.35	0.20	1.48	0.77	
Tributaries to the upper Waikato River																	
Kawaunui Stm at SH5 Br	12	0.28	0.29	0.13	0.37	0.15	-0.42	0.33	12	2.86	2.87	2.61	3.06	0.20	-0.35	2.99	
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	0.17	0.15	0.11	0.30	0.08	1.09	0.16	12	0.63	0.63	0.44	0.85	0.24	0.16	0.69	
Mangakara Stm (Reporoa) at SH5	12	0.23	0.24	0.14	0.38	0.09	0.33	0.25	12	1.48	1.49	1.23	1.62	0.18	-0.54	1.58	
Mangakino Stm (Whakamaru) at Sandel Rd	12	0.09	0.09	0.05	0.14	0.04	0.27	0.09	12	0.75	0.75	0.61	0.91	0.12	0.37	0.76	
Otamakokore Stm at Hossack Rd	12	0.22	0.23	0.10	0.31	0.12	-0.36	0.23	12	0.86	0.86	0.58	1.06	0.32	-0.37	0.99	
Pueto Stm at Broadlands Rd Br	12	0.09	0.08	0.06	0.12	0.05	0.31	0.09	12	0.51	0.50	0.42	0.58	0.05	-0.04	0.54	
Tahunaatara Stm at Ohakuri Rd	12	0.18	0.17	0.12	0.27	0.08	0.52	0.19	12	0.73	0.73	0.49	0.98	0.25	-0.03	0.78	
Torepatutahi Stm at Vaile Rd Br	12	0.08	0.08	0.03	0.15	0.04	0.34	0.11	12	0.52	0.53	0.44	0.64	0.11	0.30	0.63	
Waiotapu Stm at Campbell Rd Br	12	1.08	1.06	0.96	1.23	0.09	0.70	1.02	12	2.02	2.08	1.82	2.20	0.16	-0.29	1.96	
Waiotapu Stm at Homestead Rd Br	12	0.57	0.57	0.16	1.26	0.42	0.67	0.63	12	1.81	1.75	1.43	2.44	0.26	1.20	1.89	
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	0.15	0.14	0.08	0.26	0.10	0.61	0.16	12	1.37	1.35	1.05	1.56	0.19	-0.57	1.36	
Whirinaki Stm at Corbett Rd	12	0.05	0.04	0.03	0.19	0.04	<u>2.36</u>	0.03	12	0.82	0.81	0.70	0.91	0.07	-0.53	0.81	
West Coast																	
Awakino River at Gribbon Rd	12	0.09	0.06	0.03	0.40	0.02	<u>2.81</u>	0.06	12	0.18	0.18	0.04	0.52	0.11	1.58	0.18	
Awakino River at SH3 Awakau Rd Junction	12	0.15	0.13	0.08	0.29	0.12	0.91	0.14	12	0.36	0.39	0.08	0.77	0.21	0.59	0.38	
Manganui River at Off Manganui Rd	12	0.10	0.07	0.03	0.43	0.05	<u>2.56</u>	0.09	12	0.23	0.18	0.06	0.58	0.18	1.04	0.21	
Mangaotaki River at SH3 Br	12	0.20	0.17	0.11	0.45	0.07	1.57	0.19	12	0.83	0.85	0.42	1.22	0.35	0.00	0.87	
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	0.11	0.12	0.07	0.18	0.04	0.60	0.13	12	0.37	0.35	0.22	0.51	0.18	0.20	0.40	
Mokau River at Awakau Rd	12	0.23	0.22	0.16	0.39	0.03	<u>1.86</u>	0.25	12	0.62	0.54	0.28	1.11	0.45	0.65	0.71	
Mokau River at Mangaokewa Rd (Off SH30)	12	0.22	0.21	0.13	0.41	0.09	1.32	0.20	12	0.54	0.52	0.28	0.83	0.32	0.08	0.52	
Mokau River at Totoro Rd Recorder	12	0.22	0.20	0.15	0.38	0.11	0.94	0.24	12	0.76	0.69	0.36	1.37	0.50	0.57	0.80	
Mokauiti Stm at Three Way Point - Aria	12	0.28	0.27	0.18	0.45	0.12	0.85	0.32	12	0.55	0.45	0.26	1.33	0.47	1.23	0.60	
Ohautira Stm at Waingaro Te Uku Rd	12	0.16	0.14	0.09	0.36	0.09	1.54	0.15	12	0.41	0.38	0.12	0.70	0.34	0.00	0.47	
Oparau River at Langdon Rd (Off Okupata Rd)	12	0.11	0.10	0.07	0.18	0.06	0.66	0.11	12	0.23	0.19	0.10	0.50	0.21	0.75	0.22	
Tawarau River at Off Speedies Rd	12	0.12	0.12	0.09	0.16	0.04	0.42	0.13	12	0.43	0.43	0.25	0.57	0.15	0.06	0.44	
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	0.21	0.20	0.14	0.34	0.07	1.05	0.25	12	0.57	0.59	0.14	1.18	0.74	0.23	0.68	
Waitetuna River at Te Uku-Waingaro Rd	12	0.16	0.16	0.10	0.27	0.03	1.12	0.18	12	0.49	0.43	0.18	0.87	0.39	0.17	0.58	
Inflows to Lake Taupo																	
Hinemaiaia River at SH1	12	0.08	0.08	0.05	0.11	0.04	0.17	0.08	12	0.15	0.14	0.07	0.21	0.04	-0.15	0.14	
Kuratau River at SH41 Moerangi	12	0.08	0.08	0.05	0.17	0.02	<u>2.19</u>	0.09	12	0.43	0.39	0.27	0.66	0.22	0.43	0.23	
Kuratau River at Te Rae Street	12	0.14	0.13	0.10	0.20	0.05	0.59	0.15	12	0.75	0.71	0.53	1.18	0.31	0.72	0.77	
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	0.17	0.18	0.11	0.22	0.03	-0.59	0.20	12	0.97	0.94	0.88	1.10	0.16	0.29	0.97	
Tauranga- Taupo River at 20 Metres U/S SH1 Bridge	12	0.04	0.04	0.03	0.10	0.03	1.18	0.05	12	0.09	0.09	0.06	0.14	0.03	-0.06	0.11	
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	12	0.09	0.09	0.06	0.12	0.05	0.07	0.10	12	0.09	0.09	0.06	0.13	0.05	0.21	0.10	
Tokaanu Stm at Off SH41 Turangi	12	0.03	0.03	0.03	0.07	0.00	<u>3.02</u>	0.03	12	0.44	0.44	0.42	0.49	0.03	0.84	0.48	
Waihaha River at SH32	12	0.05	0.06	0.03	0.10	0.06	0.17	0.06	12	0.15	0.15	0.11	0.19	0.03	0.07	0.17	
Waitahanui River at Blake Rd	12	0.07	0.07	0.03	0.10	0.04	-0.66	0.07	12	0.49	0.49	0.44	0.55	0.05	0.19	0.51	
Whangamata Stm (Kinloch) at Whangamata Rd	12	0.10	0.10	0.06	0.13	0.03	-0.52	0.12	12	1.62	1.64	1.45	1.78	0.18	-0.29	1.74	
Whanganui Stm at Lakeside Lake Taupo	12	0.08	0.08	0.06	0.11	0.03	0.68	0.09	12	0.36	0.36	0.29	0.45	0.10	0.31	0.43	
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	0.13	0.12	0.10	0.19	0.04	1.06	0.14	12	0.78	0.72	0.59	1.02	0.34	0.50	0.87	

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Turbidity (NTU)

pH (pH units)

