

# **Regional Rivers Water Quality Monitoring Programme: Data Report 2006**

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# 1 Introduction

## 1.1 Background

To effectively manage water quality, the Regional River 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 12<sup>th</sup> since the implementation of the Regional Rivers Monitoring Programme (RERIMP) in 1993<sup>1</sup> and follows the format of the previous data report (Smith, 2006). Copies of reports as described in the list of references (page 39) can be obtained by contacting Environment Waikato (the Library) on 0800 800 401, in electronic format from the publications page of the Environment Waikato website: [www.ew.govt.nz/publications](http://www.ew.govt.nz/publications) or email: [inforeq@ew.govt.nz](mailto: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 2006 summary statistics tabulated by parameter and reported together.
- Year 2006 summary statistics for the major ions, tabulated by parameter.
- 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 2006. 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 (e.g. swimming).

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<sup>1</sup> Waikato River reported on separately — see Beard, 2006 (in prep).

**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 <sup>1</sup>	Satisfactory	Excellent
<b>Ecological Health</b>			
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 <sup>3</sup> )	aquatic life (toxicity)	<0.88	<0.1
Temperature (°C)	(May-Sep)	fish (spawning)	<12
	(Oct-Apr)		<20
Total phosphorus (g/m <sup>3</sup> )	nuisance plant growth	<0.04	<0.01
Total nitrogen (g/m <sup>3</sup> )	nuisance plant growth	<0.5	<0.1
<b>Human Uses—recreation</b>			
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

<sup>1</sup> Refer to Appendix II for further information. These guidelines and standards are also described on the Environment Waikato Internet site; [www.ew.govt.nz](http://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 were sampled regularly by Environment Waikato. A further 5 locations form part of N.I.W.A.’s National Water Quality Network, whose data are reported annually (Bryers, *in prep*).

**Table 2: Environment Waikato's Sampling Locations**

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

Map No.	Location	Location Id	Map Ref.
<b>Waipa River and Tributaries</b>			
11	Kaniwhaniwha Stm @ Wright Rd	222.16	S15:985-680
74	Mangaohoi Stm @ South Branch Maru Rd	411.9	T15:329-471
65	Mangaokewa Stm @ Te Kuiti Borough Water Supply Intake	414.12	S16:998-161
76	Mangapiko Stm (Pirongia/Te Awamutu) @ Bowman Rd	438.3	S15:093-560
63	Mangapu River @ Otorohanga	443.3	S16:033-318
73	Mangatutu Stm (Waikeria) @ Walker Rd Bridge	476.7	S15:203-422
13	Mangauika Stm @ Te Awamutu Borough Water Supply Intake	477.10	S15:980-504
88	Ohote Stm @ Whatawhata/Horotiu Rd	624.5	S14:997-794
75	Puniu River @ Bartons Corner Rd Bridge	818.2	S15:115-500
61	Waipa River @ Mangaokewa Rd	1191.5	S17:233-028
12	Waipa River @ Pirongia-Ngutunui Rd Bridge	1191.10	S15:037-529
64	Waipa River @ SH3 Otorohanga	1191.12	S16:036-322
18	Waitomo Stm @ SH31 Otorohanga	1253.5	S16:022-335
17	Waitomo Stm @ Tumutumu Rd	1253.7	S16:938-249
<b>Tributaries to the upper Waikato River</b>			
48	Kawaunui Stm @ SH5 Bridge	240.5	U17:021-081
43	Mangaharakeke Stm (Atiamuri) @ SH30 (Off Jct SH1)	359.1	U16:733-129
49	Mangakara Stm (Reporoa) @ SH5	380.2	U17:996-003
60	Mangakino River (Whakamaru) @ Sandel Rd	388.1	T17:486-013
46	Otamakokore Stm @ Hossack Rd	683.4	U16:955-166
52	Pueto Stm @ Broadlands Rd Bridge	802.1	U17:938-827
44	Tahunaatara Stm @ Ohakuri Rd	934.1	U16:785-138
51	Torepatutahi Stm @ Vaile Rd Bridge	1057.6	U17:985-965
47	Waiotapu Stm @ Campbell Rd Bridge	1186.2	U17:024-082
50	Waiotapu Stm @ Homestead Rd Bridge	1186.4	U17:003-000
42	Waipapa Stm (Mokai) @ Tirohanga Rd Bridge	1202.7	T17:685-047
45	Whirinaki Stm @ Corbett Rd	1323.1	U16:957-171
<b>West Coast</b>			
70	Awakino River @ Gribbon Rd	33.6	R17:702-918
69	Awakino River @ SH3 Awakau Rd Junction	33.9	R18:588-799
67	Manganui River @ Off Manganui Rd	410.4	R17:554-831
66	Mangaotaki River @ SH3 Bridge	428.3	R17:764-963
15	Marokopa River @ Speedies Rd (Off Te Anga Rd)	513.3	R16:708-256
68	Mokau River @ Awakau Rd	556.2	R18:601-785
62	Mokau River @ Mangaokewa Rd (Off SH30)	556.5	S17:096-017
71	Mokau River @ Totoro Rd Recorder	556.9	R17:759-907
72	Mokauiti Stm @ Three Way Point – Aria	557.5	R17:828-929
9	Ohautira River @ Waingaro - Te Uku Rd	616.1	R14:842-803
14	Oparau River @ Langdon Rd (Off Okupata Rd)	658.1	R15:799-494
16	Tawarau River @ Off Speedies Rd	976.1	R16:718-249
8	Waingaro River (Pukemiro) @ Ruakiwi Rd Off SH22	1167.4	R14:837-837
10	Waitetuna River @ Te Uku-Waingaro Rd	1247.2	R14:842-742
<b>Inflows to Lake Taupo</b>			
55	Hinemaiaia River @ SH1	171.5	U18:722-567
101	Kuratau River @ Te Rae Street	282.5	T18:502-536
58	Kuratau River @ SH41 Moerangi	282.4	T18:356-537
53	Mapara Stm @ Off Mapara Rd (Whakaipo Reserve)	504.2	T18:681-750
56	Tauranga-Taupo River @ Te Kono Slackline	971.4	T19:636-473
105	Tokaanu Power Station Tailrace Canal @ SH41 Bridge	1491.1	T19:504-435
57	Tokaanu Stm @ Off SH41 Turangi	1045.3	T19:517-423
59	Waihaha River @ SH32	1106.4	T18:434-747
54	Waitahanui River @ Blake Rd	1226.1	U18:781-627
104	Whanganui Stream @ Lakeside Lake Taupo	1301.1	T18:473-653
102	Whareroa Stream @ Lakeside Lake Taupo	1318.4	T18:515-568
103	Whareroa Stream @ Whareroa Station Bridge	1318.3	T18:483-583



## 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 ( $\pm 1$  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 and *E.coli* 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 & Smith, 2004) summarises the trends and patterns in regional water quality during 1990 to 2002. 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:

[www.ew.govt.nz/enviroinfo/water/healthyivers/index.htm](http://www.ew.govt.nz/enviroinfo/water/healthyivers/index.htm)

This page also provides a link to details of the water quality guidelines and standards used to assess the condition of the Regions rivers, as well as other information relating to Lakes, Rivers and Wetlands.

# 3 Results

The results are divided into 2 sections. Section 3.1 has a statistical summary of routine monitoring of the Region's rivers in 2006 and provides the spatial contour plots using water quality data from four parameters, based on median values for the last 5 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<sup>-1</sup>)

Location	Count	Mean	Median	Min	Max	IQR	Skew	Median	02-06
<b>Coromandel</b>									
Hikutaia River @ Old Maratoto Rd	12	0.016	0.016	0.012	0.023	0.004	0.85	0.018	
Kauaeranga River @ Smiths Cableway/Recorder	12	0.016	0.014	0.008	0.029	0.009	0.73	0.017	
Ohinemuri River @ Queens Head	12	0.016	0.016	0.005	0.026	0.006	-0.02	0.017	
Ohinemuri River @ SH25 Br	12	0.012	0.011	0.003	0.021	0.005	0.29	0.012	
Tairua River @ Morrisons Br Hikuai	12	0.015	0.015	0.009	0.021	0.005	0.06	0.018	
Tapu River @ Tapu-Coroglen Rd	12	0.012	0.009	0.006	0.025	0.010	1.00	0.012	
Waiau River @ E309 Rd Ford	12	0.017	0.017	0.008	0.026	0.008	-0.09	0.015	
Waitekauri River @ U/S Ohinemuri Conflu	12	0.012	0.013	0.005	0.022	0.006	0.28	0.013	
Waiwawa River @ SH25 Coroglen	12	0.024	0.021	0.013	0.040	0.009	0.98	0.023	
Wharekawa River @ SH25	12	0.017	0.015	0.008	0.029	0.012	0.34	0.020	
<b>Hauraki</b>									
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	0.040	0.021	0.014	0.152	0.032	<u>1.73</u>	0.021	
Oraka Stm @ Lake Rd	12	0.017	0.014	0.010	0.049	0.009	<u>2.18</u>	0.014	
Piako River @ Kiwitahi	12	0.049	0.048	0.033	0.070	0.016	0.48	0.048	
Piako River @ Paeroa-Tahuna Rd Br	12	0.070	0.073	0.007	0.113	0.036	-0.66	0.073	
Piakonui Stm @ Piakonui Rd	12	0.031	0.029	0.017	0.064	0.008	<u>1.82</u>	0.032	
Waihau River @ Okauia	12	0.019	0.014	0.010	0.060	0.010	<u>2.41</u>	0.014	
Waihau River @ Whites Rd	12	0.002	0.001	0.001	0.006	0.000	<u>2.83</u>	0.001	
Waiohotu Stm @ Waiohotu Rd (Off SH5)	12	0.041	0.032	0.007	0.105	0.032	1.07	0.031	
Waiomou Stm @ Matamata-Tauranga Rd	12	0.024	0.017	0.013	0.054	0.014	1.37	0.017	
Waitakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	0.061	0.058	0.034	0.088	0.026	0.24	0.059	
Waitoa River @ Landsdowne Rd Br	12	0.054	0.051	0.034	0.102	0.019	1.45	0.044	
Waitoa River @ Mellon Rd Recorder	12	0.048	0.046	0.033	0.081	0.012	1.60	0.044	
<b>Tributaries to the lower Waikato River</b>									
Awaroa River (Waiuku) @ Otaua Rd Br opp Moseley Rd	12	0.041	0.034	0.024	0.078	0.028	0.86	0.042	
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	0.022	0.020	0.013	0.044	0.007	1.62	0.026	
Karapiro Stm @ Hickey Rd Bridge	12	0.054	0.055	0.038	0.089	0.019	0.95	0.049	
Kirikiri-roa Stm @ Tauhara Dr	12	0.085	0.057	0.039	0.407	0.011	<u>2.98</u>	0.057	
Komakorau Stm @ Henry Rd	12	0.121	0.105	0.080	0.185	0.070	0.60	0.099	
Little Waipa Stm @ Arapuni - Putaruru Rd	12	0.019	0.014	0.008	0.053	0.011	1.49	0.013	
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	0.258	0.237	0.042	0.581	0.160	0.81	0.220	
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	0.032	0.026	0.020	0.080	0.009	<u>2.15</u>	0.027	
Mangaone Stm @ Annebrooke Rd Br	12	0.050	0.048	0.007	0.089	0.015	-0.23	0.051	
Mangaonua Stm @ Hoeka Rd	12	0.043	0.044	0.024	0.063	0.019	0.14	0.040	
Mangaonua Stm @ Te Miro Rd	12	0.031	0.030	0.015	0.055	0.015	0.58	0.030	
Mangatangi River @ SH2 Maramarua	12	0.057	0.054	0.033	0.099	0.016	0.99	0.052	
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	0.027	0.025	0.018	0.049	0.007	1.48	0.023	
Mangawara Stm @ Rutherford Rd Br	12	0.130	0.112	0.076	0.205	0.068	0.42	0.118	
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	0.135	0.114	0.066	0.330	0.057	1.59	0.110	
Matahuru Stm @ Waiterimu Road Below Confluence	12	0.083	0.078	0.044	0.129	0.052	0.31	0.068	
Ohaeroa Stm @ SH22 Br	12	0.025	0.024	0.016	0.043	0.009	1.12	0.025	
Opuatia Stm @ Ponganui Rd	12	0.028	0.029	0.020	0.041	0.008	0.66	0.028	
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	0.021	0.015	0.012	0.071	0.009	<u>2.47</u>	0.016	
Waerenga Stm @ Taniwha Rd	12	0.031	0.031	0.016	0.051	0.016	0.52	0.028	
Waitawhiriwhiri Stm @ Edgecumbe Street	12	0.144	0.142	0.037	0.298	0.092	0.56	0.130	
Whakapipi Stm @ SH22 Br	12	0.037	0.039	0.026	0.046	0.009	-0.32	0.038	
Whakauru Stm @ U/S SH1 Br	12	0.035	0.026	0.020	0.114	0.013	<u>2.71</u>	0.026	
Whangamarino River @ Island Block Rd	12	0.118	0.120	0.062	0.169	0.052	-0.07	0.120	
Whangamarino River @ Jefferies Rd Br	12	0.048	0.051	0.035	0.070	0.017	0.43	0.047	
Whangape Stm @ Rangiriri-Glen Murray Rd	12	0.060	0.062	0.021	0.089	0.014	-0.62	0.062	

