

Regional Rivers Water Quality Monitoring Programme Data Report 2009

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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 Environment Waikato 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 15th since the implementation of the regional rivers monitoring programme (RERIMP) in 1993¹ and follows the format of the previous data report (Beard, 2009). Copies of reports as described in the list of references (page 30) can be obtained by contacting Environment Waikato (the Library) on 0800 800 401, or in electronic format from the publications page of the Environment Waikato website: www.ew.govt.nz/publications or email: inforeq@ew.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 2009 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 2009. 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 on separately — see Beard, 2009.

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)	(May-Sep)	<12	<10
	(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 Environment Waikato Internet site; www.ew.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 Environment Waikato. A further five locations form part of NIWA’s National Water Quality Network, whose data can be found on the NIWA website (www.niwa.co.nz).

Table 2: Environment Waikato'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 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 Buckingham 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 Te Kuiti Borough Water Supply Intake	414.12	S16:998-161
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	Manguaika 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 Te Kono Slackline	971.4	T19:636-473
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 Environment Waikato 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). Seventy-four locations are measured quarterly for enterococci, *E. coli* and faecal coliform bacteria. 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 Environment Waikato's ISO 9001:2000 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 Environment Waikato's water quality archiving database (HYDSTRA).

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 8). 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 2008) summarises the trends and patterns in regional water quality during 1990 to 2007. Environment Waikato's State of the Environment Report briefly summarises the state of the rivers in the region, and common pressures (Environment Waikato, 1999).

The data contained in these regional rivers reports is updated to the Environment Waikato "Healthy Rivers" internet page:

<http://www.ew.govt.nz/Environmental-information/Rivers-lakes-and-wetlands/>

This page 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.

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 2009 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	05-09							
	Count	Mean	Median	Min	Max	IQR	Skew	Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	0.019	0.015	0.010	0.066	0.008	<u>2.65</u>	0.016
Kauaeranga River at Smiths Cableway/Recorder	12	0.023	0.013	0.009	0.100	0.013	<u>2.28</u>	0.015
Ohinemuri River at Queens Head	12	0.016	0.013	0.008	0.038	0.008	<u>1.70</u>	0.016
Ohinemuri River at SH25 Br	12	0.014	0.011	0.008	0.036	0.007	<u>2.07</u>	0.012
Tairua River at Morrisons Br Hikuai	12	0.020	0.014	0.010	0.075	0.009	<u>2.63</u>	0.016
Tapu River at Tapu-Coroglen Rd	12	0.020	0.010	0.006	0.084	0.009	<u>2.03</u>	0.010
Waiau River at E309 Rd Ford	12	0.021	0.014	0.009	0.066	0.010	<u>1.89</u>	0.016
Waitekauri River at U/S Ohinemuri Conflu	12	0.013	0.010	0.008	0.044	0.003	<u>2.86</u>	0.012
Waiwawa River at SH25 Coroglen	12	0.032	0.021	0.011	0.090	0.018	1.53	0.024
Wharekawa River at SH25	12	0.019	0.014	0.010	0.045	0.013	1.34	0.017
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.022	0.018	0.012	0.059	0.014	<u>1.96</u>	0.021
Oraka Stm at Lake Rd	12	0.014	0.013	0.008	0.031	0.008	1.41	0.013
Piako River at Kiwitahi	12	0.046	0.047	0.027	0.077	0.025	0.46	0.049
Piako River at Paeroa-Tahuna Rd Br	12	0.069	0.067	0.046	0.100	0.025	0.48	0.073
Piakonui Stm at Piakonui Rd	12	0.032	0.028	0.016	0.062	0.024	0.74	0.030
Waihou River at Okauia	12	0.015	0.013	0.008	0.028	0.008	1.00	0.013
Waihou River at Whites Rd	12	0.001	0.001	0.001	0.003	0.000	<u>3.02</u>	0.001
Waiohotu Stm at Waiohotu Rd (Off SH5)	12	0.048	0.047	0.025	0.099	0.020	1.54	0.032
Waiomou Stm at Matamata-Tauranga Rd	12	0.021	0.018	0.011	0.051	0.009	<u>2.05</u>	0.017
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.063	0.060	0.051	0.084	0.008	1.25	0.065
Waitoa River at Landsdowne Rd Br	12	0.046	0.043	0.023	0.078	0.024	0.54	0.046
Waitoa River at Mellon Rd Recorder	12	0.041	0.039	0.027	0.057	0.014	0.37	0.042
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otatau Rd Br opp Moseley Rd	12	0.039	0.037	0.029	0.058	0.014	0.78	0.040
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	12	0.024	0.026	0.014	0.036	0.012	0.05	0.026
Karapiro Stm at Hickey Rd Bridge	12	0.048	0.044	0.029	0.078	0.029	0.44	0.048
Kirikiri Stm at Tauhara Dr	12	0.071	0.055	0.034	0.240	0.015	<u>2.71</u>	0.057
Komakorau Stm at Henry Rd	12	0.138	0.105	0.083	0.280	0.094	1.09	0.110
Little Waipa Stm at Arapuni - Putaruru Rd	12	0.013	0.010	0.003	0.051	0.013	<u>1.99</u>	0.012
Mangakotukutuku Stm (Rukuhia) at Peacockes Rd	9	0.235	0.150	0.090	0.480	0.251	0.55	0.220
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	0.030	0.027	0.014	0.054	0.010	1.03	0.027
Mangaone Stm at Annebrooke Rd Br	12	0.053	0.053	0.036	0.079	0.017	0.70	0.051
Mangaonua Stm at Hoeka Rd	12	0.031	0.032	0.022	0.045	0.009	0.36	0.037
Mangaonua Stm at Te Miro Rd	12	0.030	0.029	0.018	0.054	0.019	0.71	0.030
Mangatangi River at SH2 Maramarua	12	0.056	0.051	0.041	0.084	0.022	0.75	0.054
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.029	0.026	0.018	0.053	0.014	1.22	0.027
Mangawara Stm at Rutherford Rd Br	12	0.147	0.125	0.090	0.230	0.090	0.67	0.118
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.127	0.103	0.055	0.250	0.121	0.44	0.101
Matahuru Stm at Waiterimu Road Below Confluence	12	0.080	0.068	0.053	0.160	0.023	1.65	0.078
Ohaeroa Stm at SH22 Br	12	0.027	0.027	0.018	0.038	0.006	0.54	0.026
Opuatia Stm at Ponganui Rd	12	0.034	0.030	0.019	0.051	0.019	0.36	0.030
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	0.016	0.014	0.008	0.033	0.007	1.20	0.014
Waerenga Stm at Taniwha Rd	12	0.028	0.026	0.016	0.054	0.010	1.40	0.030
Waitawhiriwhiri Stm at Edgecumbe Street	12	0.125	0.100	0.048	0.240	0.100	0.55	0.125
Whakapipi Stm at SH22 Br	12	0.039	0.038	0.030	0.056	0.006	1.02	0.039
Whakauru Stm at U/S SH1 Br	12	0.025	0.024	0.012	0.041	0.007	0.57	0.026
Whangamarino River at Island Block Rd	12	0.109	0.100	0.040	0.180	0.049	0.39	0.111
Whangamarino River at Jefferies Rd Br	12	0.046	0.046	0.036	0.056	0.010	0.09	0.048
Whangape Stm at Rangiriri-Glen Murray Rd	12	0.065	0.069	0.035	0.087	0.030	-0.38	0.065

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

Location	05-09							
	Count	Mean	Median	Min	Max	IQR	Skew	Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	0.004	0.003	0.001	0.013	0.002	<u>2.08</u>	0.003
Kauaeranga River at Smiths Cableway/Recorder	12	0.004	0.002	0.001	0.020	0.003	<u>2.12</u>	0.003
Ohinemuri River at Queens Head	12	0.003	0.003	0.001	0.008	0.002	1.17	0.003
Ohinemuri River at SH25 Br	12	0.003	0.002	0.001	0.007	0.002	1.42	0.002
Tairua River at Morrisons Br Hikuai	12	0.004	0.003	0.001	0.014	0.003	<u>2.30</u>	0.003
Tapu River at Tapu-Coroglen Rd	12	0.004	0.002	0.001	0.016	0.003	<u>1.79</u>	0.001
Waiau River at E309 Rd Ford	12	0.004	0.003	0.001	0.011	0.003	1.39	0.003
Waitekauri River at U/S Ohinemuri Conflu	12	0.002	0.002	0.001	0.008	0.002	<u>2.36</u>	0.002
Waiwawa River at SH25 Coroglen	12	0.007	0.005	0.002	0.020	0.004	1.59	0.005
Wharekawa River at SH25	12	0.004	0.003	0.001	0.008	0.004	0.73	0.004
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.004	0.004	0.001	0.012	0.003	1.50	0.005
Oraka Stm at Lake Rd	12	0.003	0.002	0.001	0.006	0.002	0.64	0.003
Piako River at Kiwitahi	12	0.008	0.008	0.005	0.015	0.005	0.65	0.009
Piako River at Paeroa-Tahuna Rd Br	12	0.012	0.010	0.007	0.017	0.006	0.38	0.013
Piakonui Stm at Piakonui Rd	12	0.006	0.006	0.003	0.012	0.005	0.62	0.006
Waihou River at Okauia	12	0.003	0.002	0.001	0.006	0.002	0.85	0.002
Waihou River at Whites Rd	12	0.001	0.001	0.001	0.001	0.000	-1.00	0.001
Waiohotu Stm at Waiohotu Rd (Off SH5)	12	0.010	0.009	0.005	0.020	0.003	1.55	0.007
Waiomou Stm at Matamata-Tauranga Rd	12	0.004	0.003	0.002	0.010	0.002	<u>1.81</u>	0.004
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.011	0.012	0.009	0.016	0.002	0.92	0.012
Waitoa River at Landsdowne Rd Br	12	0.008	0.007	0.004	0.014	0.004	0.54	0.008
Waitoa River at Mellon Rd Recorder	12	0.007	0.007	0.004	0.010	0.002	0.33	0.007
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otatau Rd Br opp Moseley Rd	12	0.006	0.006	0.004	0.010	0.003	0.46	0.007
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	12	0.004	0.004	0.001	0.006	0.003	-0.50	0.004
Karapiro Stm at Hickey Rd Bridge	12	0.008	0.008	0.004	0.013	0.005	0.15	0.008
Kirikiri Stm at Tauhara Dr	12	0.012	0.009	0.006	0.044	0.003	<u>2.76</u>	0.009
Komakorau Stm at Henry Rd	12	0.021	0.015	0.011	0.042	0.016	0.90	0.017
Little Waipa Stm at Arapuni - Putaruru Rd	12	0.003	0.002	0.001	0.011	0.003	<u>2.11</u>	0.002
Mangakotukutuku Stm (Rukuhia) at Peacockes Rd	9	0.040	0.027	0.015	0.072	0.042	0.37	0.038
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	0.006	0.006	0.002	0.012	0.002	0.72	0.006
Mangaone Stm at Annebrooke Rd Br	12	0.009	0.009	0.006	0.014	0.003	0.52	0.009
Mangaonua Stm at Hoeka Rd	12	0.005	0.005	0.003	0.008	0.002	0.36	0.006
Mangaonua Stm at Te Miro Rd	12	0.006	0.005	0.003	0.011	0.003	0.95	0.006
Mangatangi River at SH2 Maramarua	12	0.010	0.009	0.007	0.016	0.004	0.74	0.010
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.005	0.005	0.002	0.010	0.003	0.56	0.005
Mangawara Stm at Rutherford Rd Br	12	0.023	0.019	0.015	0.036	0.012	0.83	0.019
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.020	0.018	0.008	0.040	0.019	0.36	0.017
Matahuru Stm at Waiterimu Road Below Confluence	12	0.013	0.012	0.009	0.027	0.004	<u>1.82</u>	0.013
Ohaeroa Stm at SH22 Br	12	0.005	0.005	0.002	0.007	0.001	-0.49	0.005
Opuatia Stm at Ponganui Rd	12	0.005	0.005	0.002	0.008	0.003	-0.08	0.005
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	0.003	0.003	0.001	0.007	0.002	0.86	0.003
Waerenga Stm at Taniwha Rd	12	0.005	0.005	0.001	0.010	0.002	0.23	0.006
Waitawhiriwhiri Stm at Edgecumbe Street	12	0.021	0.017	0.008	0.041	0.018	0.56	0.020
Whakapipi Stm at SH22 Br	12	0.007	0.007	0.004	0.010	0.002	0.31	0.007
Whakauru Stm at U/S SH1 Br	12	0.005	0.005	0.001	0.008	0.002	0.01	0.005
Whangamarino River at Island Block Rd	12	0.020	0.020	0.006	0.035	0.010	0.35	0.020
Whangamarino River at Jefferies Rd Br	12	0.008	0.008	0.006	0.010	0.002	0.23	0.009
Whangape Stm at Rangiriri-Glen Murray Rd	12	0.010	0.011	0.004	0.015	0.005	-0.26	0.010

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

Waipa River and Tributaries								
Kaniwhaniwha Stm at Wright Rd	12	0.026	0.025	0.017	0.036	0.010	0.58	0.028
Mangaohoi Stm at South Branch Maru Rd	12	0.007	0.006	0.005	0.015	0.003	<u>2.04</u>	0.008
Mangaokewa Stm at Te Kuiti Borough W/S Intake	12	0.039	0.036	0.027	0.057	0.011	0.85	0.034
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	0.086	0.091	0.001	0.140	0.051	-0.60	0.079
Mangapu River at Otorohanga	12	0.030	0.029	0.020	0.041	0.010	0.26	0.028
Mangatutu Stm (Waikeria) at Walker Rd Br	12	0.017	0.016	0.011	0.030	0.007	1.20	0.020
Mangauika Stm at Te Awamutu Borough W/S Intake	12	0.010	0.006	0.003	0.055	0.002	<u>2.95</u>	0.006
Ohote Stm at Whatawhata/Horotiu Rd	12	0.155	0.150	0.078	0.230	0.085	-0.10	0.156
Puniu River at Bartons Corner Rd Br	12	0.028	0.026	0.019	0.041	0.007	0.86	0.029
Waipa River at Mangaokewa Rd	12	0.049	0.052	0.030	0.071	0.017	0.08	0.043
Waipa River at Pirongia-Ngutunui Rd Br	12	0.029	0.027	0.021	0.040	0.010	0.42	0.029
Waipa River at SH3 Otorohanga	12	0.028	0.028	0.020	0.042	0.010	0.80	0.026
Waitomo Stm at SH31 Otorohanga	12	0.021	0.022	0.014	0.031	0.008	0.29	0.020
Waitomo Stm at Tumutumu Rd	12	0.014	0.013	0.008	0.024	0.005	0.93	0.012

	12	0.005	0.005	0.003	0.009	0.002	0.89	0.005
	12	0.001	0.001	0.001	0.004	0.000	<u>3.02</u>	0.001
	12	0.008	0.007	0.005	0.012	0.003	0.81	0.007
	12	0.014	0.016	0.001	0.025	0.009	-0.40	0.014
	12	0.006	0.005	0.004	0.009	0.002	0.58	0.005
	12	0.003	0.003	0.001	0.006	0.002	0.97	0.004
	12	0.002	0.001	0.001	0.011	0.000	<u>2.95</u>	0.001
	12	0.025	0.025	0.012	0.039	0.015	0.06	0.026
	12	0.005	0.005	0.003	0.008	0.003	0.58	0.006
	12	0.009	0.010	0.006	0.014	0.003	0.24	0.008
	12	0.006	0.005	0.003	0.008	0.003	0.07	0.006
	12	0.005	0.005	0.003	0.008	0.002	0.72	0.005
	12	0.004	0.004	0.001	0.006	0.002	-0.59	0.004
	12	0.003	0.003	0.001	0.005	0.002	0.13	0.002

Tributaries to the upper Waikato River								
Kawaunui Stm at SH5 Br	12	0.025	0.023	0.014	0.043	0.018	0.49	0.027
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	0.027	0.026	0.015	0.045	0.011	0.66	0.027
Mangakara Stm (Reporoa) at SH5	12	0.019	0.016	0.014	0.033	0.008	1.29	0.017
Mangakino Stm (Whakamaru) at Sandel Rd	12	0.013	0.010	0.006	0.030	0.008	1.21	0.012
Otamakokore Stm at Hossack Rd	12	0.033	0.030	0.017	0.068	0.018	1.13	0.030
Pueto Stm at Broadlands Rd Br	12	0.011	0.011	0.008	0.016	0.004	0.54	0.011
Tahunaatara Stm at Ohakuri Rd	12	0.032	0.029	0.018	0.053	0.011	0.83	0.031
Torepatutahi Stm at Vaile Rd Br	12	0.012	0.013	0.008	0.018	0.004	0.39	0.012
Waiotapu Stm at Campbell Rd Br	12	0.005	0.004	0.003	0.009	0.003	0.93	0.006
Waiotapu Stm at Homestead Rd Br	12	0.019	0.019	0.014	0.024	0.005	0.21	0.022
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	0.015	0.012	0.006	0.030	0.006	1.21	0.014
Whirinaki Stm at Corbett Rd	12	0.002	0.001	0.001	0.005	0.002	0.80	0.003

	12	0.005	0.004	0.002	0.008	0.004	0.54	0.005
	12	0.005	0.005	0.001	0.009	0.003	-0.15	0.005
	12	0.004	0.003	0.002	0.008	0.001	1.68	0.003
	12	0.003	0.002	0.001	0.006	0.002	0.99	0.003
	12	0.007	0.007	0.004	0.015	0.004	1.04	0.007
	12	0.002	0.002	0.001	0.003	0.001	0.26	0.001
	12	0.007	0.006	0.003	0.011	0.003	0.31	0.006
	12	0.002	0.002	0.001	0.004	0.002	-0.04	0.002
	12	0.001	0.001	0.001	0.003	0.000	<u>1.85</u>	0.001
	12	0.003	0.003	0.001	0.004	0.001	-0.52	0.004
	12	0.003	0.002	0.001	0.007	0.002	1.07	0.003
	12	0.001	0.001	0.001	0.001	0.000	-1.00	0.001

West Coast								
Awakino River at Gribbon Rd	12	0.008	0.006	0.003	0.016	0.006	0.88	0.006
Awakino River at SH3 Awakau Rd Junction	12	0.016	0.013	0.008	0.039	0.007	<u>1.69</u>	0.012
Manganui River at Off Manganui Rd	12	0.009	0.008	0.006	0.015	0.004	0.93	0.008
Mangaotaki River at SH3 Br	12	0.016	0.016	0.011	0.031	0.004	<u>2.00</u>	0.015
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	0.018	0.016	0.011	0.029	0.014	0.54	0.017
Mokau River at Awakau Rd	12	0.040	0.035	0.026	0.061	0.021	0.42	0.033
Mokau River at Mangaokewa Rd (Off SH30)	12	0.048	0.046	0.034	0.073	0.015	0.95	0.045
Mokau River at Totoro Rd Recorder	12	0.032	0.030	0.018	0.053	0.014	0.56	0.029
Mokauiti Stm at Three Way Point - Aria	12	0.056	0.050	0.033	0.088	0.028	0.64	0.054
Ohautira Stm at Waingaro Te Uku Rd	12	0.027	0.024	0.014	0.088	0.011	<u>2.65</u>	0.022
Oparau River at Langdon Rd (Off Okupata Rd)	12	0.020	0.019	0.011	0.034	0.010	0.58	0.018
Tawarau River at Off Speedies Rd	12	0.019	0.017	0.011	0.032	0.012	0.64	0.017
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	0.037	0.035	0.021	0.061	0.017	0.61	0.036
Waitetuna River at Te Uku-Waingaro Rd	12	0.023	0.023	0.016	0.031	0.012	0.18	0.025

	12	0.001	0.001	0.001	0.003	0.001	1.34	0.001
	12	0.003	0.002	0.001	0.008	0.002	1.40	0.002
	12	0.001	0.001	0.001	0.003	0.000	<u>1.81</u>	0.001
	12	0.003	0.003	0.001	0.007	0.001	1.45	0.003
	12	0.003	0.003	0.001	0.006	0.003	-0.05	0.003
	12	0.007	0.006	0.004	0.013	0.005	0.55	0.006
	12	0.009	0.008	0.006	0.015	0.003	1.10	0.008
	12	0.006	0.005	0.003	0.011	0.003	0.97	0.005
	12	0.010	0.009	0.005	0.016	0.005	0.49	0.010
	12	0.005	0.005	0.002	0.018	0.002	<u>2.51</u>	0.004
	12	0.004	0.004	0.001	0.007	0.002	-0.10	0.004
	12	0.004	0.004	0.001	0.006	0.003	-0.16	0.003
	12	0.007	0.006	0.004	0.012	0.003	0.58	0.007
	12	0.004	0.004	0.003	0.007	0.002	0.85	0.004

Inflows to Lake Taupo								
Hinemaiaia River at SH1	12	0.012	0.012	0.009	0.016	0.004	0.19	0.013
Kuratau River at SH41 Moerangi	12	0.016	0.014	0.011	0.035	0.007	<u>2.01</u>	0.017
Kuratau River at 43 Te Rae Street	12	0.018	0.017	0.014	0.026	0.003	1.33	0.018
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	0.042	0.037	0.028	0.075	0.011	1.49	0.042
Tauranga-Taupo River at Te Kono Slackline	12	0.007	0.006	0.004	0.015	0.003	<u>1.75</u>	0.007
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Cans	12	0.005	0.004	0.002	0.007	0.002	0.19	0.005
Tokaanu Stm at Off SH41 Turangi	12	0.003	0.001	0.001	0.019	0.003	<u>2.48</u>	0.001
Waihaha River at SH32	12	0.008	0.007	0.005	0.016	0.003	1.63	0.008
Waitahanui River at Blake Rd	12	0.002	0.002	0.001	0.005	0.001	1.21	0.002
Whangamata Stm (Kinloch) at Whangamata Rd	12	0.006	0.004	0.003	0.019	0.004	<u>1.81</u>	-
Whanganui Stm at Lakeside Lake Taupo	11	0.014	0.012	0.008	0.027	0.005	1.45	0.014
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	0.016	0.014	0.011	0.027	0.005	1.50	0.016