Location	Turbidity (NTU)								pH (pH units)							
	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel																
Hikutaia River at Old Maratoto Rd	12	5.0	1.2	0.6	43.0	1.4	<u>3.0</u>	1.3	12	7.1	7.1	6.6	7.6	0.4	-0.1	7.1
Kauaeranga River at Smiths Cableway/Recorder	11	11.8	1.1	0.2	119.0	1.5	<u>2.8</u>	1.2	11	7.0	7.0	6.7	7.4	0.3	0.1	7.1
Ohinemuri River at Queens Head	12	2.3	0.9	0.4	16.6	0.6	<u>3.0</u>	1.2	12	7.1	7.1	6.7	7.8	0.5	0.5	7.1
Ohinemuri River at SH25 Br	12	1.3	0.8	0.6	6.5	0.4	<u>2.9</u>	1.0	12	7.1	7.2	6.6	7.3	0.3	-1.0	7.1
Tairua River at Morrisons Br Hikuai	12	4.1	0.7	0.6	29.0	0.7	<u>2.4</u>	1.1	12	7.0	7.0	6.8	7.3	0.4	0.0	7.0
Tapu River at Tapu-Coroglen Rd	12	3.7	0.8	0.3	31.0	2.1	<u>2.9</u>	1.1	12	7.4	7.4	7.1	7.5	0.3	-0.7	7.4
Waiau River at E309 Rd Ford	12	6.5	2.2	0.8	38.0	4.9	<u>2.4</u>	2.4	12	7.2	7.3	6.9	7.4	0.4	-0.2	7.3
Waitekauri River at U/S Ohinemuri Conflu	12	2.0	0.6	0.3	15.6	0.3	<u>2.9</u>	0.8	12	7.2	7.1	6.8	7.8	0.3	0.9	7.2
Waiwawa River at SH25 Coroglen	12	3.1	0.9	0.4	23.0	1.1	<u>2.8</u>	1.2	12	7.1	7.1	6.6	7.6	0.4	0.0	7.2
Wharekawa River at SH25	12	4.9	1.4	0.9	40.0	1.6	<u>3.0</u>	2.3	12	7.0	7.0	6.7	7.4	0.3	0.2	7.0
Hauraki																
Mangawhero Stm (Kaihere) at Mangawara Rd	12	10.5	6.1	3.5	34.0	6.8	1.6	8.3	12	7.4	7.4	7.0	7.8	0.3	-0.1	7.4
Oraka Stm at Lake Rd	12	5.4	5.7	2.5	9.7	3.9	0.4	5.7	12	7.3	7.4	7.0	7.5	0.3	-0.6	7.3
Piako River at Kiwitahi	12	3.2	3.9	1.2	5.8	3.1	-0.1	4.3	12	7.1	7.1	6.7	7.4	0.2	-0.4	7.1
Piako River at Paeroa-Tahuna Rd Br	12	5.2	4.5	2.0	11.1	4.1	0.8	8.6	12	7.4	7.3	7.0	7.8	0.5	0.1	7.3
Piakonui Stm at Piakonui Rd	12	6.1	3.4	2.3	23.0	4.2	<u>2.1</u>	4.0	12	7.3	7.3	7.0	7.5	0.3	-0.5	7.3
Waihou River at Okauia	12	4.6	3.8	2.1	9.7	3.4	0.8	4.7	12	7.3	7.3	7.1	7.7	0.2	1.0	7.3
Waihou River at Whites Rd	12	0.6	0.5	0.4	0.9	0.1	1.2	0.5	12	7.1	7.1	6.8	7.4	0.2	-0.4	7.0
Waiohotu Stm at Waiohotu (Off SH5)	12	4.3	4.5	2.6	6.1	2.2	0.1	4.9	12	7.3	7.3	6.9	7.5	0.2	-0.9	7.2
Waiomou Stm at Matamata-Tauranga Rd	12	4.8	3.3	1.8	15.3	3.6	<u>1.8</u>	4.6	12	7.2	7.2	7.0	7.5	0.3	0.1	7.2
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	12.2	6.9	1.1	57.0	12.5	<u>2.0</u>	8.1	12	7.2	7.2	6.8	8.0	0.3	1.1	7.2
Waitoa River at Landsdowne Rd Br	12	3.4	3.1	1.0	6.8	3.9	0.3	4.3	12	7.1	7.2	6.9	7.3	0.3	-0.2	7.2
Waitoa River at Mellon Rd Recorder	12	5.8	4.8	2.5	9.6	3.9	0.4	7.0	12	7.3	7.4	7.0	7.8	0.4	0.2	7.2
Tributaries to the lower Waikato River																
Awaroa River (Waiuku) at Otawa Rd Br opp Moseley Rd	12	13.1	11.9	2.1	24.0	13.8	0.1	16.0	12	7.3	7.2	6.9	8.7	0.6	<u>1.8</u>	7.1
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	8.9	7.1	3.5	19.6	5.4	1.2	7.1	12	7.9	7.9	7.6	8.3	0.4	0.5	7.7
Karapiro Stm at Hickey Rd Bridge	12	8.5	4.7	2.6	34.0	2.4	<u>2.0</u>	5.8	12	7.2	7.2	7.0	7.4	0.2	-0.2	7.2
Kirikiriira Stm at Tauhara Dr	12	26.4	26.0	15.0	42.0	8.0	0.6	27.5	12	7.0	7.0	6.8	7.2	0.3	0.3	6.9
Komakorau Stm at Henry Rd	12	89.2	93.0	14.0	300.0	58.5	<u>1.9</u>	74.0	12	6.7	7.0	5.7	7.2	0.8	-0.8	6.6
Little Waipa Stm at Arapuni - Putaruru Rd	12	2.6	2.6	0.7	6.6	1.8	1.1	1.7	12	7.1	7.1	6.8	7.4	0.3	0.0	7.0
Mangakotukutuku Stm at Peacocks Rd	12	26.3	25.0	6.4	64.0	10.0	1.2	22.0	12	7.0	7.1	6.3	7.3	0.2	-1.4	7.0
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	9.2	7.5	3.4	21.0	5.7	1.1	5.1	12	7.5	7.5	7.3	7.6	0.1	-1.0	7.5
Mangaone Stm at Annebrooke Rd Br	12	10.0	6.8	5.0	34.0	2.0	<u>2.1</u>	8.3	12	7.2	7.3	6.6	7.6	0.2	-1.4	7.3
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	7.9	3.5	2.1	42.0	2.9	<u>2.4</u>	3.9	12	7.3	7.4	6.8	7.6	0.3	-0.7	7.4
Mangaonua Stm at Hoeka Rd	12	9.4	8.5	4.4	22.0	3.7	<u>1.8</u>	12.0	12	7.1	7.1	6.7	7.4	0.2	-0.3	7.0
Mangatangi River at SH2 Maramarua	12	14.3	8.1	3.9	44.0	14.7	1.3	14.7	12	7.2	7.3	6.8	7.4	0.4	-0.5	7.2
Mangatawhiri River at Lyons Rd At Buckingham Br	12	6.6	1.9	0.7	40.0	6.1	<u>2.5</u>	3.6	12	7.4	7.4	6.9	7.7	0.3	-0.5	7.4
Mangawara Stm at Rutherford Rd Br	12	35.9	41.0	16.0	56.0	22.0	-0.2	42.5	12	6.8	6.9	6.0	7.4	0.4	-0.7	6.8
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	55.9	48.5	15.1	138.0	13.0	<u>1.9</u>	49.5	12	7.0	7.0	6.7	7.2	0.2	-0.6	7.0
Matahuru Stm at Waiterimu Road Below Confluence	12	61.9	31.0	16.5	260.0	32.5	<u>2.3</u>	34.0	12	7.0	7.0	6.4	7.8	0.4	0.2	7.0
Ohaeroa Stm at SH22 Br	12	17.7	9.7	4.1	109.0	6.4	<u>2.9</u>	8.9	12	7.5	7.5	6.9	7.9	0.4	-0.5	7.5
Opuatia Stm at Ponganui Rd	12	14.3	11.6	0.8	35.0	18.3	0.5	15.8	12	7.7	7.6	7.4	8.0	0.4	0.2	7.5
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	3.3	3.3	1.1	6.8	2.3	0.7	3.1	12	7.2	7.2	7.0	7.3	0.1	-1.3	7.2
Waerenga Stm at Taniwha Rd	12	15.0	5.5	1.5	85.0	6.1	<u>2.3</u>	7.7	12	7.3	7.4	6.7	7.6	0.5	-0.7	7.3
Waitawhiriwhiri Stm at Edgecumbe Street	12	36.1	32.5	23.0	74.0	5.0	<u>2.3</u>	31.0	12	7.0	7.0	6.8	7.4	0.2	0.4	7.0
Whakapipi Stm at SH22 Br	12	10.2	4.4	1.0	44.0	7.5	<u>1.7</u>	6.0	12	7.3	7.3	7.0	7.6	0.3	0.0	7.3
Whakauru Stm at U/S SH1 Br	12	8.0	5.9	3.0	19.5	4.6	1.3	6.1	12	7.5	7.5	7.3	7.7	0.1	0.5	7.5
Whangamarino River at Island Block Rd	12	49.4	40.0	16.3	165.0	26.5	<u>2.3</u>	40.5	12	7.1	7.1	6.7	7.7	0.3	0.9	7.0
Whangamarino River at Jefferies Rd Br	12	22.3	15.0	5.1	68.0	22.4	1.3	19.9	12	7.1	7.2	6.5	7.7	0.4	-0.2	7.2
Whangape Stm at Rangiriri-Glen Murray Rd	12	66.2	52.0	34.0	165.0	40.5	1.5	55.0	12	7.5	7.4	7.0	9.2	0.5	<u>2.0</u>	7.4