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

Absorbance of filtered sample at 440 nm (units: cm<sup>-1</sup>)

Count	Mean	Median	Min	Max	IQR	Skew	Median	02-06
12	0.003	0.003	0.001	0.005	0.003	-0.04	0.004	
12	0.003	0.003	0.001	0.006	0.004	0.09	0.003	
12	0.003	0.003	0.001	0.006	0.003	0.42	0.003	
12	0.003	0.003	0.001	0.006	0.003	0.60	0.003	
12	0.003	0.003	0.001	0.005	0.003	-0.24	0.004	
12	0.002	0.001	0.001	0.005	0.002	1.05	0.002	
12	0.004	0.004	0.001	0.008	0.003	0.33	0.003	
12	0.003	0.003	0.001	0.005	0.003	0.32	0.003	
12	0.005	0.005	0.001	0.009	0.003	0.10	0.006	
12	0.004	0.003	0.001	0.007	0.005	0.31	0.005	
12	0.008	0.005	0.001	0.030	0.007	<u>1.83</u>	0.005	
12	0.004	0.003	0.001	0.011	0.003	1.48	0.003	
12	0.008	0.009	0.001	0.013	0.004	-0.65	0.009	
12	0.012	0.013	0.001	0.025	0.008	0.18	0.012	
12	0.006	0.006	0.001	0.009	0.001	-0.57	0.006	
12	0.004	0.003	0.001	0.012	0.004	1.44	0.003	
12	0.001	0.001	0.001	0.002	0.000	<u>3.02</u>	0.001	
12	0.008	0.007	0.001	0.021	0.008	0.89	0.007	
12	0.005	0.003	0.001	0.012	0.004	1.10	0.004	
12	0.011	0.011	0.005	0.017	0.006	0.05	0.011	
12	0.010	0.009	0.003	0.019	0.004	0.93	0.008	
12	0.008	0.008	0.003	0.017	0.002	1.53	0.007	
12	0.006	0.006	0.002	0.012	0.005	0.44	0.008	
12	0.003	0.003	0.001	0.008	0.003	1.15	0.004	
12	0.009	0.009	0.004	0.016	0.003	0.88	0.008	
12	0.014	0.009	0.004	0.076	0.004	<u>2.95</u>	0.009	
12	0.018	0.018	0.011	0.028	0.012	0.28	0.015	
12	0.004	0.003	0.001	0.012	0.004	1.31	0.003	
12	0.044	0.042	0.005	0.108	0.028	0.95	0.038	
12	0.007	0.006	0.004	0.017	0.002	<u>2.16</u>	0.006	
12	0.009	0.009	0.003	0.017	0.003	0.80	0.009	
12	0.006	0.006	0.001	0.011	0.003	-0.09	0.007	
12	0.006	0.006	0.001	0.010	0.003	-0.12	0.006	
12	0.010	0.010	0.006	0.016	0.003	0.57	0.010	
12	0.005	0.005	0.003	0.007	0.002	0.47	0.005	
12	0.020	0.019	0.012	0.030	0.009	0.25	0.020	
12	0.022	0.018	0.011	0.054	0.009	<u>1.69</u>	0.018	
12	0.014	0.014	0.007	0.020	0.007	-0.09	0.013	
12	0.004	0.005	0.001	0.008	0.002	0.15	0.005	
12	0.004	0.005	0.002	0.007	0.003	-0.18	0.005	
12	0.004	0.003	0.001	0.016	0.003	<u>2.21</u>	0.003	
12	0.006	0.006	0.002	0.011	0.003	0.52	0.005	
12	0.024	0.024	0.004	0.048	0.017	0.28	0.021	
12	0.006	0.006	0.004	0.009	0.003	0.25	0.007	
12	0.007	0.005	0.004	0.024	0.003	<u>2.78</u>	0.005	
12	0.022	0.022	0.012	0.033	0.010	0.10	0.022	
12	0.008	0.008	0.006	0.011	0.004	0.02	0.009	
12	0.010	0.009	0.004	0.016	0.005	0.52	0.010	



Waipa River and Tributaries								
Kaniwhaniwha Stm @ Wright Rd	12	0.030	0.027	0.013	0.066	0.012	1.59	0.031
Mangaohoi Stm @ South Branch Maru Rd	12	0.009	0.007	0.004	0.019	0.004	1.24	0.009
Mangaokewa Stm @ Te Kuiti Borough W/S Intake	12	0.034	0.031	0.019	0.072	0.016	1.37	0.034
Mangapiko Stm (Pirongia/Te Awamutu) @ Bowman Rd	12	0.085	0.084	0.054	0.131	0.043	0.43	0.082
Mangapu River @ Otorohanga	12	0.028	0.027	0.017	0.059	0.010	<u>1.81</u>	0.026
Mangatutu Stm (Waikeria) @ Walker Rd Br	12	0.022	0.023	0.014	0.033	0.009	0.28	0.022
Manguaika Stm @ Te Awamutu Borough W/S Intake	12	0.009	0.006	0.003	0.023	0.009	1.00	0.007
Ohote Stm @ Whatawhata/Horotiu Rd	12	0.151	0.156	0.079	0.215	0.032	-0.36	0.155
Puniu River @ Bartons Corner Rd Br	12	0.032	0.031	0.020	0.051	0.018	0.37	0.031
Waipa River @ Mangaokewa Rd	12	0.043	0.039	0.025	0.081	0.015	1.40	0.044
Waipa River @ Pirongia-Ngutunui Rd Br	12	0.030	0.029	0.017	0.050	0.008	0.94	0.029
Waipa River @ SH3 Otorohanga	12	0.027	0.024	0.015	0.059	0.007	<u>2.25</u>	0.024
Waitomo Stm @ SH31 Otorohanga	12	0.021	0.019	0.015	0.040	0.006	1.61	0.019
Waitomo Stm @ Tumutumu Rd	12	0.013	0.011	0.009	0.025	0.003	<u>1.87</u>	0.012

	12	0.006	0.005	0.001	0.015	0.002	<u>1.71</u>	0.005
	12	0.002	0.001	0.001	0.004	0.002	1.00	0.002
	12	0.007	0.007	0.002	0.015	0.004	0.96	0.007
	12	0.015	0.015	0.009	0.023	0.008	0.25	0.015
	12	0.005	0.005	0.001	0.011	0.003	0.81	0.005
	12	0.004	0.005	0.002	0.007	0.003	0.17	0.004
	12	0.002	0.001	0.001	0.005	0.002	1.06	0.001
	12	0.023	0.024	0.004	0.037	0.007	-0.84	0.025
	12	0.006	0.007	0.003	0.010	0.004	0.04	0.006
	12	0.008	0.007	0.003	0.016	0.004	0.95	0.008
	12	0.050	0.008	0.005	0.029	0.011	0.04	0.005
	12	0.005	0.005	0.001	0.012	0.002	1.38	0.005
	12	0.004	0.004	0.002	0.008	0.002	1.01	0.003
	12	0.002	0.002	0.001	0.005	0.002	1.28	0.002

Tributaries to the upper Waikato River								
Kawaunui Stm @ SH5 Br	12	0.034	0.026	0.018	0.069	0.024	1.05	0.029
Mangaharakeke Stm (Atiamuri) @ SH30 (Off Jct SH1)	12	0.032	0.030	0.017	0.053	0.015	0.67	0.031
Mangakara Stm (Reporoa) @ SH5	12	0.021	0.017	0.012	0.063	0.006	<u>2.47</u>	0.018
Mangakino Stm (Whakamaru) @ Sandel Rd	12	0.019	0.015	0.005	0.067	0.011	<u>2.21</u>	0.014
Otamakokore Stm @ Hossack Rd	12	0.049	0.029	0.019	0.182	0.034	<u>2.26</u>	0.031
Pueto Stm @ Broadlands Rd Br	12	0.010	0.010	0.006	0.019	0.003	1.26	0.011
Tahunaatara Stm @ Ohakuri Rd	12	0.039	0.029	0.024	0.100	0.024	<u>1.87</u>	0.031
Torepatutahi Stm @ Vaile Rd Br	12	0.014	0.012	0.009	0.034	0.006	<u>1.99</u>	0.012
Waiotapu Stm @ Campbell Rd Br	12	0.007	0.007	0.003	0.009	0.003	-0.62	0.006
Waiotapu Stm @ Homestead Rd Br	12	0.028	0.023	0.018	0.056	0.011	1.52	0.023
Waipapa Stm (Mokai) @ Tirohanga Rd Br	12	0.017	0.016	0.011	0.032	0.007	1.25	0.015
Whirinaki Stm @ Corbett Rd	12	0.005	0.003	0.001	0.017	0.005	<u>1.69</u>	0.004

	12	0.007	0.005	0.003	0.017	0.005	1.21	0.006
	12	0.006	0.005	0.001	0.011	0.004	0.51	0.006
	12	0.004	0.003	0.001	0.013	0.004	<u>1.80</u>	0.004
	12	0.004	0.003	0.001	0.013	0.004	<u>1.68</u>	0.003
	12	0.011	0.007	0.004	0.040	0.009	<u>2.24</u>	0.007
	12	0.001	0.001	0.001	0.004	0.000	<u>1.97</u>	0.001
	12	0.008	0.006	0.004	0.021	0.005	1.64	0.006
	12	0.002	0.001	0.001	0.007	0.003	1.26	0.002
	12	0.001	0.001	0.001	0.003	0.000	<u>2.22</u>	0.001
	12	0.005	0.004	0.001	0.010	0.003	1.03	0.004
	12	0.003	0.003	0.001	0.008	0.002	0.97	0.003
	12	0.001	0.001	0.001	0.003	0.000	<u>1.79</u>	0.001

West Coast								
Awakino River @ Gribbon Rd	12	0.012	0.009	0.001	0.051	0.007	<u>2.22</u>	0.007
Awakino River @ SH3 Awakau Rd Junction	12	0.016	0.014	0.007	0.041	0.007	1.60	0.014
Manganui River @ Off Manganui Rd	12	0.012	0.009	0.006	0.044	0.005	<u>2.63</u>	0.009
Mangaotaki River @ SH3 Br	12	0.017	0.015	0.008	0.034	0.009	1.10	0.015
Marokopa River @ Speedies Rd (Off Te Anga Rd)	12	0.023	0.019	0.013	0.053	0.008	1.67	0.018
Mokau River @ Awakau Rd	12	0.037	0.037	0.020	0.056	0.019	0.15	0.034
Mokau River @ Mangaokewa Rd (Off SH30)	12	0.044	0.042	0.024	0.074	0.019	0.81	0.042
Mokau River @ Totoro Rd Recorder	12	0.029	0.027	0.017	0.054	0.015	0.87	0.028
Mokauiti Stm @ Three Way Point - Aria	12	0.052	0.053	0.025	0.081	0.043	-0.01	0.047
Ohautira Stm @ Waingaro Te Uku Rd	12	0.024	0.022	0.010	0.054	0.011	1.36	0.020
Oparau River @ Langdon Rd (Off Okupata Rd)	12	0.022	0.017	0.014	0.041	0.010	1.26	0.018
Tawarau River @ Off Speedies Rd	12	0.022	0.017	0.012	0.057	0.009	1.67	0.016
Waingaro River (Pukemiro) @ Ruakiwi Rd Off SH22	12	0.035	0.038	0.015	0.051	0.017	-0.34	0.039
Waitetuna River @ Te Uku-Waingaro Rd	12	0.027	0.027	0.011	0.038	0.011	-0.22	0.026