	12	0.002	0.002	0.001	0.003	0.002	-0.33	0.003
	12	0.002	0.002	0.001	0.007	0.002	1.17	0.003
	12	0.003	0.003	0.001	0.006	0.001	0.06	0.003
	12	0.008	0.007	0.005	0.016	0.003	1.46	0.008
	12	0.001	0.001	0.001	0.002	0.000	<u>3.02</u>	0.001
	12	0.001	0.001	0.001	0.001	0.000	-1.00	0.001
	12	0.001	0.001	0.001	0.004	0.000	<u>3.02</u>	0.001
	12	0.001	0.001	0.001	0.003	0.001	<u>1.81</u>	0.001
	12	0.001	0.001	0.001	0.001	0.000	-1.00	0.001
	12	0.001	0.001	0.001	0.004	0.001	<u>1.79</u>	-
	11	0.003	0.003	0.001	0.006	0.002	0.90	0.003
	12	0.003	0.003	0.001	0.006	0.002	0.69	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	05-09							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
Coromandel								
Hikutaia River at Old Maratoto Rd	12	2.27	2.07	0.12	4.65	0.83	0.62	2.66
Kauaeranga River at Smiths Cableway/Recorder	12	2.73	2.57	0.54	5.65	1.67	0.76	3.06
Ohinemuri River at Queens Head	12	2.30	2.65	0.14	3.31	1.18	-1.09	2.51
Ohinemuri River at SH25 Br	12	2.21	2.13	0.39	3.50	1.06	-0.50	2.96
Tairua River at Morrisons Br Hikuai	11	2.08	1.94	0.27	4.20	1.17	0.41	2.28
Tapu River at Tapu-Coroglen Rd	12	3.02	3.14	0.10	5.90	2.49	-0.22	3.53
Waiau River at E309 Rd Ford	12	1.73	1.66	0.15	3.03	1.19	-0.23	1.90
Waitekauri River at U/S Ohinemuri Conflu	12	2.45	2.53	0.22	3.50	1.05	-1.15	2.79
Waiwawa River at SH25 Coroglen	12	2.02	2.30	0.32	4.10	1.17	0.09	2.41
Wharekawa River at SH25	12	1.57	1.52	0.22	3.93	0.53	1.18	1.58
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.96	0.84	0.20	1.81	0.68	0.27	0.84
Oraka Stm at Lake Rd	12	1.03	0.99	0.42	1.52	0.39	-0.14	0.92
Piako River at Kiwitahi	12	1.34	1.12	0.14	2.96	1.26	0.53	1.11
Piako River at Paeroa-Tahuna Rd Br	12	0.58	0.44	0.21	1.22	0.40	0.99	0.58
Piakonui Stm at Piakonui Rd	12	1.15	1.11	0.28	1.98	0.68	0.18	1.20
Waihou River at Okauia	12	1.17	1.06	0.65	1.96	0.58	0.65	0.99
Waihou River at Whites Rd	12	5.19	5.09	3.93	6.75	1.72	0.21	5.29
Waihotu Stm at Waihotu Rd (Off SH5)	-	-	-	-	-	-	-	-
Waiomou Stm at Matamata-Tauranga Rd	12	1.35	1.21	0.61	2.20	0.84	0.24	1.18
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.62	0.58	0.28	0.96	0.46	0.07	0.63
Waitoa River at Landsdowne Rd Br	12	1.24	1.03	0.34	2.86	0.87	0.97	0.97
Waitoa River at Mellon Rd Recorder	12	0.91	0.81	0.43	1.51	0.70	0.22	0.89
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otatau Rd Br opp Moseley Rd	12	0.31	0.31	0.14	0.57	0.18	0.45	0.29
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	12	1.04	0.75	0.26	2.15	0.95	0.50	0.98
Karapiro Stm at Hickey Rd Bridge	12	0.79	0.67	0.13	1.79	0.70	0.56	0.75
Kirikiriira Stm at Tauhara Dr	12	0.33	0.36	0.12	0.62	0.24	0.22	0.36
Komakorau Stm at Henry Rd	12	0.19	0.19	0.11	0.42	0.07	1.65	0.17
Little Waipa Stm at Arapuni - Putaruru Rd	12	1.82	1.74	0.42	2.95	0.89	-0.31	1.68
Mangakotukutuku Stm (Rukuhia) at Peacockes Rd	9	0.36	0.36	0.19	0.52	0.13	-0.19	0.38
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	1.00	0.96	0.58	1.53	0.65	0.29	1.03
Mangaone Stm at Annebrooke Rd Br	12	0.62	0.58	0.37	1.05	0.23	0.93	0.71
Mangaonua Stm at Hoeka Rd	12	0.59	0.56	0.18	1.14	0.34	0.47	0.69
Mangaonua Stm at Te Miro Rd	12	0.92	0.75	0.12	2.84	0.56	<u>1.81</u>	0.97
Mangatangi River at SH2 Maramarua	12	0.48	0.44	0.17	0.91	0.37	0.53	0.61
Mangatawhiri River at Lyons Rd At Buckingham Br	12	1.38	1.51	0.37	2.25	1.11	-0.09	1.60
Mangawara Stm at Rutherford Rd Br	12	0.22	0.20	0.08	0.42	0.13	0.72	0.20
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.25	0.21	0.08	0.51	0.16	0.83	0.23
Matahuru Stm at Waiterimu Road Below Confluence	12	0.25	0.23	0.09	0.56	0.09	1.15	0.23
Ohaeroa Stm at SH22 Br	12	0.65	0.48	0.24	1.65	0.39	1.33	0.62
Opuatia Stm at Ponganui Rd	12	0.64	0.62	0.15	1.47	0.27	1.01	0.66
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	1.41	1.47	0.38	2.15	0.70	-0.52	1.28
Waerenga Stm at Taniwha Rd	12	0.75	0.70	0.30	1.56	0.40	0.91	0.84
Waitawhiriwhiri Stm at Edgecumbe Street	12	0.28	0.25	0.15	0.49	0.11	0.87	0.29
Whakapipi Stm at SH22 Br	12	1.19	1.23	0.50	2.21	0.85	0.33	1.23
Whakauru Stm at U/S SH1 Br	12	0.77	0.77	0.31	1.05	0.18	-0.67	0.92
Whangamarino River at Island Block Rd	12	0.29	0.16	0.08	1.35	0.17	<u>2.71</u>	0.17
Whangamarino River at Jefferies Rd Br	12	0.45	0.34	0.10	0.99	0.40	0.70	0.41
Whangape Stm at Rangiriri-Glen Murray Rd	12	0.17	0.19	0.07	0.32	0.16	0.09	0.15

Count	05-09							Median
	Mean	Median	Min	Max	IQR	Skew		
12	7.9	8.2	4.6	9.2	0.8	<u>-2.06</u>	8.2	
12	7.7	7.8	3.8	9.6	1.6	-1.31	8.0	
12	17.8	16.9	7.7	31.8	12.2	0.27	20.1	
12	8.1	7.5	5.5	15.6	0.7	<u>2.54</u>	7.6	
12	5.9	6.2	4.1	6.8	0.4	-1.60	6.1	
12	9.7	10.1	4.9	11.5	1.1	<u>-2.09</u>	10.1	
12	9.1	9.5	5.3	10.3	0.6	<u>-2.46</u>	9.5	
12	11.5	10.8	5.6	18.4	3.7	0.44	11.5	
12	6.5	6.7	3.8	7.7	0.8	-1.49	6.8	
12	7.2	7.4	5.5	8.0	0.5	-1.52	7.4	
12	10.9	10.8	9.3	12.2	1.3	-0.13	11.3	
12	13.0	11.8	10.0	18.6	5.7	0.66	11.1	
12	14.5	14.1	13.3	16.5	1.5	0.71	14.6	
12	20.9	20.5	18.4	26.9	1.8	1.64	21.9	
12	7.4	7.0	6.2	9.7	1.4	0.99	7.3	
12	10.2	10.4	8.9	11.0	1.0	-0.37	9.9	
12	8.1	8.1	8.0	8.1	0.1	-0.34	8.0	
12	5.3	5.2	5.0	5.8	0.5	0.47	5.5	
12	7.0	7.0	6.1	7.9	1.0	-0.07	6.8	
12	17.8	17.4	14.5	22.6	4.8	0.47	17.0	
12	17.3	16.6	14.1	23.6	3.9	1.04	16.0	
12	24.3	24.3	16.2	31.7	7.5	-0.14	29.5	
12	27.8	25.8	23.6	37.6	5.6	1.05	26.0	
12	68.1	59.3	31.0	136.0	43.7	0.88	53.2	
12	13.3	13.1	11.2	16.6	2.5	0.50	13.2	
12	19.2	21.6	9.0	23.7	8.0	-0.94	21.0	
12	27.3	26.9	23.8	33.3	4.6	0.61	26.0	
12	9.9	9.8	9.3	10.6	0.6	0.18	9.7	
9	18.9	19.4	15.0	22.4	2.2	-0.37	19.2	
12	13.9	13.6	12.5	15.8	1.3	0.67	14.5	
12	26.8	27.1	22.8	28.8	1.8	-1.20	27.0	
12	20.3	20.5	18.0	21.4	1.4	-0.84	20.0	
12	9.5	9.3	7.8	11.6	1.5	0.42	9.6	
12	13.1	13.1	12.0	14.3	1.2	0.12	13.4	
12	11.4	11.6	9.6	13.2	1.3	-0.10	12.1	
12	23.1	23.1	17.0	27.8	3.7	-0.19	22.9	
12	21.9	21.9	20.1	23.5	0.5	-0.25	21.2	
12	14.3	13.4	12.3	17.7	3.2	0.56	14.2	
12	15.9	15.2	13.9	20.0	3.0	0.93	15.8	
12	20.4	17.2	15.8	33.4	7.8	1.16	17.2	
12	10.5	10.4	9.4	11.3	0.9	-0.12	10.3	
12	11.7	11.6	10.9	12.8	1.1	0.49	11.9	
12	18.2	20.8	8.9	22.3	5.8	-1.10	20.3	
12	18.9	18.1	16.8	23.1	3.4	0.93	19.1	
12	6.9	6.9	6.8	7.1	0.1	0.38	6.8	
12	18.4	15.9	14.3	41.5	3.1	<u>2.77</u>	16.2	
12	16.2	16.1	14.2	20.1	1.8	1.12	16.2	
12	20.3	20.6	13.6	27.5	5.1	0.14	20.0	

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

Waipa River and Tributaries

Kaniwhaniwha Stm at Wright Rd	12	0.80	0.80	0.32	1.85	0.45	1.33	0.80
Mangaohoi Stm at South Branch Maru Rd	11	1.49	1.51	0.71	2.87	0.63	0.89	1.35
Mangaokewa Stm at Te Kuiti Borough W/S Intake	12	0.80	0.73	0.36	1.80	0.52	1.03	0.90
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	11	0.64	0.52	0.30	1.51	0.28	1.39	0.53
Mangapu River at Otorohanga	12	0.70	0.49	0.25	1.54	0.84	0.74	0.61
Mangatutu Stm (Waikeria) at Walker Rd Br	11	1.45	1.22	0.56	3.20	1.49	0.74	1.27
Mangauika Stm at Te Awamutu Borough W/S Intake	12	3.16	3.18	0.14	5.30	1.67	-0.57	3.80
Ohote Stm at Whatawhata/Horotiu Rd	12	0.46	0.34	0.15	1.15	0.27	1.39	0.63
Puniu River at Bartons Corner Rd Br	11	1.18	0.95	0.43	2.33	1.03	0.57	1.12
Waipa River at Mangaokewa Rd	12	1.15	1.01	0.53	3.18	0.55	<u>2.04</u>	1.62
Waipa River at Pirongia-Ngutunui Rd Br	12	0.77	0.70	0.13	1.85	0.79	0.67	0.62
Waipa River at SH3 Otorohanga	12	0.99	0.96	0.21	2.16	0.93	0.52	1.08
Waitomo Stm at SH31 Otorohanga	12	0.76	0.45	0.23	1.75	1.14	0.71	0.60
Waitomo Stm at Tumutumu Rd	12	1.10	0.69	0.31	2.45	1.67	0.60	0.88

	12	9.8	9.7	8.5	11.2	0.8	0.39	9.8
	12	7.6	7.7	6.0	9.1	1.7	-0.05	7.8
	12	15.2	13.9	10.6	21.6	6.0	0.52	14.8
	12	19.6	18.8	14.3	30.7	4.2	1.55	18.3
	12	18.8	17.7	15.6	24.4	6.4	0.53	18.8
	12	6.6	6.6	5.9	7.6	0.4	0.46	6.7
	12	6.3	6.4	4.5	7.7	0.9	-0.39	6.5
	12	18.0	18.1	13.6	20.3	2.1	-1.04	17.9
	12	8.2	8.2	7.5	9.2	0.5	0.35	8.3
	12	5.1	5.0	4.7	6.2	0.7	1.05	5.1
	12	11.7	11.6	10.3	13.5	1.5	0.23	11.7
	12	8.4	8.3	7.0	10.5	0.8	0.91	8.1
	12	17.4	16.8	12.4	22.3	4.2	0.26	18.5
	12	18.7	18.2	16.4	21.6	3.0	0.54	19.0

Tributaries to the upper Waikato River

Kawaunui Stm at SH5 Br	12	1.54	1.51	0.73	2.52	0.89	0.33	1.31
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	1.06	1.05	0.44	1.40	0.41	-0.67	1.06
Mangakara Stm (Reporoa) at SH5	12	0.83	0.75	0.44	1.65	0.22	1.39	0.73
Mangakino Stm (Whakamaru) at Sandel Rd	11	2.32	2.74	0.27	3.44	1.08	-0.97	1.93
Otamakokore Stm at Hossack Rd	12	1.08	1.11	0.59	1.52	0.45	-0.09	1.10
Pueto Stm at Broadlands Rd Br	12	1.85	1.64	1.16	2.85	1.00	0.38	1.78
Tahunaatara Stm at Ohakuri Rd	12	1.31	1.32	0.73	1.88	0.31	0.02	1.24
Torepatutahi Stm at Vaile Rd Br	-	-	-	-	-	-	-	-
Waiotapu Stm at Campbell Rd Br	12	1.30	1.16	0.70	2.14	0.43	0.71	1.11
Waiotapu Stm at Homestead Rd Br	11	0.79	0.78	0.45	1.55	0.24	1.52	0.65
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	0.97	0.99	0.21	1.63	0.19	-0.38	0.97
Whirinaki Stm at Corbett Rd	-	-	-	-	-	-	-	-

	12	13.5	13.2	12.6	15.0	1.1	0.82	13.6
	12	8.8	8.8	8.6	8.9	0.2	-0.79	8.7
	12	9.7	9.8	9.0	10.1	0.6	-0.45	9.4
	12	6.5	6.6	5.4	7.0	0.8	-0.84	6.5
	12	39.7	40.6	34.9	42.4	3.7	-0.76	36.9
	12	11.5	11.5	11.1	11.8	0.3	-0.34	11.5
	12	7.5	7.6	7.3	7.6	0.1	-1.51	7.5
	12	9.4	9.3	8.9	10.2	0.7	0.49	9.4
	12	71.8	72.6	64.2	75.9	4.5	-1.01	69.1
	12	49.2	50.8	42.2	52.9	6.0	-0.73	46.1
	12	39.1	39.8	32.0	42.2	2.8	-1.27	37.7
	12	6.7	6.7	6.6	6.8	0.1	0.05	6.7

West Coast

Awakino River at Gribbon Rd	12	1.80	1.52	0.41	4.23	0.74	1.07	1.69
Awakino River at SH3 Awakau Rd Junction	12	0.89	0.59	0.15	2.60	0.81	1.26	1.10
Manganui River at Off Manganui Rd	12	0.82	0.66	0.18	2.02	0.84	0.80	0.73
Mangaotaki River at SH3 Br	12	0.82	0.73	0.42	2.12	0.45	1.67	0.81
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	0.88	0.55	0.12	2.25	0.87	0.91	0.97
Mokau River at Awakau Rd	12	0.50	0.42	0.16	1.29	0.40	1.11	0.37
Mokau River at Mangaokewa Rd (Off SH30)	12	1.16	1.12	0.37	2.91	0.79	1.35	1.10
Mokau River at Totoro Rd Recorder	12	0.67	0.66	0.13	1.79	0.53	1.16	0.74
Mokauiti Stm at Three Way Point - Aria	12	0.55	0.62	0.11	0.88	0.54	-0.44	0.56
Ohautira Stm at Waingaro Te Uku Rd	12	0.63	0.65	0.10	1.27	0.52	0.14	0.72
Oparau River at Langdon Rd (Off Okupata Rd)	12	1.51	1.61	0.08	2.82	1.24	-0.12	1.31
Tawarau River at Off Speedies Rd	12	1.02	0.79	0.24	2.25	1.19	0.59	0.97
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	0.83	0.55	0.30	2.02	0.75	0.96	0.72
Waitetuna River at Te Uku-Waingaro Rd	11	0.72	0.59	0.25	1.81	0.53	1.16	0.67

	12	6.8	6.8	6.2	7.8	0.6	0.82	7.0
	12	12.3	11.7	9.4	18.0	2.9	0.99	12.2
	12	10.1	9.8	9.0	12.2	1.4	0.84	10.4
	12	13.0	12.8	11.4	14.8	1.1	0.15	13.3
	12	12.9	12.7	9.7	16.1	2.8	-0.05	13.9
	12	12.6	11.6	6.0	21.3	3.9	0.69	12.9
	12	7.1	6.6	5.4	12.6	1.2	<u>2.28</u>	6.5
	12	11.8	11.2	9.5	14.9	2.1	0.56	11.8
	12	10.7	10.4	9.0	13.5	2.3	0.63	10.6
	12	13.3	13.7	10.3	15.4	2.1	-0.54	13.8
	12	8.5	8.3	7.3	10.1	1.4	0.32	8.5
	12	12.9	12.8	10.6	15.3	2.1	0.12	12.9
	12	14.4	13.9	12.9	18.0	2.2	1.03	14.1
	12	9.9	9.9	9.2	11.1	0.9	0.60	10.0

Inflows to Lake Taupo

Hinemaiaia River at SH1	12	2.83	2.75	1.98	3.90	0.73	0.40	2.58
Kuratau River at SH41 Moerangi	12	3.31	2.80	1.55	6.75	2.23	0.84	2.65
Kuratau River at 43 Te Rae Street	-	-	-	-	-	-	-	-
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	1.25	1.31	0.78	1.69	0.45	-0.22	1.30
Tauranga-Taupo River at Te Kono Slackline	12	3.54	3.78	1.39	5.13	1.03	-0.74	3.19
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	-	-	-	-	-	-	-	-
Tokaanu Stm at Off SH41 Turangi	-	-	-	-	-	-	-	-
Waihaha River at SH32	12	3.93	4.08	1.95	6.03	1.28	0.01	3.57
Waitahanui River at Blake Rd	12	3.53	3.39	1.94	5.13	1.95	0.05	3.10
Whangamata Stm (Kinloch) at Whangamata Rd	-	-	-	-	-	-	-	-
Whanganui Stm at Lakeside Lake Taupo	-	-	-	-	-	-	-	-
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	-	-	-	-	-	-	-	-

	12	6.0	5.9	5.1	6.9	1.1	0.15	6.0
	12	4.4	4.2	3.6	6.6	0.8	<u>1.81</u>	4.2
	12	6.5	6.3	4.0	8.2	1.6	-0.34	6.5
	12	12.2	12.2	11.8	12.4	0.4	-0.45	12.0
	12	4.8	4.8	3.3	6.1	1.1	-0.16	4.8
	12	12.4	12.2	9.8	14.4	1.9	-0.03	12.7
	12	9.9	10.0	9.4	10.2	0.3	-1.26	9.9
	12	4.9	5.0	3.9	5.5	0.8	-0.52	4.9
	12	7.4	7.4	7.1	7.6	0.3	-0.50	7.4
	12	8.7	8.7	8.6	8.8	0.2	-0.14	-
	11	5.9	6.1	4.6	6.9	1.1	-0.46	5.7
	12	7.8	8.1	6.8	8.5	1.1	-0.61	7.9

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

Dissolved Oxygen (% Saturation)

Location	Count	Mean	Median	Min	Max	IQR	Skew	05-09
								Median
Coromandel								
Hikutaia River at Old Maratoto Rd	12	95.8	96.1	90.6	99.4	2.8	-0.43	95.0
Kauaeranga River at Smiths Cableway/Recorder	12	100.2	99.5	96.9	104.1	4.3	0.25	99.4
Ohinemuri River at Queens Head	12	106.5	104.3	99.0	124.9	6.7	1.46	106.0
Ohinemuri River at SH25 Br	12	102.7	102.8	98.7	109.1	3.6	0.41	103.9
Tairua River at Morrisons Br Hikuai	12	97.5	96.8	88.8	107.9	2.1	0.61	98.5
Tapu River at Tapu-Coroglen Rd	12	101.8	101.7	95.7	108.6	3.9	0.19	102.2
Waiau River at E309 Rd Ford	12	101.4	101.4	97.2	104.9	2.1	-0.40	101.7
Waitekauri River at U/S Ohinemuri Conflu	12	102.4	101.1	98.6	112.1	4.3	1.29	103.6
Waiwawa River at SH25 Coroglen	12	100.6	101.1	95.8	104.8	3.4	-0.22	100.7
Wharekawa River at SH25	12	96.5	98.1	79.3	105.7	6.5	-1.37	96.0
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	97.8	97.8	94.0	101.0	3.4	-0.18	97.1
Oraka Stm at Lake Rd	12	94.8	94.2	87.2	101.0	4.6	-0.25	93.0
Piako River at KIWITAHU	12	88.8	91.5	24.9	116.6	7.1	<u>-1.98</u>	83.0
Piako River at Paeroa-Tahuna Rd Br	12	84.4	86.9	51.2	94.2	8.2	<u>-2.17</u>	84.0
Piakonui Stm at Piakonui Rd	12	98.0	97.2	89.8	104.6	4.7	-0.35	98.8
Waihou River at Okauia	12	95.6	95.3	92.4	100.8	4.6	0.55	93.3
Waihou River at Whites Rd	12	101.8	101.0	98.7	106.7	4.0	0.53	100.5
Waihohu Stm at Waihohu Rd (Off SH5)	12	86.6	83.3	76.8	102.1	16.2	0.49	93.4
Waiomou Stm at Matamata-Tauranga Rd	12	96.8	96.9	93.4	102.5	4.8	0.38	95.1
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	95.4	95.4	87.2	101.1	5.1	-0.35	94.5
Waitoa River at Landsdowne Rd Br	12	88.3	88.7	66.4	105.7	5.0	-0.70	89.1
Waitoa River at Mellon Rd Recorder	12	77.8	79.1	42.8	90.0	9.4	<u>-1.85</u>	77.4
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otaua Rd Br opp Moseley Rd	12	94.6	98.3	66.3	117.0	21.8	-0.38	90.4
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	12	85.3	85.5	75.2	93.8	11.5	-0.10	85.4
Karapiro Stm at Hickey Rd Bridge	12	93.6	94.2	82.4	99.4	3.5	-1.39	92.1
Kirikiri Stm at Tauhara Dr	12	64.3	65.3	38.0	82.9	18.4	-0.48	67.4
Komakorau Stm at Henry Rd	12	58.6	63.9	2.4	82.0	17.6	-1.61	63.6
Little Waipa Stm at Arapuni - Putaruru Rd	12	106.3	104.8	97.6	117.5	8.5	0.45	103.3
Mangakotukutuku Stm (Rukuhia) at Peacockes Rd	9	89.0	88.6	86.2	92.9	3.0	0.67	88.5
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	103.8	102.4	98.0	109.7	8.3	0.24	102.2
Mangaone Stm at Annebrooke Rd Br	12	81.0	80.5	74.6	91.7	6.1	0.72	79.4
Mangaonua Stm at Hoeka Rd	12	82.3	83.1	69.3	92.5	6.2	-0.60	83.1
Mangaonua Stm at Te Miro Rd	12	99.7	99.7	96.8	104.5	4.2	0.37	99.5
Mangatangi River at SH2 Maramarua	12	82.4	83.1	73.5	89.8	4.9	-0.42	83.5
Mangatawhiri River at Lyons Rd At Buckingham Br	12	105.0	106.2	96.5	111.5	11.0	-0.25	107.8
Mangawara Stm at Rutherford Rd Br	12	77.4	77.3	61.0	92.3	5.9	-0.20	72.4
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	84.9	85.5	77.8	91.2	5.5	-0.36	84.3
Matahuru Stm at Waiterimu Road Below Confluence	12	86.9	88.2	79.1	94.6	5.6	-0.23	85.4
Ohaeroa Stm at SH22 Br	12	101.0	98.7	93.4	114.4	7.8	0.99	98.5
Opuatia Stm at Ponganui Rd	12	99.4	98.3	93.4	107.8	6.7	0.70	96.8
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	103.3	102.6	96.4	112.5	7.0	0.47	100.9
Waerenga Stm at Taniwha Rd	12	99.0	97.7	89.7	114.1	5.7	1.07	98.0
Waitawhiriwhiri Stm at Edgecumbe Street	12	82.6	83.7	73.7	88.7	5.7	-0.46	82.1
Whakapipi Stm at SH22 Br	12	87.8	88.4	69.9	99.9	10.0	-0.63	88.2
Whakauru Stm at U/S SH1 Br	12	100.0	99.8	96.8	105.7	3.9	0.68	97.4
Whangamarino River at Island Block Rd	12	65.0	59.2	17.2	164.2	33.6	1.22	50.5
Whangamarino River at Jefferies Rd Br	12	78.2	78.7	66.2	87.5	9.1	-0.27	77.6
Whangape Stm at Rangiriri-Glen Murray Rd	12	90.0	93.4	32.5	106.5	10.3	<u>-2.45</u>	94.2