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Waipa River and Tributaries																
Kaniwhaniwha Stm at Wright Rd	12	3.9	3.8	1.9	6.6	2.8	0.1	6.3	12	7.1	7.1	6.6	7.5	0.4	-0.3	7.2
Mangaohoi Stm at South Branch Maru Rd	12	2.6	1.8	1.2	8.5	1.4	<u>2.2</u>	1.8	12	7.5	7.5	7.0	7.8	0.3	-0.4	7.4
Mangaokewa Stm at Lawrence Street Br	12	5.5	4.8	1.8	13.9	5.3	0.9	4.8	12	7.3	7.3	6.9	7.6	0.2	-0.5	7.3
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	24.7	8.4	1.0	138.0	13.6	<u>2.1</u>	13.8	12	7.6	7.4	6.5	8.6	1.1	0.1	7.3
Mangapu River at Otorohanga	12	8.6	9.0	1.5	19.7	12.2	0.2	12.8	12	7.7	7.8	7.2	8.4	0.6	0.0	7.5
Mangatutu Stm (Waikeria) at Walker Rd Br	12	4.2	2.3	0.8	23.0	2.6	<u>2.7</u>	3.0	12	7.3	7.2	6.9	7.7	0.4	0.4	7.2
Mangauika Stm at Te Awamutu Borough W/S Intake	12	2.0	1.8	0.8	4.7	1.4	1.1	1.9	12	7.3	7.3	6.8	7.7	0.3	-0.4	7.3
Ohote Stm at Whatawhata/Horotiu Rd	12	11.0	9.9	6.3	29.0	4.9	<u>2.3</u>	11.0	12	6.7	6.8	6.1	7.0	0.3	-1.4	6.8
Puniu River at Bartons Corner Rd Br	12	9.6	3.9	1.4	57.0	8.3	<u>2.6</u>	6.2	12	7.1	7.1	6.7	7.6	0.2	0.4	7.1
Waipa River at Mangaokewa Rd	12	3.1	1.9	1.0	13.6	1.0	<u>2.3</u>	2.2	12	7.4	7.4	7.1	7.7	0.2	-0.3	7.3
Waipa River at Pirongia-Ngutunui Rd Br	12	11.3	6.3	3.1	44.0	11.3	<u>1.8</u>	10.1	12	7.2	7.2	6.9	7.6	0.3	0.7	7.2
Waipa River at SH3 Otorohanga	12	3.4	3.2	0.8	6.8	4.7	0.3	3.7	12	7.4	7.4	6.8	7.7	0.3	-0.6	7.2
Waitomo Stm at SH31 Otorohanga	12	13.8	8.6	1.6	42.0	21.6	0.8	12.7	12	7.8	7.8	7.3	8.2	0.5	-0.2	7.7
Waitomo Stm at Tumutumu Rd	12	11.0	4.2	1.7	45.0	10.1	1.6	5.7	12	7.9	7.9	7.4	8.2	0.4	-0.4	7.9
Tributaries to the upper Waikato River																
Kawaunui Stm at SH5 Br	12	3.7	3.6	2.1	6.5	1.7	0.7	3.7	12	7.1	7.1	6.8	7.6	0.3	0.7	6.9
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	5.6	5.2	3.9	10.4	1.5	<u>1.7</u>	4.7	12	7.4	7.4	7.1	7.7	0.2	0.4	7.4
Mangakara Stm (Reporoa) at SH5	12	5.7	5.2	2.4	10.1	3.5	0.3	5.7	12	7.1	7.2	6.7	7.4	0.3	-0.6	7.0
Mangakino Stm (Whakamaru) at Sandel Rd	12	1.4	1.3	1.1	1.9	0.4	0.4	1.8	12	7.4	7.4	7.2	7.7	0.2	0.6	7.4
Otamakokore Stm at Hossack Rd	12	4.3	3.9	1.6	9.7	3.3	0.9	3.6	12	8.1	8.1	8.0	8.4	0.1	0.9	8.0
Pueto Stm at Broadlands Rd Br	12	2.8	2.9	1.2	5.0	1.5	0.5	2.8	12	7.4	7.4	7.2	7.5	0.1	-0.4	7.4
Tahunaatara Stm at Ohakuri Rd	12	3.1	3.2	1.8	4.6	1.6	-0.1	3.3	12	7.5	7.5	7.2	7.8	0.3	-0.2	7.5
Torepatutahi Stm at Vaile Rd Br	12	1.5	1.3	0.8	3.5	0.6	1.5	1.5	12	7.2	7.2	7.0	7.4	0.2	-0.2	7.2
Waiotapu Stm at Campbell Rd Br	12	7.5	6.6	4.3	16.0	3.1	<u>1.8</u>	7.2	12	5.6	5.6	5.2	5.8	0.2	-0.9	5.6
Waiotapu Stm at Homestead Rd Br	12	11.4	11.6	3.4	21.0	12.7	0.2	12.0	12	6.9	6.9	6.6	7.2	0.3	0.3	6.8
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	4.1	3.7	2.4	8.0	1.6	1.5	4.5	12	7.7	7.7	7.6	7.8	0.1	0.1	7.7
Whirinaki Stm at Corbett Rd	12	0.6	0.5	0.3	1.0	0.2	0.9	0.5	12	7.3	7.3	7.0	7.5	0.2	-0.2	7.3
West Coast																
Awakino River at Gribbon Rd	12	3.2	1.3	0.6	15.6	3.7	<u>2.0</u>	1.4	12	7.5	7.5	7.1	8.0	0.5	0.4	7.4
Awakino River at SH3 Awakau Rd Junction	12	7.4	3.2	0.9	30.0	7.8	1.6	3.8	12	7.5	7.5	7.0	8.3	0.5	0.6	7.5
Manganui River at Off Manganui Rd	12	19.4	3.5	2.1	174.0	6.9	<u>3.0</u>	4.4	12	7.3	7.4	6.9	7.6	0.6	-0.2	7.4
Mangaotaki River at SH3 Br	12	7.9	5.8	1.5	29.0	6.9	<u>1.9</u>	5.5	12	7.6	7.7	7.1	7.9	0.3	-1.0	7.7
Marokopa River at Speedies Rd (Off Te Anka Rd)	12	4.4	2.7	1.5	11.6	4.1	1.2	4.0	12	7.9	7.9	7.4	8.3	0.5	-0.2	7.9
Mokau River at Awakau Rd	12	19.0	13.7	2.8	79.0	16.5	<u>2.1</u>	16.9	12	7.3	7.4	6.8	7.7	0.4	-0.6	7.4
Mokau River at Mangaokewa Rd (Off SH30)	12	3.9	3.7	2.1	7.7	2.0	1.0	3.4	12	7.3	7.3	7.0	7.5	0.3	-0.3	7.2
Mokau River at Totoro Rd Recorder	12	7.3	5.6	1.1	24.0	7.7	1.3	7.1	12	7.6	7.5	7.2	8.0	0.4	0.3	7.5
Mokauiti Stm at Three Way Point - Aria	12	6.9	6.0	0.4	19.8	5.9	1.1	10.7	12	7.3	7.4	6.8	7.6	0.2	-1.6	7.3
Ohautira Stm at Waingaro Te Uku Rd	12	12.3	6.2	3.0	42.0	12.7	1.4	10.2	12	7.3	7.5	6.6	7.6	0.5	-0.9	7.3
Oparau River at Langdon Rd (Off Okupata Rd)	12	3.9	2.7	1.3	13.8	2.3	<u>2.0</u>	3.0	12	7.4	7.3	7.0	8.0	0.5	0.3	7.5
Tawarau River at Off Speedies Rd	12	3.6	2.8	1.1	8.1	3.3	1.0	3.4	12	7.9	7.9	7.5	8.3	0.4	-0.1	7.9
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	12.1	6.4	3.4	43.0	11.3	1.5	9.9	12	7.5	7.6	6.8	7.8	0.4	-1.0	7.5
Waitetuna River at Te Uku-Waingaro Rd	12	11.0	6.9	2.0	37.0	11.7	1.4	11.1	12	7.2	7.2	6.6	7.5	0.3	-0.9	7.3
Inflows to Lake Taupo																
Hinemaiaia River at SH1	12	1.2	1.1	1.0	1.9	0.3	1.2	1.2	12	7.4	7.4	7.0	7.6	0.2	-1.0	7.5
Kuratau River at SH41 Moerangi	12	1.3	1.2	0.8	2.4	0.3	1.5	1.6	12	7.2	7.2	6.7	7.6	0.1	0.0	7.1
Kuratau River at Te Rae Street	12	1.2	1.2	0.4	1.9	0.2	-0.5	1.2	12	7.4	7.4	7.0	7.9	0.4	0.4	7.4
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	3.0	3.3	1.8	4.1	1.5	-0.2	3.0	12	7.3	7.3	7.1	7.6	0.2	0.3	7.4
Tauranga- Taupo River at 20 Metres U/S SH1 Bridge	12	1.1	0.8	0.4	5.1	0.4	<u>2.8</u>	0.8	12	7.4	7.4	7.1	7.8	0.2	1.3	7.3
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	12	1.4	1.2	0.8	3.1	0.6	<u>1.7</u>	1.5	12	7.4	7.3	6.9	8.0	0.4	0.4	7.4
Tokaanu Stm at Off SH41 Turangi	12	0.2	0.2	0.1	0.3	0.1	0.9	0.2	12	7.2	7.2	6.9	7.5	0.3	0.3	7.2
Waihaha River at SH32	12	0.6	0.5	0.3	1.1	0.2	1.3	0.6	12	7.4	7.4	7.0	7.8	0.2	0.5	7.3
Waitahanui River at Blake Rd	12	0.8	0.8	0.5	1.2	0.3	0.6	0.8	12	7.5	7.5	7.4	7.6	0.1	0.6	7.4
Whangamata Stm (Kinloch) at Whangamata Rd	12	1.4	1.4	0.7	2.3	0.5	0.1	1.8	12	7.3	7.3	6.7	7.6	0.2	-1.0	7.4
Whanganui Stm at Lakeside Lake Taupo	12	1.2	1.1	0.9	2.0	0.3	1.3	1.4	12	7.3	7.4	7.0	7.5	0.1	-1.3	7.4
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	2.6	2.4	1.7	4.0	1.2	0.6	3.3	12	7.3	7.4	7.2	7.5	0.2	-0.2	7.4

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

E. Coli (n/100mL)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	601	245	100	4200	315	<u>2.90</u>	240
Kauaeranga River at Smiths Cableway/Recorder	11	345	57	15	1500	508	1.48	120
Ohinemuri River at Queens Head	12	268	55	18	2100	124	<u>2.76</u>	56
Ohinemuri River at SH25 Br	12	124	83	17	370	143	1.02	105
Tairua River at Morrisons Br Hikuai	12	131	65	15	500	104	1.59	52
Tapu River at Tapu-Coroglen Rd	12	194	100	12	1200	149	<u>2.66</u>	65
Waiau River at E309 Rd Ford	12	139	90	9	410	145	1.06	93
Waitekauri River at U/S Ohinemuri Conflu	12	91	71	3	250	125	0.67	53
Waiwawa River at SH25 Coroglen	12	122	58	8	380	197	0.90	61
Wharekawa River at SH25	12	194	190	27	450	225	0.39	170
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	65	34	15	240	38	<u>1.68</u>	46
Oraka Stm at Lake Rd	12	409	290	120	1500	155	<u>2.52</u>	270
Piako River at Kiwitahi	12	232	150	40	900	174	<u>2.12</u>	260
Piako River at Paeroa-Tahuna Rd Br	12	593	340	50	1800	825	1.05	475
Piakonui Stm at Piakonui Rd	12	175	55	4	1000	156	<u>2.17</u>	75
Waihou River at Okauia	12	523	175	50	2700	200	<u>1.96</u>	210
Waihou River at Whites Rd	12	127	43	11	1100	31	<u>3.00</u>	40
Waiohotu Stm at Waiohotu (Off SH5)	12	87	53	12	250	104	0.85	36
Waiomou Stm at Matamata-Tauranga Rd	12	789	430	170	3600	490	<u>2.35</u>	310
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	1118	260	90	4100	1855	1.16	290
Waitoa River at Landsdowne Rd Br	12	728	325	130	4500	270	<u>2.86</u>	455
Waitoa River at Mellon Rd Recorder	12	433	365	60	1100	375	0.94	435
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otawa Rd Br opp Moseley Rd	12	288	225	8	1000	345	1.39	240
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	350	285	100	850	240	1.13	290
Karapiro Stm at Hickey Rd Bridge	12	493	205	60	1900	460	1.47	265
Kiirikiroa Stm at Tauhara Dr	12	2147	490	180	17000	1350	<u>2.89</u>	570
Komakorau Stm at Henry Rd	12	1170	1100	180	3800	700	<u>1.78</u>	1100
Little Waipa Stm at Arapuni - Putaruru Rd	12	373	265	40	2100	205	<u>2.74</u>	110
Mangakotukutuku Stm at Peacocks Rd	12	1069	415	210	6000	210	<u>2.30</u>	475
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	858	400	120	3300	980	1.58	580
Mangaone Stm at Annebrooke Rd Br	12	739	530	200	1800	785	0.70	850
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	208	125	20	1100	100	<u>2.63</u>	150
Mangaonua Stm at Hoeka Rd	12	1870	1050	190	8000	1825	<u>2.02</u>	1350
Mangatangi River at SH2 Maramarua	12	787	340	90	4000	275	2.14	380
Mangatawhiri River at Lyons Rd At Buckingham Br	12	283	130	44	1100	310	1.83	190
Mangawara Stm at Rutherford Rd Br	12	1895	1300	120	5900	2320	1.07	1000
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	792	500	200	2600	850	1.63	530
Matahuru Stm at Waiterimu Road Below Confluence	12	1853	575	120	16000	460	3.00	600
Ohaeroa Stm at SH22 Br	12	1254	340	70	10000	645	2.91	300
Opuatia Stm at Ponganui Rd	12	743	390	60	3200	875	<u>1.70</u>	400
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	286	155	50	1500	155	<u>2.74</u>	150
Waerenga Stm at Taniwha Rd	12	975	485	170	3600	745	1.60	500
Waitawhiriwhiri Stm at Edgcumbe Street	12	841	495	100	3100	680	1.66	585
Whakapipi Stm at SH22 Br	12	565	320	140	1200	870	0.59	320
Whakauru Stm at U/S SH1 Br	12	818	460	120	2400	1090	1.00	495
Whangamarino River at Island Block Rd	12	203	100	50	600	255	1.07	180
Whangamarino River at Jefferies Rd Br	12	1843	1200	320	5500	2275	1.10	600
Whangape Stm at Rangiriiri-Glen Murray Rd	12	180	130	3	550	248	0.87	220