	12	0.002	0.001	0.001	0.011	0.001	<u>2.37</u>	0.001
	12	0.004	0.003	0.001	0.009	0.003	0.99	0.003
	12	0.002	0.002	0.001	0.009	0.002	<u>2.44</u>	0.001
	12	0.003	0.003	0.001	0.008	0.003	0.82	0.003
	12	0.005	0.004	0.001	0.011	0.004	0.94	0.003
	12	0.007	0.007	0.003	0.011	0.005	0.19	0.007
	12	0.009	0.009	0.004	0.016	0.006	0.57	0.008
	12	0.006	0.006	0.001	0.010	0.004	-0.14	0.005
	12	0.010	0.010	0.003	0.016	0.009	0.01	0.009
	12	0.005	0.004	0.001	0.010	0.003	0.76	0.004
	12	0.004	0.004	0.001	0.009	0.004	0.40	0.004
	12	0.005	0.004	0.001	0.012	0.004	0.95	0.003
	12	0.006	0.007	0.001	0.010	0.003	-0.37	0.007
	12	0.005	0.005	0.001	0.008	0.004	-0.17	0.005

Inflows to Lake Taupo								
Hinemaiaia River @ SH1	12	0.016	0.013	0.010	0.027	0.008	0.96	0.013
Kuratau River @ 43 Te Rae Street	12	0.019	0.017	0.009	0.039	0.007	1.56	0.018
Kuratau River @ SH41 Moerangi	12	0.019	0.018	0.010	0.030	0.007	0.32	0.020
Mapara Stm (Lake Taupo) @ Off Mapara Rd (Whakaipo Res)	12	0.061	0.047	0.039	0.158	0.015	<u>2.11</u>	0.038
Tauranga-Taupo River @ Te Kono Slackline	12	0.011	0.008	0.003	0.041	0.006	<u>2.35</u>	0.008
Tokaanu Power Station Tailrace Canal @ SH41 Bridge Over Can	12	0.005	0.005	0.003	0.009	0.003	0.65	0.005
Tokaanu Stm @ Off SH41 Turangi	12	0.003	0.002	0.001	0.011	0.003	1.55	0.001
Waihaha River @ SH32	12	0.011	0.008	0.001	0.035	0.007	1.59	0.009
Waitahanui River @ Blake Rd	12	0.004	0.003	0.001	0.011	0.005	0.99	0.004
Whanganui Stm @ Lakeside Lake Taupo	12	0.019	0.014	0.006	0.063	0.012	<u>2.18</u>	0.014
Whareroa Stm (Taupo District) @ Lakeside Lake Taupo	12	0.020	0.016	0.009	0.068	0.008	<u>2.65</u>	0.017
Whareroa Stm (Taupo District) @ Whareroa Station Bridge	12	0.018	0.015	0.008	0.054	0.009	<u>2.36</u>	0.018

	12	0.003	0.003	0.001	0.007	0.003	0.53	0.003
	12	0.003	0.003	0.001	0.007	0.002	1.01	0.003
	12	0.004	0.004	0.001	0.006	0.003	-0.25	0.004
	12	0.013	0.010	0.007	0.034	0.003	<u>2.11</u>	0.008
	12	0.002	0.001	0.001	0.008	0.002	<u>2.07</u>	0.001
	12	0.001	0.001	0.001	0.003	0.001	1.43	0.001
	12	0.001	0.001	0.001	0.004	0.000	<u>3.02</u>	0.001
	12	0.002	0.001	0.001	0.007	0.002	1.43	0.002
	12	0.001	0.001	0.001	0.004	0.000	<u>2.56</u>	0.001
	12	0.004	0.003	0.001	0.013	0.004	<u>1.77</u>	0.003
	12	0.004	0.003	0.001	0.014	0.002	<u>2.25</u>	0.004
	12	0.003	0.003	0.001	0.011	0.003	<u>1.87</u>	0.003

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

**Black Disk (m)**

**Conductivity at 25 °C (mS m<sup>-1</sup>)**

Location	02-06							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
<b>Coromandel</b>								
Hikutaia River @ Old Maratoto Rd	12	3.04	3.18	1.12	4.72	1.62	-0.27	3.14
Kauaeranga River @ Smiths Cableway/Recorder	12	2.88	2.95	0.19	5.57	1.95	-0.12	3.06
Ohinemuri River @ Queens Head	12	2.88	2.24	1.14	4.97	2.40	0.33	3.03
Ohinemuri River @ SH25 Br	12	3.71	3.16	1.12	8.07	2.29	0.83	3.87
Tairua River @ Morrisons Br Hikuai	12	2.58	2.49	0.83	4.50	1.71	0.16	2.65
Tapu River @ Tapu-Coroglen Rd	12	3.88	3.75	1.56	7.53	1.67	0.71	3.78
Waiau River @ E309 Rd Ford	12	1.84	1.99	0.76	2.51	0.90	-0.71	2.30
Waitekauri River @ U/S Ohinemuri Conflu	12	3.30	3.07	0.70	5.05	1.88	-0.38	3.45
Waiwawa River @ SH25 Coroglen	12	2.51	2.63	0.63	3.90	1.48	-0.51	3.00
Wharekawa River @ SH25	12	1.50	1.59	0.35	2.33	0.79	-0.48	2.01
<b>Hauraki</b>								
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	0.74	0.80	0.10	1.14	0.58	-0.48	0.97
Oraka Stm @ Lake Rd	12	0.74	0.80	0.28	1.06	0.36	-0.40	0.89
Piako River @ Kiwitahi	12	1.44	1.09	0.25	3.58	0.77	1.21	1.52
Piako River @ Paeroa-Tahuna Rd Br	12	0.87	0.84	0.13	1.75	0.33	0.57	0.73
Piakonui Stm @ Piakonui Rd	12	1.20	1.27	0.39	1.77	0.51	-0.68	1.20
Waihou River @ Okauia	12	0.82	0.86	0.27	1.16	0.41	-0.58	1.01
Waihou River @ Whites Rd	12	5.82	6.02	3.73	8.30	3.04	0.04	6.44
Waihotu Stm @ Waihotu Rd (Off SH5)	-	-	-	-	-	-	-	-
Waiomou Stm @ Matamata-Tauranga Rd	12	0.99	1.01	0.43	1.71	0.79	0.08	1.31
Waitakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	0.68	0.56	0.38	1.16	0.48	0.70	0.74
Waitoa River @ Landsdowne Rd Br	12	1.10	0.98	0.15	2.43	0.88	0.47	1.04
Waitoa River @ Mellon Rd Recorder	12	1.01	0.84	0.18	2.13	0.92	0.48	0.87
<b>Tributaries to the lower Waikato River</b>								
Awaroa River (Waiuku) @ Otaua Rd Br opp Moseley Rd	12	0.28	0.23	0.14	0.52	0.19	0.93	0.33
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	0.90	1.02	0.11	1.36	0.33	-1.08	1.36
Karapiro Stm @ Hickey Rd Bridge	12	0.93	0.87	0.20	1.82	0.43	0.74	1.20
Kirikiriira Stm @ Tauhara Dr	11	0.38	0.38	0.19	0.52	0.14	-0.38	0.37
Komakorau Stm @ Henry Rd	12	0.15	0.14	0.10	0.28	0.07	1.28	0.17
Little Waipa Stm @ Arapuni - Putaruru Rd	12	1.26	1.33	0.49	2.53	1.09	0.39	1.80
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	0.34	0.32	0.13	0.74	0.21	1.07	0.36
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	1.07	1.06	0.57	1.73	0.69	0.26	1.18
Mangaone Stm @ Annebrooke Rd Br	12	0.69	0.71	0.32	0.91	0.27	-0.51	0.81
Mangaonua Stm @ Hoeka Rd	12	0.68	0.67	0.13	1.31	0.40	0.05	1.05
Mangaonua Stm @ Te Miro Rd	12	1.08	0.98	0.10	2.15	0.62	0.13	1.17
Mangatangi River @ SH2 Maramaru	12	0.66	0.58	0.31	1.25	0.44	0.70	0.99
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	1.55	1.30	0.18	3.48	1.47	0.55	1.89
Mangawara Stm @ Rutherford Rd Br	12	0.24	0.23	0.13	0.39	0.11	0.37	0.22
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	0.25	0.25	0.12	0.46	0.04	0.91	0.25
Matahuru Stm @ Waiterimu Road Below Confluence	12	0.25	0.27	0.13	0.32	0.12	-0.71	0.26
Ohaeroa Stm @ SH22 Br	12	0.71	0.57	0.21	1.50	0.50	0.82	0.89
Opuatia Stm @ Ponganui Rd	12	0.70	0.69	0.19	1.34	0.50	0.25	0.73
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	1.10	1.00	0.32	2.27	0.53	0.84	1.28
Waerenga Stm @ Taniwha Rd	12	0.87	0.75	0.30	2.26	0.74	1.26	1.11
Waitawhiriwhiri Stm @ Edgecumbe Street	12	0.28	0.27	0.13	0.52	0.08	0.85	0.32
Whakapipi Stm @ SH22 Br	12	1.21	1.16	0.27	2.12	0.92	0.16	1.40
Whakauru Stm @ U/S SH1 Br	12	1.09	1.07	0.41	1.84	0.44	0.17	1.13
Whangamarino River @ Island Block Rd	12	0.22	0.18	0.11	0.51	0.20	1.10	0.18
Whangamarino River @ Jefferies Rd Br	12	0.48	0.37	0.22	1.02	0.32	1.01	0.57
Whangape Stm @ Rangiriri-Glen Murray Rd	12	0.17	0.14	0.05	0.49	0.12	1.67	0.20