Dissolved Oxygen (g m⁻³)

Count	Mean	Median	Min	Max	IQR	Skew	05-09
							Median
Coromandel							
12	9.8	9.9	7.7	10.9	1.3	-0.92	9.7
12	10.1	10.5	8.2	11.0	1.0	-1.09	10.0
12	10.3	10.6	8.9	10.8	0.5	-1.50	10.4
12	9.9	10.0	8.5	10.9	1.0	-0.59	10.1
12	9.5	9.9	7.2	10.6	1.4	-0.92	10.0
12	10.3	10.5	9.1	11.2	1.1	-0.48	10.5
12	10.4	10.6	8.9	11.1	0.9	-0.89	10.4
12	10.1	10.2	9.0	10.9	0.8	-0.65	10.4
12	9.9	10.1	8.1	10.8	0.9	-1.19	10.1
12	9.6	10.0	6.4	10.7	1.5	-1.30	9.7
Hauraki							
12	10.1	10.3	8.7	11.1	0.9	-0.48	10.0
12	9.8	9.7	8.4	11.2	1.0	0.26	9.4
12	9.0	9.6	2.1	11.2	2.0	<u>-2.12</u>	8.5
12	8.8	8.8	4.4	11.6	1.9	-0.80	8.3
12	10.3	10.6	8.8	11.7	1.1	-0.27	10.3
12	9.9	9.7	8.8	12.3	1.0	1.57	9.5
12	10.5	10.6	10.0	11.0	0.5	-0.19	10.4
12	9.4	9.2	7.7	11.5	2.1	0.33	9.9
12	10.2	10.0	9.1	11.9	1.0	0.78	9.9
12	9.4	9.6	8.3	10.3	0.9	-0.23	9.5
12	9.1	9.1	5.8	11.2	1.6	-0.93	9.1
12	8.1	8.0	3.2	11.0	1.8	-1.00	7.6
Tributaries to the lower Waikato River							
12	9.1	9.4	5.7	10.5	1.0	<u>-1.85</u>	9.0
12	8.9	8.9	7.0	11.3	2.1	0.24	8.7
12	9.5	9.6	7.2	11.3	1.8	-0.40	9.2
12	6.7	6.4	4.1	9.5	2.1	-0.08	6.7
12	6.1	6.4	0.2	9.2	2.4	-1.02	6.3
12	10.9	10.9	10.0	11.5	0.9	-0.26	10.5
9	9.2	8.9	7.9	11.0	1.2	0.58	8.8
12	10.5	10.3	9.2	12.5	0.8	1.05	10.2
12	8.6	8.5	6.9	11.0	1.8	0.59	8.2
12	8.7	8.7	6.2	11.4	1.1	0.29	8.5
12	10.2	10.5	8.5	11.5	1.1	-0.55	10.1
12	8.2	8.5	6.8	9.0	1.4	-0.57	8.3
12	10.2	10.1	8.9	11.8	1.1	0.58	10.3
12	7.8	8.0	5.6	9.1	1.2	-0.83	7.4
12	8.8	8.7	7.2	10.8	1.4	0.26	8.7
12	8.8	9.0	7.5	9.8	0.9	-0.55	8.7
12	10.3	10.3	9.8	11.0	0.6	0.35	10.3
12	10.0	10.1	8.7	11.0	0.8	-0.26	9.9
12	10.7	10.3	9.7	12.5	1.2	0.92	10.2
12	10.2	10.2	8.4	11.8	0.7	-0.18	10.1
12	8.2	8.0	6.8	9.9	1.5	0.25	7.9
12	8.9	8.9	6.4	10.6	1.8	-0.44	8.9
12	10.5	10.3	9.3	12.3	0.8	0.97	10.2
12	6.0	5.7	1.7	13.6	3.2	0.93	5.1
12	8.0	8.4	6.1	9.0	1.5	-0.60	8.1
12	9.0	9.5	3.2	10.6	1.2	<u>-2.41</u>	9.4

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

Waipa River and Tributaries

Kaniwhaniwha Stm at Wright Rd	11	83.4	85.6	55.3	95.3	5.1	-1.54	87.7
Mangaohoi Stm at South Branch Maru Rd	12	101.1	99.5	97.4	120.0	3.2	<u>2.73</u>	100.0
Mangaokewa Stm at Te Kuiti Borough W/S Intake	12	93.6	94.0	87.0	100.6	4.9	-0.05	93.6
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	97.1	94.0	83.3	133.2	13.8	1.58	89.3
Mangapu River at Otorohanga	11	95.2	90.9	88.0	125.7	5.4	<u>2.14</u>	91.6
Mangatutu Stm (Waikeria) at Walker Rd Br	12	93.4	95.0	76.3	99.2	2.8	<u>-2.35</u>	95.1
Mangauika Stm at Te Awamutu Borough W/S Intake	11	97.9	97.7	94.8	101.0	2.4	0.38	99.0
Ohote Stm at Whatawhata/Horotiu Rd	12	48.6	48.9	15.4	78.9	29.9	-0.26	48.0
Puniu River at Bartons Corner Rd Br	12	93.8	92.0	86.7	104.1	8.1	0.75	93.0
Waipa River at Mangaokewa Rd	11	99.3	100.5	93.7	102.8	4.4	-0.43	99.9
Waipa River at Pirongia-Ngutunui Rd Br	11	90.9	90.2	87.2	95.2	3.6	0.39	90.0
Waipa River at SH3 Otorohanga	11	103.0	98.3	94.5	139.6	7.9	<u>2.15</u>	98.0
Waitomo Stm at SH31 Otorohanga	11	97.8	95.6	91.2	112.7	7.9	1.20	96.7
Waitomo Stm at Tumutumu Rd	11	101.9	99.1	96.8	114.0	9.1	1.02	99.8

	11	8.7	8.3	5.9	11.1	1.8	-0.21	9.0
	12	10.2	10.4	8.9	11.3	1.3	-0.31	10.0
	12	9.7	9.8	8.3	11.3	1.4	-0.05	9.9
	12	9.7	9.5	8.4	11.7	1.6	0.70	8.8
	11	9.7	9.2	7.9	14.7	1.0	<u>2.17</u>	9.3
	12	9.7	9.8	7.3	11.9	1.8	-0.24	9.6
	11	10.3	10.3	9.3	11.8	0.7	0.69	10.4
	12	5.1	4.8	1.4	9.5	3.9	0.14	4.6
	12	9.7	9.6	8.8	11.4	1.4	0.58	9.4
	11	9.7	9.5	8.5	11.2	1.5	0.41	9.8
	11	9.3	9.2	7.7	11.2	1.5	0.33	9.1
	11	10.4	10.2	8.8	12.7	1.0	0.95	9.9
	11	10.0	9.9	8.9	12.0	0.8	1.10	9.9
	11	10.5	10.3	9.7	12.0	0.7	0.94	10.2

Tributaries to the upper Waikato River

Kawaunui Stm at SH5 Br	12	86.7	87.1	82.0	92.8	2.9	0.45	86.1
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	95.4	95.9	91.5	101.0	3.4	0.41	93.8
Mangakara Stm (Reporoa) at SH5	12	92.9	92.5	90.2	99.3	2.5	1.60	91.5
Mangakino Stm (Whakamaru) at Sandel Rd	11	103.5	103.9	100.6	106.1	2.2	-0.22	102.1
Otamakokore Stm at Hossack Rd	12	99.1	97.7	87.7	113.7	13.0	0.27	95.6
Pueto Stm at Broadlands Rd Br	12	95.8	94.9	91.9	103.0	3.5	1.29	94.4
Tahunaatara Stm at Ohakuri Rd	12	104.3	104.0	98.0	111.1	6.2	0.19	101.8
Torepatutahi Stm at Vaile Rd Br	12	101.8	103.2	91.0	110.0	7.9	-0.52	101.7
Waiotapu Stm at Campbell Rd Br	12	88.8	88.2	86.1	94.9	3.8	1.01	87.0
Waiotapu Stm at Homestead Rd Br	12	92.1	89.6	83.8	108.2	10.1	1.00	86.2
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	100.6	100.2	97.4	105.7	3.0	0.62	98.4
Whirinaki Stm at Corbett Rd	12	98.5	98.8	93.2	104.3	1.6	0.22	97.1

	12	8.5	8.6	7.3	9.6	0.5	-0.10	8.3
	12	9.8	9.6	8.5	11.0	0.7	0.04	9.6
	12	9.5	9.5	8.3	10.9	0.9	0.36	9.2
	11	11.0	10.8	10.1	12.3	0.9	0.67	10.7
	12	8.6	8.7	7.4	9.5	0.7	-0.65	8.5
	12	9.6	9.6	8.6	10.4	0.8	-0.09	9.5
	12	10.7	10.4	9.1	12.6	0.9	0.57	10.3
	12	10.2	10.4	9.0	10.9	1.1	-0.63	10.3
	12	6.6	6.7	6.0	7.1	0.5	-0.32	6.5
	12	8.4	8.3	7.5	9.3	1.3	0.09	8.0
	12	8.8	8.5	7.9	10.8	0.6	<u>1.84</u>	8.4
	12	10.1	10.1	8.7	10.7	0.4	<u>-1.74</u>	10.0

West Coast

Awakino River at Gribbon Rd	12	102.0	98.1	94.1	137.2	5.6	<u>2.60</u>	100.6
Awakino River at SH3 Awakau Rd Junction	12	106.5	100.1	95.8	174.0	6.7	<u>2.84</u>	101.7
Manganui River at Off Manganui Rd	12	102.5	97.6	92.2	136.5	11.1	<u>1.92</u>	98.3
Mangaotaki River at SH3 Br	12	101.0	100.2	95.7	113.0	3.2	1.67	100.7
Marokopa River at Speedies Rd (Off Te Anga Rd)	11	101.3	100.3	96.1	109.7	6.0	0.78	102.2
Mokau River at Awakau Rd	12	95.7	94.1	74.1	120.0	4.6	0.66	93.6
Mokau River at Mangaokewa Rd (Off SH30)	11	102.1	98.4	95.8	139.8	5.7	<u>2.65</u>	98.0
Mokau River at Totoro Rd Recorder	12	104.8	101.2	96.9	141.9	6.1	<u>2.72</u>	102.0
Mokauiti Stm at Three Way Point - Aria	12	98.4	95.2	85.9	140.2	6.1	<u>2.28</u>	94.0
Ohautira Stm at Waingaro Te Uku Rd	12	94.2	94.3	88.9	98.4	2.3	-0.38	93.9
Oparau River at Langdon Rd (Off Okupata Rd)	11	104.6	103.9	98.3	113.8	4.7	0.82	104.1
Tawarau River at Off Speedies Rd	11	102.6	101.0	98.5	114.1	4.2	1.44	101.1
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	95.2	94.5	89.2	104.4	6.3	0.62	93.3
Waitetuna River at Te Uku-Waingaro Rd	12	95.9	96.2	89.9	100.0	2.9	-0.55	95.8

	12	10.8	10.5	9.4	15.1	0.8	<u>2.38</u>	10.6
	12	10.7	10.5	8.9	15.1	1.2	<u>2.05</u>	10.8
	12	10.7	10.4	8.9	13.1	1.1	0.86	10.3
	12	10.5	10.6	9.3	12.5	0.8	1.08	10.5
	11	10.5	10.5	8.9	12.6	1.1	0.55	10.6
	12	9.7	9.7	6.6	12.8	1.4	-0.01	9.5
	11	10.7	10.6	9.0	14.2	1.1	1.62	10.2
	12	10.6	10.4	9.1	13.5	1.6	1.11	10.5
	12	9.8	9.7	8.3	12.6	0.9	1.31	9.6
	12	10.2	10.3	8.4	12.4	1.2	0.48	10.1
	11	10.9	10.8	9.3	12.8	1.2	0.25	10.6
	11	10.8	10.7	9.5	12.6	1.1	0.56	10.7
	12	9.7	9.7	8.1	11.7	0.9	0.32	9.5
	12	10.1	10.3	8.3	12.3	1.3	0.37	9.9

Inflows to Lake Taupo

Hinemaiaia River at SH1	12	100.1	99.8	97.0	103.6	3.5	0.21	99.9
Kuratau River at SH41 Moerangi	11	95.0	94.6	93.0	97.2	2.0	0.26	94.1
Kuratau River at 43 Te Rae Street	11	102.2	103.1	97.0	106.2	6.3	-0.17	100.5
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	87.3	87.4	82.5	91.3	3.9	-0.17	87.2
Tauranga-Taupo River at Te Kono Slackline	12	101.7	101.2	98.2	105.1	3.5	0.07	101.2
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	11	103.8	102.6	97.8	112.3	5.4	0.77	100.4
Tokaanu Stm at Off SH41 Turangi	11	84.5	83.6	79.4	89.6	5.1	0.39	82.2
Waihaha River at SH32	11	102.7	102.8	95.7	109.7	5.8	0.10	101.1
Waitahanui River at Blake Rd	12	99.3	98.9	96.9	101.9	2.6	0.16	98.5
Whangamata Stm (Kinloch) at Whangamata Rd	12	95.8	95.5	94.1	99.0	2.7	0.63	-
Whanganui Stm at Lakeside Lake Taupo	10	100.9	101.6	90.2	106.3	3.5	-1.18	100.8
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	11	96.7	96.9	93.9	98.9	3.4	-0.18	95.6

	12	10.7	10.5	9.4	12.7	1.0	0.81	10.6
	11	10.3	10.2	9.4	11.7	1.0	0.56	10.0
	11	10.6	10.5	9.0	12.3	1.4	0.15	10.4
	12	9.4	9.3	8.9	10.2	0.8	0.65	9.3
	12	11.0	11.0	10.2	12.5	1.0	0.75	11.0
	11	10.7	10.5	9.4	12.2	1.4	0.33	10.4
	11	8.6	8.6	8.3	9.0	0.4	0.13	8.4
	11	10.9	10.7	9.2	12.5	0.9	0.02	10.7
	12	10.6	10.5	10.1	11.5	0.6	0.90	10.5
	12	10.5	10.4	9.8	11.5	0.5	0.90	-
	10	10.8	10.9	9.0	12.6	1.0	-0.04	10.7
	11	10.4	10.2	9.6	11.9	0.9	0.91	10.0

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

Dissolved Reactive Phosphorus (g m⁻³)

Total Phosphorus (g m⁻³)

Location	05-09							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
Coromandel								
Hikutaia River at Old Maratoto Rd	12	0.003	0.002	0.002	0.005	0.000	<u>1.79</u>	0.002
Kauaeranga River at Smiths Cableway/Recorder	12	0.002	0.002	0.002	0.004	0.000	<u>3.02</u>	0.002
Ohinemuri River at Queens Head	12	0.005	0.002	0.002	0.020	0.006	<u>1.71</u>	0.002
Ohinemuri River at SH25 Br	12	0.006	0.006	0.002	0.016	0.004	1.47	0.005
Tairua River at Morrisons Br Hikuai	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.002
Tapu River at Tapu-Coroglen Rd	12	0.002	0.002	0.002	0.005	0.000	<u>1.82</u>	0.002
Waiau 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	0.003	0.002	0.002	0.005	0.003	0.74	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	0.035	0.036	0.019	0.051	0.013	-0.13	0.042
Oraka Stm at Lake Rd	12	0.145	0.087	0.053	0.410	0.115	1.35	0.086
Piako River at KIWITAHU	12	0.054	0.050	0.026	0.110	0.035	0.84	0.063
Piako River at Paeroa-Tahunana Rd Br	12	0.189	0.165	0.044	0.420	0.210	0.60	0.157
Piakonui Stm at Piakonui Rd	12	0.010	0.009	0.006	0.015	0.005	0.38	0.009
Waihou River at Okauia	12	0.069	0.068	0.048	0.100	0.014	0.72	0.065
Waihou River at Whites Rd	12	0.076	0.076	0.069	0.083	0.002	-0.07	0.077
Waihotu Stm at Waihotu Rd (Off SH5)	12	0.012	0.011	0.006	0.018	0.009	0.41	0.012
Waiomou Stm at Matamata-Tauranga Rd	12	0.022	0.022	0.015	0.028	0.006	-0.17	0.023
Waikakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.035	0.034	0.014	0.070	0.023	0.71	0.034
Waitoa River at Landsdowne Rd Br	12	0.034	0.029	0.004	0.110	0.020	<u>1.83</u>	0.033
Waitoa River at Mellon Rd Recorder	12	0.057	0.045	0.019	0.200	0.013	<u>2.59</u>	0.088
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otaua Rd Br opp Moseley Rd	12	0.016	0.005	0.002	0.120	0.007	<u>2.71</u>	0.004
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	12	0.002	0.002	0.002	0.005	0.000	<u>3.02</u>	0.002
Karapiro Stm at Hickey Rd Bridge	12	0.043	0.041	0.020	0.071	0.032	0.22	0.047
Kirikiriara Stm at Tauhara Dr	12	0.014	0.016	0.005	0.027	0.009	0.33	0.015
Komakorau Stm at Henry Rd	12	0.017	0.014	0.004	0.049	0.016	1.18	0.008
Little Waipa Stm at Arapani - Putaruru Rd	12	0.058	0.053	0.039	0.120	0.017	<u>2.10</u>	0.055
Mangakotukutuku Stm (Rukuhia) at Peacockes Rd	9	0.250	0.110	0.046	0.940	0.266	<u>1.70</u>	0.177
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	0.358	0.325	0.230	0.580	0.135	0.85	0.466
Mangaone Stm at Annebrooke Rd Br	12	0.061	0.061	0.041	0.081	0.022	0.01	0.067
Mangaonua Stm at Hoeka Rd	12	0.011	0.010	0.007	0.018	0.004	0.99	0.012
Mangaonua Stm at Te Miro Rd	12	0.014	0.013	0.009	0.028	0.006	1.41	0.016
Mangatangi River at SH2 Maramarua	12	0.030	0.028	0.022	0.052	0.008	1.47	0.032
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.013	0.012	0.008	0.026	0.005	1.57	0.011
Mangawara Stm at Rutherford Rd Br	12	0.069	0.044	0.029	0.180	0.061	1.23	0.054
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.062	0.043	0.017	0.140	0.084	0.38	0.039
Matahuru Stm at Waiterimu Road Below Confluence	12	0.025	0.023	0.016	0.040	0.010	0.83	0.031
Ohaeroa Stm at SH22 Br	12	0.009	0.010	0.005	0.014	0.004	-0.02	0.008
Opuatia Stm at Ponganui Rd	12	0.007	0.007	0.002	0.010	0.003	-0.63	0.006
Pokaiwhenua Stm at Arapani - Putaruru Rd	12	0.087	0.087	0.072	0.110	0.017	0.47	0.100
Waerenga Stm at Taniwha Rd	12	0.018	0.018	0.007	0.032	0.010	0.32	0.023
Waitawhiriwhiri Stm at Edgecumbe Street	12	0.035	0.022	0.013	0.100	0.032	1.37	0.033
Whakapipi Stm at SH22 Br	12	0.023	0.024	0.016	0.036	0.006	0.93	0.024
Whakauru Stm at U/S SH1 Br	12	0.018	0.017	0.012	0.026	0.005	0.52	0.014
Whangamarino River at Island Block Rd	12	0.012	0.011	0.002	0.035	0.009	1.51	0.007
Whangamarino River at Jefferies Rd Br	12	0.034	0.030	0.017	0.077	0.011	1.67	0.035
Whangape Stm at Rangiriri-Glen Murray Rd	12	0.003	0.002	0.002	0.017	0.000	<u>3.02</u>	0.002

Count	05-09						Median
	Mean	Median	Min	Max	IQR	Skew	
12	0.017	0.007	0.002	0.130	0.004	<u>2.99</u>	0.010
12	0.005	0.002	0.002	0.026	0.003	<u>2.76</u>	0.004
12	0.034	0.013	0.002	0.250	0.004	<u>2.92</u>	0.018
12	0.026	0.014	0.009	0.098	0.003	<u>1.84</u>	0.015
12	0.006	0.002	0.002	0.041	0.003	<u>2.88</u>	0.005
12	0.015	0.002	0.002	0.140	0.002	<u>2.97</u>	0.002
12	0.012	0.005	0.002	0.080	0.006	<u>2.93</u>	0.008
12	0.014	0.006	0.002	0.088	0.004	<u>2.79</u>	0.009
12	0.008	0.003	0.002	0.057	0.004	<u>2.88</u>	0.005
12	0.021	0.008	0.002	0.120	0.012	<u>2.26</u>	0.008
12	0.045	0.048	0.029	0.061	0.018	-0.12	0.055
12	0.185	0.125	0.091	0.390	0.167	0.90	0.137
12	0.098	0.092	0.047	0.210	0.054	1.08	0.103
12	0.263	0.250	0.110	0.480	0.195	0.53	0.280
12	0.026	0.021	0.012	0.058	0.012	1.36	0.026
12	0.093	0.085	0.073	0.130	0.027	0.75	0.094
12	0.078	0.077	0.070	0.087	0.011	0.18	0.080
12	0.023	0.019	0.013	0.048	0.012	1.42	0.030
12	0.041	0.041	0.033	0.052	0.009	0.45	0.044
12	0.098	0.074	0.047	0.280	0.038	<u>2.06</u>	0.079
12	0.070	0.062	0.018	0.150	0.025	0.85	0.074
12	0.102	0.105	0.024	0.200	0.060	0.28	0.172
12	0.072	0.055	0.037	0.240	0.034	<u>2.54</u>	0.057
12	0.015	0.015	0.005	0.028	0.012	0.16	0.014
12	0.089	0.091	0.056	0.130	0.046	0.14	0.100
12	0.077	0.060	0.040	0.180	0.027	1.59	0.077
12	0.111	0.110	0.060	0.160	0.054	-0.01	0.109
12	0.079	0.069	0.041	0.200	0.023	<u>2.28</u>	0.074
9	0.413	0.340	0.160	1.000	0.375	1.14	0.405
12	0.388	0.350	0.270	0.590	0.195	0.75	0.518
12	0.144	0.145	0.110	0.190	0.050	0.24	0.173
12	0.073	0.052	0.032	0.150	0.063	0.75	0.069
12	0.036	0.027	0.021	0.100	0.016	<u>2.09</u>	0.034
12	0.092	0.092	0.055	0.140	0.055	0.26	0.092
12	0.027	0.028	0.016	0.050	0.005	1.52	0.027
12	0.250	0.260	0.130	0.410	0.090	0.45	0.241
12	0.209	0.150	0.130	0.500	0.080	<u>1.76</u>	0.177
12	0.118	0.115	0.049	0.200	0.056	0.38	0.119
12	0.036	0.033	0.024	0.061	0.013	1.14	0.038
12	0.032	0.030	0.017	0.058	0.023	0.55	0.032
12	0.112	0.100	0.082	0.210	0.030	<u>2.01</u>	0.130
12	0.047	0.045	0.021	0.099	0.011	<u>1.69</u>	0.049
12	0.118	0.120	0.053	0.200	0.064	0.31	0.120
12	0.054	0.054	0.034	0.074	0.016	0.16	0.058
12	0.045	0.041	0.027	0.081	0.026	0.86	0.036
12	0.156	0.160	0.038	0.240	0.070	-0.37	0.158
12	0.103	0.092	0.058	0.200	0.069	0.93	0.096
12	0.136	0.100	0.072	0.250	0.103	0.71	0.124