Enterococci (n/100ml)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	558	180	19	4000	425	<u>2.81</u>	110
Kauaeranga River at Smiths Cableway/Recorder	11	275	100	3	1600	285	<u>2.42</u>	110
Ohinemuri River at Queens Head	12	243	38	3	1400	74	<u>1.81</u>	19
Ohinemuri River at SH25 Br	12	103	30	3	630	123	<u>2.36</u>	26
Tairua River at Morrisons Br Hikuai	12	165	43	1	1000	185	<u>2.40</u>	19
Tapu River at Tapu-Coroglen Rd	12	136	105	9	560	157	<u>1.83</u>	43
Waiau River at E309 Rd Ford	12	157	160	4	400	185	0.42	75
Waitekauri River at U/S Ohinemuri Conflu	12	74	85	1	190	97	0.26	27
Waiwawa River at SH25 Coroglen	12	120	90	4	600	111	<u>2.43</u>	53
Wharekawa River at SH25	12	189	125	2	630	208	1.25	95
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	390	64	8	3100	229	<u>2.82</u>	60
Oraka Stm at Lake Rd	12	283	220	60	610	355	0.54	160
Piako River at Kiwitahi	12	261	110	18	1700	137	<u>2.80</u>	140
Piako River at Paeroa-Tahuna Rd Br	12	916	285	8	7100	430	<u>2.89</u>	285
Piakonui Stm at Piakonui Rd	12	136	150	8	310	232	0.10	110
Waihou River at Okauia	12	254	155	100	700	300	1.13	140
Waihou River at Whites Rd	12	36	25	1	100	48	0.81	30
Waiohotu Stm at Waiohotu (Off SH5)	12	30	6	1	130	53	1.30	18
Waiomou Stm at Matamata-Tauranga Rd	12	535	265	35	3700	215	<u>2.92</u>	230
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	467	125	28	3000	145	<u>2.45</u>	130
Waitoa River at Landsdowne Rd Br	12	907	275	90	6800	575	<u>2.83</u>	270
Waitoa River at Mellon Rd Recorder	12	252	200	20	510	270	0.51	295
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otawa Rd Br opp Moseley Rd	12	113	47	4	440	176	1.27	56
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	167	90	20	550	230	1.11	90
Karapiro Stm at Hickey Rd Bridge	12	899	115	8	6100	267	<u>2.12</u>	150
Kiirikiroa Stm at Tauhara Dr	12	1945	375	110	13000	645	<u>2.28</u>	340
Komakorau Stm at Henry Rd	12	1234	530	56	7100	1280	<u>2.50</u>	430
Little Waipa Stm at Arapuni - Putaruru Rd	12	133	145	20	360	141	0.74	75
Mangakotukutuku Stm at Peacocks Rd	12	983	390	60	5100	685	<u>1.97</u>	465
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	673	455	50	1700	1110	0.39	320
Mangaone Stm at Annebrooke Rd Br	12	929	420	37	6200	525	<u>2.85</u>	405
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	378	340	17	1600	415	<u>1.91</u>	240
Mangaonua Stm at Hoeka Rd	12	1218	400	50	7600	1235	<u>2.61</u>	620
Mangatangi River at SH2 Maramarua	12	539	235	42	3800	250	2.77	180
Mangatawhiri River at Lyons Rd At Buckingham Br	12	180	79	17	900	170	2.14	68
Mangawara Stm at Rutherford Rd Br	12	1724	1075	120	8400	1930	2.22	620
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	1038	655	170	4500	1000	2.13	600
Matahuru Stm at Waiterimu Road Below Confluence	12	805	185	25	6100	475	2.79	250
Ohaeroa Stm at SH22 Br	12	448	245	14	1300	715	0.91	180
Opuatia Stm at Ponganui Rd	12	358	135	19	2100	205	2.61	150
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	153	90	19	480	232	0.98	80
Waerenga Stm at Taniwha Rd	12	392	200	27	1900	412	<u>1.97</u>	150
Waitawhiriwhiri Stm at Edgcumbe Street	12	1234	520	35	6200	305	<u>1.99</u>	475
Whakapipi Stm at SH22 Br	12	1012	655	120	2500	1665	0.66	410
Whakauru Stm at U/S SH1 Br	12	709	425	55	2900	815	1.85	375
Whangamarino River at Island Block Rd	12	905	80	7	9000	382	2.98	100
Whangamarino River at Jefferies Rd Br	12	1753	540	70	10000	1815	2.21	270
Whangape Stm at Rangiriiri-Glen Murray Rd	12	84	25	4	390	86	1.6	70

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Waipa River and Tributaries																	
Kaniwhaniwha Stm at Wright Rd	12	317	235	90	1000	180	2.00	250		12	298	125	11	1100	417	1.21	150
Mangaohoi Stm at South Branch Maru Rd	12	134	85	12	510	132	1.53	70		12	174	57	5	700	212	1.41	73
Mangaokewa Stm at Lawrence Street Br	12	964	435	70	5700	535	2.70	490		12	984	190	28	5800	1098	1.97	240
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	1724	325	100	12000	870	2.38	325		12	1010	205	24	6000	414	1.93	165
Mangapu River at Otorohanga	12	619	230	130	1900	930	1.06	455		12	332	115	20	2300	200	2.64	130
Mangatutu Stm (Waikeria) at Walker Rd Br	12	182	125	40	600	135	1.67	160		12	193	120	26	900	205	<u>2.13</u>	90
Manguaika Stm at Te Awamutu Borough W/S Intake	12	338	16	2	3800	30	<u>3.01</u>	38		12	64	9	1	420	36	<u>2.25</u>	39
Ohote Stm at Whatawhata/Horotiu Rd	12	237	190	31	700	155	1.33	275		12	839	60	11	8400	163	<u>2.96</u>	60
Puniu River at Bartons Comer Rd Br	12	725	140	30	3100	920	1.37	140		12	494	220	16	3000	365	2.55	115
Waipa River at Mangaokewa Rd	12	638	205	30	4900	309	2.82	210		12	449	33	4	4700	127	3.00	40
Waipa River at Pirongia-Ngutunui Rd Br	12	1332	250	9	7200	895	<u>1.84</u>	300		12	505	80	10	3100	596	2.29	110
Waipa River at SH3 Otorohanga	12	438	100	30	3100	145	<u>2.47</u>	160		12	596	80	2	4600	143	<u>2.45</u>	70
Waitomo Stm at SH31 Otorohanga	12	427	270	80	1500	255	<u>1.75</u>	310		12	331	180	12	1100	394	1.30	130
Waitomo Stm at Tumutumu Rd	12	1122	185	30	7000	1265	<u>2.21</u>	200		12	408	150	5	1200	918	0.84	120
Tributaries to the upper Waikato River																	
Kawaunui Stm at SH5 Br	12	149	160	20	330	134	0.20	200		12	464	150	30	2000	505	1.47	150
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	252	130	26	1300	230	<u>2.43</u>	160		12	110	59	5	330	150	0.82	60
Mangakara Stm (Reporoa) at SH5	12	198	115	30	700	289	1.30	110		12	348	140	21	1200	450	1.12	120
Mangakino Stm (Whakamaru) at Sandel Rd	12	67	33	15	240	67	1.44	40		12	45	22	3	160	75	1.13	16
Otamakokore Stm at Hossack Rd	12	301	260	110	750	130	1.51	210		12	442	150	38	3000	405	2.76	80
Pueto Stm at Broadlands Rd Br	12	28	25	9	70	14	1.58	24		12	130	20	2	800	136	<u>2.29</u>	18
Tahunaaatara Stm at Ohakuri Rd	12	275	135	53	2000	115	<u>2.96</u>	110		12	103	55	11	330	121	1.19	50
Torepatutahi Stm at Vaile Rd Br	12	70	55	14	170	70	0.79	54		12	83	59	14	240	76	1.14	40
Waiotapu Stm at Campbell Rd Br	12	8	2	1	70	4	2.96	1		12	22	8	1	170	11	2.77	3
Waiotapu Stm at Homestead Rd Br	12	126	110	1	300	60	0.89	110		12	162	100	2	1000	98	2.78	60
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	269	90	26	1800	138	<u>2.70</u>	100		12	251	70	13	1700	258	2.60	80
Whirinaki Stm at Corbett Rd	12	34	19	1	190	28	2.64	16		12	42	19	1	160	42	1.41	19
West Coast																	
Awakino River at Gribbon Rd	12	287	65	20	2500	108	<u>2.98</u>	66		12	279	32	3	3000	52	<u>3.01</u>	34
Awakino River at SH3 Awakau Rd Junction	12	445	170	8	1600	641	1.21	250		12	216	33	3	1100	92	<u>1.76</u>	37
Manganui River at Off Manganui Rd	12	489	135	32	3100	140	<u>2.21</u>	210		12	76	24	5	510	68	<u>2.61</u>	30
Mangaotaki River at SH3 Br	12	1197	345	70	11000	340	3.00	440		12	685	120	21	5300	215	2.57	150
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	536	110	30	4800	165	<u>2.96</u>	140		12	131	37	6	1100	68	2.93	36
Mokau River at Awakau Rd	12	292	95	25	1100	418	1.27	230		12	105	54	5	340	176	0.92	32
Mokau River at Mangaokewa Rd (Off SH30)	12	416	90	20	3800	80	<u>2.98</u>	140		12	155	58	7	900	137	<u>2.28</u>	46
Mokau River at Totoro Rd Recorder	12	565	160	30	4600	300	<u>2.94</u>	210		12	424	56	10	3400	92	<u>2.54</u>	70
Mokauiti Stm at Three Way Point - Aria	12	433	240	40	2500	255	<u>2.71</u>	270		12	378	70	10	2300	80	<u>1.93</u>	110
Ohautira Stm at Waingaro Te Uku Rd	12	405	280	200	1400	205	<u>2.35</u>	320		12	229	108	31	1300	205	<u>2.50</u>	140
Oparau River at Langdon Rd (Off Okupata Rd)	12	1695	103	30	19000	110	3.01	110		12	191	47	10	1400	136	2.73	45
Tawarau River at Off Speedies Rd	12	393	100	30	3300	90	2.96	110		12	83	44	3	460	69	2.28	40
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	322	200	40	1800	165	2.69	230		12	102	60	38	380	42	2.03	60
Waitetuna River at Te Uku-Waingaro Rd	12	362	310	170	700	150	1.14	360		12	255	160	34	1400	198	2.65	150
Inflows to Lake Taupo																	
Hinemaiaia River at SH1	12	18	15	4	43	11	1.11	15		12	8	6	1	18	11	0.32	5
Kuratau River at SH41 Moerangi	12	13	7	1	42	19	1.02	9		12	6	2	1	36	6	2	3
Kuratau River at Te Rae Street	12	28	30	5	60	13	0.47	31		12	22	21	1	80	29	1	18
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	133	50	7	1000	38	<u>2.94</u>	65		12	142	68	18	5300	171	1.38	70
Tauranga- Taupo River at 20 Metres U/S SH1 Bridge	12	27	28	5	49	25	-0.08	17		12	21	9	1	80	21	1	7
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	12	5	4	1	10	5	0.38	4		12	7	1	1	60	4	3	1
Tokaanu Stm at Off SH41 Turangi	12	15	11	3	36	15	0.87	9		12	20	13	1	55	32	1	6
Waihaha River at SH32	12	14	12	3	31	13	0.65	8		12	10	4	1	70	8	2.83	4
Waitahanui River at Blake Rd	12	34	18	4	110	30	1.40	17		12	18	9	2	80	17	1.99	11
Whangamata Stm (Kinloch) at Whangamata Rd	12	56	34	15	130	67	0.56	80		12	76	42	18	180	110	1	44
Whanganui Stm at Lakeside Lake Taupo	12	26	22	6	57	31	0.48	26		12	33	17	1	120	52	1.22	15
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	119	105	34	390	65	<u>2.13</u>	100		12	132	34	6	340	266	0.50	24