Count	02-06							Median
	Mean	Median	Min	Max	IQR	Skew		
12	8.2	8.3	7.2	9.2	0.8	0.01	8.3	
12	8.1	8.2	6.8	9.1	0.9	-0.49	8.2	
12	23.1	26.2	9.0	29.3	9.5	-1.04	17.3	
12	7.6	7.5	7.1	8.7	0.7	1.00	7.7	
12	6.0	6.0	5.4	6.5	0.7	-0.19	6.1	
12	10.2	10.4	9.1	11.5	1.2	0.02	10.2	
12	9.4	9.5	8.7	10.4	0.9	0.19	9.4	
12	11.3	10.7	7.6	17.8	3.7	0.80	11.7	
12	6.7	6.7	5.9	7.5	0.7	-0.04	6.9	
12	7.2	7.3	6.5	7.9	0.7	-0.25	7.4	
12	11.1	11.3	7.8	12.9	1.6	-1.07	11.3	
12	13.1	10.9	10.3	19.5	6.7	0.77	12.1	
12	14.2	14.4	12.4	15.8	1.2	-0.48	14.4	
12	22.2	21.7	14.1	29.8	3.3	0.34	20.9	
12	7.3	7.0	6.1	9.0	1.2	0.64	7.5	
12	9.9	9.9	9.3	10.7	0.8	0.35	10.3	
12	7.9	7.9	7.7	8.0	0.2	-0.74	8.0	
12	5.3	5.4	4.6	5.6	0.3	-1.37	5.6	
12	7.0	6.9	6.0	7.6	0.7	-0.40	7.2	
12	16.1	16.7	9.0	19.5	3.1	-1.22	15.7	
12	15.3	15.6	10.4	18.1	2.3	-1.07	15.8	
12	30.0	30.7	20.2	38.5	10.6	-0.17	30.9	
12	26.6	26.0	24.1	30.2	4.4	0.57	25.0	
12	59.4	62.1	20.5	96.6	35.2	-0.07	49.4	
12	12.9	13.0	10.3	14.9	2.6	-0.18	12.8	
12	20.0	21.2	9.2	22.6	2.0	<u>-2.32</u>	20.9	
12	26.6	25.0	22.9	32.9	4.8	0.92	25.3	
12	9.9	9.9	9.5	10.7	0.5	0.84	9.7	
12	18.4	18.9	9.3	23.1	1.7	<u>-1.81</u>	18.9	
12	13.9	14.1	10.5	16.3	1.6	-0.70	14.3	
12	26.4	27.2	20.4	27.7	1.5	<u>-2.28</u>	26.7	
12	19.5	19.9	14.4	22.3	1.9	-1.17	19.5	
12	9.5	9.3	8.3	11.0	1.6	0.50	9.5	
12	13.3	13.3	12.5	13.8	0.4	-0.58	13.3	
12	12.0	12.0	9.9	14.0	1.1	-0.08	12.0	
12	22.6	21.6	19.6	26.6	4.2	0.42	21.6	
12	20.9	21.1	20.0	21.8	1.0	-0.14	20.5	
12	13.8	13.5	12.8	15.0	1.2	0.41	13.7	
12	16.2	15.5	13.2	19.8	4.2	0.42	15.9	
12	16.9	17.1	14.8	19.2	1.5	0.06	16.9	
12	10.1	10.4	8.4	10.9	0.8	-1.25	10.3	
12	11.7	11.8	11.0	12.3	0.8	-0.28	11.8	
12	18.6	20.2	9.6	21.3	1.8	<u>-1.70</u>	20.2	
12	19.1	18.3	15.4	22.8	4.6	0.21	18.3	
12	6.5	6.6	5.6	6.8	0.2	<u>-2.15</u>	6.7	
12	16.3	16.1	14.0	19.0	1.2	0.42	16.0	
12	15.6	15.4	14.6	16.8	1.8	0.21	15.4	
12	18.8	18.5	14.6	23.1	3.5	0.23	19.5	

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

**Waipa River and Tributaries**

Kaniwhaniwha Stm @ Wright Rd	12	0.97	1.02	0.17	1.82	0.36	0.10	0.98
Mangaohoi Stm @ South Branch Maru Rd	12	1.56	1.45	1.07	2.78	0.54	1.35	1.32
Mangaokewa Stm @ Te Kuiti Borough W/S Intake	12	1.16	1.22	0.36	2.04	0.74	0.05	1.12
Mangapiko Stm (Pirongia/Te Awamutu) @ Bowman Rd	12	0.65	0.53	0.41	1.44	0.30	1.68	0.55
Mangapu River @ Otorohanga	12	0.81	0.70	0.21	1.89	0.75	0.92	0.69
Mangatutu Stm (Waikeria) @ Walker Rd Br	12	1.45	1.46	0.57	2.50	0.84	0.23	1.62
Manguaika Stm @ Te Awamutu Borough W/S Intake	12	3.64	3.80	2.11	5.60	1.51	0.35	3.86
Ohote Stm @ Whatawhata/Horotiu Rd	12	0.76	0.78	0.29	1.18	0.31	-0.34	0.74
Puniu River @ Bartons Corner Rd Br	12	1.14	0.91	0.59	2.58	0.60	1.57	1.22
Waipa River @ Mangaokewa Rd	12	1.84	1.72	1.10	3.38	0.46	1.56	1.81
Waipa River @ Pirongia-Ngutunui Rd Br	12	0.71	0.70	0.10	1.44	0.29	0.39	0.70
Waipa River @ SH3 Otorohanga	12	1.18	1.06	0.23	2.54	1.38	0.38	1.06
Waitomo Stm @ SH31 Otorohanga	12	0.77	0.68	0.09	1.83	0.64	0.73	0.56
Waitomo Stm @ Tumutumu Rd	12	1.05	0.93	0.14	2.21	0.82	0.63	0.80

	12	9.6	9.8	6.4	11.4	1.0	-1.48	9.9
	12	7.7	7.8	6.3	8.3	0.9	-0.97	7.9
	12	14.2	13.2	10.8	20.3	4.4	0.67	14.2
	12	17.0	16.7	15.1	19.2	2.0	0.41	17.5
	12	18.0	17.2	15.4	23.8	4.1	0.91	17.7
	12	6.7	6.8	5.8	7.4	1.0	-0.34	6.8
	12	6.4	6.6	5.1	7.0	1.0	-0.68	6.6
	12	16.8	16.3	14.0	19.7	2.3	0.20	17.9
	12	8.2	8.1	7.4	9.2	0.7	0.44	8.3
	12	5.0	5.0	4.2	6.0	0.5	0.44	5.2
	12	11.2	11.4	8.1	12.6	1.2	-1.19	11.5
	12	7.8	7.9	6.9	9.0	1.0	0.16	7.9
	12	18.4	18.3	9.3	22.7	3.8	-1.30	18.2
	12	18.9	19.0	13.9	22.0	2.5	-0.68	18.5

**Tributaries to the upper Waikato River**

Kawaunui Stm @ SH5 Br	12	1.06	1.17	0.42	1.73	0.73	-0.27	1.11
Mangaharakeke Stm (Atiamuri) @ SH30 (Off Jct SH1)	12	0.92	1.05	0.36	1.42	0.46	-0.47	1.13
Mangakara Stm (Reporoa) @ SH5	12	0.68	0.66	0.34	1.04	0.43	0.07	0.77
Mangakino Stm (Whakamaru) @ Sandel Rd	12	1.60	1.68	0.50	2.35	0.71	-0.59	1.88
Otamakokore Stm @ Hossack Rd	12	1.03	1.06	0.52	1.43	0.58	-0.32	1.24
Pueto Stm @ Broadlands Rd Br	12	1.62	1.59	0.35	2.52	1.08	-0.27	1.94
Tahunaatara Stm @ Ohakuri Rd	12	1.13	1.24	0.41	1.72	0.68	-0.53	1.40
Torepatutahi Stm @ Vaile Rd Br	-	-	-	-	-	-	-	-
Waiotapu Stm @ Campbell Rd Br	12	0.97	1.04	0.56	1.33	0.38	-0.24	1.33
Waiotapu Stm @ Homestead Rd Br	12	0.59	0.57	0.35	0.87	0.29	0.14	0.67
Waipapa Stm (Mokai) @ Tirohanga Rd Br	12	1.00	0.99	0.52	1.65	0.48	0.31	1.20
Whirinaki Stm @ Corbett Rd	-	-	-	-	-	-	-	-

	12	13.9	13.6	12.9	16.2	1.0	1.49	14.0
	12	8.8	8.9	8.6	9.2	0.5	0.41	8.8
	12	9.1	9.2	8.3	9.4	0.3	-1.54	9.0
	12	6.1	6.4	4.0	7.1	0.4	<u>-1.82</u>	6.5
	12	34.1	34.3	29.0	36.7	2.4	-0.98	36.2
	12	11.3	11.3	10.7	11.5	0.3	-1.39	11.4
	12	7.4	7.5	6.7	7.7	0.3	-1.42	7.6
	12	9.7	9.6	9.2	10.4	0.8	0.50	9.4
	12	62.8	62.3	57.5	71.4	4.5	0.73	67.3
	12	42.0	41.6	36.8	47.3	5.2	-0.09	44.9
	12	35.6	36.2	32.1	38.0	2.2	-0.72	35.8
	12	6.8	6.8	6.6	7.0	0.2	0.13	6.8

**West Coast**

Awakino River @ Gribbon Rd	12	1.81	1.62	0.84	3.66	1.22	0.86	2.27
Awakino River @ SH3 Awakau Rd Junction	12	1.05	0.97	0.13	2.74	1.01	0.73	1.14
Manganui River @ Off Manganui Rd	12	0.85	0.66	0.09	1.99	0.93	0.80	0.96
Mangaotaki River @ SH3 Br	12	0.93	0.78	0.16	2.91	0.63	1.39	0.83
Marokopa River @ Speedies Rd (Off Te Anga Rd)	12	1.09	0.97	0.17	2.14	1.01	0.19	1.11
Mokau River @ Awakau Rd	12	0.52	0.35	0.07	1.43	0.33	1.22	0.36
Mokau River @ Mangaokewa Rd (Off SH30)	12	1.09	0.97	0.38	2.23	0.65	0.79	1.19
Mokau River @ Totoro Rd Recorder	12	0.77	0.58	0.06	2.56	0.79	1.35	0.61
Mokauiti Stm @ Three Way Point - Aria	12	0.61	0.54	0.11	1.57	0.47	0.95	0.54
Ohautira Stm @ Waingaro Te Uku Rd	12	0.61	0.71	0.09	1.10	0.39	-0.39	0.71
Oparau River @ Langdon Rd (Off Okupata Rd)	12	1.33	1.41	0.21	2.19	0.97	-0.52	1.42
Tawarau River @ Off Speedies Rd	12	1.05	0.93	0.24	2.17	1.19	0.31	1.10
Waingaro River (Pukemiro) @ Ruakiwi Rd Off SH22	12	0.64	0.74	0.07	1.12	0.52	-0.40	0.67
Waitetuna River @ Te Uku-Waingaro Rd	12	0.68	0.67	0.07	1.39	0.68	0.17	0.75

	12	6.7	6.6	6.1	7.7	0.5	0.91	7.1
	12	11.6	11.4	9.4	17.5	1.6	<u>1.81</u>	12.4
	12	9.8	9.8	7.8	12.2	1.0	0.26	10.4
	12	12.8	12.9	10.5	14.7	1.2	-0.40	13.3
	12	13.3	13.1	9.5	16.0	3.1	-0.23	13.7
	12	12.5	11.8	8.8	19.6	2.9	1.20	12.5
	12	6.3	6.2	5.5	7.2	0.8	0.30	6.5
	12	11.5	10.8	9.4	14.4	1.8	0.81	11.8
	12	10.5	10.0	9.0	12.7	1.3	0.81	10.5
	12	13.1	13.4	10.1	14.8	1.9	-0.75	13.4
	12	8.6	8.5	7.0	10.5	1.5	0.39	8.6
	12	12.3	12.3	9.1	15.1	3.0	-0.01	12.7
	12	13.9	14.0	10.2	16.5	2.1	-0.61	14.0
	12	9.8	10.0	7.5	11.1	1.1	-0.98	10.2

**Inflows to Lake Taupo**

Hinemaiaia River @ SH1	12	2.41	2.33	1.35	4.21	0.62	1.07	2.87
Kuratau River @ 43 Te Rae Street	12	3	3	1	6	2	1	3
Kuratau River @ SH41 Moerangi	-	-	-	-	-	-	-	-
Mapara Stm (Lake Taupo) @ Off Mapara Rd (Whakaipo Res)	12	1.20	1.07	0.43	2.23	0.61	0.58	1.35
Tauranga-Taupo River @ Te Kono Slackline	12	2.73	2.74	0.46	5.25	2.17	0.15	3.29
Tokaanu Power Station Tailrace Canal @ SH41 Bridge Over Cana	-	-	-	-	-	-	-	-
Tokaanu Stm @ Off SH41 Turangi	-	-	-	-	-	-	-	-
Waihaha River @ SH32	12	3.00	2.70	0.87	5.25	2.02	0.14	4.19
Waitahanui River @ Blake Rd	12	3.01	2.75	2.07	4.75	1.57	0.65	3.64
Whanganui Stm @ Lakeside Lake Taupo	-	-	-	-	-	-	-	-
Whareroa Stm (Taupo District) @ Lakeside Lake Taupo	-	-	-	-	-	-	-	-
Whareroa Stm (Taupo District) @ Whareroa Station Bridge	-	-	-	-	-	-	-	-