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	0.009	0.003	-0.96	0.006
Mangaohoi Stm at South Branch Maru Rd	12	0.038	0.037	0.014	0.065	0.029	0.31	0.042
Mangaokewa Stm at Te Kuiti Borough W/S Intake	12	0.015	0.015	0.009	0.021	0.006	0.10	0.015
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	0.267	0.185	0.072	0.780	0.308	1.16	0.147
Mangapu River at Otorohanga	12	0.037	0.024	0.014	0.095	0.034	1.17	0.036
Mangatutu Stm (Waikeria) at Walker Rd Br	12	0.009	0.009	0.006	0.016	0.003	1.41	0.009
Mangauika Stm at Te Awamutu Borough W/S Intake	12	0.003	0.002	0.002	0.007	0.003	0.91	0.002
Ohote Stm at Whatawhata/Horotiu Rd	12	0.020	0.019	0.010	0.035	0.012	0.46	0.024
Puniu River at Bartons Corner Rd Br	12	0.022	0.021	0.014	0.034	0.006	0.81	0.025
Waipa River at Mangaokewa Rd	12	0.005	0.005	0.002	0.008	0.004	-0.10	0.005
Waipa River at Pirongia-Ngutunui Rd Br	12	0.019	0.017	0.010	0.034	0.008	0.94	0.019
Waipa River at SH3 Otorohanga	12	0.009	0.009	0.006	0.012	0.004	0.26	0.008
Waitomo Stm at SH31 Otorohanga	12	0.009	0.008	0.005	0.018	0.003	1.49	0.007
Waitomo Stm at Tumutumu Rd	12	0.012	0.011	0.008	0.020	0.002	1.54	0.009

Tributaries to the upper Waikato River								
Kawaunui Stm at SH5 Br	12	0.057	0.059	0.039	0.073	0.015	-0.35	0.081
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	0.035	0.035	0.024	0.048	0.006	0.37	0.034
Mangakara Stm (Reporoa) at SH5	12	0.053	0.051	0.039	0.090	0.006	<u>2.19</u>	0.053
Mangakino Stm (Whakamaru) at Sandel Rd	12	0.041	0.043	0.029	0.054	0.014	-0.19	0.043
Otamakokore Stm at Hossack Rd	12	0.162	0.165	0.130	0.210	0.025	0.65	0.153
Pueto Stm at Broadlands Rd Br	12	0.080	0.078	0.068	0.100	0.009	0.93	0.084
Tahunaatara Stm at Ohakuri Rd	12	0.032	0.031	0.027	0.036	0.004	-0.12	0.033
Torepatutahi Stm at Vaile Rd Br	12	0.086	0.087	0.074	0.094	0.011	-0.46	0.085
Waiotapu Stm at Campbell Rd Br	12	0.003	0.002	0.002	0.009	0.000	<u>2.20</u>	0.002
Waiotapu Stm at Homestead Rd Br	12	0.032	0.040	0.008	0.048	0.022	-0.87	0.038
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	0.093	0.086	0.069	0.160	0.022	<u>1.76</u>	0.084
Whirinaki Stm at Corbett Rd	12	0.063	0.063	0.058	0.072	0.005	0.88	0.065

West Coast								
Awakino River at Gribbon Rd	12	0.012	0.012	0.010	0.015	0.003	0.35	0.013
Awakino River at SH3 Awakau Rd Junction	12	0.009	0.010	0.002	0.016	0.005	-0.34	0.009
Manganui River at Off Manganui Rd	12	0.013	0.013	0.008	0.017	0.005	-0.26	0.011
Mangaotaki River at SH3 Br	12	0.015	0.012	0.006	0.059	0.003	<u>2.89</u>	0.011
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	0.013	0.013	0.010	0.018	0.003	0.59	0.013
Mokau River at Awakau Rd	12	0.009	0.010	0.002	0.014	0.005	-0.41	0.007
Mokau River at Mangaokewa Rd (Off SH30)	12	0.017	0.014	0.008	0.041	0.012	1.40	0.016
Mokau River at Totoro Rd Recorder	12	0.011	0.009	0.005	0.029	0.005	<u>2.09</u>	0.011
Mokauiti Stm at Three Way Point - Aria	12	0.009	0.008	0.005	0.020	0.004	<u>2.00</u>	0.008
Ohautira Stm at Waingaro Te Uku Rd	12	0.023	0.023	0.018	0.031	0.006	0.54	0.020
Oparau River at Langdon Rd (Off Okupata Rd)	12	0.005	0.006	0.002	0.009	0.004	0.03	0.006
Tawarau River at Off Speedies Rd	12	0.014	0.014	0.010	0.019	0.003	0.39	0.014
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	0.014	0.012	0.009	0.024	0.007	1.01	0.010
Waitetuna River at Te Uku-Waingaro Rd	12	0.014	0.012	0.009	0.032	0.006	<u>1.90</u>	0.011

Inflows to Lake Taupo								
Hinemaiaia River at SH1	12	0.028	0.027	0.020	0.035	0.007	0.20	0.030
Kuratau River at SH41 Moerangi	12	0.002	0.002	0.002	0.005	0.000	<u>3.02</u>	0.002
Kuratau River at 43 Te Rae Street	12	0.003	0.002	0.002	0.007	0.002	1.03	0.002
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	0.133	0.135	0.110	0.160	0.020	0.16	0.131
Tauranga-Taupo River at Te Kono Slackline	12	0.015	0.014	0.009	0.021	0.005	0.10	0.014
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Cc	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.002
Tokaanu Stm at Off SH41 Turangi	12	0.076	0.077	0.069	0.079	0.005	-0.85	0.078
Waihaha River at SH32	12	0.020	0.020	0.013	0.028	0.010	0.16	0.020
Waitahanui River at Blake Rd	12	0.044	0.045	0.037	0.048	0.005	-0.70	0.046
Whangamata Stm (Kinloch) at Whangamata Rd	12	0.067	0.067	0.060	0.074	0.007	-0.05	-
Whanganui Stm at Lakeside Lake Taupo	11	0.012	0.010	0.006	0.019	0.006	0.43	0.010
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	0.020	0.021	0.014	0.024	0.005	-0.22	0.020

	12	0.032	0.029	0.015	0.061	0.016	0.87	0.032
	12	0.047	0.045	0.017	0.079	0.031	0.22	0.055
	12	0.043	0.040	0.018	0.087	0.017	0.99	0.042
	12	0.348	0.285	0.130	0.760	0.245	1.05	0.295
	12	0.084	0.084	0.051	0.130	0.037	0.23	0.086
	12	0.026	0.022	0.015	0.047	0.023	0.64	0.028
	12	0.023	0.006	0.005	0.200	0.004	<u>3.00</u>	0.007
	12	0.077	0.078	0.034	0.120	0.045	-0.02	0.078
	12	0.051	0.051	0.034	0.072	0.015	0.22	0.057
	12	0.055	0.022	0.013	0.390	0.021	<u>2.97</u>	0.024
	12	0.062	0.052	0.033	0.120	0.037	1.01	0.061
	12	0.034	0.023	0.013	0.140	0.014	<u>2.63</u>	0.029
	12	0.043	0.037	0.012	0.072	0.040	0.07	0.037
	12	0.029	0.026	0.014	0.067	0.018	1.24	0.024

	12	0.097	0.095	0.070	0.120	0.021	0.01	0.130
	12	0.057	0.057	0.048	0.069	0.006	0.51	0.058
	12	0.089	0.080	0.073	0.160	0.020	<u>2.37</u>	0.086
	12	0.059	0.054	0.038	0.130	0.014	<u>2.40</u>	0.053
	12	0.188	0.185	0.170	0.210	0.015	0.51	0.190
	12	0.102	0.100	0.081	0.120	0.015	-0.13	0.106
	12	0.050	0.050	0.041	0.060	0.004	-0.10	0.053
	12	0.100	0.100	0.089	0.110	0.011	0.36	0.100
	12	0.155	0.150	0.110	0.220	0.055	0.38	0.168
	12	0.158	0.155	0.087	0.260	0.055	0.57	0.180
	12	0.141	0.130	0.110	0.210	0.040	1.03	0.124
	12	0.068	0.067	0.062	0.076	0.010	0.29	0.071

	12	0.020	0.017	0.009	0.046	0.005	<u>1.94</u>	0.019
	12	0.032	0.024	0.009	0.092	0.019	1.59	0.023
	12	0.046	0.033	0.014	0.110	0.047	0.97	0.032
	12	0.036	0.028	0.011	0.110	0.019	<u>2.11</u>	0.035
	12	0.038	0.024	0.017	0.170	0.012	<u>2.78</u>	0.029
	12	0.047	0.045	0.018	0.087	0.025	0.54	0.047
	12	0.041	0.034	0.023	0.082	0.017	1.35	0.036
	12	0.041	0.031	0.012	0.097	0.035	0.94	0.039
	12	0.052	0.038	0.024	0.150	0.032	1.61	0.045
	12	0.052	0.042	0.032	0.150	0.012	<u>2.69</u>	0.043
	12	0.029	0.014	0.007	0.190	0.012	<u>2.91</u>	0.016
	12	0.036	0.029	0.020	0.130	0.009	<u>2.86</u>	0.029
	12	0.126	0.040	0.028	1.100	0.011	<u>3.01</u>	0.043
	12	0.044	0.042	0.024	0.099	0.026	1.36	0.039

	12	0.036	0.035	0.025	0.049	0.009	0.38	0.038
	12	0.004	0.002	0.002	0.011	0.004	1.30	0.005
	12	0.012	0.011	0.002	0.020	0.006	-0.13	0.015
	12	0.161	0.160	0.140	0.180	0.020	-0.15	0.170
	12	0.017	0.018	0.012	0.022	0.004	-0.48	0.019
	12	0.013	0.013	0.009	0.019	0.005	0.53	0.013
	12	0.078	0.079	0.070	0.084	0.008	-0.37	0.080
	12	0.023	0.023	0.016	0.033	0.007	0.37	0.026
	12	0.046	0.046	0.039	0.054	0.007	0.18	0.049
	12	0.077	0.072	0.060	0.110	0.019	0.94	-
	11	0.015	0.014	0.011	0.023	0.006	0.82	0.019
	12	0.033	0.031	0.025	0.053	0.008	1.58	0.037

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	05-09
								Median
Coromandel								
Hikutai River at Old Maratoto Rd	12	0.01	0.01	0.01	0.02	0.00	<u>2.22</u>	0.01
Kauaeranga River at Smiths Cableway/Recorder	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.01
Ohinemuri River at Queens Head	12	0.04	0.02	0.01	0.12	0.08	0.82	0.03
Ohinemuri River at SH25 Br	12	0.02	0.01	0.01	0.12	0.01	<u>2.49</u>	0.01
Tairua River at Morrisons Br Hikuai	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01
Tapu River at Tapu-Coroglen Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01
Waiau River at E309 Rd Ford	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01
Waitekauri River at U/S Ohinemuri Conflu	12	0.01	0.01	0.01	0.02	0.00	<u>2.14</u>	0.01
Waiwawa River at SH25 Coroglen	12	0.01	0.01	0.01	0.01	0.00	<u>1.83</u>	0.01
Wharekawa River at SH25	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.01
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.01	0.01	0.01	0.01	0.00	<u>1.79</u>	0.01
Oraka Stm at Lake Rd	12	0.04	0.02	0.01	0.15	0.03	<u>1.87</u>	0.02
Piako River at Kiwitahi	12	0.06	0.01	0.01	0.36	0.04	<u>2.18</u>	0.04
Piako River at Paeroa-Tahuna Rd Br	12	0.05	0.03	0.01	0.15	0.06	1.08	0.05
Piakonui Stm at Piakonui Rd	12	0.01	0.01	0.01	0.01	0.00	<u>1.83</u>	0.01
Waihou River at Okauia	12	0.01	0.01	0.01	0.08	0.01	<u>2.59</u>	0.01
Waihou River at Whites Rd	12	0.01	0.01	0.01	0.02	0.00	<u>2.31</u>	0.01
Waiohotu Stm at Waiohotu Rd (Off SH5)	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.01
Waiomou Stm at Matamata-Tauranga Rd	12	0.02	0.02	0.01	0.05	0.01	1.55	0.01
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.06	0.04	0.01	0.23	0.06	<u>2.03</u>	0.03
Waitoa River at Landsdowne Rd Br	12	0.02	0.01	0.01	0.08	0.03	1.63	0.03
Waitoa River at Mellon Rd Recorder	12	0.06	0.03	0.01	0.21	0.07	1.33	0.05
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otatau Rd Br opp Moseley Rd	12	0.07	0.05	0.01	0.24	0.06	1.59	0.04
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	12	0.07	0.04	0.01	0.18	0.07	0.99	0.04
Karapiro Stm at Hickey Rd Bridge	12	0.02	0.02	0.01	0.05	0.01	1.56	0.02
Kirikiroa Stm at Tauhara Dr	12	0.24	0.20	0.10	0.54	0.22	0.92	0.28
Komakorau Stm at Henry Rd	12	0.63	0.66	0.16	1.30	0.40	0.37	0.68
Little Waipa Stm at Arapuni - Putaruru Rd	12	0.02	0.01	0.01	0.13	0.01	<u>2.20</u>	0.01
Mangakotukutuku Stm (Rukuhia) at Peacocks Rd	9	0.19	0.15	0.12	0.29	0.13	0.25	0.25
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	0.14	0.13	0.02	0.32	0.13	0.45	0.06
Mangaone Stm at Annebrooke Rd Br	12	0.02	0.02	0.01	0.07	0.01	<u>1.73</u>	0.02
Mangaonua Stm at Hoeka Rd	12	0.09	0.09	0.05	0.13	0.04	-0.26	0.09
Mangaonua Stm at Te Miro Rd	12	0.01	0.01	0.01	0.02	0.00	<u>1.85</u>	0.01
Mangatangi River at SH2 Maramarua	12	0.03	0.01	0.01	0.16	0.04	<u>1.83</u>	0.01
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.01	0.01	0.01	0.04	0.00	<u>2.85</u>	0.01
Mangawara Stm at Rutherford Rd Br	12	0.31	0.32	0.09	0.49	0.17	-0.20	0.33
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.12	0.11	0.03	0.24	0.10	0.52	0.10
Matahuru Stm at Waiterimu Road Below Confluence	12	0.07	0.07	0.01	0.18	0.07	0.70	0.06
Ohaeroa Stm at SH22 Br	12	0.01	0.01	0.01	0.04	0.01	<u>2.24</u>	0.01
Opuatia Stm at Ponganui Rd	12	0.01	0.01	0.01	0.02	0.00	1.30	0.01
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	0.01	0.01	0.01	0.06	0.00	<u>2.96</u>	0.01
Waerenga Stm at Taniwha Rd	12	0.01	0.01	0.01	0.04	0.01	1.32	0.01
Waitawhiriwhiri Stm at Edgecumbe Street	12	0.50	0.53	0.19	0.75	0.36	-0.15	0.62
Whakapipi Stm at SH22 Br	12	0.01	0.01	0.01	0.02	0.01	0.85	0.01
Whakauru Stm at U/S SH1 Br	12	0.01	0.01	0.01	0.05	0.01	1.53	0.01
Whangamarino River at Island Block Rd	12	0.06	0.05	0.01	0.15	0.09	0.42	0.05
Whangamarino River at Jefferies Rd Br	12	0.05	0.03	0.01	0.20	0.06	1.34	0.04
Whangape Stm at Rangiriri-Glen Murray Rd	12	0.25	0.06	0.01	1.90	0.20	<u>2.84</u>	0.01

Nitrate/Nitrite (g m⁻³)

Count	Mean	Median	Min	Max	IQR	Skew	05-09
							Median
12	0.062	0.041	0.001	0.350	0.055	<u>2.56</u>	0.025
12	0.035	0.017	0.001	0.160	0.042	1.66	0.015
12	0.869	0.900	0.085	1.200	0.350	-1.33	1.005
12	0.518	0.575	0.079	0.880	0.225	-0.14	0.421
12	0.040	0.033	0.001	0.100	0.074	0.50	0.016
12	0.008	0.003	0.001	0.036	0.008	1.64	0.003
12	0.054	0.026	0.001	0.210	0.054	<u>1.73</u>	0.033
12	0.137	0.145	0.003	0.350	0.167	0.36	0.122
12	0.015	0.013	0.001	0.040	0.014	0.95	0.009
12	0.087	0.076	0.001	0.200	0.139	0.28	0.046
12	0.283	0.290	0.170	0.350	0.080	-0.62	0.307
12	2.167	2.100	1.900	2.600	0.200	0.90	2.000
12	1.218	0.910	0.079	3.900	1.740	1.05	0.878
12	1.685	1.400	0.510	4.300	1.010	1.39	1.940
12	0.284	0.240	0.130	0.500	0.270	0.37	0.216
12	1.150	1.100	0.950	1.500	0.300	0.66	1.100
12	0.699	0.700	0.630	0.740	0.045	-0.58	0.656
12	0.188	0.195	0.140	0.240	0.050	-0.03	0.202
12	0.568	0.495	0.290	1.000	0.360	0.64	0.479
12	0.367	0.305	0.035	0.880	0.445	0.67	0.253
12	1.672	1.700	0.620	2.400	1.100	-0.25	1.510
12	2.051	2.200	0.810	2.900	0.800	-0.53	1.940
12	1.379	1.500	0.470	2.300	0.960	-0.11	1.300
12	0.644	0.655	0.062	1.500	0.380	0.83	0.579
12	0.686	0.570	0.130	1.800	0.925	0.73	0.545
12	1.026	0.790	0.470	2.400	0.705	1.23	0.856
12	1.817	1.450	1.100	3.600	0.900	1.14	1.500
12	1.625	1.550	1.400	1.900	0.300	0.66	1.470
9	0.979	0.870	0.500	2.200	0.263	<u>1.92</u>	0.990
12	2.767	2.750	2.100	3.600	0.500	0.49	2.900
12	2.758	2.750	2.000	3.300	0.400	-0.52	2.500
12	1.725	1.700	1.300	2.400	0.350	0.83	1.415
12	0.628	0.585	0.180	1.400	0.460	0.73	0.447
12	0.476	0.375	0.020	1.200	0.769	0.55	0.188
12	0.096	0.065	0.004	0.350	0.128	1.21	0.024
12	1.402	0.880	0.600	4.300	1.065	1.65	0.865
12	1.125	2.050	1.700	3.500	0.300	<u>2.17</u>	1.800
12	0.934	1.100	0.023	1.800	0.875	-0.09	0.728
12	1.417	1.350	1.100	1.900	0.550	0.51	1.315
12	0.607	0.670	0.001	0.990	0.485	-0.61	0.732
12	1.717	1.600	1.500	2.100	0.500	0.46	1.590
12	0.813	0.820	0.260	1.400	0.610	-0.08	0.755
12	0.878	0.850	0.360	1.500	0.355	0.15	0.878
12	3.442	3.650	1.600	4.700	1.750	-0.42	3.585
12	0.182	0.175	0.110	0.280	0.095	0.28	0.104
12	0.202	0.069	0.001	0.790	0.308	1.23	0.067
12	1.000	0.785	0.025	3.100	1.200	0.99	0.660
12	0.237	0.113	0.001	0.900	0.322	1.26	0.011

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

Waipa River and Tributaries								
Kaniwhaniwha Stm at Wright Rd	12	0.01	0.01	0.01	0.03	0.01	0.06	0.02
Mangaohoi Stm at South Branch Maru Rd	12	0.01	0.01	0.01	0.01	0.00	<u>1.88</u>	0.01
Mangaokewa Stm at Te Kuiti Borough W/S Intake	12	0.01	0.01	0.01	0.03	0.02	0.21	0.01
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	0.05	0.06	0.01	0.13	0.08	0.39	0.05
Mangapu River at Otorohanga	12	0.04	0.04	0.01	0.06	0.03	-0.10	0.03
Mangatutu Stm (Waikeria) at Walker Rd Br	12	0.01	0.01	0.01	0.04	0.01	1.41	0.01
Mangauika Stm at Te Awamutu Borough W/S Intake	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.01
Ohote Stm at Whatawhata/Horotiu Rd	12	0.08	0.06	0.02	0.27	0.05	<u>2.22</u>	0.05
Puniu River at Bartons Corner Rd Br	12	0.02	0.02	0.01	0.04	0.03	0.29	0.02
Waipa River at Mangaokewa Rd	12	0.01	0.01	0.01	0.04	0.01	1.09	0.01
Waipa River at Pirongia-Ngutunui Rd Br	12	0.02	0.02	0.01	0.07	0.02	1.56	0.02
Waipa River at SH3 Otorohanga	12	0.02	0.02	0.01	0.04	0.02	0.61	0.01
Waitomo Stm at SH31 Otorohanga	12	0.02	0.01	0.01	0.04	0.01	0.95	0.02
Waitomo Stm at Tumutumu Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01

	12	0.384	0.380	0.046	0.820	0.470	0.16	0.306
	12	0.292	0.270	0.110	0.480	0.285	0.23	0.274
	12	0.531	0.585	0.150	0.920	0.470	-0.12	0.512
	12	2.533	2.300	1.100	4.900	1.400	0.83	1.865
	12	0.998	1.000	0.720	1.300	0.420	0.22	0.863
	12	0.477	0.380	0.035	1.200	0.740	0.44	0.283
	12	0.195	0.210	0.100	0.240	0.055	-0.99	0.194
	12	0.620	0.635	0.023	1.900	0.610	1.11	0.576
	12	0.803	0.655	0.200	1.800	0.920	0.56	0.569
	12	0.368	0.355	0.180	0.560	0.250	0.20	0.372
	12	0.693	0.710	0.280	1.200	0.595	0.06	0.645
	12	0.514	0.535	0.092	0.940	0.565	0.04	0.452
	12	0.556	0.565	0.290	0.810	0.360	-0.02	0.536
	12	0.643	0.660	0.460	0.770	0.180	-0.25	0.627

Tributaries to the upper Waikato River								
Kawaunui Stm at SH5 Br	12	0.02	0.01	0.01	0.04	0.02	0.83	0.02
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	0.01	0.01	0.01	0.02	0.01	1.22	0.01
Mangakara Stm (Reporoa) at SH5	12	0.02	0.02	0.01	0.04	0.02	-0.06	0.02
Mangakino Stm (Whakamaru) at Sandel Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01
Otamakokore Stm at Hossack Rd	12	0.01	0.01	0.01	0.03	0.01	1.17	0.01
Pueto Stm at Broadlands Rd Br	12	0.01	0.01	0.01	0.02	0.00	1.62	0.01
Tahunaatara Stm at Ohakuri Rd	12	0.01	0.01	0.01	0.01	0.01	0.83	0.01
Torepatutahi Stm at Vaile Rd Br	12	0.01	0.01	0.01	0.03	0.01	1.63	0.01
Waiotapu Stm at Campbell Rd Br	12	0.90	0.90	0.77	1.00	0.12	-0.36	0.85
Waiotapu Stm at Homestead Rd Br	12	0.29	0.29	0.05	0.59	0.35	0.12	0.31
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	0.01	0.01	0.01	0.02	0.00	<u>2.22</u>	0.01
Whirinaki Stm at Corbett Rd	12	0.01	0.01	0.01	0.02	0.00	<u>3.02</u>	0.01

	12	2.500	2.500	2.300	2.900	0.150	1.12	2.480
	12	0.453	0.440	0.280	0.610	0.160	0.06	0.402
	12	1.300	1.300	1.200	1.400	0.200	0.00	1.200
	12	0.601	0.600	0.510	0.740	0.070	0.75	0.578
	12	0.768	0.690	0.560	1.200	0.370	0.78	0.783
	12	0.411	0.400	0.360	0.480	0.065	0.31	0.403
	12	0.533	0.480	0.390	0.790	0.170	0.82	0.524
	12	0.454	0.450	0.340	0.580	0.165	0.03	0.437
	12	0.913	0.905	0.680	1.100	0.160	-0.23	0.839
	12	1.350	1.350	1.200	1.600	0.150	0.44	1.365
	12	1.280	1.200	0.960	2.400	0.200	<u>2.37</u>	0.991
	12	0.691	0.685	0.630	0.790	0.065	0.65	0.662