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Temperature (°C)

Location	Count	Mean	Median	Min	Max	IQR	Skew	10-14 Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	15.0	14.0	9.6	20.0	5.9	0.02	14.8
Kauaeranga River at Smiths Cableway/Recorder	11	16.2	15.4	10.7	20.6	6.2	-0.20	15.5
Ohinemuri River at Queens Head	12	17.1	17.5	11.4	22.3	6.8	-0.14	16.6
Ohinemuri River at SH25 Br	12	17.1	17.8	11.0	23.2	6.1	-0.08	16.2
Tairua River at Morrisons Br Hikuai	12	16.9	17.4	11.4	21.1	6.7	-0.25	16.6
Tapu River at Tapu-Coroglen Rd	12	15.5	14.8	9.9	20.0	6.7	-0.06	15.3
Waiau River at E309 Rd Ford	12	15.1	14.4	10.0	19.1	5.5	-0.09	14.7
Waitekauri River at U/S Ohinemuri Conflu	12	16.2	15.9	10.3	22.1	6.7	0.01	15.5
Waiwawa River at SH25 Coroglen	12	16.5	16.4	10.0	22.2	7.8	-0.11	16.4
Wharekawa River at SH25	12	16.4	17.2	10.8	20.1	6.6	-0.31	16.4
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	14.5	14.7	10.4	18.5	4.1	-0.09	14.0
Oraka Stm at Lake Rd	12	13.3	14.0	10.0	16.7	3.9	-0.20	14.2
Piako River at Kiwitahi	12	15.6	14.9	11.2	21.8	5.8	0.31	15.7
Piako River at Paeroa-Tahuna Rd Br	12	15.4	15.8	10.7	20.8	5.8	0.01	15.2
Piakonui Stm at Piakonui Rd	12	13.2	12.7	10.3	17.3	3.8	0.49	13.0
Waihou River at Okauia	12	13.6	13.9	9.9	17.6	4.3	-0.01	14.4
Waihou River at Whites Rd	12	13.1	13.3	11.9	14.1	1.2	-0.30	13.4
Waihotu Stm at Waihotu (Off SH5)	12	10.3	11.8	6.3	13.4	5.6	-0.40	11.4
Waiomou Stm at Matamata-Tauranga Rd	12	12.9	13.3	9.1	16.3	5.4	-0.15	13.8
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	16.7	16.8	11.2	22.4	6.9	0.04	15.8
Waitoa River at Landsdowne Rd Br	12	15.2	15.9	10.7	19.6	5.2	-0.12	15.7
Waitoa River at Mellon Rd Recorder	12	15.6	16.3	11.0	20.7	5.4	-0.09	15.8
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otatau Rd Br opp Moseley Rd	12	17.4	17.4	12.2	24.9	6.6	0.32	16.8
Awaroa Stm (Rotowaro) at Sansons Br @ Rotowaro-Huntly Rd	12	15.2	15.3	9.4	19.3	6.4	-0.20	14.5
Karapiro Stm at Hickey Rd Bridge	12	15.0	15.6	10.8	19.2	4.7	-0.08	14.9
Kirikiriira Stm at Tauhara Dr	12	14.9	14.8	12.4	18.6	3.5	0.39	15.1
Komakorau Stm at Henry Rd	12	15.5	16.1	9.9	19.6	5.9	-0.30	14.8
Little Waipa Stm at Arapuni - Putaruru Rd	12	13.7	14.3	11.1	15.8	2.7	-0.34	14.3
Mangakotukutuku Stm at Peacocks Rd	12	15.1	15.0	11.5	19.8	4.6	0.26	15.2
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	12.8	13.6	8.6	17.2	4.0	-0.11	14.0
Mangaone Stm at Annebrooke Rd Br	12	13.8	13.7	11.3	17.3	3.9	0.13	13.9
Mangaonua Stm (a.k.a Waitakaruru Stm) at Te Miro Rd	12	14.4	14.5	10.7	18.3	4.5	0.06	14.2
Mangaonua Stm at Hoeka Rd	12	14.4	14.8	11.3	17.9	4.1	-0.06	13.9
Mangatangi River at SH2 Maramara	12	17.1	17.4	11.7	23.3	7.1	0.04	16.5
Mangatawhiri River at Lyons Rd At Buckingham Br	12	17.3	18.3	11.3	24.0	6.3	-0.03	16.8
Mangawara Stm at Rutherford Rd Br	12	15.9	15.6	10.9	20.7	6.8	0.01	15.0
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	14.3	14.3	11.5	17.5	3.5	0.17	14.5
Matahuru Stm at Waiterimu Road Below Confluence	12	15.1	15.2	10.4	19.9	6.5	0.00	14.6
Ohaeroa Stm at SH22 Br	12	15.2	14.9	10.5	20.5	5.2	0.00	14.5
Opuatia Stm at Ponganui Rd	12	15.8	14.8	10.4	21.2	5.9	-0.01	15.0
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	13.3	14.0	10.0	16.7	4.3	-0.16	14.0
Waerenga Stm at Taniwha Rd	12	14.9	14.9	10.1	19.6	6.5	-0.07	14.4
Waitawhiriwhiri Stm at Edgecumbe Street	12	16.2	16.0	13.0	20.4	4.1	0.19	16.1
Whakapipi Stm at SH22 Br	12	15.7	15.8	11.2	19.3	4.9	-0.16	15.4
Whakauru Stm at U/S SH1 Br	12	11.4	12.2	7.8	14.8	4.2	-0.23	12.3
Whangamarino River at Island Block Rd	12	17.8	18.2	11.3	24.5	8.7	-0.06	17.5
Whangamarino River at Jefferies Rd Br	12	15.4	15.3	10.6	20.4	6.8	0.09	14.6
Whangape Stm at Rangiriri-Glen Murray Rd	12	16.8	16.8	11.7	22.1	7.5	0.03	16.5