	12	5.8	5.7	5.1	6.7	0.9	0.36	6.2
	12	4.1	4.1	3.4	4.5	0.3	-0.52	4.2
	12	6.4	6.3	5.8	7.0	0.6	0.24	6.6
	12	11.8	11.9	11.4	12.3	0.4	-0.16	11.9
	12	4.5	4.6	3.0	6.0	1.2	0.03	4.8
	12	12.1	12.4	10.4	14.2	1.2	0.04	12.5
	12	9.8	9.8	9.5	10.0	0.2	-0.59	10.0
	12	4.6	4.7	4.0	5.2	0.4	-0.18	4.8
	12	7.2	7.2	7.0	7.4	0.3	0.13	7.3
	12	5.5	5.6	4.0	6.5	0.4	-0.95	5.7
	12	7.5	7.6	6.1	8.1	0.6	-1.30	7.7
	12	7.4	7.5	6.3	8.0	0.7	-0.83	7.6

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

Dissolved Oxygen (% Saturation)

Location	02-06							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
<b>Coromandel</b>								
Hikutaia River @ Old Maratoto Rd	12	94.2	94.3	89.9	98.7	2.8	0.12	96.1
Kauaeranga River @ Smiths Cableway/Recorder	12	100.2	100.0	95.4	106.3	5.6	0.29	100.2
Ohinemuri River @ Queens Head	12	105.6	105.9	95.0	113.0	4.9	-0.69	107.0
Ohinemuri River @ SH25 Br	12	108.7	109.8	100.5	114.6	9.0	-0.31	106.8
Tairua River @ Morrisons Br Hikuai	12	100.9	99.3	92.5	113.1	9.8	0.65	99.1
Tapu River @ Tapu-Coroglen Rd	12	103.9	103.3	100.3	108.2	3.6	0.31	103.0
Waiau River @ E309 Rd Ford	12	103.0	102.1	99.6	111.5	4.6	1.33	103.0
Waitekauri River @ U/S Ohinemuri Conflu	12	106.1	106.0	100.0	110.9	5.1	-0.24	106.5
Waiwawa River @ SH25 Coroglen	12	101.3	100.9	96.7	105.4	3.8	0.04	101.3
Wharekawa River @ SH25	12	94.0	94.1	88.4	97.9	3.6	-0.49	96.3
<b>Hauraki</b>								
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	98.2	98.0	94.3	101.6	3.6	-0.14	98.3
Oraka Stm @ Lake Rd	12	92.1	93.1	85.5	96.7	4.9	-0.53	93.0
Piako River @ Kiwitahi	12	82.5	83.5	47.7	109.2	15.3	-0.63	86.2
Piako River @ Paeroa-Tahuna Rd Br	12	78.4	80.8	48.9	92.0	7.6	<u>-1.74</u>	80.6
Piakonui Stm @ Piakonui Rd	12	102.4	101.0	97.8	109.1	6.4	0.62	100.2
Waihou River @ Okauia	12	94.2	94.3	90.7	96.3	1.9	-0.74	94.0
Waihou River @ Whites Rd	12	101.3	101.5	96.0	107.6	3.7	0.02	101.8
Waihohu Stm @ Waihohu Rd (Off SH5)	12	94.5	94.6	85.4	98.0	3.0	<u>-1.81</u>	95.2
Waiomou Stm @ Matamata-Tauranga Rd	12	95.6	95.8	91.4	100.1	2.9	-0.19	96.0
Waitakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	98.2	100.5	72.2	112.4	14.4	-0.82	93.4
Waitoa River @ Landsdowne Rd Br	12	91.8	95.0	74.3	105.4	13.9	-0.62	88.3
Waitoa River @ Mellon Rd Recorder	12	76.9	77.2	65.7	86.0	7.9	-0.32	75.3
<b>Tributaries to the lower Waikato River</b>								
Awaroa River (Waiuku) @ Otaua Rd Br opp Moseley Rd	12	86.9	87.5	75.0	93.0	5.3	-0.98	94.4
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	89.2	90.4	79.8	96.2	5.1	-0.79	88.3
Karapiro Stm @ Hickey Rd Bridge	12	92.9	92.4	83.2	105.3	8.8	0.43	92.5
Kirikiri Stm @ Tauhara Dr	12	72.3	70.3	62.0	97.2	12.3	1.25	68.6
Komakorau Stm @ Henry Rd	12	65.4	66.3	54.0	79.3	11.7	0.25	64.4
Little Waipa Stm @ Arapuni - Putaruru Rd	12	102.0	102.8	83.9	115.5	16.6	-0.35	100.9
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	90.0	90.3	84.8	99.0	3.1	1.13	90.1
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	104.0	103.2	98.2	110.4	4.5	0.47	103.5
Mangaone Stm @ Annebrooke Rd Br	12	77.6	78.8	72.0	82.5	6.0	-0.36	76.0
Mangaonua Stm @ Hoeka Rd	12	84.7	83.7	82.0	95.2	2.4	<u>2.30</u>	80.7
Mangaonua Stm @ Te Miro Rd	12	101.0	101.0	92.1	116.0	3.9	1.27	100.6
Mangatangi River @ SH2 Maramarua	12	87.4	88.0	77.6	96.7	6.4	-0.10	88.5
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	109.3	111.2	93.2	121.0	13.0	-0.47	108.4
Mangawara Stm @ Rutherford Rd Br	12	71.4	70.2	62.6	79.7	7.0	0.09	71.8
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	87.7	88.0	83.2	95.9	6.2	0.52	86.4
Matahuru Stm @ Waiterimu Road Below Confluence	12	87.5	86.8	80.1	97.0	5.1	0.49	86.7
Ohaeroa Stm @ SH22 Br	12	103.1	103.2	91.7	119.9	11.2	0.52	100.6
Opuatia Stm @ Ponganui Rd	12	97.0	98.5	68.0	106.0	8.4	<u>-2.05</u>	98.5
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	101.3	101.7	94.4	112.0	6.6	0.54	98.9
Waerenga Stm @ Taniwha Rd	12	98.1	99.3	87.8	104.0	4.9	-1.11	99.6
Waitawhiriwhiri Stm @ Edgecumbe Street	12	85.5	83.9	76.3	96.4	7.4	0.51	83.7
Whakapipi Stm @ SH22 Br	12	91.0	93.6	75.1	103.0	14.0	-0.47	92.6
Whakauru Stm @ U/S SH1 Br	12	97.4	96.4	89.3	108.7	7.4	0.53	97.4
Whangamarino River @ Island Block Rd	12	69.7	48.3	21.4	201.0	51.6	1.36	43.3
Whangamarino River @ Jefferies Rd Br	12	77.9	77.3	70.0	88.7	12.2	0.37	76.5
Whangape Stm @ Rangiriri-Glen Murray Rd	12	94.5	98.0	54.0	105.6	7.9	<u>-2.29</u>	93.8

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

Dissolved Oxygen (g m<sup>-3</sup>)

Location	02-06							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
<b>Coromandel</b>								
Hikutaia River @ Old Maratoto Rd	12	9.7	9.7	8.4	10.8	1.3	-0.10	10.2
Kauaeranga River @ Smiths Cableway/Recorder	12	10.2	10.0	9.3	11.3	1.5	0.17	10.4
Ohinemuri River @ Queens Head	12	10.2	10.1	9.3	11.3	1.0	0.35	10.5
Ohinemuri River @ SH25 Br	12	10.5	10.3	9.1	11.8	1.3	0.21	10.5
Tairua River @ Morrisons Br Hikuai	12	10.0	10.0	9.0	10.8	0.5	-0.48	10.1
Tapu River @ Tapu-Coroglen Rd	12	10.7	10.6	9.5	11.7	1.4	-0.02	10.6
Waiau River @ E309 Rd Ford	12	10.5	10.4	9.5	11.6	1.3	0.08	10.7
Waitekauri River @ U/S Ohinemuri Conflu	12	10.6	10.5	9.6	11.4	1.2	-0.18	10.7
Waiwawa River @ SH25 Coroglen	12	10.2	10.2	9.1	11.3	1.4	-0.08	10.4
Wharekawa River @ SH25	12	9.5	9.6	8.1	10.5	1.5	-0.48	9.8
<b>Hauraki</b>								
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	10.3	10.3	9.0	11.6	1.3	0.03	10.2
Oraka Stm @ Lake Rd	12	9.5	9.2	8.2	11.1	1.0	0.70	9.5
Piako River @ Kiwitahi	12	8.2	8.4	4.6	10.5	2.7	-0.59	8.7
Piako River @ Paeroa-Tahuna Rd Br	12	8.0	8.2	4.5	10.3	1.5	-0.87	8.2
Piakonui Stm @ Piakonui Rd	12	10.7	10.7	9.8	11.8	1.0	0.22	10.6
Waihou River @ Okauia	12	9.7	9.6	9.0	11.2	0.9	0.97	9.6
Waihou River @ Whites Rd	12	10.5	10.5	9.9	10.8	0.4	-0.58	10.6
Waihohu Stm @ Waihohu Rd (Off SH5)	12	10.2	10.2	8.4	12.0	1.3	0.16	10.3
Waiomou Stm @ Matamata-Tauranga Rd	12	10.0	9.9	9.1	11.8	1.1	0.83	9.9
Waitakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	9.9	10.0	7.1	12.7	1.9	-0.24	9.3
Waitoa River @ Landsdowne Rd Br	12	9.3	9.5	7.4	10.7	1.0	-0.71	9.1
Waitoa River @ Mellon Rd Recorder	12	7.9	7.7	6.8	11.2	1.0	<u>1.90</u>	7.4
<b>Tributaries to the lower Waikato River</b>								
Awaroa River (Waiuku) @ Otaua Rd Br opp Moseley Rd	12	8.6	8.5	7.1	10.4	1.6	0.22	9.6
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	9.2	9.2	7.5	11.0	1.6	-0.10	9.0
Karapiro Stm @ Hickey Rd Bridge	12	9.4	9.2	8.1	11.2	1.7	0.54	9.5
Kirikiri Stm @ Tauhara Dr	12	7.1	7.0	5.9	8.6	1.8	0.19	7.0
Komakorau Stm @ Henry Rd	12	6.7	6.8	5.2	8.6	2.2	0.13	6.4
Little Waipa Stm @ Arapuni - Putaruru Rd	12	10.4	11.0	8.2	11.5	1.9	-0.70	10.4
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	9.1	8.9	8.2	10.8	1.1	0.97	8.9
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	10.5	10.4	9.6	11.7	1.1	0.32	10.4
Mangaone Stm @ Annebrooke Rd Br	12	8.1	8.2	7.0	9.4	1.1	0.31	7.9
Mangaonua Stm @ Hoeka Rd	12	8.7	8.6	8.1	10.5	0.7	1.47	8.2
Mangaonua Stm @ Te Miro Rd	12	10.2	10.2	8.0	11.4	1.2	-0.74	10.4
Mangatangi River @ SH2 Maramarua	12	8.9	8.9	7.7	10.4	1.8	0.17	8.9
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	10.8	10.5	9.0	13.1	1.3	0.66	10.5
Mangawara Stm @ Rutherford Rd Br	12	7.3	7.3	6.0	8.8	1.9	0.03	7.3
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	9.1	9.0	8.1	10.2	0.9	0.27	8.9
Matahuru Stm @ Waiterimu Road Below Confluence	12	9.0	9.0	7.8	10.2	1.3	-0.08	8.7
Ohaeroa Stm @ SH22 Br	12	10.7	10.8	9.5	11.9	1.6	-0.09	10.6
Opuatia Stm @ Ponganui Rd	12	10.0	9.9	7.4	11.5	1.6	-0.69	9.9
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	10.3	10.4	9.1	11.8	1.1	0.19	10.3
Waerenga Stm @ Taniwha Rd	12	10.3	10.2	8.7	11.8	2.0	0.07	10.3
Waitawhiriwhiri Stm @ Edgecumbe Street	12	8.3	8.2	7.4	9.4	1.0	0.47	8.2
Whakapipi Stm @ SH22 Br	12	9.3	9.6	7.4	11.2	2.9	-0.09	9.5
Whakauru Stm @ U/S SH1 Br	12	10.2	10.1	8.9	11.9	1.9	0.33	10.2
Whangamarino River @ Island Block Rd	12	6.8	5.2	2.0	16.2	6.8	0.92	4.1
Whangamarino River @ Jefferies Rd Br	12	8.1	7.6	6.6	9.9	2.5	0.28	8.0
Whangape Stm @ Rangiriri-Glen Murray Rd	12	9.5	9.9	5.0	11.5	2.2	-1.14	9.1