West Coast								
Awakino River at Gribbon Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01
Awakino River at SH3 Awakau Rd Junction	12	0.01	0.01	0.01	0.03	0.00	<u>2.13</u>	0.01
Manganui River at Off Manganui Rd	12	0.01	0.01	0.01	0.02	0.00	<u>3.02</u>	0.01
Mangaotaki River at SH3 Br	12	0.01	0.01	0.01	0.06	0.00	<u>2.90</u>	0.01
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	0.01	0.01	0.01	0.02	0.00	<u>2.35</u>	0.01
Mokau River at Awakau Rd	12	0.02	0.02	0.01	0.03	0.02	0.18	0.02
Mokau River at Mangaokewa Rd (Off SH30)	12	0.01	0.01	0.01	0.02	0.00	<u>1.85</u>	0.01
Mokau River at Totoro Rd Recorder	12	0.01	0.01	0.01	0.04	0.01	1.26	0.01
Mokauiti Stm at Three Way Point - Aria	12	0.02	0.02	0.01	0.09	0.02	<u>2.24</u>	0.02
Ohautira Stm at Waingaro Te Uku Rd	12	0.01	0.01	0.01	0.01	0.00	<u>1.83</u>	0.01
Oparau River at Langdon Rd (Off Okupata Rd)	12	0.01	0.01	0.01	0.02	0.00	<u>1.78</u>	0.01
Tawarau River at Off Speedies Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	0.01	0.01	0.01	0.02	0.01	1.08	0.01
Waitetuna River at Te Uku-Waingaro Rd	12	0.01	0.01	0.01	0.02	0.01	0.28	0.01

	12	0.103	0.100	0.029	0.220	0.091	0.47	0.110
	12	0.228	0.235	0.026	0.480	0.218	0.12	0.215
	12	0.123	0.160	0.008	0.240	0.138	-0.34	0.123
	12	0.668	0.675	0.420	0.950	0.325	0.04	0.700
	12	0.306	0.295	0.160	0.770	0.115	<u>2.25</u>	0.273
	12	0.443	0.445	0.140	0.800	0.435	0.09	0.437
	12	0.287	0.270	0.140	0.460	0.180	0.32	0.295
	12	0.584	0.565	0.220	0.960	0.415	0.07	0.568
	12	0.380	0.355	0.026	0.870	0.546	0.25	0.284
	12	0.267	0.245	0.031	0.450	0.275	-0.02	0.258
	12	0.113	0.044	0.009	0.310	0.203	0.50	0.070
	12	0.291	0.295	0.150	0.390	0.135	-0.26	0.294
	12	0.397	0.375	0.001	0.800	0.688	0.04	0.339
	12	0.330	0.370	0.059	0.590	0.345	-0.03	0.299

Inflows to Lake Taupo								
Hinemaiaia River at SH1	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01
Kuratau River at SH41 Moerangi	12	0.01	0.01	0.01	0.02	0.00	<u>1.68</u>	0.01
Kuratau River at 43 Te Rae Street	12	0.01	0.01	0.01	0.02	0.01	1.34	0.01
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	0.01	0.01	0.01	0.03	0.02	0.84	0.01
Tauranga-Taupo River at Te Kono Slackline	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Cc	12	0.01	0.01	0.01	0.02	0.00	<u>3.02</u>	0.01
Tokaanu Stm at Off SH41 Turangi	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01
Waihaha River at SH32	12	0.01	0.01	0.01	0.02	0.00	<u>3.02</u>	0.01
Waitahanui River at Blake Rd	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01
Whangamata Stm (Kinloch) at Whangamata Rd	12	0.01	0.01	0.01	0.01	0.01	0.84	-
Whanganui Stm at Lakeside Lake Taupo	11	0.01	0.01	0.01	0.01	0.00	1.00	0.01
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	0.01	0.01	0.01	0.01	0.00	1.00	0.01

	12	0.051	0.061	0.001	0.097	0.050	-0.29	0.056
	12	0.099	0.067	0.039	0.440	0.050	<u>2.76</u>	0.078
	12	0.486	0.505	0.043	0.690	0.265	-0.96	0.542
	12	0.729	0.735	0.600	0.850	0.115	-0.09	0.710
	12	0.079	0.081	0.059	0.094	0.016	-0.32	0.064
	12	0.002	0.001	0.001	0.006	0.002	1.15	0.001
	12	0.432	0.430	0.390	0.490	0.035	0.54	0.400
	12	0.106	0.100	0.081	0.150	0.030	0.68	0.105
	12	0.448	0.450	0.400	0.470	0.030	-0.77	0.440
	12	1.475	1.500	1.400	1.600	0.100	0.15	-
	11	0.317	0.300	0.240	0.420	0.045	0.85	0.340
	12	0.733	0.705	0.520	0.940	0.180	0.24	0.700

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

Total Kjeldahl Nitrogen (g m⁻³)

 Total Nitrogen (g m⁻³)

Location	05-09							
	Count	Mean	Median	Min	Max	IQR	Skew	Median
Coromandel								
Hikutai River at Old Maratoto Rd	12	0.17	0.07	0.03	1.30	0.02	<u>3.00</u>	0.10
Kauaeranga River at Smiths Cableway/Recorder	12	0.09	0.07	0.03	0.32	0.03	<u>2.51</u>	0.08
Ohinemuri River at Queens Head	12	0.33	0.25	0.10	1.40	0.10	<u>2.80</u>	0.28
Ohinemuri River at SH25 Br	12	0.16	0.13	0.07	0.51	0.06	<u>2.46</u>	0.14
Tairua River at Morrisons Br Hikuai	12	0.09	0.06	0.03	0.40	0.03	<u>2.82</u>	0.09
Tapu River at Tapu-Coroglen Rd	12	0.16	0.06	0.03	1.20	0.06	<u>2.91</u>	0.07
Waiau River at E309 Rd Ford	12	0.11	0.07	0.03	0.56	0.04	<u>2.76</u>	0.09
Waitekauri River at U/S Ohinemuri Conflu	12	0.15	0.09	0.03	0.68	0.09	<u>2.62</u>	0.12
Waiawa River at SH25 Coroglen	12	0.11	0.06	0.03	0.52	0.03	<u>2.38</u>	0.09
Wharekawa River at SH25	12	0.14	0.09	0.03	0.49	0.05	<u>1.81</u>	0.11
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.12	0.11	0.03	0.26	0.03	1.03	0.13
Oraka Stm at Lake Rd	12	0.33	0.25	0.14	1.00	0.20	<u>2.02</u>	0.32
Piako River at Kiwitahi	12	0.52	0.41	0.21	1.50	0.26	<u>2.09</u>	0.50
Piako River at Paeroa-Tahuna Rd Br	12	0.93	0.70	0.39	2.60	0.53	<u>1.95</u>	0.71
Piakonui Stm at Piakonui Rd	12	0.22	0.18	0.09	0.49	0.13	1.22	0.18
Waihou River at Okauia	12	0.24	0.24	0.10	0.48	0.10	1.11	0.23
Waihou River at Whites Rd	12	0.04	0.03	0.03	0.10	0.01	<u>2.03</u>	0.03
Waiohotu Stm at Waiohotu Rd (Off SH5)	12	0.15	0.13	0.09	0.40	0.03	<u>2.68</u>	0.15
Waiomou Stm at Matamata-Tauranga Rd	12	0.23	0.19	0.11	0.45	0.14	0.97	0.21
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.45	0.45	0.28	0.70	0.20	0.50	0.43
Waitoa River at Landsdowne Rd Br	12	0.49	0.44	0.24	1.00	0.15	1.30	0.49
Waitoa River at Mellon Rd Recorder	12	0.52	0.50	0.30	0.83	0.21	0.51	0.52
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otaua Rd Br opp Moseley Rd	12	0.59	0.54	0.32	1.10	0.14	1.57	0.58
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	12	0.32	0.32	0.22	0.44	0.07	0.38	0.32
Karapiro Stm at Hickey Rd Bridge	12	0.36	0.32	0.16	0.68	0.12	1.10	0.35
Kirikiriroa Stm at Tauhara Dr	12	0.68	0.61	0.40	1.00	0.33	0.29	0.70
Komakorau Stm at Henry Rd	12	1.78	1.95	0.88	2.50	0.65	-0.47	1.94
Little Waipa Stm at Arapuni - Putaruru Rd	12	0.25	0.20	0.09	0.93	0.11	<u>2.50</u>	0.20
Mangakotukutuku Stm (Rukuhia) at Peacocks Rd	9	1.02	1.00	0.49	1.70	0.71	0.33	1.30
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	0.57	0.58	0.37	0.79	0.28	0.12	0.51
Mangaone Stm at Annebrooke Rd Br	12	0.51	0.47	0.38	0.82	0.17	1.28	0.54
Mangaonua Stm at Hoeka Rd	12	0.48	0.42	0.25	1.10	0.13	<u>1.78</u>	0.46
Mangaonua Stm at Te Miro Rd	12	0.28	0.22	0.16	0.70	0.09	<u>1.77</u>	0.24
Mangatangi River at SH2 Maramarua	12	0.48	0.39	0.20	0.88	0.42	0.41	0.38
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.16	0.13	0.08	0.34	0.07	1.63	0.16
Mangawara Stm at Rutherford Rd Br	12	1.24	1.30	0.60	1.80	0.62	-0.25	1.20
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	0.94	0.77	0.48	1.90	0.64	0.91	0.76
Matahuru Stm at Waiterimu Road Below Confluence	12	0.70	0.74	0.31	1.10	0.50	0.01	0.71
Ohaeroa Stm at SH22 Br	12	0.35	0.34	0.25	0.48	0.13	0.31	0.31
Opuatia Stm at Ponganui Rd	12	0.32	0.37	0.21	0.42	0.17	-0.24	0.30
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	0.26	0.22	0.13	0.73	0.14	<u>2.04</u>	0.24
Waerenga Stm at Taniwha Rd	12	0.30	0.27	0.21	0.63	0.08	<u>2.36</u>	0.27
Waitawhiriwhiri Stm at Edgecumbe Street	12	1.12	1.10	0.71	1.40	0.25	-0.26	1.30
Whakapipi Stm at SH22 Br	12	0.42	0.43	0.33	0.50	0.08	-0.56	0.44
Whakauru Stm at U/S SH1 Br	12	0.20	0.15	0.12	0.50	0.11	<u>1.73</u>	0.16
Whangamarino River at Island Block Rd	12	1.78	1.85	0.36	3.00	1.00	-0.30	1.73
Whangamarino River at Jefferies Rd Br	12	0.55	0.54	0.27	0.97	0.39	0.46	0.46
Whangape Stm at Rangiriri-Glen Murray Rd	12	2.20	1.80	0.48	5.40	1.00	1.33	1.77

Location	05-09							
	Count	Mean	Median	Min	Max	IQR	Skew	Median
Hikutai River at Old Maratoto Rd	12	0.23	0.11	0.03	1.37	0.07	<u>2.67</u>	0.13
Kauaeranga River at Smiths Cableway/Recorder	12	0.12	0.09	0.03	0.34	0.07	1.39	0.10
Ohinemuri River at Queens Head	12	1.20	1.30	0.34	2.17	0.52	0.21	1.35
Ohinemuri River at SH25 Br	12	0.68	0.68	0.22	1.09	0.34	-0.10	0.59
Tairua River at Morrisons Br Hikuai	12	0.13	0.09	0.03	0.50	0.05	<u>2.52</u>	0.12
Tapu River at Tapu-Coroglen Rd	12	0.17	0.06	0.03	1.24	0.07	<u>2.91</u>	0.08
Waiau River at E309 Rd Ford	12	0.17	0.12	0.03	0.77	0.07	<u>2.79</u>	0.14
Waitekauri River at U/S Ohinemuri Conflu	12	0.29	0.22	0.09	0.95	0.15	<u>2.19</u>	0.25
Waiawa River at SH25 Coroglen	12	0.13	0.08	0.03	0.56	0.04	<u>2.37</u>	0.11
Wharekawa River at SH25	12	0.23	0.17	0.11	0.69	0.16	<u>1.95</u>	0.17
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	0.41	0.42	0.28	0.53	0.10	-0.06	0.45
Oraka Stm at Lake Rd	12	2.50	2.35	2.14	3.30	0.46	-1.10	2.34
Piako River at Kiwitahi	12	1.74	1.36	0.29	4.31	1.76	0.78	1.49
Piako River at Paeroa-Tahuna Rd Br	12	2.61	2.14	1.17	5.40	1.54	0.97	2.85
Piakonui Stm at Piakonui Rd	12	0.50	0.49	0.22	0.94	0.26	0.79	0.42
Waihou River at Okauia	12	1.39	1.29	1.10	1.79	0.37	0.66	1.35
Waihou River at Whites Rd	12	0.74	0.73	0.66	0.83	0.06	0.29	0.70
Waiohotu Stm at Waiohotu Rd (Off SH5)	12	0.34	0.33	0.26	0.58	0.04	<u>2.19</u>	0.36
Waiomou Stm at Matamata-Tauranga Rd	12	0.80	0.76	0.40	1.23	0.53	0.19	0.76
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	0.82	0.81	0.35	1.38	0.70	0.20	0.70
Waitoa River at Landsdowne Rd Br	12	2.16	2.25	1.08	3.20	1.17	-0.19	2.11
Waitoa River at Mellon Rd Recorder	12	2.57	2.66	1.25	3.62	1.16	-0.31	2.51
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otaua Rd Br opp Moseley Rd	12	1.97	2.07	1.13	2.81	1.09	-0.18	2.01
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	12	0.96	0.99	0.28	1.84	0.44	0.51	0.92
Karapiro Stm at Hickey Rd Bridge	12	1.05	0.93	0.34	2.15	0.97	0.46	0.91
Kirikiriroa Stm at Tauhara Dr	12	1.71	1.39	1.00	2.99	0.90	0.71	1.60
Komakorau Stm at Henry Rd	12	3.60	3.40	2.18	5.90	1.25	0.74	3.28
Little Waipa Stm at Arapuni - Putaruru Rd	12	1.88	1.78	1.59	2.43	0.50	0.66	1.67
Mangakotukutuku Stm (Rukuhia) at Peacocks Rd	9	2.00	1.73	1.31	3.90	0.89	1.46	2.22
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	3.34	3.36	2.47	4.21	0.78	-0.07	3.54
Mangaone Stm at Annebrooke Rd Br	12	3.27	3.24	2.82	3.90	0.41	0.54	3.03
Mangaonua Stm at Hoeka Rd	12	2.21	2.16	1.69	2.92	0.66	0.43	1.94
Mangaonua Stm at Te Miro Rd	12	0.91	0.78	0.43	1.64	0.67	0.43	0.69
Mangatangi River at SH2 Maramarua	12	0.96	0.79	0.22	1.86	1.29	0.32	0.61
Mangatawhiri River at Lyons Rd At Buckingham Br	12	0.25	0.24	0.09	0.57	0.17	1.01	0.20
Mangawara Stm at Rutherford Rd Br	12	2.64	2.39	1.20	6.10	1.65	1.31	2.16
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	3.07	2.85	2.18	5.20	0.86	1.43	2.62
Matahuru Stm at Waiterimu Road Below Confluence	12	1.63	1.95	0.33	2.90	1.25	-0.17	1.54
Ohaeroa Stm at SH22 Br	12	1.76	1.64	1.40	2.25	0.53	0.56	1.68
Opuatia Stm at Ponganui Rd	12	0.93	0.98	0.37	1.29	0.39	-0.54	1.07
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	1.98	1.86	1.64	2.37	0.63	0.21	1.83
Waerenga Stm at Taniwha Rd	12	1.11	1.21	0.48	1.73	0.60	-0.28	1.06
Waitawhiriwhiri Stm at Edgecumbe Street	12	2.00	2.07	1.36	2.90	0.48	0.33	2.20
Whakapipi Stm at SH22 Br	12	3.87	4.10	2.10	5.13	1.77	-0.42	3.99
Whakauru Stm at U/S SH1 Br	12	0.38	0.34	0.23	0.74	0.20	1.10	0.26
Whangamarino River at Island Block Rd	12	1.98	2.20	0.36	3.00	0.92	-0.86	1.87
Whangamarino River at Jefferies Rd Br	12	1.55	1.39	0.31	4.03	1.50	0.87	1.06
Whangape Stm at Rangiriri-Glen Murray Rd	12	2.44	1.95	1.38	5.41	0.86	1.55	1.85

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

Waipa River and Tributaries								
Kaniwhaniwha Stm at Wright Rd	12	0.22	0.23	0.12	0.31	0.09	-0.20	0.23
Mangaohoi Stm at South Branch Maru Rd	12	0.12	0.12	0.06	0.22	0.04	0.84	0.13
Mangaokewa Stm at Te Kuiti Borough W/S Intake	12	0.30	0.29	0.18	0.46	0.10	0.82	0.26
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	0.75	0.61	0.46	1.40	0.38	1.00	0.70
Mangapu River at Otorohanga	12	0.39	0.42	0.23	0.52	0.21	-0.20	0.32
Mangatutu Stm (Waikeria) at Walker Rd Br	12	0.16	0.16	0.10	0.27	0.09	0.59	0.20
Mangauika Stm at Te Awamutu Borough W/S Intake	12	0.14	0.04	0.03	1.20	0.04	<u>2.97</u>	0.05
Ohote Stm at Whatawhata/Horotiu Rd	12	0.77	0.80	0.43	1.10	0.12	-0.20	0.79
Puniu River at Bartons Corner Rd Br	12	0.28	0.30	0.13	0.42	0.13	-0.25	0.29
Waipa River at Mangaokewa Rd	12	0.33	0.25	0.15	0.79	0.20	1.51	0.22
Waipa River at Pirongia-Ngutunui Rd Br	12	0.33	0.32	0.16	0.67	0.20	0.86	0.28
Waipa River at SH3 Otorohanga	12	0.27	0.24	0.10	0.83	0.15	<u>2.23</u>	0.22
Waitomo Stm at SH31 Otorohanga	12	0.24	0.25	0.10	0.38	0.09	-0.16	0.22
Waitomo Stm at Tumutumu Rd	12	0.14	0.13	0.08	0.25	0.07	0.80	0.13

	12	0.60	0.69	0.18	1.05	0.55	-0.10	0.53
	12	0.41	0.38	0.18	0.60	0.25	-0.01	0.43
	12	0.83	0.94	0.33	1.20	0.61	-0.30	0.80
	12	3.28	3.32	1.67	5.46	1.85	0.33	2.59
	12	1.39	1.38	0.98	1.82	0.42	0.15	1.26
	12	0.64	0.55	0.16	1.44	0.81	0.45	0.52
	12	0.34	0.27	0.16	1.30	0.06	<u>2.93</u>	0.25
	12	1.39	1.32	0.62	2.72	0.77	0.79	1.40
	12	1.09	0.94	0.33	2.11	1.04	0.46	0.91
	12	0.70	0.64	0.33	1.34	0.19	1.20	0.63
	12	1.03	1.06	0.44	1.77	0.82	0.08	0.96
	12	0.79	0.84	0.19	1.65	0.70	0.35	0.75
	12	0.80	0.87	0.47	1.08	0.52	-0.23	0.77
	12	0.78	0.80	0.63	0.93	0.21	-0.07	0.78

Tributaries to the upper Waikato River								
Kawaunui Stm at SH5 Br	12	0.32	0.28	0.17	0.59	0.21	0.80	0.41
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	0.17	0.15	0.09	0.34	0.06	1.40	0.17
Mangakara Stm (Reporoa) at SH5	12	0.27	0.22	0.17	0.53	0.16	1.16	0.27
Mangakino Stm (Whakamaru) at Sandel Rd	12	0.13	0.10	0.03	0.44	0.05	<u>2.28</u>	0.12
Otamakokore Stm at Hossack Rd	12	0.27	0.22	0.13	0.62	0.17	1.20	0.25
Pueto Stm at Broadlands Rd Br	12	0.08	0.08	0.03	0.14	0.04	-0.05	0.10
Tahunaatara Stm at Ohakuri Rd	12	0.17	0.16	0.11	0.35	0.06	<u>1.76</u>	0.19
Torepatutahi Stm at Vaile Rd Br	12	0.10	0.09	0.03	0.23	0.04	1.24	0.11
Waiotapu Stm at Campbell Rd Br	12	1.06	1.10	0.91	1.30	0.14	0.42	1.05
Waiotapu Stm at Homestead Rd Br	12	0.57	0.53	0.20	1.00	0.52	0.23	0.62
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	0.21	0.16	0.10	0.76	0.09	<u>2.54</u>	0.17
Whirinaki Stm at Corbett Rd	12	0.05	0.04	0.03	0.12	0.05	0.75	0.08

	12	2.82	2.83	2.51	3.44	0.26	1.22	2.90
	12	0.62	0.58	0.39	0.89	0.26	0.30	0.58
	12	1.57	1.55	1.39	1.83	0.20	0.49	1.51
	12	0.73	0.69	0.63	1.02	0.15	1.30	0.69
	12	1.04	0.91	0.69	1.62	0.55	0.68	1.08
	12	0.49	0.50	0.43	0.57	0.08	0.16	0.50
	12	0.71	0.65	0.52	0.92	0.26	0.36	0.76
	12	0.55	0.56	0.42	0.77	0.22	0.33	0.56
	12	1.98	1.94	1.78	2.30	0.06	1.06	1.93
	12	1.92	1.89	1.60	2.34	0.43	0.35	1.99
	12	1.49	1.33	1.08	2.69	0.35	1.66	1.18
	12	0.75	0.74	0.67	0.87	0.07	0.85	0.75

West Coast								
Awakino River at Gribbon Rd	12	0.06	0.06	0.03	0.11	0.06	0.27	0.06
Awakino River at SH3 Awakau Rd Junction	12	0.16	0.14	0.08	0.34	0.06	1.32	0.12
Manganui River at Off Manganui Rd	12	0.14	0.11	0.03	0.31	0.08	1.00	0.11
Mangaotaki River at SH3 Br	12	0.21	0.17	0.11	0.42	0.15	1.02	0.18
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	0.21	0.14	0.09	0.90	0.11	<u>2.68</u>	0.14
Mokau River at Awakau Rd	12	0.31	0.31	0.15	0.57	0.10	0.90	0.28
Mokau River at Mangaokewa Rd (Off SH30)	12	0.22	0.22	0.13	0.38	0.12	0.61	0.21
Mokau River at Totoro Rd Recorder	12	0.29	0.28	0.15	0.50	0.19	0.51	0.23
Mokautiti Stm at Three Way Point - Aria	12	0.39	0.33	0.22	0.81	0.16	1.40	0.33
Ohautira Stm at Waingaro Te Uku Rd	12	0.22	0.16	0.09	0.66	0.08	<u>2.18</u>	0.17
Oparau River at Langdon Rd (Off Okupata Rd)	12	0.17	0.10	0.07	0.85	0.04	<u>2.80</u>	0.12
Tawarau River at Off Speedies Rd	12	0.16	0.15	0.07	0.53	0.04	<u>2.70</u>	0.14
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	0.30	0.31	0.19	0.43	0.12	0.03	0.28
Waitetuna River at Te Uku-Waingaro Rd	12	0.20	0.20	0.11	0.29	0.10	0.17	0.20