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Waipa River and Tributaries								
Kaniwhaniwha Stm at Wright Rd	12	15.1	15.1	10.0	19.1	6.2	-0.10	14.3
Mangaohoi Stm at South Branch Maru Rd	12	14.4	14.6	10.4	18.5	3.5	0.04	14.1
<i>Mangaokewa Stm at Lawrence Street Br</i>	12	13.7	13.6	8.3	18.8	5.5	-0.03	12.8
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	16.8	17.3	11.5	23.2	6.3	0.13	16.7
Mangapu River at Otorohanga	12	15.8	16.0	9.8	23.8	6.6	0.35	14.9
Mangatutu Stm (Waikeria) at Walker Rd Br	12	14.2	13.7	10.1	20.5	5.6	0.47	14.0
Mangauika Stm at Te Awamutu Borough W/S Intake	12	12.9	12.6	9.2	15.2	2.8	-0.41	12.4
Ohote Stm at Whatawhata/Horotiu Rd	12	15.2	15.7	11.7	19.3	3.6	0.10	15.6
Puniu River at Bartons Corner Rd Br	12	15.0	14.8	10.9	20.8	5.2	0.33	15.0
Waipa River at Mangaokewa Rd	12	13.4	13.7	7.8	19.2	5.4	0.03	12.8
Waipa River at Pirongia-Ngutunui Rd Br	12	15.7	15.7	10.5	20.7	6.9	-0.01	15.1
Waipa River at SH3 Otorohanga	12	15.5	15.3	9.1	23.0	7.3	0.22	14.5
Waitomo Stm at SH31 Otorohanga	12	15.3	14.8	10.6	20.1	5.1	0.16	14.5
Waitomo Stm at Tumutumu Rd	12	14.1	13.7	11.0	16.8	3.2	0.14	13.8
Tributaries to the upper Waikato River								
Kawaunui Stm at SH5 Br	12	13.9	14.1	10.3	17.2	3.1	-0.11	14.7
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	12.3	13.1	9.0	15.8	3.1	-0.24	13.0
Mangakara Stm (Reporoa) at SH5	12	12.0	12.5	8.1	15.7	3.4	-0.35	13.1
Mangakino Stm (Whakamaru) at Sandel Rd	12	11.8	12.5	7.7	15.2	4.4	-0.34	12.3
Otamakokore Stm at Hossack Rd	12	20.9	21.1	17.6	24.9	3.2	0.04	21.0
Pueto Stm at Broadlands Rd Br	12	13.5	13.5	10.2	16.7	3.1	-0.22	13.7
Tahunaatara Stm at Ohakuri Rd	12	12.6	13.1	8.3	17.6	5.4	-0.05	13.4
Torepatutahi Stm at Vaile Rd Br	12	13.6	13.9	9.9	16.9	4.2	-0.19	14.5
Waiotapu Stm at Campbell Rd Br	12	27.8	28.3	23.9	31.2	4.2	-0.30	27.9
Waiotapu Stm at Homestead Rd Br	12	18.1	18.6	12.7	22.4	6.1	-0.28	18.8
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	22.3	22.7	19.5	25.2	2.7	-0.13	22.3
Whirinaki Stm at Corbett Rd	12	12.2	12.3	10.1	15.0	1.9	0.26	12.3
West Coast								
Awakino River at Gribbon Rd	12	13.1	13.0	7.2	20.2	3.4	0.39	12.6
Awakino River at SH3 Awakau Rd Junction	12	14.8	14.6	8.8	22.9	4.6	0.58	14.1
Manganui River at Off Manganui Rd	12	14.0	13.7	7.5	20.9	3.9	0.16	13.8
Mangaotaki River at SH3 Br	12	13.8	13.7	7.9	19.0	4.6	-0.13	13.1
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	14.3	13.7	9.4	18.2	4.5	-0.10	13.6
Mokau River at Awakau Rd	12	15.2	15.2	9.2	22.8	5.5	0.36	14.2
Mokau River at Mangaokewa Rd (Off SH30)	12	12.7	13.2	7.6	18.4	4.5	0.10	12.4
Mokau River at Totoro Rd Recorder	12	14.9	15.1	8.4	21.0	5.9	-0.03	14.0
Mokauiti Stm at Three Way Point - Aria	12	15.3	15.4	8.3	23.2	6.4	0.20	14.3
Ohautira Stm at Waingaro Te Uku Rd	12	14.1	13.4	8.3	18.8	5.3	-0.08	12.9
Oparau River at Langdon Rd (Off Okupata Rd)	12	15.1	14.4	8.7	20.9	5.1	0.01	14.2
Tawarau River at Off Speedies Rd	12	14.1	13.5	9.1	18.2	4.8	-0.03	13.6
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	15.6	15.1	9.1	21.5	7.0	-0.05	14.4
Waitetuna River at Te Uku-Waingaro Rd	12	14.7	14.1	9.3	20.0	5.7	0.08	13.6
Inflows to Lake Taupo								
Hinemaiaia River at SH1	12	11.2	11.6	6.9	15.7	6.3	-0.03	11.9
Kuratau River at SH41 Moerangi	12	9.4	9.9	5.9	12.5	3.7	-0.39	9.8
Kuratau River at Te Rae Street	12	13.0	13.9	6.9	18.1	6.8	-0.20	13.7
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	10.7	11.1	8.3	12.5	2.3	-0.51	11.1
Tauranga- Taupo River at 20 Metres U/S SH1 Bridge	12	10.4	10.7	5.7	15.0	5.4	-0.15	11.3
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	12	12.8	14.0	7.6	18.5	5.9	-0.12	12.6
Tokaanu Stm at Off SH41 Turangi	12	12.2	12.2	11.3	13.5	0.9	0.55	12.3
Waihaha River at SH32	12	11.4	11.6	6.3	15.3	5.2	-0.23	11.6
Waitahanui River at Blake Rd	12	10.4	10.5	8.1	13.0	2.1	-0.07	10.8
Whangamata Stm (Kinloch) at Whangamata Rd	12	9.9	10.0	7.4	12.3	2.0	-0.35	10.3
Whanganui Stm at Lakeside Lake Taupo	12	11.7	12.6	6.1	16.2	4.7	-0.29	12.3
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	10.9	11.6	6.3	14.1	3.7	-0.58	11.5

IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

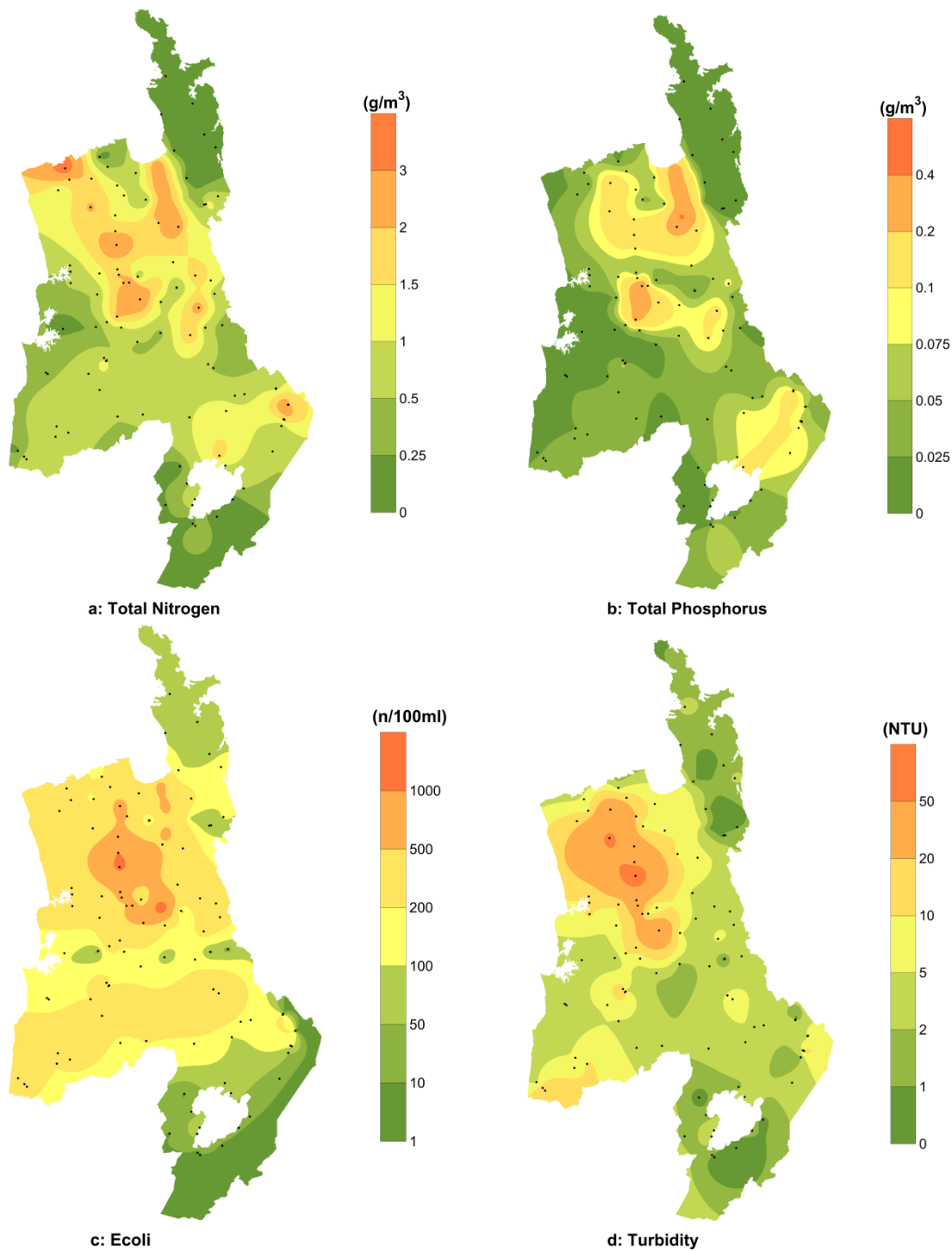


Figure 2: Spatial contour plots of four water quality parameters (based on 5 year median values, 2010-2014); a: Total Nitrogen, b: Total Phosphorus, c: Escherichia coli, d: Turbidity.

3.2 Regional rivers monitoring programme comparison with water quality guidelines and standards

Number of Samples (2014) that Comply with the Satisfactory Water Quality Standards and with the Excellent Water Quality Standards and Guidelines (*n=9, ~n=10, ^n=11)