**Waipa River and Tributaries**

Kaniwhaniwha Stm @ Wright Rd	12	91.7	91.4	84.5	105.0	6.3	0.98	90.0
Mangaohoi Stm @ South Branch Maru Rd	12	100.9	100.7	98.3	104.5	1.2	0.61	100.4
Mangaokewa Stm @ Te Kuiti Borough W/S Intake	12	95.2	96.3	89.2	99.3	4.5	-0.69	96.2
Mangapiko Stm (Pirongia/Te Awamutu) @ Bowman Rd	12	87.5	87.9	73.3	104.0	7.8	0.29	85.2
Mangapu River @ Otorohanga	12	94.6	92.4	78.2	110.0	8.2	0.16	93.5
Mangatutu Stm (Waikeria) @ Walker Rd Br	12	97.1	96.7	93.2	102.5	4.0	0.49	95.0
Manguaika Stm @ Te Awamutu Borough W/S Intake	12	100.5	100.8	97.9	103.0	2.4	-0.12	100.3
Ohote Stm @ Whatawhata/Horotiu Rd	12	51.1	53.5	26.0	76.0	21.8	-0.17	49.5
Puniu River @ Bartons Corner Rd Br	12	95.1	95.2	82.6	108.8	6.4	0.22	94.3
Waipa River @ Mangaokewa Rd	12	102.7	101.7	97.8	111.9	5.5	0.93	101.5
Waipa River @ Pirongia-Ngutunui Rd Br	12	90.9	89.4	84.0	103.4	6.6	1.00	91.6
Waipa River @ SH3 Otorohanga	12	99.2	99.0	93.6	104.5	6.8	0.01	99.2
Waitomo Stm @ SH31 Otorohanga	12	98.1	99.2	81.4	112.0	9.8	-0.24	100.2
Waitomo Stm @ Tumutumu Rd	12	100.5	100.0	96.9	107.0	4.3	0.79	100.1

	12	9.3	9.1	8.2	10.7	1.2	0.31	9.2
	12	10.2	10.2	9.2	11.1	0.9	-0.11	10.3
	12	10.1	10.4	8.5	11.4	1.5	-0.33	10.3
	12	8.6	8.6	6.9	10.1	1.5	-0.13	8.2
	12	9.5	9.8	7.7	10.3	0.8	-1.47	9.6
	12	9.7	9.7	8.2	11.0	1.1	-0.16	9.8
	12	10.7	10.7	10.0	11.5	0.7	0.20	10.7
	12	5.2	5.3	2.6	8.6	2.5	0.23	4.8
	12	9.4	9.4	8.0	10.7	1.2	-0.16	9.4
	12	10.5	10.4	9.5	11.5	1.5	-0.03	10.5
	12	9.3	9.4	7.9	10.8	1.0	-0.15	9.5
	12	10.1	10.1	9.5	11.1	1.1	0.28	10.2
	12	10.0	10.1	8.8	10.6	0.5	-1.15	10.2
	12	10.5	10.5	9.7	11.3	0.5	0.05	10.5

**Tributaries to the upper Waikato River**

Kawaunui Stm @ SH5 Br	12	89.5	89.8	83.6	94.9	4.2	0.02	86.8
Mangaharakeke Stm (Atiamuri) @ SH30 (Off Jct SH1)	12	95.1	94.7	92.2	99.6	3.5	0.58	94.5
Mangakara Stm (Reporoa) @ SH5	12	93.2	93.2	90.7	97.8	3.2	0.69	93.2
Mangakino Stm (Whakamaru) @ Sandel Rd	12	103.3	103.4	100.0	107.2	2.7	0.13	103.2
Otamakokore Stm @ Hossack Rd	12	94.0	92.9	60.4	114.0	11.1	-0.91	96.8
Pueto Stm @ Broadlands Rd Br	12	95.0	94.9	92.0	99.2	1.4	0.75	95.4
Tahunaaatara Stm @ Ohakuri Rd	12	102.1	101.7	98.7	105.6	3.5	0.11	103.1
Torepatutahi Stm @ Vaile Rd Br	12	102.4	102.9	92.0	118.1	10.4	0.42	102.7
Waiotapu Stm @ Campbell Rd Br	12	87.2	87.7	84.5	89.0	2.4	-0.55	88.2
Waiotapu Stm @ Homestead Rd Br	12	86.5	86.4	76.5	95.8	7.0	0.06	86.6
Waipapa Stm (Mokai) @ Tirohanga Rd Br	12	99.9	99.7	96.8	104.6	3.2	0.51	99.9
Whirinaki Stm @ Corbett Rd	12	97.7	97.4	94.6	102.1	2.5	0.65	97.7

	12	8.8	8.9	7.8	9.9	1.0	0.22	8.6
	12	9.9	9.9	9.1	11.0	0.9	0.37	9.8
	12	9.5	9.4	8.8	10.5	0.8	0.68	9.5
	12	10.9	11.0	9.8	12.1	0.5	0.11	10.8
	12	8.2	8.4	5.3	9.7	1.0	-1.09	8.4
	12	9.6	9.6	8.3	10.3	0.5	-1.13	9.7
	12	10.4	10.3	9.6	11.9	0.9	0.88	10.6
	12	10.3	10.2	9.0	11.6	1.1	-0.01	10.3
	12	6.8	6.6	6.1	8.6	0.6	<u>1.84</u>	6.6
	12	7.9	8.0	6.9	8.8	1.3	-0.07	8.0
	12	8.6	8.5	8.1	9.1	0.7	0.30	8.5
	12	10.0	10.1	9.1	10.4	0.6	-0.99	10.2

**West Coast**

Awakino River @ Gribbon Rd	12	102.2	102.0	93.8	108.5	3.8	-0.48	101.7
Awakino River @ SH3 Awakau Rd Junction	12	105.3	101.0	94.0	124.3	14.8	0.94	103.4
Manganui River @ Off Manganui Rd	12	101.5	99.8	94.2	112.6	7.6	0.82	102.0
Mangaotaki River @ SH3 Br	12	104.3	103.0	99.4	113.5	7.7	0.69	102.4
Marokopa River @ Speedies Rd (Off Te Anga Rd)	12	104.2	104.2	97.5	111.2	4.9	0.12	104.0
Mokau River @ Awakau Rd	12	95.2	95.4	90.6	98.8	3.5	-0.34	95.4
Mokau River @ Mangaokewa Rd (Off SH30)	12	99.5	98.9	95.0	105.5	3.6	0.63	100.2
Mokau River @ Totoro Rd Recorder	12	103.8	103.1	96.4	113.3	2.8	0.71	103.4
Mokauiti Stm @ Three Way Point - Aria	12	94.2	93.3	81.9	108.7	7.5	0.17	95.1
Ohautira Stm @ Waingaro Te Uku Rd	12	95.3	95.7	84.7	107.3	5.1	0.21	94.8
Oparau River @ Langdon Rd (Off Okupata Rd)	12	105.1	106.3	92.9	113.0	4.9	-1.03	103.8
Tawarau River @ Off Speedies Rd	12	103.8	102.8	99.4	117.0	5.3	1.66	103.1
Waingaro River (Pukemiro) @ Ruakiwi Rd Off SH22	11	95.2	94.7	87.5	106.7	7.8	0.54	94.5
Waitetuna River @ Te Uku-Waingaro Rd	12	96.4	96.4	90.5	100.3	4.0	-0.44	96.7

	12	10.9	10.9	10.0	11.7	0.6	-0.02	10.8
	12	10.9	11.1	8.9	11.9	0.7	-1.37	11.0
	12	10.7	10.8	9.2	11.8	1.2	-0.40	10.7
	12	10.8	11.1	9.2	11.7	0.9	-0.90	10.8
	12	11.0	10.9	10.0	12.5	0.7	0.86	10.9
	12	9.9	10.1	8.2	11.2	1.8	-0.28	9.9
	12	10.5	10.3	9.5	11.6	1.2	0.20	10.6
	12	10.7	10.7	9.6	11.7	1.0	-0.17	10.7
	12	9.6	10.1	7.9	10.5	1.7	-0.63	9.9
	12	10.2	10.5	8.2	11.5	1.3	-0.82	10.3
	12	10.8	11.0	9.7	12.1	1.1	0.13	10.8
	12	10.9	10.9	10.0	11.5	0.7	-0.34	10.9
	11	9.5	9.5	8.5	10.4	1.4	-0.03	9.5
	12	10.0	10.1	8.5	10.9	1.2	-0.56	10.1

**Inflows to Lake Taupo**

Hinemaiaia River @ SH1	12	101.6	101.3	95.7	108.3	3.9	0.37	101.6
Kuratau River @ 43 Te Rae Street	12	95.5	95.1	93.3	100.4	2.0	1.24	94.8
Kuratau River @ SH41 Moerangi	12	103.3	103.5	98.0	110.7	5.8	0.38	101.5
Mapara Stm (Lake Taupo) @ Off Mapara Rd (Whakaipo Res)	12	89.7	88.9	85.2	100.4	3.8	1.63	88.6
Tauranga-Taupo River @ Te Kono Slackline	12	103.2	102.9	99.1	110.0	3.7	0.88	102.5
Tokaanu Power Station Tailrace Canal @ SH41 Bridge Over Cana	12	100.4	98.2	95.1	108.6	6.9	0.55	99.7
Tokaanu Stm @ Off SH41 Turangi	12	82.7	81.4	78.6	89.8	4.0	0.84	83.0
Waihaha River @ SH32	12	102.4	102.2	99.3	105.8	3.2	0.31	103.1
Waitahanui River @ Blake Rd	12	99.4	98.5	94.6	106.4	3.0	0.87	99.8
Whanganui Stm @ Lakeside Lake Taupo	12	102.7	101.2	99.2	110.0	4.1	1.10	101.9
Whareroa Stm (Taupo District) @ Lakeside Lake Taupo	12	96.8	96.3	94.8	101.4	2.0	1.35	97.0
Whareroa Stm (Taupo District) @ Whareroa Station Bridge	12	97.5	97.0	94.1	103.6	2.1	1.29	97.9

	12	10.8	10.9	9.6	12.3	1.2	0.23	10.8
	12	10.3	10.1	9.3	11.5	1.1	0.32	10.3
	12	10.6	10.7	9.5	12.1	1.2	0.20	10.5
	12	9.6	9.6	8.5	10.6	0.9	-0.09	9.4
	12	11.3	11.3	9.9	12.5	1.3	-0.15	11.2
	12	10.5	10.5	8.8	11.8	1.6	-0.18	10.3
	12	8.6	8.6	8.2	9.3	0.5	0.84	8.6
	12	10.9	11.0	9.7	12.1	0.7	-0.11	11.0
	12	10.7	10.8	9.8	11.4	0.6	-0.37	10.7
	12	11.0	10.9	9.8	12.3	1.0	0.03	11.0
	12	10.2	10.2	9.1	11.7	0.6	0.48	10.2
	12	10.3	10.3	9.2	11.5	0.7	-0.21	10.4

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

Dissolved Reactive Phosphorus (g m<sup>-3</sup>)