	12	0.16	0.14	0.07	0.31	0.09	0.81	0.18
	12	0.39	0.43	0.17	0.66	0.31	0.01	0.38
	12	0.27	0.28	0.04	0.48	0.14	0.07	0.26
	12	0.88	0.87	0.57	1.20	0.35	0.01	0.91
	12	0.51	0.44	0.26	1.11	0.18	1.39	0.43
	12	0.75	0.76	0.33	1.37	0.53	0.25	0.74
	12	0.51	0.53	0.27	0.70	0.33	-0.16	0.56
	12	0.87	0.96	0.40	1.30	0.55	-0.15	0.82
	12	0.77	0.88	0.25	1.25	0.70	-0.13	0.62
	12	0.48	0.46	0.19	0.85	0.34	0.31	0.47
	12	0.28	0.21	0.08	0.91	0.30	1.43	0.22
	12	0.46	0.45	0.30	0.74	0.16	0.91	0.47
	12	0.69	0.65	0.20	1.19	0.73	0.00	0.66
	12	0.53	0.55	0.21	0.82	0.47	-0.05	0.50

Inflows to Lake Taupo								
Hinemaiaia River at SH1	12	0.07	0.07	0.03	0.09	0.03	-0.86	0.08
Kuratau River at SH41 Moerangi	12	0.07	0.06	0.03	0.16	0.02	1.06	0.08
Kuratau River at 43 Te Rae Street	12	0.13	0.14	0.03	0.17	0.05	-1.41	0.15
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	0.21	0.18	0.15	0.37	0.07	1.35	0.21
Tauranga-Taupo River at Te Kono Slackline	12	0.04	0.04	0.03	0.09	0.03	0.68	0.05
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Ca	12	0.09	0.08	0.06	0.13	0.03	0.91	0.09
Tokaanu Stm at Off SH41 Turangi	12	0.03	0.03	0.03	0.08	0.01	1.39	0.03
Waihaha River at SH32	12	0.04	0.03	0.03	0.10	0.04	0.91	0.07
Waitahanui River at Blake Rd	12	0.05	0.05	0.03	0.09	0.01	-0.16	0.06
Whangamata Stm (Kinloch) at Whangamata Rd	12	0.16	0.15	0.09	0.27	0.14	0.35	-
Whanganui Stm at Lakeside Lake Taupo	11	0.08	0.07	0.03	0.21	0.03	<u>1.83</u>	0.12
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	0.17	0.15	0.10	0.39	0.05	<u>1.89</u>	0.17

	12	0.12	0.12	0.07	0.17	0.04	0.26	0.13
	12	0.17	0.14	0.07	0.58	0.07	<u>2.50</u>	0.16
	12	0.61	0.62	0.07	0.82	0.24	-1.51	0.72
	12	0.94	0.94	0.75	1.14	0.20	0.01	0.92
	12	0.12	0.13	0.09	0.15	0.04	-0.13	0.11
	12	0.09	0.08	0.06	0.14	0.03	1.00	0.09
	12	0.47	0.47	0.44	0.52	0.04	0.58	0.47
	12	0.15	0.15	0.12	0.23	0.03	1.39	0.17
	12	0.50	0.51	0.45	0.53	0.05	-0.51	0.50
	12	1.64	1.65	1.49	1.82	0.16	0.06	-
	11	0.40	0.39	0.31	0.52	0.13	0.63	0.47
	12	0.90	0.85	0.67	1.17	0.28	0.42	0.90

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

Turbidity (NTU)

pH (pH units)

Location	05-09							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
Coromandel								
Hikutaia River at Old Maratoto Rd	12	8.9	1.5	1.1	89.0	0.9	<u>3.01</u>	1.5
Kauaeranga River at Smiths Cableway/Recorder	12	2.7	1.0	0.6	17.0	0.8	<u>2.62</u>	1.1
Ohinemuri River at Queens Head	12	5.8	0.8	0.5	56.0	0.3	<u>2.97</u>	1.0
Ohinemuri River at SH25 Br	12	4.4	1.1	0.6	27.0	0.8	<u>2.15</u>	1.0
Tairua River at Morrisons Br Hikuai	12	4.4	1.3	0.8	33.0	2.4	<u>2.94</u>	1.4
Tapu River at Tapu-Coroglen Rd	12	9.3	0.9	0.4	88.0	2.8	<u>2.95</u>	0.8
Waiau River at E309 Rd Ford	12	9.6	3.3	1.4	74.0	4.0	<u>2.97</u>	2.9
Waitekauri River at U/S Ohinemuri Conflu	12	4.7	0.8	0.4	45.0	0.9	<u>3.01</u>	0.9
Waiwawa River at SH25 Coroglen	12	4.6	1.4	0.9	31.0	3.4	<u>2.80</u>	1.5
Wharekawa River at SH25	12	9.8	3.4	1.6	62.0	5.1	<u>2.68</u>	3.2
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	9.0	6.6	3.5	25.0	6.8	1.37	6.2
Oraka Stm at Lake Rd	12	7.7	4.8	2.7	36.0	4.4	<u>2.73</u>	5.1
Piako River at Kiwitahi	12	6.8	4.4	1.4	34.0	2.8	<u>2.75</u>	4.7
Piako River at Paeroa-Tahuna Rd Br	12	11.9	9.5	5.7	28.0	8.3	1.21	10.2
Piakonui Stm at Piakonui Rd	12	5.4	3.4	2.2	18.0	3.2	<u>1.89</u>	3.6
Waihou River at Okauia	12	4.8	4.6	2.3	8.9	3.1	0.57	4.8
Waihou River at Whites Rd	12	0.5	0.5	0.3	0.9	0.2	1.27	0.4
Waihotu Stm at Waihotu Rd (Off SH5)	12	3.4	2.0	1.0	12.0	2.8	<u>1.90</u>	4.2
Waiomou Stm at Matamata-Tauranga Rd	12	4.6	3.8	1.7	9.6	3.9	0.69	4.0
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	16.1	12.5	5.5	44.0	13.9	1.42	10.0
Waitoa River at Landsdowne Rd Br	12	5.9	5.7	1.0	19.0	3.6	<u>1.72</u>	5.6
Waitoa River at Mellon Rd Recorder	12	6.9	6.6	2.0	12.0	7.2	-0.03	7.6
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otatau Rd Br opp Moseley Rd	12	15.6	14.5	6.8	26.0	8.0	0.51	15.2
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	12	7.7	6.5	2.6	23.0	6.9	1.58	6.2
Karapiro Stm at Hickey Rd Bridge	12	8.6	6.2	2.2	24.0	5.6	1.35	7.5
Kirikiriira Stm at Tauhara Dr	12	30.2	26.5	12.0	100.0	10.0	<u>2.55</u>	28.0
Komakorau Stm at Henry Rd	12	67.7	70.0	25.0	100.0	42.0	-0.24	77.3
Little Waipa Stm at Arapuni - Putaruru Rd	12	2.4	0.9	0.5	15.0	1.4	<u>2.69</u>	1.7
Mangakotukutuku Stm (Rukuhia) at Peacocks Rd	9	27.2	22.0	12.0	85.0	5.5	<u>2.29</u>	23.0
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	4.4	3.6	2.3	9.3	2.7	1.06	3.3
Mangaone Stm at Annebrooke Rd Br	12	10.1	10.0	6.4	13.0	2.7	-0.36	11.0
Mangaonua Stm at Hoeka Rd	12	21.7	19.5	6.2	56.0	10.0	1.53	16.0
Mangaonua Stm at Te Miro Rd	12	9.9	4.7	3.0	52.0	5.2	<u>2.61</u>	4.5
Mangatangi River at SH2 Maramarua	12	17.4	15.0	5.1	47.0	16.6	1.10	11.2
Mangatawhiri River at Lyons Rd At Buckingham Br	12	6.3	4.1	1.3	22.0	6.1	<u>1.68</u>	3.3
Mangawara Stm at Rutherford Rd Br	12	45.7	39.5	29.0	110.0	21.5	<u>2.10</u>	41.4
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	50.9	50.0	22.0	110.0	25.0	1.16	44.7
Matahuru Stm at Waiterimu Road Below Confluence	12	46.5	39.5	12.0	110.0	36.5	0.88	39.5
Ohaeroa Stm at SH22 Br	12	9.5	9.6	3.4	18.0	8.4	0.31	8.8
Opuatia Stm at Ponganui Rd	12	12.8	12.5	2.1	29.0	13.5	0.43	11.0
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	3.5	2.1	1.3	14.0	2.7	<u>2.31</u>	3.0
Waerenga Stm at Taniwha Rd	12	11.0	9.8	3.4	29.0	5.8	1.35	7.3
Waitawhiriwhiri Stm at Edgcombe Street	12	31.5	31.5	19.0	49.0	12.5	0.36	34.3
Whakapipi Stm at SH22 Br	12	5.9	5.3	2.4	13.0	3.7	1.04	4.5
Whakauru Stm at U/S SH1 Br	12	6.0	5.6	3.2	12.0	1.9	1.47	4.5
Whangamarino River at Island Block Rd	12	42.8	45.5	10.0	98.0	26.5	0.67	38.5
Whangamarino River at Jefferies Rd Br	12	22.9	19.0	4.9	77.0	17.6	<u>1.79</u>	15.9
Whangape Stm at Rangiriri-Glen Murray Rd	12	69.6	61.5	26.0	140.0	29.0	1.04	54.3

Count	05-09						Median
	Mean	Median	Min	Max	IQR	Skew	
12	7.3	7.2	6.8	7.7	0.7	0.20	7.2
12	7.2	7.2	6.9	7.6	0.4	0.13	7.2
12	7.2	7.1	6.5	8.2	0.5	0.76	7.2
12	7.0	7.0	6.5	7.4	0.4	-0.30	7.1
12	7.1	7.1	6.5	7.4	0.3	-0.88	7.0
12	7.5	7.6	7.0	8.1	0.6	0.08	7.5
12	7.4	7.4	6.8	7.9	0.4	-0.29	7.4
12	7.2	7.2	6.6	7.9	0.3	0.68	7.2
12	7.2	7.2	6.6	7.6	0.4	-0.61	7.2
12	6.9	7.0	6.4	7.2	0.4	-0.59	6.9
12	7.4	7.4	7.0	7.6	0.2	-1.03	7.4
12	7.2	7.2	7.0	7.4	0.2	-0.31	7.3
12	7.2	7.2	6.8	7.6	0.4	0.12	7.1
12	7.3	7.3	6.8	7.7	0.4	-0.05	7.3
12	7.3	7.3	7.0	7.7	0.4	0.24	7.3
12	7.2	7.3	6.8	7.5	0.2	-0.61	7.3
12	6.9	6.8	6.7	7.1	0.2	0.39	6.9
12	7.1	7.1	6.6	7.3	0.2	-1.00	7.2
12	7.1	7.1	6.6	7.4	0.3	-0.46	7.2
12	7.3	7.3	6.9	7.8	0.4	0.46	7.2
12	7.2	7.2	6.9	7.4	0.4	-0.02	7.2
12	7.3	7.2	7.0	7.8	0.6	0.56	7.3
12	7.2	7.1	6.5	7.9	0.7	0.35	7.3
12	7.7	7.7	7.2	8.0	0.5	-0.27	7.7
12	7.3	7.3	7.1	7.4	0.2	-0.14	7.3
12	6.8	6.8	6.7	7.1	0.2	0.65	6.8
12	6.5	6.6	5.9	6.8	0.3	-1.04	6.6
12	7.0	7.1	6.9	7.1	0.2	-0.33	7.0
9	7.0	7.1	6.3	7.4	0.3	-1.38	7.0
12	7.5	7.5	7.2	7.8	0.5	0.09	7.5
12	7.3	7.3	7.1	7.6	0.3	0.16	7.3
12	7.0	7.0	6.8	7.3	0.3	0.51	7.0
12	7.4	7.4	7.1	7.7	0.3	0.14	7.4
12	7.1	7.1	6.8	7.4	0.3	0.13	7.1
12	7.4	7.4	7.0	7.7	0.3	-0.19	7.4
12	6.7	6.8	6.0	7.4	0.4	-0.16	6.8
12	7.0	7.1	6.6	7.4	0.3	-0.28	7.1
12	7.0	7.0	6.5	7.4	0.3	-0.40	7.1
12	7.5	7.5	7.2	8.1	0.2	0.87	7.5
12	7.7	7.6	7.3	8.2	0.6	0.41	7.6
12	7.2	7.2	7.0	7.4	0.1	0.12	7.2
12	7.3	7.3	6.9	7.6	0.3	-0.06	7.3
12	7.0	7.0	6.7	7.3	0.2	0.24	7.0
12	7.4	7.3	7.2	7.7	0.2	1.00	7.3
12	7.5	7.5	7.2	7.7	0.1	-0.05	7.4
12	7.0	6.9	6.7	7.4	0.5	0.61	6.9
12	7.0	7.1	6.6	7.4	0.5	-0.24	7.1
12	7.6	7.4	7.2	8.7	0.3	1.60	7.5

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

Waipa River and Tributaries								
Kaniwhaniwha Stm at Wright Rd	12	8.1	7.8	2.3	17.0	4.5	0.71	6.6
Mangaohoi Stm at South Branch Maru Rd	12	1.5	1.4	1.1	2.2	0.5	0.96	1.7
Mangaokewa Stm at Te Kuiti Borough W/S Intake	12	6.5	5.1	2.3	21.0	3.9	<u>1.98</u>	4.8
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	12.3	13.0	1.9	26.0	14.2	0.24	15.2
Mangapu River at Otorohanga	12	13.9	14.0	3.0	30.0	16.6	0.19	9.8
Mangatutu Stm (Waikeria) at Walker Rd Br	12	4.4	2.5	1.0	14.0	5.4	1.19	3.4
Mangauika Stm at Te Awamutu Borough W/S Intake	12	5.3	1.5	0.6	49.0	0.7	<u>3.01</u>	1.4
Ohote Stm at Whatawhata/Horotiu Rd	12	16.8	12.5	6.9	39.0	14.3	1.10	11.0
Puniu River at Bartons Corner Rd Br	12	5.7	5.5	1.0	12.0	6.9	0.23	5.4
Waipa River at Mangaokewa Rd	12	6.3	2.6	1.2	47.0	2.0	<u>2.98</u>	2.3
Waipa River at Pirongia-Ngutunui Rd Br	12	12.8	9.7	2.6	40.0	11.7	1.45	10.5
Waipa River at SH3 Otorohanga	12	8.9	4.4	1.4	54.0	5.2	<u>2.69</u>	4.0
Waitomo Stm at SH31 Otorohanga	12	12.7	13.0	2.4	27.0	16.1	0.15	9.5
Waitomo Stm at Tumutumu Rd	12	6.7	5.2	1.4	24.0	7.7	<u>1.69</u>	5.7

Tributaries to the upper Waikato River								
Kawaunui Stm at SH5 Br	12	3.6	3.1	1.8	7.0	2.5	0.86	4.2
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	5.1	5.0	3.3	7.6	2.8	0.29	4.5
Mangakara Stm (Reporoa) at SH5	12	6.3	4.9	3.0	14.0	4.6	1.14	5.2
Mangakino Stm (Whakamaru) at Sandel Rd	12	3.6	1.3	0.7	26.0	0.5	<u>2.94</u>	1.4
Otamakokore Stm at Hossack Rd	12	4.3	3.5	2.1	8.2	3.7	0.73	3.4
Pueto Stm at Broadlands Rd Br	12	2.5	2.2	1.5	4.7	1.3	0.99	2.3
Tahunaaatara Stm at Ohakuri Rd	12	3.1	2.7	1.9	5.6	1.2	1.20	2.8
Torepatutahi Stm at Vaile Rd Br	12	1.1	1.1	0.7	1.8	0.4	0.88	1.0
Waiotapu Stm at Campbell Rd Br	12	6.5	5.7	4.8	11.0	1.4	1.52	6.4
Waiotapu Stm at Homestead Rd Br	12	11.4	8.6	4.0	23.0	12.2	0.70	13.2
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	7.2	5.1	2.1	30.0	3.2	<u>2.74</u>	4.4
Whirinaki Stm at Corbett Rd	12	0.6	0.5	0.3	1.2	0.4	0.99	0.5

West Coast								
Awakino River at Gribbon Rd	12	2.4	1.7	0.5	9.6	1.6	<u>2.35</u>	1.6
Awakino River at SH3 Awakau Rd Junction	12	11.0	7.6	1.0	34.0	15.1	0.97	4.2
Manganui River at Off Manganui Rd	12	16.2	6.5	1.9	48.0	21.0	1.11	6.0
Mangaotaki River at SH3 Br	12	8.3	8.2	2.9	14.0	7.3	0.01	6.1
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	10.9	4.5	1.4	65.0	6.4	<u>2.60</u>	4.0
Mokau River at Awakau Rd	12	22.4	22.0	4.4	51.0	27.6	0.51	18.5
Mokau River at Mangaokewa Rd (Off SH30)	12	7.7	2.9	1.9	54.0	1.4	<u>2.85</u>	3.0
Mokau River at Totoro Rd Recorder	12	15.7	9.0	1.8	65.0	13.5	<u>1.78</u>	8.2
Mokautiti Stm at Three Way Point - Aria	12	23.8	13.0	3.9	92.0	21.3	1.61	13.0
Ohautira Stm at Waingaro Te Uku Rd	12	18.0	8.7	4.6	92.0	12.5	<u>2.57</u>	8.9
Oparau River at Langdon Rd (Off Okupata Rd)	12	8.5	2.2	1.3	67.0	2.6	<u>2.91</u>	2.7
Tawarau River at Off Speedies Rd	12	6.2	3.9	1.3	28.0	4.1	<u>2.46</u>	3.8
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	13.8	10.7	4.4	33.0	13.9	0.75	11.4
Waitetuna River at Te Uku-Waingaro Rd	12	14.6	12.9	4.8	27.0	15.5	0.22	10.5

Inflows to Lake Taupo								
Hinemaiaia River at SH1	12	1.1	1.0	0.6	2.2	0.3	<u>1.94</u>	1.1
Kuratau River at SH41 Moerangi	12	1.5	1.3	1.0	3.2	0.8	1.49	1.6
Kuratau River at 43 Te Rae Street	12	1.1	1.2	0.7	1.6	0.5	-0.18	1.1
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	3.2	2.9	2.0	5.3	1.4	0.89	2.9
Tauranga-Taupo River at Te Kono Slackline	12	1.1	0.5	0.4	3.8	0.8	<u>1.99</u>	0.7
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Ca	12	1.3	1.3	0.8	2.1	0.7	0.32	1.2
Tokaanu Stm at Off SH41 Turangi	12	0.2	0.2	0.1	0.6	0.1	<u>2.37</u>	0.2
Waihaha River at SH32	12	0.7	0.4	0.2	2.4	0.4	<u>2.04</u>	0.5
Waitahanui River at Blake Rd	12	0.7	0.6	0.4	1.1	0.4	0.80	0.6
Whangamata Stm (Kinloch) at Whangamata Rd	12	1.6	1.4	0.5	3.0	1.5	0.37	-
Whanganui Stm at Lakeside Lake Taupo	11	1.8	1.1	0.8	8.1	0.7	<u>2.71</u>	1.3
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	3.2	2.7	1.6	6.9	1.5	1.36	2.9

12	7.1	7.0	6.9	7.3	0.2	0.46	7.0
12	7.4	7.5	7.2	7.7	0.2	0.25	7.4
12	7.6	7.6	7.3	7.9	0.4	0.11	7.3
12	7.2	7.3	6.6	8.2	1.0	0.30	7.2
12	7.6	7.5	7.2	8.2	0.6	0.61	7.6
12	7.2	7.2	6.8	7.4	0.2	-0.79	7.1
12	7.3	7.3	7.1	7.5	0.2	-0.15	7.3
12	6.7	6.7	6.4	7.1	0.2	0.39	6.7
12	7.0	7.0	6.7	7.4	0.5	0.09	7.0
12	7.3	7.3	7.1	7.7	0.3	0.55	7.3
12	7.2	7.2	6.8	7.5	0.2	-0.80	7.2
12	7.3	7.2	6.9	7.8	0.5	0.40	7.2
12	7.7	7.6	7.5	8.2	0.5	0.74	7.7
12	8.0	8.0	7.8	8.3	0.4	0.44	7.9

12	6.9	6.9	6.5	7.1	0.2	-0.78	6.9
12	7.4	7.4	7.2	7.5	0.2	-0.36	7.4
12	7.0	7.0	6.8	7.2	0.1	-0.48	7.1
12	7.4	7.4	7.1	7.5	0.2	-1.30	7.4
12	8.1	8.1	7.8	8.4	0.2	0.45	8.0
12	7.4	7.4	7.2	7.5	0.1	-0.38	7.4
12	7.5	7.5	6.8	7.8	0.3	-1.44	7.5
12	7.3	7.2	7.1	7.4	0.3	0.15	7.3
12	5.5	5.6	5.0	6.0	0.5	-0.43	5.5
12	6.8	6.8	6.4	7.0	0.3	-0.49	6.8
12	7.7	7.7	7.5	7.8	0.2	-0.22	7.7
12	7.3	7.3	7.0	7.4	0.1	-0.67	7.2

12	7.4	7.4	7.2	7.8	0.3	0.41	7.4
12	7.5	7.5	7.2	8.0	0.3	0.53	7.5
12	7.5	7.6	7.4	7.7	0.2	0.00	7.4
12	7.8	7.8	7.7	8.0	0.1	0.38	7.7
12	7.9	7.8	7.4	8.2	0.3	-0.38	7.8
12	7.4	7.4	7.3	7.6	0.1	0.67	7.4
12	7.3	7.2	7.0	7.6	0.3	0.33	7.2
12	7.6	7.6	7.1	8.0	0.3	-0.21	7.6
12	7.3	7.3	7.0	7.7	0.3	0.17	7.3
12	7.3	7.3	7.0	7.7	0.3	0.35	7.3
12	7.5	7.5	7.2	8.0	0.4	0.31	7.4
12	7.9	7.9	7.6	8.3	0.4	0.25	7.9
12	7.5	7.5	7.0	8.0	0.3	0.20	7.5
12	7.3	7.3	6.9	7.5	0.2	-0.86	7.2

12	7.5	7.5	7.3	7.6	0.2	0.11	7.4
12	7.2	7.2	7.0	7.4	0.1	0.32	7.1
12	7.5	7.5	7.3	7.8	0.2	0.85	7.5
12	7.4	7.4	7.1	7.6	0.2	-0.53	7.4
12	7.4	7.4	7.2	7.5	0.2	-0.18	7.4
12	7.5	7.5	7.2	7.7	0.2	-0.11	7.4
12	7.2	7.2	7.0	7.3	0.1	-0.91	7.2
12	7.3	7.3	7.2	7.5	0.2	0.61	7.3
12	7.5	7.5	7.3	7.6	0.1	-0.62	7.5
12	7.4	7.4	6.8	7.7	0.2	-1.44	-
11	7.4	7.4	7.2	7.5	0.2	-0.63	7.4
12	7.4	7.4	7.3	7.5	0.2	-0.14	7.4