Location	SATISFACTORY										EXCELLENT									
	ECOLOGICAL HEALTH							RECREATION			ECOLOGICAL HEALTH						RECREATION			
	DO	pH	Turb	NH4	Temp	TP	TN	Bdisk	E.coli	E.coli-m	DO	pH	Turb	NH4	Temp	TP	TN	Bdisk	E.coli	E.coli-m
Coromandel																				
Hikutaia River at Old Maratoto Rd	12	12	11	12	9	11	11	11	10/12	N	11	9	8	12	3	7	8	1	0/12	N
Kauaeranga River at Smiths Cableway/Recorder	^11	^11	^10	^11	^7	^10	^11	^10	^8/11	^Y	^11	^8	^8	^11	^2	^10	^10	^5	^5/11	^N
Ohinemuri River at Queens Head	12	12	11	12	5	11	4	11	11/12	Y	12	8	11	9	0	5	0	2	6/12	N
Ohinemuri River at SH25 Br	12	12	11	12	4	12	7	11	12/12	Y	12	9	11	12	0	8	0	1	4/12	N
Tairua River at Morrisons Br Hikuai	12	12	10	12	4	12	12	n/a	12/12	Y	12	8	10	12	0	10	9	n/a	5/12	N
Tapu River at Tapu-Coroglen Rd	12	12	11	12	9	12	12	11	11/12	Y	12	12	8	12	3	11	11	5	5/12	N
Waiau River at E309 Rd Ford	12	12	8	12	9	12	12	8	12/12	Y	12	11	5	12	2	9	8	0	2/12	N
Waitekauri River at U/S Ohinemuri Conflu	12	12	11	12	7	12	11	10	12/12	Y	12	10	10	12	1	9	1	4	6/12	N
Waiwawa River at SH25 Coroglen	12	12	11	12	5	12	12	10	12/12	Y	12	8	9	12	1	11	10	3	6/12	N
Wharekawa River at SH25	12	12	11	12	6	12	11	*7	12/12	N	11	8	7	12	0	11	6	*0	3/12	N
Hauraki																				
Mangawhero Stm (Kaihere) at Mangawara Rd	12	12	5	12	9	2	10	4	12/12	Y	12	12	0	12	2	0	0	0	8/12	N
Oraka Stm at Lake Rd	11	12	5	12	11	0	0	1	10/12	N	7	12	0	9	6	0	0	0	0/12	N
Piako River at Kiwitahi	7	12	11	12	8	0	5	^4	11/12	N	6	11	4	11	2	0	0	^0	2/12	N
Piako River at Paeroa-Tahuna Rd Br	8	12	6	12	8	0	1	2	9/12	N	5	12	0	12	1	0	0	0	1/12	N
Piakonui Stm at Piakonui Rd	12	12	8	12	11	11	9	6	11/12	Y	12	12	0	12	6	0	0	0	6/12	N
Waihou River at Okauia	12	12	7	12	11	0	0	3	10/12	N	11	12	0	11	5	0	0	0	1/12	N
Waihou River at Whites Rd	12	12	12	12	8	0	0	11	11/12	Y	12	10	12	12	7	0	0	10	9/12	N
Waiohotu Stm at Waiohotu Rd (Off SH5)	11	12	8	12	12	12	12	n/a	12/12	Y	10	11	0	12	12	0	0	0	6/12	N
Waiomou Stm at Matamata-Tauranga Rd	12	12	9	12	12	10	4	4	7/12	N	10	12	1	12	8	0	0	0	0/12	N
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	10	12	5	12	4	4	6	~2	8/12	N	9	10	3	11	0	0	0	~0	0/12	N
Waitoa River at Landsdowne Rd Br	10	12	9	12	9	4	0	5	9/12	N	8	8	4	12	1	0	0	0	0/12	N
Waitoa River at Mellon Rd Recorder	6	12	6	12	8	0	0	2	9/12	N	0	12	0	11	1	0	0	0	0/12	N
Tributaries to the Lower Waikato River																				
Awaroa River (Waiuku) at Otatau Rd Br opp Moseley Rd	10	12	1	12	4	7	0	^0	11/12	N	5	8	0	12	0	1	0	^0	2/12	N
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly F	9	12	1	12	9	12	3	0	10/12	N	5	10	0	12	3	3	0	0	0/12	N
Karapiro Stm at Hickey Rd Bridge	11	12	8	12	9	0	4	0	9/12	N	5	12	0	12	3	0	0	0	0/12	N
Kirikiri River at Tauhara Dr	3	12	0	12	7	0	0	0	7/12	N	0	7	0	2	3	0	0	0	0/12	N
Komakorau Stm at Henry Rd	2	8	0	8	9	0	0	0	3/12	N	0	7	0	0	2	0	0	0	0/12	N
Little Waipa Stm at Arapuni - Putaruru Rd	12	12	11	12	9	0	0	5	11/12	N	11	11	5	10	7	0	0	0	2/12	N
Mangakotukutuku Stm (Rukuhia) at Peacockes Rd	12	11	0	12	9	0	0	0	9/12	N	10	9	0	4	2	0	0	0	0/12	N
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	12	3	12	12	0	0	1	8/12	N	12	12	0	4	8	0	0	0	0/12	N
Mangaone Stm at Annebrooke Rd Br	7	12	0	12	11	0	0	2	6/12	N	0	11	0	12	6	0	0	0	0/12	N
Mangaonua Stm at Hoeka Rd	8	12	1	12	9	4	0	2	3/12	N	0	10	0	10	3	0	0	0	0/12	N
Mangaonua Stm at Te Miro Rd	12	12	8	12	10	11	3	2	11/12	Y	12	11	0	12	3	0	0	0	1/12	N
Mangatangi River at SH2 Maramarua	10	12	1	12	4	5	7	~0	9/12	N	4	10	0	11	0	0	0	~0	0/12	N
Mangatawhiri River at Lyons Rd At Buckingham Br	12	12	8	12	4	11	10	6	11/12	N	12	11	6	12	0	0	1	0	1/12	N
Mangawara Stm at Rutherford Rd Br	4	10	0	12	7	0	0	0	3/12	N	0	6	0	0	1	0	0	0	0/12	N
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	11	12	0	12	8	0	0	0	8/12	N	3	8	0	8	3	0	0	0	0/12	N
Matahuru Stm at Waiterimu Road Below Confluence	8	10	0	12	10	0	1	0	5/12	N	2	6	0	9	2	0	0	0	0/12	N
Ohaeroa Stm at SH22 Br	12	12	1	12	9	9	0	^0	8/12	N	11	11	0	12	2	0	0	^0	0/12	N
Opuatia Stm at Ponganui Rd	11	12	3	12	8	9	1	0	8/12	N	10	12	1	12	2	0	0	0	0/12	N
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	12	10	12	12	0	0	4	11/12	N	12	12	4	12	6	0	0	0	1/12	N
Waerenga Stm at Taniwha Rd	12	12	5	12	10	5	1	1	8/12	N	11	10	1	12	2	0	0	0	0/12	N
Waitawhiriwhiri Stm at Edgecumbe Street	11	12	0	12	6	0	0	~0	7/12	N	8	9	0	1	1	0	0	~0	0/12	N
Whakapipi Stm at SH22 Br	8	12	7	12	9	3	0	5	8/12	N	7	12	1	12	1	0	0	0	0/12	N
Whakauru Stm at U/S SH1 Br	12	12	4	12	12	4	4	0	8/12	N	12	12	0	12	11	0	0	0	0/12	N
Whangamarino River at Island Block Rd	2	12	0	12	5	0	0	0	11/12	Y	2	7	0	9	0	0	0	0	2/12	N
Whangamarino River at Jefferies Rd Br	5	12	0	12	8	0	5	0	3/12	N	2	9	0	10	2	0	0	0	0/12	N
Whangape Stm at Rangiriri-Glen Murray Rd	7	11	0	11	5	0	0	0	11/12	N	7	11	0	9	0	0	0	0	3/12	N