Location	02-06							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
<b>Coromandel</b>								
Hikutaia River @ Old Maratoto Rd	12	0.003	0.002	0.002	0.008	0.001	<u>1.71</u>	0.006
Kauaeranga River @ Smiths Cableway/Recorder	12	0.002	0.002	0.002	0.007	0.000	<u>3.02</u>	0.002
Ohinemuri River @ Queens Head	12	0.003	0.002	0.002	0.006	0.003	0.80	0.015
Ohinemuri River @ SH25 Br	12	0.006	0.005	0.002	0.017	0.006	1.15	0.008
Tairua River @ Morrisons Br Hikuai	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.002
Tapu River @ Tapu-Coroglen Rd	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.003
Waiau River @ E309 Rd Ford	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.005
Waitekauri River @ U/S Ohinemuri Conflu	12	0.003	0.002	0.002	0.007	0.000	<u>1.85</u>	0.005
Waiwawa River @ SH25 Coroglen	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.002
Wharekawa River @ SH25	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.006
<b>Hauraki</b>								
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	0.036	0.041	0.006	0.051	0.014	-1.19	0.042
Oraka Stm @ Lake Rd	12	0.094	0.093	0.059	0.133	0.030	0.12	0.099
Piako River @ Kiwitahi	12	0.062	0.063	0.033	0.105	0.034	0.38	0.053
Piako River @ Paeroa-Tahuna Rd Br	12	0.168	0.132	0.006	0.631	0.141	<u>1.74</u>	0.138
Piakonui Stm @ Piakonui Rd	12	0.009	0.008	0.002	0.017	0.005	0.29	0.013
Waihou River @ Okauia	12	0.066	0.063	0.054	0.100	0.015	1.36	0.070
Waihou River @ Whites Rd	12	0.078	0.080	0.059	0.086	0.008	-1.24	0.085
Waihotu Stm @ Waihotu Rd (Off SH5)	12	0.011	0.012	0.009	0.015	0.002	0.62	0.017
Waiomou Stm @ Matamata-Tauranga Rd	12	0.029	0.025	0.013	0.057	0.017	0.94	0.028
Waikakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	0.036	0.035	0.024	0.050	0.007	0.63	0.026
Waitoa River @ Landsdowne Rd Br	12	0.040	0.037	0.025	0.071	0.017	1.03	0.032
Waitoa River @ Mellon Rd Recorder	12	0.120	0.095	0.020	0.282	0.090	0.86	0.217
<b>Tributaries to the lower Waikato River</b>								
Awaroa River (Waiuku) @ Otaua Rd Br opp Moseley Rd	12	0.014	0.002	0.002	0.122	0.005	<u>2.89</u>	0.007
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	0.003	0.002	0.002	0.005	0.001	1.34	0.002
Karapiro Stm @ Hickey Rd Bridge	12	0.047	0.044	0.019	0.079	0.028	0.28	0.040
Kirikiriira Stm @ Tauhara Dr	12	0.025	0.015	0.005	0.151	0.009	<u>2.93</u>	0.015
Komakorau Stm @ Henry Rd	12	0.013	0.007	0.002	0.035	0.019	0.87	0.014
Little Waipa Stm @ Arapuni - Putaruru Rd	12	0.063	0.055	0.033	0.129	0.025	1.24	0.059
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	0.322	0.197	0.010	1.220	0.155	<u>1.72</u>	0.137
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	0.507	0.436	0.298	1.070	0.190	<u>1.76</u>	0.522
Mangaone Stm @ Annebrooke Rd Br	12	0.070	0.069	0.041	0.094	0.024	-0.13	0.068
Mangaonua Stm @ Hoeka Rd	12	0.015	0.014	0.005	0.028	0.009	0.72	0.013
Mangaonua Stm @ Te Miro Rd	12	0.015	0.015	0.004	0.022	0.009	-0.49	0.018
Mangatangi River @ SH2 Maramarua	12	0.036	0.035	0.014	0.055	0.015	-0.15	0.026
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	0.012	0.012	0.006	0.026	0.007	1.34	0.010
Mangawara Stm @ Rutherford Rd Br	12	0.073	0.063	0.014	0.142	0.072	0.44	0.039
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	0.095	0.057	0.017	0.415	0.060	<u>2.25</u>	0.037
Matahuru Stm @ Waiterimu Road Below Confluence	12	0.035	0.036	0.006	0.053	0.018	-0.60	0.028
Ohaeroa Stm @ SH22 Br	12	0.006	0.006	0.002	0.015	0.004	1.17	0.008
Opuatia Stm @ Ponganui Rd	12	0.006	0.006	0.002	0.011	0.006	0.10	0.008
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	0.110	0.108	0.086	0.132	0.025	0.02	0.112
Waerenga Stm @ Taniwha Rd	12	0.026	0.025	0.006	0.049	0.011	0.34	0.026
Waitawhiriwhiri Stm @ Edgecumbe Street	12	0.042	0.035	0.005	0.115	0.041	0.99	0.028
Whakapipi Stm @ SH22 Br	12	0.024	0.021	0.006	0.056	0.023	0.86	0.016
Whakauru Stm @ U/S SH1 Br	12	0.012	0.013	0.007	0.017	0.003	-0.35	0.019
Whangamarino River @ Island Block Rd	12	0.006	0.005	0.002	0.011	0.003	0.35	0.006
Whangamarino River @ Jefferies Rd Br	12	0.038	0.036	0.008	0.077	0.014	0.70	0.031
Whangape Stm @ Rangiriri-Glen Murray Rd	12	0.003	0.002	0.002	0.014	0.000	<u>2.88</u>	0.002

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

Total Phosphorus (g m<sup>-3</sup>)

Location	02-06							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
<b>Coromandel</b>								
Hikutaia River @ Old Maratoto Rd	12	0.012	0.012	0.007	0.021	0.006	0.62	0.013
Kauaeranga River @ Smiths Cableway/Recorder	12	0.012	0.006	0.002	0.049	0.008	<u>1.70</u>	0.005
Ohinemuri River @ Queens Head	12	0.017	0.017	0.008	0.029	0.003	0.68	0.033
Ohinemuri River @ SH25 Br	12	0.016	0.014	0.006	0.031	0.009	0.66	0.017
Tairua River @ Morrisons Br Hikuai	12	0.007	0.006	0.002	0.018	0.003	1.61	0.007
Tapu River @ Tapu-Coroglen Rd	12	0.006	0.005	0.002	0.015	0.006	1.01	0.005
Waiau River @ E309 Rd Ford	12	0.009	0.009	0.006	0.015	0.004	0.76	0.009
Waitekauri River @ U/S Ohinemuri Conflu	12	0.010	0.009	0.002	0.021	0.005	0.76	0.011
Waiwawa River @ SH25 Coroglen	12	0.006	0.006	0.002	0.013	0.002	1.17	0.006
Wharekawa River @ SH25	12	0.009	0.009	0.005	0.014	0.004	0.31	0.010
<b>Hauraki</b>								
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	0.088	0.058	0.036	0.385	0.016	<u>2.79</u>	0.058
Oraka Stm @ Lake Rd	12	0.148	0.139	0.103	0.242	0.043	1.28	0.156
Piako River @ Kiwitahi	12	0.111	0.104	0.067	0.154	0.025	0.18	0.110
Piako River @ Paeroa-Tahuna Rd Br	12	0.273	0.278	0.039	0.702	0.147	0.99	0.295
Piakonui Stm @ Piakonui Rd	12	0.028	0.026	0.017	0.046	0.008	1.12	0.032
Waihou River @ Okauia	12	0.102	0.089	0.075	0.206	0.012	<u>2.00</u>	0.097
Waihou River @ Whites Rd	12	0.080	0.078	0.071	0.087	0.009	0.13	0.085
Waihotu Stm @ Waihotu Rd (Off SH5)	12	0.034	0.033	0.018	0.055	0.026	0.25	0.037
Waiomou Stm @ Matamata-Tauranga Rd	12	0.058	0.050	0.035	0.100	0.027	0.92	0.049
Waikakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	0.075	0.074	0.055	0.098	0.017	0.52	0.079
Waitoa River @ Landsdowne Rd Br	12	0.104	0.089	0.052	0.233	0.039	1.41	0.089
Waitoa River @ Mellon Rd Recorder	12	0.225	0.190	0.101	0.422	0.173	0.81	0.390
<b>Tributaries to the lower Waikato River</b>								
Awaroa River (Waiuku) @ Otaua Rd Br opp Moseley Rd	12	0.076	0.065	0.024	0.208	0.043	<u>1.78</u>	0.059
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	0.021	0.013	0.006	0.080	0.007	<u>1.91</u>	0.012
Karapiro Stm @ Hickey Rd Bridge	12	0.100	0.097	0.067	0.144	0.031	0.40	0.104
Kirikiriira Stm @ Tauhara Dr	12	0.105	0.083	0.055	0.286	0.016	<u>2.17</u>	0.087
Komakorau Stm @ Henry Rd	12	0.111	0.095	0.075	0.280	0.019	<u>2.75</u>	0.109
Little Waipa Stm @ Arapuni - Putaruru Rd	12	0.096	0.083	0.048	0.204	0.055	1.15	0.081
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	0.575	0.429	0.183	1.540	0.336	1.51	0.422
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	0.544	0.477	0.345	1.090	0.169	<u>1.83</u>	0.572
Mangaone Stm @ Annebrooke Rd Br	12	0.290	0.194	0.124	1.370	0.045	<u>2.96</u>	0.182
Mangaonua Stm @ Hoeka Rd	12	0.096	0.081	0.029	0.205	0.057	0.94	0.068
Mangaonua Stm @ Te Miro Rd	12	0.053	0.035	0.027	0.164	0.024	<u>2.09</u>	0.036
Mangatangi River @ SH2 Maramarua	12	0.094	0.092	0.048	0.161	0.034	0.54	0.086
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	0.037	0.030	0.017	0.102	0.020	<u>1.97</u>	0.026
Mangawara Stm @ Rutherford Rd Br	12	0.253	0.240	0.152	0.432	0.071	1.11	0.251
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	0.255	0.184	0.111	0.868	0.080	<u>2.43</u>	0.175
Matahuru Stm @ Waiterimu Road Below Confluence	12	0.125	0.109	0.079	0.210	0.074	0.72	0.119
Ohaeroa Stm @ SH22 Br	12	0.043	0.035	0.017	0.133	0.023	<u>2.19</u>	0.030
Opuatia Stm @ Ponganui Rd	12	0.033	0.025	0.020	0.077	0.019	1.52	0.033
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	0.146	0.141	0.121	0.220	0.022	<u>1.96</u>	0.149
Waerenga Stm @ Taniwha Rd	12	0.055	0.052	0.037	0.080	0.019	0.57	0.055
Waitawhiriwhiri Stm @ Edgecumbe Street	12	0.137	0.113	0.076	0.368	0.029	<u>2.01</u>	0.125
Whakapipi Stm @ SH22 Br	12	0.063	0.057	0.029	0.153	0.047	1.37	0.060
Whakauru Stm @ U/S SH1 Br	12	0.034	0.031	0.020	0.066	0.009	1.39	0.033
Whangamarino River @ Island Block Rd	12	0.169	0.174	0.074	0.315	0.088	0.53	0.182
Whangamarino River @ Jefferies Rd Br	12	0.095	0.083	0.052	0.180	0.035	1.08	0.096
Whangape Stm @ Rangiriri-Glen Murray Rd	12	0.126	0.129	0.062	0.217	0.090	0.31	0.126