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

E. Coli (n/100mL)

Location	05-09							
	Count	Mean	Median	Min	Max	IQR	Skew	Median
Coromandel								
Hikutaia River at Old Maratoto Rd	4	558	220	90	1700	845	1.13	250
Kauaeranga River at Smiths Cableway/Recorder	4	245	245	80	410	200	0.00	130
Ohinemuri River at Queens Head	4	1409	110	17	5400	2692	1.15	215
Ohinemuri River at SH25 Br	4	894	130	16	3300	1662	1.15	185
Tairua River at Morrisons Br Hikuai	4	268	130	10	800	445	1.03	180
Tapu River at Tapu-Coroglen Rd	4	534	61	15	2000	1032	1.15	95
Waiau River at E309 Rd Ford	4	413	110	33	1400	734	1.13	160
Waitekauri River at U/S Ohinemuri Conflu	4	512	72	2	1900	977	1.15	115
Waiwawa River at SH25 Coroglen	4	243	180	11	600	305	0.79	210
Wharekawa River at SH25	4	550	430	240	1100	450	0.95	415
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	4	456	56	10	1700	869	1.15	80
Oraka Stm at Lake Rd	4	6733	385	160	26000	13135	1.15	715
Piako River at Kiwitahi	4	360	305	280	550	140	1.12	530
Piako River at Paeroa-Tahuna Rd Br	4	375	370	300	460	110	0.19	600
Piakonui Stm at Piakonui Rd	4	105	95	10	220	150	0.25	80
Waihou River at Okauia	4	320	180	120	800	350	1.13	370
Waihou River at Whites Rd	4	37	38	19	53	30	-0.05	48
Waiohotu Stm at Waiohotu Rd (Off SH5)	4	93	20	11	320	156	1.15	41
Waiomou Stm at Matamata-Tauranga Rd	4	288	250	150	500	215	0.70	420
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	4	293	320	150	380	165	-0.55	465
Waitoa River at Landsdowne Rd Br	4	833	795	240	1500	1135	0.04	430
Waitoa River at Mellon Rd Recorder	4	613	525	100	1300	875	0.35	700
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otua Rd Br opp Moseley Rd	-	-	-	-	-	-	-	-
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	4	310	270	100	600	270	0.62	425
Karapiro Stm at Hickey Rd Bridge	4	373	400	170	520	215	-0.55	530
Kirikiriara Stm at Tauhara Dr	4	640	680	300	900	520	-0.13	900
Komakorau Stm at Henry Rd	4	2250	1750	800	4700	2700	0.64	2150
Little Waipa Stm at Arapuni - Putaruru Rd	4	3070	123	33	12000	6071	1.15	155
Mangakotukutuku Stm (Rukuhia) at Peacocks Rd	3	1433	1500	600	2200	1200	-0.15	1550
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	4	995	625	130	2600	1410	0.95	715
Mangaone Stm at Annebrooke Rd Br	4	850	700	1	2000	1100	0.58	1100
Mangaonua Stm at Hoeka Rd	4	1698	1750	490	2800	1205	-0.19	2250
Mangaonua Stm at Te Miro Rd	4	226	250	24	380	198	-0.53	270
Mangatangi River at SH2 Maramarua	-	-	-	-	-	-	-	-
Mangatawhiri River at Lyons Rd At Buckingham Br	-	-	-	-	-	-	-	-
Mangawara Stm at Rutherford Rd Br	-	-	-	-	-	-	-	-
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	4	1315	1550	360	1800	770	-1.03	1450
Matahuru Stm at Waiterimu Road Below Confluence	-	-	-	-	-	-	-	-
Ohaeroa Stm at SH22 Br	-	-	-	-	-	-	-	-
Opuatia Stm at Ponganui Rd	4	290	270	120	500	280	0.25	430
Pokaiwhenua Stm at Arapuni - Putaruru Rd	4	1447	120	47	5500	2757	1.15	210
Waerenga Stm at Taniwha Rd	4	820	500	380	1900	860	1.09	500
Waitawhiriwhiri Stm at Edgcombe Street	4	1288	1400	250	2100	1025	-0.48	1400
Whakapipi Stm at SH22 Br	-	-	-	-	-	-	-	-
Whakauru Stm at U/S SH1 Br	4	1588	355	140	5500	2715	1.15	425
Whangamarino River at Island Block Rd	-	-	-	-	-	-	-	-
Whangamarino River at Jefferies Rd Br	-	-	-	-	-	-	-	-
Whangape Stm at Rangiriri-Glen Murray Rd	-	-	-	-	-	-	-	-

Enterococci (n/100ml)

Location	05-09							
	Count	Mean	Median	Min	Max	IQR	Skew	Median
Coromandel								
Hikutaia River at Old Maratoto Rd	4	368	133	4	1200	675	1.07	110
Kauaeranga River at Smiths Cableway/Recorder	4	185	175	100	290	160	0.13	55
Ohinemuri River at Queens Head	4	1325	51	1	5200	2629	1.15	24
Ohinemuri River at SH25 Br	4	1156	55	13	4500	2269	1.15	36
Tairua River at Morrisons Br Hikuai	4	170	95	1	490	280	0.96	51
Tapu River at Tapu-Coroglen Rd	4	184	51	6	630	322	1.14	70
Waiau River at E309 Rd Ford	4	573	195	2	1900	1064	1.08	115
Waitekauri River at U/S Ohinemuri Conflu	4	486	20	6	1900	954	1.15	16
Waiwawa River at SH25 Coroglen	4	164	135	4	380	233	0.52	135
Wharekawa River at SH25	4	259	245	54	490	343	0.11	175
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	4	508	261	11	1500	994	0.81	170
Oraka Stm at Lake Rd	4	1003	260	90	3400	1765	1.14	410
Piako River at Kiwitahi	4	378	290	80	850	395	0.83	300
Piako River at Paeroa-Tahuna Rd Br	4	308	245	140	600	255	0.91	390
Piakonui Stm at Piakonui Rd	4	139	85	7	380	242	0.80	91
Waihou River at Okauia	4	149	150	54	240	123	-0.05	205
Waihou River at Whites Rd	4	23	19	16	38	13	1.01	22
Waiohotu Stm at Waiohotu Rd (Off SH5)	4	61	9	5	220	112	1.15	24
Waiomou Stm at Matamata-Tauranga Rd	4	120	127	36	190	130	-0.11	220
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	4	223	255	100	280	105	-1.02	250
Waitoa River at Landsdowne Rd Br	4	299	235	25	700	443	0.57	275
Waitoa River at Mellon Rd Recorder	4	383	335	160	700	375	0.47	330
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otua Rd Br opp Moseley Rd	-	-	-	-	-	-	-	-
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	4	99	90	26	190	123	0.25	115
Karapiro Stm at Hickey Rd Bridge	4	140	155	21	230	130	-0.49	210
Kirikiriara Stm at Tauhara Dr	4	643	535	200	1300	815	0.43	610
Komakorau Stm at Henry Rd	4	1035	995	350	1800	1230	0.07	910
Little Waipa Stm at Arapuni - Putaruru Rd	4	756	42	39	2900	1432	1.15	70
Mangakotukutuku Stm (Rukuhia) at Peacocks Rd	3	1983	2000	450	3500	2288	-0.02	575
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	4	385	245	50	1000	530	0.95	300
Mangaone Stm at Annebrooke Rd Br	4	528	305	1	1500	775	0.98	550
Mangaonua Stm at Hoeka Rd	4	783	655	120	1700	935	0.58	700
Mangaonua Stm at Te Miro Rd	4	279	320	24	450	313	-0.44	185
Mangatangi River at SH2 Maramarua	-	-	-	-	-	-	-	-
Mangatawhiri River at Lyons Rd At Buckingham Br	-	-	-	-	-	-	-	-
Mangawara Stm at Rutherford Rd Br	-	-	-	-	-	-	-	-
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	4	1191	1200	64	2300	1218	-0.03	530
Matahuru Stm at Waiterimu Road Below Confluence	-	-	-	-	-	-	-	-
Ohaeroa Stm at SH22 Br	-	-	-	-	-	-	-	-
Opuatia Stm at Ponganui Rd	4	143	170	21	210	105	-0.95	170
Pokaiwhenua Stm at Arapuni - Putaruru Rd	4	654	104	10	2400	1282	1.14	100
Waerenga Stm at Taniwha Rd	4	137	125	57	240	97	0.52	300
Waitawhiriwhiri Stm at Edgcombe Street	4	1503	1550	110	2800	1795	-0.11	1450
Whakapipi Stm at SH22 Br	-	-	-	-	-	-	-	-
Whakauru Stm at U/S SH1 Br	4	691	350	63	2000	1089	1.04	320
Whangamarino River at Island Block Rd	-	-	-	-	-	-	-	-
Whangamarino River at Jefferies Rd Br	-	-	-	-	-	-	-	-
Whangape Stm at Rangiriri-Glen Murray Rd	-	-	-	-	-	-	-	-

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

Waipa River and Tributaries								
Kaniwhaniwha Stm at Wright Rd	-	-	-	-	-	-	-	-
Mangaohoi Stm at South Branch Maru Rd	4	99	77	2	240	182	0.36	46
Mangaokewa Stm at Te Kuiti Borough W/S Intake	-	-	-	-	-	-	-	-
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	-	-	-	-	-	-	-	-
Mangapu River at Otorohanga	4	870	800	380	1500	860	0.25	615
Mangatutu Stm (Waikeria) at Walker Rd Br	4	230	160	100	500	210	1.06	310
Mangauika Stm at Te Awamutu Borough W/S Intake	4	48	22	8	140	72	1.10	13
Ohote Stm at Whatawhata/Horotiu Rd	4	273	290	100	410	245	-0.20	300
Puniu River at Bartons Corner Rd Br	-	-	-	-	-	-	-	-
Waipa River at Mangaokewa Rd	-	-	-	-	-	-	-	-
Waipa River at Pirongia-Ngutunui Rd Br	4	505	330	160	1200	670	0.87	405
Waipa River at SH3 Otorohanga	4	268	235	140	460	205	0.63	340
Waitomo Stm at SH31 Otorohanga	4	613	535	180	1200	775	0.31	390
Waitomo Stm at Tumutumu Rd	4	193	125	100	420	175	1.11	245

Tributaries to the upper Waikato River								
Kawaunui Stm at SH5 Br	4	813	800	51	1600	1075	0.05	1075
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	4	300	225	50	700	330	0.84	250
Mangakara Stm (Reporoa) at SH5	4	760	260	19	2500	1241	1.12	455
Mangakino Stm (Whakamaru) at Sandel Rd	-	-	-	-	-	-	-	-
Otamakokore Stm at Hossack Rd	4	515	440	180	1000	600	0.42	455
Pueto Stm at Broadlands Rd Br	4	19	17	12	31	10	0.91	30
Tahunaatara Stm at Ohakuri Rd	4	287	105	38	900	436	1.13	230
Torepatutahi Stm at Vaile Rd Br	-	-	-	-	-	-	-	-
Waiotapu Stm at Campbell Rd Br	4	4	4	1	7	5	0.10	2
Waiotapu Stm at Homestead Rd Br	-	-	-	-	-	-	-	-
Waipapa Stm (Mokai) at Tirohanga Rd Br	4	853	125	60	3100	1545	1.15	190
Whirinaki Stm at Corbett Rd	-	-	-	-	-	-	-	-

West Coast								
Awakino River at Gribbon Rd	4	251	225	33	520	389	0.18	130
Awakino River at SH3 Awakau Rd Junction	4	1275	810	280	3200	1950	0.79	260
Manganui River at Off Manganui Rd	4	1425	255	90	5100	2610	1.15	250
Mangaotaki River at SH3 Br	-	-	-	-	-	-	-	-
Marokopa River at Speedies Rd (Off Te Anga Rd)	4	195	140	50	450	260	0.77	285
Mokau River at Awakau Rd	4	538	585	130	850	575	-0.22	270
Mokau River at Mangaokewa Rd (Off SH30)	4	150	130	38	300	151	0.56	210
Mokau River at Totoro Rd Recorder	4	785	900	240	1100	530	-0.82	560
Mokauiti Stm at Three Way Point - Aria	4	390	405	150	600	390	-0.07	465
Ohautira Stm at Waingaro Te Uku Rd	4	1965	750	260	6100	3170	1.11	635
Oparau River at Langdon Rd (Off Okupata Rd)	-	-	-	-	-	-	-	-
Tawarau River at Off Speedies Rd	-	-	-	-	-	-	-	-
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	-	-	-	-	-	-	-	-
Waitetuna River at Te Uku-Waingaro Rd	4	793	795	280	1300	915	0.00	705

Inflows to Lake Taupo								
Hinemaiaia River at SH1	4	12	13	6	16	7	-0.48	15
Kuratau River at SH41 Moerangi	-	-	-	-	-	-	-	-
Kuratau River at 43 Te Rae Street	4	50	25	9	140	67	1	41
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	4	39	37	28	53	19	0.33	66
Tauranga-Taupo River at Te Kono Slackline	-	-	-	-	-	-	-	-
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Ca	-	-	-	-	-	-	-	-
Tokaanu Stm at Off SH41 Turangi	-	-	-	-	-	-	-	-
Waihaha River at SH32	4	19	7	1	60	33	1.09	8
Waitahanui River at Blake Rd	4	19	19	9	28	13	-0.09	22
Whangamata Stm (Kinloch) at Whangamata Rd	-	-	-	-	-	-	-	-
Whanganui Stm at Lakeside Lake Taupo	4	45	24	1	130	67	1.03	51
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	4	114	78	31	270	162	0.75	125

-	-	-	-	-	-	-	-	-
4	124	107	13	270	212	0.19	80	
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
4	140	143	54	220	141	-0.04	130	
4	184	106	23	500	313	0.83	140	
4	12	7	2	31	19	0.88	13	
4	57	44	18	120	57	0.85	49	
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
4	101	75	24	230	138	0.68	110	
4	173	66	20	540	295	1.09	130	
4	106	99	28	200	148	0.10	100	
4	77	66	5	170	137	0.18	61	

4	510	195	50	1600	860	1.10	230
4	72	59	30	140	66	0.78	130
4	677	141	28	2400	1286	1.13	240
-	-	-	-	-	-	-	-
4	440	200	60	1300	710	1.06	160
4	27	24	8	52	27	0.48	19
4	81	81	12	150	119	0.00	140
-	-	-	-	-	-	-	-
4	6	4	1	15	8	1.02	4
-	-	-	-	-	-	-	-
4	609	205	24	2000	1133	1.07	125
-	-	-	-	-	-	-	-

4	122	91	7	300	226	0.40	41
4	446	38	9	1700	868	1.15	25
4	762	72	4	2900	1507	1.15	40
-	-	-	-	-	-	-	-
4	35	26	8	80	50	0.65	70
4	95	80	38	180	91	0.64	28
4	112	32	23	360	171	1.15	55
4	465	100	58	1600	791	1.15	140
4	177	109	18	470	297	0.79	120
4	277	190	29	700	436	0.74	140
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
4	158	128	36	340	234	0.37	225

4	229	7	1	900	455	1.15	7
-	-	-	-	-	-	-	-
4	21	22	7	33	25	0	33
4	713	115	20	2600	1325	1.15	39
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
4	228	5	1	900	453	1.15	6
4	444	87	1	1600	883	1.12	9
-	-	-	-	-	-	-	-
4	461	23	1	1800	910	1.15	24
4	156	135	13	340	189	0.48	105

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

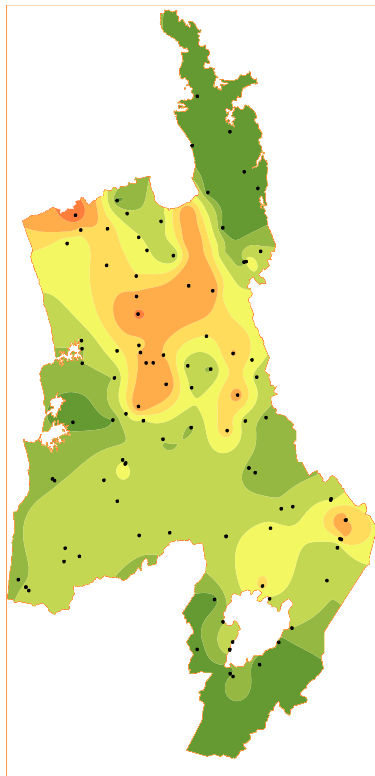
Temperature (°C)

Location	Count	Mean	Median	Min	Max	IQR	Skew	05-09
								Median
Coromandel								
Hikutai River at Old Maratoto Rd	12	14.4	13.8	9.7	22.6	4.0	0.92	14.1
Kauaeranga River at Smiths Cableway/Recorder	12	15.4	14.3	10.4	24.7	6.5	0.78	15.3
Ohinemuri River at Queens Head	12	16.6	15.7	12.4	25.5	6.2	0.81	16.7
Ohinemuri River at SH25 Br	12	16.6	15.7	12.9	24.8	5.4	0.86	16.6
Tairua River at Morrisons Br Hikuai	12	17.0	15.7	11.7	25.8	6.1	0.70	16.5
Tapu River at Tapu-Coroglen Rd	12	14.9	13.9	10.4	23.9	5.7	0.85	14.9
Waiau River at E309 Rd Ford	12	14.6	14.2	10.4	21.9	3.7	0.88	14.6
Waitekauri River at U/S Ohinemuri Conflu	12	15.8	15.0	12.0	24.3	5.5	0.92	15.7
Waiwawa River at SH25 Coroglen	12	16.2	15.2	11.8	25.4	6.5	0.76	15.0
Wharekawa River at SH25	12	16.1	15.3	11.4	25.8	5.1	0.91	16.1
Hauraki								
Mangawhero Stm (Kaihere) at Mangawara Rd	12	13.8	13.2	10.5	18.4	4.5	0.43	13.6
Oraka Stm at Lake Rd	12	13.7	14.1	8.0	16.8	3.2	-0.85	14.6
Piako River at Kiwitahi	12	15.3	15.5	7.6	23.4	7.5	0.20	16.4
Piako River at Paeroa-Tahuna Rd Br	12	14.4	14.9	6.7	23.1	7.4	0.23	15.6
Piakonui Stm at Piakonui Rd	12	12.8	13.1	6.9	18.9	4.7	0.19	13.0
Waihou River at Okauia	12	14.0	14.3	7.7	17.2	3.7	-0.83	14.5
Waihou River at Whites Rd	12	13.3	13.4	11.8	14.3	0.7	-0.72	13.5
Waiohotu Stm at Waiohotu Rd (Off SH5)	12	10.7	11.1	3.8	14.3	3.8	-0.96	11.3
Waiomou Stm at Matamata-Tauranga Rd	12	13.0	13.3	5.8	17.1	4.2	-0.84	13.5
Waitakaruru River (Hauraki Plains) at Coxhead Rd Br	12	16.4	15.9	12.0	21.7	7.3	0.13	16.2
Waitoa River at Landsdowne Rd Br	12	14.4	14.9	6.5	21.7	7.3	0.12	15.0
Waitoa River at Mellon Rd Recorder	12	14.6	15.2	7.0	22.9	7.2	0.17	15.9
Tributaries to the lower Waikato River								
Awaroa River (Waiuku) at Otaua Rd Br opp Moseley Rd	12	17.0	16.4	12.0	23.1	7.2	0.15	17.1
Awaroa Stm (Rotowaro) at Sansons Br, Rotowaro-Huntly Rd	12	14.3	13.1	7.4	20.6	6.0	0.00	14.6
Karapiro Stm at Hickey Rd Bridge	12	14.8	15.4	7.1	22.4	7.7	0.09	15.4
Kirikiri River at Tauhara Dr	12	14.8	15.1	9.2	21.3	5.1	0.22	15.3
Komakorau Stm at Henry Rd	12	14.8	13.7	8.5	20.5	5.5	0.06	15.1
Little Waipa Stm at Arapuni - Putaruru Rd	12	13.9	14.4	10.1	16.3	2.2	-0.89	14.6
Mangakotukutuku Stm (Rukuhia) at Peacocks Rd	9	14.1	14.9	7.8	19.3	6.1	-0.23	15.5
Mangamingi Stm (Tokoroa) at Paraonui Rd Br	12	13.5	14.5	5.7	17.7	4.9	-0.90	14.6
Mangaone Stm at Annebrooke Rd Br	12	13.1	13.6	7.2	18.9	4.9	0.02	13.7
Mangaonua Stm at Hoeka Rd	12	13.4	13.5	6.6	20.3	5.0	0.18	13.8
Mangaonua Stm at Te Miro Rd	12	14.0	13.9	8.1	21.4	5.9	0.46	14.3
Mangatangi River at SH2 Maramarua	12	16.1	15.4	11.8	21.9	5.8	0.29	16.3
Mangatawhiri River at Lyons Rd At Buckingham Br	12	16.8	15.5	12.3	23.3	8.5	0.32	17.0
Mangawara Stm at Rutherford Rd Br	12	15.0	14.5	11.5	19.4	5.1	0.24	15.1
Mangawhero Stm (Cambridge) at Cambridge-Ohaupo Rd	12	13.9	14.1	7.7	18.9	5.3	0.09	14.3
Matahuru Stm at Waiterimu Road Below Confluence	12	14.7	14.1	11.0	18.2	4.0	0.07	14.7
Ohaeroa Stm at SH22 Br	12	14.6	13.4	11.3	19.0	4.4	0.45	14.5
Opuatia Stm at Ponganui Rd	12	15.2	13.7	11.3	21.1	5.7	0.49	14.7
Pokaiwhenua Stm at Arapuni - Putaruru Rd	12	13.6	14.2	7.6	17.3	3.5	-0.84	14.3
Waerenga Stm at Taniwha Rd	12	14.1	14.0	10.6	18.9	4.5	0.32	14.2
Waitawhiriwhiri Stm at Edgecumbe Street	12	16.0	16.3	10.3	22.5	5.7	0.20	16.5
Whakapipi Stm at SH22 Br	12	15.3	14.7	11.7	19.4	4.3	0.21	15.3
Whakauru Stm at U/S SH1 Br	12	11.9	12.2	5.2	15.7	3.5	-0.93	12.6
Whangamarino River at Island Block Rd	12	17.7	16.7	11.7	24.8	6.9	0.22	17.7
Whangamarino River at Jefferies Rd Br	12	14.7	14.5	10.5	19.4	5.2	0.17	14.6
Whangape Stm at Rangiriri-Glen Murray Rd	12	16.1	15.7	10.9	21.6	6.3	0.17	16.8

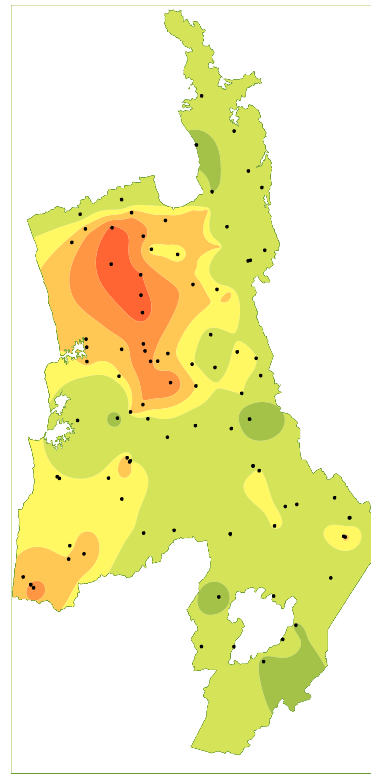
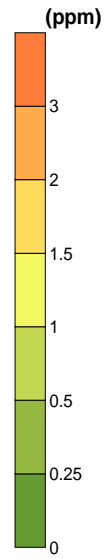
IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions

Waipa River and Tributaries								
Kaniwhaniwha Stm at Wright Rd	12	14.2	13.6	7.5	20.1	5.7	-0.05	14.5
Mangaohoi Stm at South Branch Maru Rd	12	13.7	13.3	9.4	18.8	5.9	0.34	13.5
Mangaokewa Stm at Te Kuiti Borough W/S Intake	12	13.6	13.5	9.9	18.4	4.6	0.30	13.3
Mangapiko Stm (Pirongia/Te Awamutu) at Bowman Rd	12	15.8	15.0	7.7	23.4	8.9	0.18	15.9
Mangapu River at Otorohanga	11	15.7	15.2	10.8	21.5	6.7	0.27	15.3
Mangatutu Stm (Waikeria) at Walker Rd Br	12	13.9	13.4	6.9	22.5	6.5	0.33	14.1
Mangauika Stm at Te Awamutu Borough W/S Intake	12	12.2	12.1	7.8	15.9	2.9	-0.21	12.4
Ohote Stm at Whatawhata/Horotiu Rd	12	15.0	15.1	7.8	21.5	7.3	0.09	15.7
Puniu River at Bartons Corner Rd Br	12	14.9	15.0	7.7	23.2	7.3	0.27	14.9
Waipa River at Mangaokewa Rd	11	13.9	14.3	8.8	19.5	7.4	-0.02	14.1
Waipa River at Pirongia-Ngutunui Rd Br	12	15.2	14.9	8.2	21.7	6.2	0.09	15.1
Waipa River at SH3 Otorohanga	11	15.0	13.9	9.6	21.4	8.8	0.21	15.0
Waitomo Stm at SH31 Otorohanga	12	14.9	14.4	9.1	20.8	4.9	0.23	14.8
Waitomo Stm at Tumutumu Rd	12	14.0	13.4	10.1	19.0	3.2	0.52	13.9
Tributaries to the upper Waikato River								
Kawaunui Stm at SH5 Br	12	14.5	14.8	9.6	20.0	3.1	-0.14	14.7
Mangaharakeke Stm (Atiamuri) at SH30 (Off Jct SH1)	12	12.7	12.9	8.1	17.0	2.5	-0.50	13.0
Mangakara Stm (Reporoa) at SH5	12	13.1	13.6	7.8	17.7	3.1	-0.52	13.5
Mangakino Stm (Whakamaru) at Sandel Rd	12	11.8	12.4	6.8	14.9	4.5	-0.49	12.1
Otamakokore Stm at Hossack Rd	12	20.4	20.6	15.9	24.1	3.0	-0.48	20.6
Pueto Stm at Broadlands Rd Br	12	13.7	13.9	10.1	18.1	2.5	0.08	13.8
Tahunaatara Stm at Ohakuri Rd	12	13.0	13.4	5.4	18.8	4.9	-0.55	14.1
Torepatutahi Stm at Vaile Rd Br	12	14.0	14.1	8.9	19.1	3.1	-0.24	14.5
Waiotapu Stm at Campbell Rd Br	12	28.4	28.7	24.4	32.4	3.7	-0.08	28.5
Waiotapu Stm at Homestead Rd Br	12	18.6	18.7	13.2	23.1	4.2	-0.32	18.9
Waipapa Stm (Mokai) at Tirohanga Rd Br	12	22.0	22.0	17.8	25.3	2.8	-0.43	22.0
Whirinaki Stm at Corbett Rd	12	12.6	12.6	10.2	15.5	1.9	0.25	12.5
West Coast								
Awakino River at Gribbon Rd	12	12.8	12.6	9.7	17.1	3.5	0.54	12.8
Awakino River at SH3 Awakau Rd Junction	12	14.7	14.7	10.1	21.2	5.5	0.44	14.7
Manganui River at Off Manganui Rd	12	13.7	13.5	9.9	18.5	4.6	0.44	13.8
Mangaotaki River at SH3 Br	12	13.6	13.3	10.0	18.1	4.3	0.47	13.5
Marokopa River at Speedies Rd (Off Te Anga Rd)	12	14.2	13.9	7.5	20.8	5.0	0.06	14.2
Mokau River at Awakau Rd	12	15.1	14.8	11.0	21.3	6.0	0.52	14.9
Mokau River at Mangaokewa Rd (Off SH30)	11	12.4	12.2	8.3	17.3	5.4	0.18	12.7
Mokau River at Totoro Rd Recorder	12	14.8	14.6	10.4	19.7	6.0	0.13	14.9
Mokauiti Stm at Three Way Point - Aria	12	14.8	14.8	10.2	20.3	6.3	0.27	15.1
Ohautira Stm at Waingaro Te Uku Rd	12	12.3	11.3	5.6	18.4	4.1	-0.09	13.0
Oparau River at Langdon Rd (Off Okupata Rd)	12	14.2	13.9	6.8	20.7	5.6	-0.01	14.4
Tawarau River at Off Speedies Rd	12	13.5	13.4	7.3	18.5	4.6	-0.10	13.6
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	14.7	13.4	7.1	20.8	5.6	-0.11	15.2
Waitetuna River at Te Uku-Waingaro Rd	12	13.5	12.5	6.8	19.7	4.9	-0.03	14.4
Inflows to Lake Taupo								
Hinemaiaia River at SH1	12	10.9	11.1	4.1	15.8	6.0	-0.35	11.2
Kuratau River at SH41 Moerangi	12	8.6	8.5	4.0	11.4	3.5	-0.56	8.8
Kuratau River at 43 Te Rae Street	12	12.6	13.2	5.4	18.5	7.7	-0.17	13.3
Mapara Stm (Lake Taupo) at Off Mapara Rd (Whakaipo Res)	12	10.2	10.4	7.3	12.2	2.0	-0.50	10.6
Tauranga-Taupo River at Te Kono Slackline	12	10.1	10.0	4.8	13.8	5.0	-0.23	10.0
Tokaanu Power Station Tailrace Canal at SH41 Bridge Over Canal	12	13.0	13.9	5.8	18.9	8.1	-0.26	12.8
Tokaanu Stm at Off SH41 Turangi	12	12.6	12.7	11.3	15.1	1.8	0.68	12.1
Waihaha River at SH32	12	10.6	11.2	5.3	14.0	4.4	-0.51	10.9
Waitahanui River at Blake Rd	12	10.5	10.7	7.9	13.7	1.6	0.36	10.6
Whangamata Stm (Kinloch) at Whangamata Rd	12	9.6	9.6	6.9	12.0	1.4	-0.12	-
Whanganui Stm at Lakeside Lake Taupo	11	10.9	11.2	4.6	13.9	3.9	-0.98	11.1
Whareroa Stm (Taupo District) at Lakeside Lake Taupo	12	10.7	11.2	5.1	13.9	3.6	-0.82	11.4

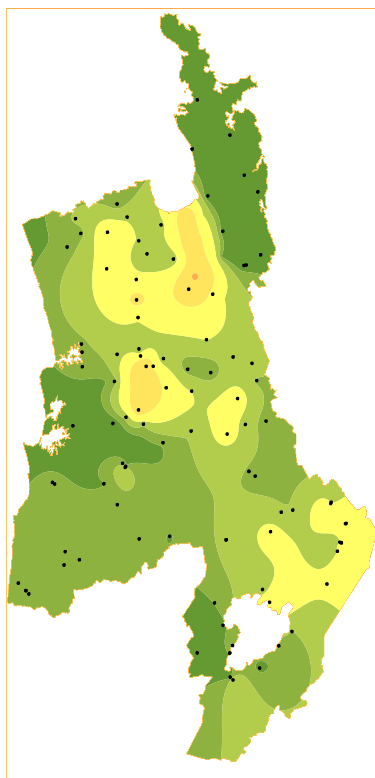
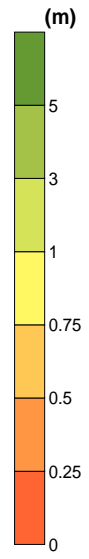
IQR = Inter quartile range; Underlined values indicate parameters having non-normal distributions



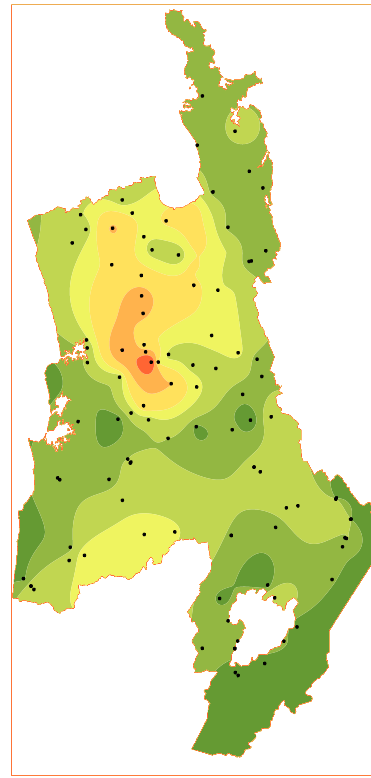
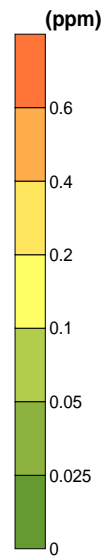
a: Total Nitrogen



c: Black Disk



b: Total Phosphorus



d: Dissolved Colour

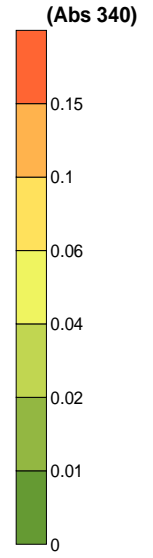


Figure 2: Spatial contour plots of four water quality parameters (based on 5 year median values, 2005-2009); a: Total Nitrogen, b: Total Phosphorus, c: Black disk, d: Dissolved colour (Abs 340).

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

Number of samples (2009) that comply with satisfactory water quality standards and with excellent water quality standards and guidelines (*n=9, ^n=11)

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

Location	EXCELLENT										
	ECOLOGICAL HEALTH						RECREATION				
	DO	pH	Turb	NH4	Temp	TP	TN	Bdisk	E.coli	E.coli-m	
Coromandel											
	12	11	9	12	6	10	6	2	0/4	N	
	12	11	10	12	2	11	7	2	0/4	N	
	12	7	10	9	1	2	0	0	1/4	N	
	12	8	10	11	1	1	0	0	1/4	N	
	11	9	7	12	1	11	8	1^	1/4	N	
	12	11	9	12	3	10	10	4	2/4	N	
	12	11	2	12	4	11	5	0	1/4	N	
	12	10	9	12	1	10	1	0	2/4	N	
	12	11	8	12	1	10	9	1	1/4	N	
	11	6	1	12	1	8	0	0	0/4	N	
Hauraki											
	12	12	0	12	4	0	0	0	2/4	N	
	11	12	0	11	7	0	0	0	0/4	N	
	9	9	1	10	3	0	0	0	0/4	N	
	3	11	0	10	5	0	0	0	0/4	N	
	11	12	0	12	7	0	0	0	2/4	N	
	12	10	0	12	4	0	0	0	0/4	N	
	12	4	12	12	7	0	0	11	4/4	N	
	4	10	5	12	10	0	0	n/a	3/4	Y	
	12	9	1	12	7	0	0	0	0/4	N	
	11	11	0	11	2	0	0	0	0/4	N	
	5	11	2	12	6	0	0	0	0/4	N	
	1	12	0	9	5	0	0	0	0/4	N	
Tributaries to the Lower Waikato River											
	8	8	0	10	2	0	0	0	n/a	n/a	
	4	12	0	9	3	0	0	0	0/4	N	
	11	12	0	12	5	0	0	0	0/4	N	
	0	2	0	1	4	0	0	0	0/4	N	
	0	0	0	0	3	0	0	0	0/4	N	
	12	8	9	11	5	0	0	0	2/4	N	
	2*	6*	0*	0*	2*	0*	0*	0*	0/3	N	
	12	12	0	4	5	0	0	0	0/4	N	
	1	12	0	12	5	0	0	0	1/4	N	
	1	6	0	8	5	0	0	0	0/4	N	
	12	12	0	12	6	0	0	0	1/4	N	
	0	9	0	11	2	0	0	0	n/a	n/a	
	12	12	2	12	2	0	1	0	n/a	n/a	
	1	2	0	1	3	0	0	0	n/a	n/a	
	1	8	0	5	5	0	0	0	0/4	N	
	1	8	0	9	3	0	0	0	n/a	n/a	
	12	11	0	12	4	0	0	0	n/a	n/a	
	12	11	0	12	2	0	0	0	0/4	N	
	12	12	6	12	6	0	0	0	1/4	N	
	11	11	0	12	3	0	0	0	0/4	N	
	0	7	0	0	1	0	0	0	0/4	N	
	5	12	0	12	2	0	0	0	n/a	n/a	
	12	12	0	12	9	0	0	0	0/4	N	
	2	4	0	10	0	0	0	0	n/a	n/a	
	0	8	0	10	3	0	0	0	n/a	n/a	
	9	10	0	7	1	0	0	0	n/a	n/a	

Waipa River and Tributaries																				
Kaniwhaniwha Strm at Wright Rd	9	12	3	12	9	9	5	1	n/a	n/a	2	10	0	12	4	0	0	0	n/a	n/a
Mangaohoi Strm at South Branch Maru Rd	12	12	12	12	11	5	8	4^	4/4	Y	12	12	10	12	5	0	0	0^	2/4	N
Mangaokewa Strm at Te Kuiti Borough W/S Intake	12	12	6	12	10	5	3	1	n/a	n/a	10	12	0	12	5	0	0	0	n/a	n/a
Mangapiko Strm (Pirongia/Te Awamutu) at Bowman Rd	12	12	4	12	7	0	0	0^	n/a	n/a	8	6	1	9	2	0	0	0^	n/a	n/a
Mangapu River at Otorohanga	11	12	4	12	6	0	0	0	2/4	N	7	10	0	12	1	0	0	0	0/4	N
Mangatutu Strm (Waikeria) at Walker Rd Br	11	12	8	12	11	9	6	4^	4/4	N	11	11	6	12	5	0	0	0^	0/4	N
Mangauika Strm at Te Awamutu Borough W/S Intake	11	12	11	12	11	11	11	11	4/4	Y	11	12	10	12	8	9	0	3	3/4	Y
Ohote Strm at Whatawhata/Horotiu Rd	0	11	0	12	8	1	0	0	4/4	N	0	1	0	9	4	0	0	0	0/4	N
Puniu River at Bartons Corner Rd Br	12	12	6	12	8	3	1	3^	n/a	n/a	9	8	3	12	4	0	0	0^	n/a	n/a
Waipa River at Mangaokewa Rd	11	12	11	12	10	10	2	2	n/a	n/a	11	12	4	12	7	0	0	0	n/a	n/a
Waipa River at Pirongia-Ngutu Rd Br	11	12	2	12	8	2	2	1	3/4	N	6	11	0	12	3	0	0	0	0/4	N
Waipa River at SH3 Otorohanga	11	12	6	12	7	10	5	2	4/4	N	11	11	4	12	2	0	0	0	0/4	N
Waitomo Strm at SH31 Otorohanga	11	12	4	12	7	7	2	2	2/4	N	11	9	0	12	4	0	0	0	0/4	N
Waitomo Strm at Tumutumu Rd	11	12	6	12	9	10	0	4	4/4	Y	11	8	3	12	5	0	0	0	0/4	N
Tributaries to the Upper Waikato River																				
Kawaunui Strm at SH5 Br	12	12	10	12	8	0	0	4	2/4	N	1	4	1	12	4	0	0	0	1/4	N
Mangaharakeke Strm (Atiamuri) at SH30 (Off Jct SH1)	12	12	6	12	9	0	3	0	3/4	N	12	12	0	12	8	0	0	0	1/4	N
Mangakara Strm (Reporoa) at SH5	12	12	6	12	10	0	0	1	3/4	N	12	10	0	12	8	0	0	0	1/4	N
Mangakino Strm (Whakamaru) at Sandel Rd	11	12	11	12	12	1	0	9^	n/a	n/a	11	12	10	12	11	0	0	0^	n/a	n/a
Otamakokore Strm at Hossack Rd	12	12	8	12	0	0	0	0	2/4	N	10	6	0	12	0	0	0	0	0/4	N
Pueto Strm at Broadlands Rd Br	12	12	12	12	9	0	7	6	4/4	Y	12	12	4	12	5	0	0	0	4/4	Y
Tahunaatara Strm at Ohakuri Rd	12	12	10	12	11	0	0	2	3/4	Y	12	11	1	12	6	0	0	0	1/4	N
Torepatutahi Strm at Vaile Rd Br	12	12	12	12	9	0	5	n/a	n/a	n/a	12	12	12	12	6	0	0	n/a	n/a	n/a
Waiotapu Strm at Campbell Rd Br	12	0	1	4	0	0	0	2	4/4	Y	3	0	0	0	0	0	0	0	4/4	Y
Waiotapu Strm at Homestead Rd Br	12	11	3	12	2	0	0	0^	n/a	n/a	5	2	0	3	0	0	0	0^	n/a	n/a
Waipapa Strm (Mokai) at Tirohanga Rd Br	12	12	6	12	0	0	0	1	3/4	Y	12	12	0	12	0	0	0	0	0/4	N
Whirinaki Strm at Corbett Rd	12	12	12	12	11	0	0	n/a	n/a	n/a	12	12	12	12	7	0	0	n/a	n/a	n/a
West Coast																				
Awakino River at Gribbon Rd	12	12	11	12	11	11	12	5	4/4	N	12	12	7	12	6	1	2	1	1/4	N
Awakino River at SH3 Awakau Rd Junction	12	12	5	12	8	9	8	1	2/4	N	12	12	2	12	4	1	0	0	0/4	N
Manganui River at Off Manganui Rd	12	12	3	12	11	8	12	2	3/4	N	12	12	1	12	5	0	1	0	0/4	N
Mangaotaki River at SH3 Br	12	12	3	12	10	9	0	1	n/a	n/a	12	12	0	12	4	0	0	0	n/a	n/a
Marokopa River at Speedies Rd (Off Te Anga Rd)	11	12	6	12	9	9	9	2	4/4	N	11	8	1	12	4	0	0	0	1/4	N
Mokau River at Awakau Rd	11	12	1	12	9	4	3	0	2/4	N	10	12	0	12	3	0	0	0	0/4	N
Mokau River at Mangaokewa Rd (Off SH30)	11	12	10	12	10	8	6	1	4/4	N	11	12	1	12	7	0	0	0	1/4	N
Mokau River at Totoro Rd Recorder	12	12	4	12	10	8	2	1	1/4	N	12	12	1	12	3	0	0	0	0/4	N
Mokauti Strm at Three Way Point - Aria	12	12	2	12	9	6	5	0	2/4	N	10	12	0	12	4	0	0	0	0/4	N
Ohautira Strm at Waingaro Te Uku Rd	12	12	1	12	12	4	6	0	2/4	N	11	12	0	12	7	0	0	0	0/4	N
Oparau River at Langdon Rd (Off Okupata Rd)	11	12	10	12	9	11	11	6	n/a	n/a	11	12	5	12	4	4	3	0	n/a	n/a
Tawarau River at Off Speedies Rd	11	12	7	12	11	11	9	3	n/a	n/a	11	8	2	12	6	0	0	0	n/a	n/a
Waingaro River (Pukemiro) at Ruakiwi Rd Off SH22	12	12	2	12	8	6	4	2	n/a	n/a	11	12	0	12	3	0	0	0	n/a	n/a
Waitetuna River at Te Uku-Waingaro Rd	12	12	1	12	11	6	5	1^	2/4	N	11	11	0	12	4	0	0	0^	0/4	N
Inflows to Lake Taupo																				
Hinemaiaia River at SH1	12	12	12	12	12	9	12	12	4/4	Y	12	12	11	12	12	0	4	0	4/4	Y
Kuratau River at SH41 Moerangi	11	12	12	12	12	12	11	11	n/a	n/a	11	12	10	12	12	11	3	4	n/a	n/a
Kuratau River at 43 Te Rae Street	11	12	12	12	12	12	1	n/a	4/4	Y	11	12	12	12	6	4	1	n/a	3/4	N
Mapara Strm (Lake Taupo) at Off Mapara Rd (Whakaipc	12	12	11	12	12	0	0	1	4/4	Y	1	12	0	12	11	0	0	0	4/4	N
Tauranga-Taupo River at Te Kono Slackline	12	12	12	12	12	12	12	11	n/a	n/a	12	12	11	12	12	0	3	5	n/a	n/a
Tokaanu Power Station Tailrace Canal at SH41 Bridge (11	12	12	12	12	12	12	n/a	n/a	n/a	11	12	11	12	6	3	10	n/a	n/a	n/a
Tokaanu Strm at Off SH41 Turangi	10	12	12	12	12	0	11	n/a	n/a	n/a	0	12	12	12	7	0	0	n/a	n/a	n/a
Waihaha River at SH32	11	12	12	12	12	12	12	12	4/4	Y	11	12	11	12	12	0	0	7	3/4	Y
Waitahanui River at Blake Rd	12	12	12	12	12	1	6	12	4/4	Y	12	12	12	12	10	0	0	5	4/4	Y
Whangamata Strm (Kinloch) at Whangamata Rd	12	12	12	12	12	0	0	n/a	n/a	n/a	12	11	7	12	11	0	0	n/a	n/a	n/a
Whanganui Strm at Lakeside Lake Taupo	10	11	10	11	11	11	9	n/a	4/4	Y	10	11	10	11	11	0	0	n/a	3/4	Y
Whareroa Strm (Taupo District) at Lakeside Lake Taupo	11	12	10	12	12	11	0	n/a	4/4	Y	11	12	4	12	11	0	0	n/a	2/4	N

E.coli-m refers to whether the 2009 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

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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)	Environment Waikato 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 rivers water quality monitoring parameters

Water Quality Parameter	Reason For Monitoring	Parameter Monitored ¹	Comments ²
Dissolved Oxygen	- requirement for aquatic life	DO (conc.)	routine (field)
	- indicator of organic pollution	DO (%sat.)	routine (field)
	- indicator of photosynthesis (plant growth)		
Temperature	- indicator of biological activity	Temperature	routine (field)
	- requirement for aquatic life		
	- mixing processes		
	- modelling studies (e.g. nutrient uptake)		
Conductivity	- indicator of total salts dissolved in water	Conductivity	routine
pH	- aquatic life protection	pH	routine
	- indicator of industrial discharges, mining		
Clarity turbidity black disk (visual clarity)	- aesthetic appearance	Turbidity	routine
	- light availability for excessive plant growth	Black disk	routine (field)
	- aquatic life protection		
	- indicator of catchment condition, land use		
Colour light absorption	- light availability for excessive plant growth	Filtered Absorbance at:	routine
	- indicator of presence of organic matter	340,440,780nm	
Nutrients (N and P)	- enrichment, excessive plant growth	NO ₃ -N+NO ₂ -N	routine
	- nutrient limitation for plant/algal growth	NH ₄ -N,TKN DRP, TP	
Faecal Indicators <i>E. coli</i> enterococci faecal coliforms	- indicator of pollution with faecal matter	E.coli ENT	quarterly
	- disease risk for swimming etc.	FC	

¹ see the next table for the meaning of the abbreviations.

² routine means sampled monthly.

Regional rivers monitoring - water quality parameters and analytical methods of analysis

Id ¹	Parameter	Method
A340F	Absorbance at 340 nm Filtered	Spectrophotometer, 1 cm path length, APHA method 5910B
A440F	Absorbance at 440 nm Filtered	Spectrophotometer, 1 cm path length, APHA method 5910B
A780F	Absorbance at 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 at 25°C. APHA method 2510B
DO	Dissolved Oxygen	Field measurement (WTW DO meter, model 340A)
DO (% Sat)	Dissolved Oxygen (percent saturation)	Field measurement (WTW DO meter, model 340A)
pH	pH	Lab Meter at 25°C. APHA method 4500-H+B
TEMP	Temperature	Field measurement (WTW DO Meter, model 340A)
E. coli	Escherichia coli	Membrane Filtration (mFC Agar) confirmation by NA-MUG Agar. APHA method 9222G
ENT	Enterococci bacteria	Membrane Filtration (mE Agar) confirmation by EIA Agar. APHA method 9230
FC	Faecal Coliforms	Membrane Filtration (mFC Agar). APHA method 9222
NH ₄ -N	Ammoniacal Nitrogen	Phenol/Hypochlorite Colorimetry. Flow injection analyser. APHA method 4500-NC (modified)
NNN	Nitrite/Nitrate Nitrogen	Automated Cadmium reduction. Flow injection analyser. APHA method 4500 – NO ₃ (proposed).
TKN	Total Kjeldahl-Nitrogen	Acid digestion. Phenol/Hypochlorite Colorimetry. APHA method 4500-N _{org} C (modified)
TN	Total Nitrogen	Calculated from NNN + TKN (Nitrite/Nitrate Nitrogen + Total Kjeldahl-Nitrogen)
DRP	Dissolved Reactive Phosphorus	Molybdenum Blue Colorimetry. Flow injection analyser. APHA 4500 PG (proposed)
TP	Total Phosphorus	Persulphate digestion, Colorimetry. NAWASCO method 8.
TURB	Turbidity	Turbidity Meter. APHA method 2130B

¹Parameter Id ref