Waipa River and Tributaries																					
Kaniwhaniwha Stm at Wright Rd	9	12	8	12	9	12	7	~1	11/12	N	4	9	2	12	2	1	0	~0	0/12	N	
Mangaohoi Stm at South Branch Maru Rd	12	12	11	12	10	2	10	7	12/12	Y	12	12	8	12	5	0	0	0	5/12	N	
Mangaokewa Stm at Lawrence Street Br	11	12	6	12	12	10	4	2	7/12	N	10	10	3	12	4	0	0	0	0/12	N	
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	12	3	12	7	0	1	2	8/12	N	11	7	2	11	1	0	0	0	0/12	N	
Mangapu River at Otorohanga	12	12	5	12	7	4	3	4	8/12	N	11	10	3	12	2	0	0	0	0/12	N	
Mangatutu Stm (Waikeria) at Walker Rd Br	12	12	10	12	9	12	8	7	11/12	Y	12	11	6	12	3	1	1	0	2/12	N	
Mangauika Stm at Te Awamutu Borough W/S Intake	12	12	12	12	10	12	11	^11	11/12	Y	12	10	7	12	8	10	0	^4	10/12	Y	
Ohote Stm at Whatawhata/Horotiu Rd	1	10	0	12	8	2	1	0	11/12	N	0	1	0	10	1	0	0	0	2/12	N	
Puniu River at Bartons Corner Rd Br	12	12	7	12	9	4	1	n/a	9/12	N	10	10	3	12	2	0	0	n/a	1/12	N	
Waipa River at Mangaokewa Rd	12	12	10	12	12	11	7	8	10/12	N	12	12	6	12	5	1	0	0	3/12	N	
Waipa River at Pirongia-Ngutunui Rd Br	11	12	5	12	9	5	4	n/a	7/12	N	9	10	0	12	1	0	0	n/a	1/12	N	
Waipa River at SH3 Otorohanga	12	12	8	12	9	11	7	5	10/12	Y	12	11	5	12	2	1	0	0	4/12	N	
Waitomo Stm at SH31 Otorohanga	12	12	5	12	7	9	3	^1	10/12	N	12	8	3	12	2	0	0	^0	0/12	N	
Waitomo Stm at Tumutumumu Rd	12	12	6	12	8	10	0	^1	8/12	N	12	9	3	12	4	0	0	^0	3/12	N	
Tributaries to the Upper Waikato River																					
Kawaunui Stm at SH5 Br	11	12	10	12	9	0	0	5	12/12	N	3	9	0	12	4	0	0	0	3/12	N	
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	12	5	12	12	2	3	~0	11/12	N	11	12	0	12	9	0	0	~0	3/12	N	
Mangakara Stm (Reporoa) at SH5	12	12	6	12	12	0	0	1	11/12	Y	9	11	0	12	9	0	0	0	4/12	N	
Mangakino Stm (Whakamaru) at Sandel Rd	11	12	12	12	12	1	0	10	12/12	Y	11	12	12	12	11	0	0	0	8/12	N	
Otamakokore Stm at Hossack Rd	12	12	8	12	0	0	0	5	11/12	N	12	2	3	12	0	0	0	0	0/12	N	
Pueto Stm at Broadlands Rd Br	12	12	11	12	10	0	4	8	12/12	Y	11	12	4	12	6	0	0	0	11/12	N	
Tahunaatara Stm at Ohakuri Rd	12	12	12	12	12	0	1	5	11/12	N	12	12	3	12	9	0	0	0	1/12	N	
Torepatutahi Stm at Vaile Rd Br	12	12	12	12	10	0	5	n/a	12/12	Y	12	12	10	12	6	0	0	n/a	6/12	N	
Waiotapu Stm at Campbell Rd Br	12	0	1	0	0	2	0	1	12/12	Y	5	0	0	0	0	0	0	0	11/12	Y	
Waiotapu Stm at Homestead Rd Br	12	12	3	12	2	0	0	n/a	12/12	Y	6	4	0	2	0	0	0	n/a	2/12	N	
Waipapa Stm at Tirohanga Rd Br	12	12	9	12	0	0	0	3	11/12	Y	12	12	0	12	0	0	0	0	3/12	N	
Whirinaki Stm at Corbett Rd	12	12	12	12	11	0	0	n/a	12/12	Y	12	12	12	12	7	0	0	n/a	11/12	Y	
West Coast																					
Awakino River at Gribbon Rd	12	12	9	12	11	11	11	6	11/12	Y	12	12	8	12	7	1	3	0	5/12	N	
Awakino River at SH3 Awakau Rd Junction	12	12	8	12	8	10	11	3	9/12	N	12	11	3	12	4	2	1	0	3/12	N	
Manganui River at Off Manganui Rd	12	12	7	12	9	11	11	4	10/12	N	11	9	0	12	6	0	3	0	2/12	N	
Mangaotaki River at SH3 Br	12	12	4	12	11	10	1	2	10/12	N	12	12	2	12	5	0	0	0	0/12	N	
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	12	9	12	9	12	9	3	11/12	Y	12	7	3	12	3	0	0	0	2/12	N	
Mokau River at Awakau Rd	11	12	2	12	8	11	5	0	9/12	Y	11	10	0	12	2	0	0	0	4/12	N	
Mokau River at Mangaokewa Rd (Off SH30)	12	12	10	12	12	9	5	n/a	11/12	Y	11	12	0	12	9	0	0	n/a	2/12	N	
Mokau River at Totoro Rd Recorder	12	12	6	12	9	11	3	3	11/12	N	11	12	2	12	3	0	0	0	2/12	N	
Mokauiti Stm at Three Way Point - Aria	11	12	5	12	8	11	8	2	10/12	N	10	11	2	12	2	0	0	0	2/12	N	
Ohautira Stm at Waingaro Te Uku Rd	12	12	4	12	11	8	8	2	10/12	N	9	9	0	12	3	0	0	0	0/12	N	
Oparau River at Langdon Rd (Off Okupata Rd)	12	12	10	12	7	11	11	4	11/12	Y	12	12	4	12	3	4	1	0	2/12	N	
Tawarau River at Off Speedies Rd	12	12	9	12	10	11	9	3	11/12	Y	12	8	4	12	4	0	0	0	1/12	N	
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	12	6	12	9	10	5	~2	11/12	N	9	11	0	12	2	0	0	~0	2/12	N	
Waitetuna River at Te Uku-Waingaro Rd	12	12	5	12	9	10	7	1	10/12	N	9	10	0	12	3	0	0	0	0/12	N	
Inflows to Lake Taupo																					
Hinemaiaia River at SH1	12	12	12	12	12	9	12	9	12/12	Y	12	12	12	12	12	0	1	0	12/12	Y	
Kuratau River at SH41 Moerangi	12	12	12	12	12	12	7	10	12/12	Y	11	11	11	12	12	12	0	1	12/12	Y	
Kuratau River at Te Rae Street	12	12	12	12	12	12	0	n/a	12/12	Y	11	12	12	12	7	4	0	n/a	11/12	N	
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Re	12	12	12	12	12	0	0	4	11/12	Y	3	12	3	12	10	0	0	0	7/12	N	
Tauranga-Taupo River at 20 Metres U/S SH1 Bridge	12	12	11	12	12	12	11	12	12/12	Y	11	12	11	12	12	0	7	5	12/12	N	
Tokaanu at Off SH41 Turangi	10	12	12	12	11	0	12	n/a	12/12	Y	0	11	12	12	7	0	0	n/a	12/12	Y	
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over	12	12	12	12	12	12	12	n/a	12/12	Y	12	11	11	12	9	5	7	n/a	12/12	Y	
Waihaha River at SH32	12	12	12	12	12	12	12	12	12/12	Y	12	12	12	12	11	0	0	5	12/12	Y	
Waitahanui River at Blake Rd	12	12	12	12	12	0	7	12	12/12	Y	12	12	12	12	11	0	0	6	10/12	Y	
Whangamata Stm (Kinloch) at Whangamata Rd	12	12	12	12	12	0	0	n/a	12/12	Y	11	11	11	12	11	0	0	n/a	7/12	N	
Whanganui Stm at Lakeside Lake Taupo	12	12	12	12	11	12	12	n/a	12/12	Y	12	12	12	12	10	1	0	n/a	11/12	Y	
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	12	12	12	12	12	0	n/a	12/12	Y	12	12	2	12	10	0	0	n/a	3/12	N	

E.coli-m refers to whether the 2014 sample median meets the satisfactory median *E.coli* guideline of <126/100 ml or the Excellent guideline value of <23/100 ml for recreational use of water

References

- Tulagi A 2014. Regional rivers water quality monitoring programme data report 2013. Waikato Regional Council Technical Report 2014/30. Hamilton, Waikato Regional Council.
- Tulagi A 2013. Regional rivers water quality monitoring programme data report 2012. Waikato Regional Council Technical Report 2013/13. Hamilton, Waikato Regional Council.
- Tulagi A 2012. Regional rivers water quality monitoring programme data report 2011. Waikato Regional Council Technical Report 2012/23. Hamilton, Waikato Regional Council.
- Vant B 2013. Trends in river water quality in the Waikato region, 1993-2012. Waikato Regional Council Technical Report 2013/20, Hamilton, Waikato Regional Council
- Waikato Regional Council (Environment Waikato) 1999. Waikato state of the environment report 1998. Hamilton, Waikato Regional Council (Environment Waikato).

Appendix I: Water quality guidelines and standards

Details of water quality guidelines and standards for “satisfactory” water quality

Parameter	Critical Value(s)	Source
Dissolved oxygen	>80% of saturation concentration	RMA Third Schedule, Classes AE, F, and FS.
pH	6.5–9	ANZECC (1992) and Canadian guidelines for freshwater aquatic life (1987).
Turbidity	<5 NTU	Studies of adverse effects on underwater light—and thus on plant and invertebrate production—in certain South Island streams (Davies-Colley 1991).
Ammoniacal-nitrogen	<0.88 g N/m ³	USEPA (1998) value for 1-hour exposure at pH 9.
Temperature	<12°C (May – Sep) <20°C (Oct – Apr)	Waikato Regional Council Draft Regional Plan standards for trout fisheries and trout spawning (1997).
Total phosphorus	<0.04 g/m ³	From upper quartile values for 77 New Zealand rivers in NIWA’s National Water Quality Network (after Smith & Maasdam 1994)—note that the guidelines for “excellent” conditions are the lower quartile concentrations for these rivers.
Total nitrogen	<0.5 g/m ³	From upper quartile values for 77 New Zealand rivers in NIWA’s National Water Quality Network (after Smith & Maasdam 1994)—note that the guidelines for “excellent” conditions are the lower quartile concentrations for these rivers.
Water clarity at baseflow	>1.6 m	“Baseflow” defined as flows less than the upper decile flow. Guideline from Ministry for the Environment (1994).
<i>Escherichia coli</i>	<550/100 mL	Ministry of the Environment (2003) guidelines for the management of recreational and marine shellfish-gathering waters.
Median <i>Escherichia coli</i>	<126/100 mL	Ministry of the Environment (1999) guidelines for the management of recreational and marine shellfish-gathering waters.

Appendix II: Water quality monitoring parameters

Field instruments and analytical methods

Regional River monitoring programme - water quality parameters and analytical methods

Id ¹	Parameter	Method
A340F	Absorbance @ 340 nm filtered	Spectrophotometer, 1 cm path length, APHA method 5910B
A440F	Absorbance @ 440 nm filtered	Spectrophotometer, 1 cm path length, APHA method 5910B
A780	Absorbance @ 780 nm filtered	Spectrophotometer, 1 cm path length, APHA method 5910B
BDISK	Black disk	Field measurement, horizontal water transparency (20mm, 60mm, 100mm, 200mm disk) in river or trough (20mm only)
COND	Conductivity	Lab Meter @ 25°C. APHA method 2510B
DO	Dissolved oxygen	Field measurement (Hach DO meter, model HQ 30d)
DO (% Sat)	Dissolved oxygen (percent saturation)	Field measurement (Hach DO meter, model HQ 30d)
DRP	Dissolved reactive Phosphorus	Filtration, Molybdenum Blue Colorimetry. Discrete analyser. APHA 4500 PE (modified)
E. coli	Escherichia coli	Membrane Filtration (mFC Agar) confirmation by MUG Agar. APHA method 9222 G
ENT	Enterococci bacteria	Membrane Filtration (mE Agar) confirmation by EIA Agar. APHA method 9230 C
FC	Faecal coliforms	Membrane Filtration (mFC Agar). APHA method 9222 D
NH ₄ -N	Ammoniacal Nitrogen (Total)	Filtration, Phenol/Hypochlorite Colorimetry. Discrete analyser. APHA method 4500-NH ₃ F (modified).
NNN	Nitrite/Nitrate Nitrogen	Automated Cadmium reduction. Flow injection analyser. APHA method 4500 – NO ₃ -I (modified).
pH	pH	Lab Meter @ 25°C. APHA method 4500-H ⁺ B
TEMP	Temperature	Field measurement (Hach DO meter, model HQ 30d)
TKN	Total Kjeldahl-Nitrogen	Acid digestion. Phenol/Hypochlorite colorimetry. Discrete analyser. APHA method 4500-N _{org} D
TN	Total Nitrogen	Calculated from NNN + TKN (Nitrite/Nitrate Nitrogen + Total Kjeldahl-Nitrogen)
TP	Total Phosphorus As Reductant	Acid persulphate digestion, Colorimetry. Discrete Analyser. APHA method 4500-P B & E (modified). Also modified to include the use of reductant to eliminate interference from arsenic present in the sample.NAWASCA Pub 38, 1982
TURB	Turbidity	Turbidity Meter Hach 2100N. APHA method 2130 B

¹ Water quality parameter identification code refers to Waikato Regional Council's water quality database (Timestudio) parameter short name.

APHA = Standards Methods for the Examination of Water and Wastewater, 22nd Edition, 2012, APHA, AWWA, WEF