Waipa River and Tributaries								
Kaniwhaniwha Stm @ Wright Rd	12	0.007	0.007	0.002	0.026	0.003	<u>2.46</u>	0.007
Mangaohoi Stm @ South Branch Maru Rd	12	0.040	0.041	0.021	0.055	0.014	-0.43	0.042
Mangaokewa Stm @ Te Kuiti Borough W/S Intake	12	0.017	0.015	0.009	0.032	0.009	0.88	0.016
Mangapiko Stm (Pirongia/Te Awamutu) @ Bowman Rd	12	0.123	0.115	0.047	0.295	0.043	1.53	0.111
Mangapu River @ Otorohanga	12	0.036	0.032	0.004	0.079	0.022	0.81	0.036
Mangatutu Stm (Waikeria) @ Walker Rd Br	12	0.011	0.009	0.002	0.031	0.005	<u>1.87</u>	0.012
Manguaika Stm @ Te Awamutu Borough W/S Intake	12	0.003	0.002	0.002	0.005	0.001	1.34	0.006
Ohote Stm @ Whatawhata/Horotiu Rd	12	0.021	0.018	0.011	0.047	0.011	1.50	0.017
Puniu River @ Bartons Corner Rd Br	12	0.027	0.028	0.007	0.040	0.017	-0.41	0.025
Waipa River @ Mangaokewa Rd	12	0.007	0.006	0.002	0.025	0.004	<u>2.38</u>	0.009
Waipa River @ Pirongia-Ngutuunui Rd Br	12	0.020	0.019	0.012	0.033	0.006	0.95	0.019
Waipa River @ SH3 Otorohanga	12	0.009	0.008	0.004	0.023	0.004	1.56	0.010
Waitomo Stm @ SH31 Otorohanga	12	0.005	0.006	0.002	0.008	0.006	-0.45	0.007
Waitomo Stm @ Tutumutu Rd	12	0.008	0.008	0.002	0.010	0.003	-1.21	0.010

	12	0.034	0.026	0.017	0.114	0.010	<u>2.71</u>	0.033
	12	0.051	0.049	0.032	0.076	0.018	0.51	0.059
	12	0.043	0.037	0.024	0.091	0.017	1.57	0.042
	12	0.249	0.255	0.120	0.399	0.067	0.33	0.273
	12	0.084	0.077	0.061	0.152	0.027	<u>1.71</u>	0.099
	12	0.030	0.028	0.014	0.048	0.012	0.41	0.033
	12	0.007	0.007	0.004	0.017	0.003	1.51	0.008
	12	0.086	0.078	0.047	0.160	0.028	1.04	0.099
	12	0.057	0.058	0.034	0.073	0.017	-0.55	0.058
	12	0.024	0.020	0.013	0.076	0.009	<u>2.68</u>	0.023
	12	0.079	0.058	0.038	0.324	0.023	<u>2.81</u>	0.067
	12	0.055	0.029	0.017	0.229	0.047	<u>2.22</u>	0.034
	12	0.044	0.034	0.016	0.173	0.026	<u>2.59</u>	0.044
	12	0.031	0.024	0.014	0.112	0.011	<u>2.77</u>	0.029

Tributaries to the upper Waikato River								
Kawaunui Stm @ SH5 Br	12	0.109	0.061	0.040	0.386	0.067	<u>1.91</u>	0.099
Mangaharakeke Stm (Atiamuri) @ SH30 (Off Jct SH1)	12	0.036	0.033	0.025	0.071	0.010	<u>1.91</u>	0.037
Mangakara Stm (Reporoa) @ SH5	12	0.058	0.056	0.039	0.094	0.019	0.98	0.057
Mangakino Stm (Whakamaru) @ Sandel Rd	12	0.037	0.041	0.011	0.052	0.012	-0.98	0.041
Otamakokore Stm @ Hossack Rd	12	0.158	0.143	0.115	0.307	0.045	<u>2.03</u>	0.154
Pueto Stm @ Broadlands Rd Br	12	0.082	0.084	0.063	0.095	0.012	-0.63	0.085
Tahunaatara Stm @ Ohakuri Rd	12	0.041	0.037	0.029	0.092	0.015	<u>2.01</u>	0.038
Torepatutahi Stm @ Vaile Rd Br	12	0.086	0.085	0.070	0.120	0.016	1.09	0.085
Waiotapu Stm @ Campbell Rd Br	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.024
Waiotapu Stm @ Homestead Rd Br	12	0.037	0.038	0.023	0.050	0.010	-0.03	0.042
Waipapa Stm (Mokai) @ Tirohanga Rd Br	12	0.080	0.078	0.057	0.117	0.014	1.13	0.079
Whirinaki Stm @ Corbett Rd	12	0.067	0.066	0.061	0.081	0.008	1.21	0.070

	12	0.188	0.121	0.074	0.654	0.092	<u>1.94</u>	0.174
	12	0.064	0.055	0.036	0.151	0.019	<u>2.07</u>	0.062
	12	0.101	0.085	0.061	0.171	0.051	0.80	0.094
	12	0.051	0.047	0.044	0.078	0.009	<u>1.92</u>	0.051
	12	0.200	0.183	0.149	0.380	0.045	<u>1.97</u>	0.177
	12	0.104	0.104	0.092	0.115	0.011	0.06	0.109
	12	0.068	0.056	0.036	0.165	0.028	<u>1.78</u>	0.054
	12	0.104	0.103	0.081	0.150	0.021	0.89	0.108
	12	0.161	0.158	0.096	0.222	0.053	0.03	0.132
	12	0.201	0.199	0.115	0.367	0.075	0.96	0.169
	12	0.119	0.116	0.093	0.153	0.018	0.34	0.107
	12	0.074	0.069	0.062	0.100	0.013	1.20	0.072

West Coast								
Awakino River @ Gribbon Rd	12	0.014	0.014	0.006	0.021	0.005	-0.16	0.015
Awakino River @ SH3 Awakau Rd Junction	12	0.008	0.009	0.002	0.016	0.010	-0.03	0.010
Manganui River @ Off Manganui Rd	12	0.014	0.014	0.007	0.021	0.011	0.04	0.014
Mangaotaki River @ SH3 Br	12	0.013	0.011	0.002	0.029	0.008	0.94	0.014
Marokopa River @ Speedies Rd (Off Te Anga Rd)	12	0.012	0.013	0.002	0.019	0.006	-0.44	0.015
Mokau River @ Awakau Rd	12	0.007	0.007	0.002	0.012	0.005	0.00	0.008
Mokau River @ Mangaokewa Rd (Off SH30)	12	0.013	0.013	0.004	0.023	0.007	0.12	0.016
Mokau River @ Totoro Rd Recorder	12	0.011	0.009	0.002	0.035	0.010	1.59	0.012
Mokauiti Stm @ Three Way Point - Aria	12	0.011	0.009	0.002	0.033	0.005	1.57	0.008
Ohautira Stm @ Waingaro Te Uku Rd	12	0.017	0.017	0.006	0.026	0.006	-0.18	0.020
Oparau River @ Langdon Rd (Off Okupata Rd)	12	0.006	0.006	0.002	0.018	0.006	1.57	0.008
Tawarau River @ Off Speedies Rd	12	0.013	0.014	0.002	0.020	0.005	-0.84	0.015
Waingaro River (Pukemiro) @ Ruakiwi Rd Off SH22	12	0.010	0.009	0.005	0.017	0.006	0.56	0.011
Waitetuna River @ Te Uku-Waingaro Rd	12	0.011	0.011	0.004	0.022	0.005	0.72	0.012

	12	0.023	0.019	0.013	0.046	0.012	1.48	0.020
	12	0.043	0.024	0.010	0.126	0.046	1.19	0.023
	12	0.089	0.039	0.015	0.471	0.037	<u>2.21</u>	0.031
	12	0.067	0.037	0.015	0.240	0.067	1.65	0.036
	12	0.042	0.030	0.019	0.109	0.024	1.46	0.031
	12	0.076	0.049	0.015	0.345	0.044	<u>2.56</u>	0.053
	12	0.044	0.033	0.024	0.117	0.018	<u>2.15</u>	0.037
	12	0.067	0.051	0.018	0.203	0.036	1.52	0.045
	12	0.059	0.049	0.024	0.126	0.029	1.15	0.054
	12	0.079	0.045	0.029	0.318	0.047	<u>2.20</u>	0.047
	12	0.022	0.016	0.006	0.050	0.022	0.74	0.019
	12	0.040	0.029	0.018	0.117	0.023	<u>1.81</u>	0.032
	12	0.062	0.043	0.027	0.280	0.019	<u>2.90</u>	0.051
	12	0.064	0.038	0.029	0.313	0.018	<u>2.86</u>	0.042

Inflows to Lake Taupo								
Hinemaiaia River @ SH1	12	0.028	0.028	0.004	0.040	0.007	-1.57	0.031
Kuratau River @ 43 Te Rae Street	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.005
Kuratau River @ SH41 Moerangi	12	0.003	0.002	0.002	0.005	0.000	<u>1.79</u>	0.009
Mapara Stm (Lake Taupo) @ Off Mapara Rd (Whakaipo Res)	12	0.132	0.131	0.104	0.171	0.026	0.19	0.145
Tauranga-Taupo River @ Te Kono Slackline	12	0.012	0.014	0.002	0.024	0.006	0.05	0.017
Tokaanu Power Station Tailrace Canal @ SH41 Bridge Over C:	12	0.002	0.002	0.002	0.002	0.000	-1.00	0.007
Tokaanu Stm @ Off SH41 Turangi	12	0.075	0.076	0.059	0.084	0.010	-0.84	0.080
Waihaha River @ SH32	12	0.016	0.017	0.005	0.025	0.006	-0.53	0.020
Waihanui River @ Blake Rd	12	0.045	0.047	0.031	0.052	0.006	-1.27	0.049
Whanganui Stm @ Lakeside Lake Taupo	12	0.008	0.009	0.002	0.016	0.005	0.03	0.013
Whareroa Stm (Taupo District) @ Lakeside Lake Taupo	12	0.019	0.019	0.002	0.034	0.007	-0.18	0.023
Whareroa Stm (Taupo District) @ Whareroa Station Bridge	12	0.016	0.017	0.002	0.025	0.008	-0.69	0.022

	12	0.039	0.038	0.028	0.052	0.006	0.45	0.037
	12	0.007	0.005	0.002	0.020	0.008	1.18	0.006
	12	0.015	0.014	0.010	0.023	0.006	0.59	0.015
	12	0.185	0.170	0.136	0.304	0.030	<u>1.82</u>	0.177
	12	0.021	0.020	0.016	0.039	0.007	<u>1.88</u>	0.021
	12	0.013	0.013	0.008	0.019	0.001	0.40	0.014
	12	0.081	0.082	0.074	0.086	0.004	-0.52	0.081
	12	0.025	0.023	0.019	0.045	0.004	<u>2.36</u>	0.025
	12	0.051	0.050	0.047	0.056	0.005	0.50	0.050
	12	0.018	0.016	0.013	0.036	0.005	<u>2.09</u>	0.017
	12	0.041	0.034	0.026	0.098	0.012	<u>2.48</u>	0.037
	12	0.039	0.036	0.019	0.072	0.012	1.19	0.034

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

Ammoniacal Nitrogen (g N m<sup>-3</sup>)

Location	02-06							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
<b>Coromandel</b>								
Hikutaia River @ Old Maratoto Rd	12	0.02	0.02	0.01	0.04	0.02	0.77	0.01
Kauaeranga River @ Smiths Cableway/Recorder	12	0.01	0.01	0.01	0.05	0.00	<u>2.13</u>	0.01
Ohinemuri River @ Queens Head	12	0.08	0.04	0.01	0.26	0.11	0.99	0.03
Ohinemuri River @ SH25 Br	12	0.01	0.01	0.01	0.03	0.02	0.88	0.01
Tairua River @ Morrisons Br Hikuai	12	0.01	0.01	0.01	0.02	0.01	<u>1.92</u>	0.01
Tapu River @ Tapu-Coroglen Rd	12	0.01	0.01	0.01	0.02	0.00	<u>1.79</u>	0.01
Waiau River @ E309 Rd Ford	12	0.01	0.01	0.01	0.02	0.00	<u>2.56</u>	0.01
Waitekauri River @ U/S Ohinemuri Conflu	12	0.01	0.01	0.01	0.02	0.02	0.52	0.01
Waiwawa River @ SH25 Coroglen	12	0.01	0.01	0.01	0.02	0.00	<u>2.21</u>	0.01
Wharekawa River @ SH25	12	0.01	0.01	0.01	0.02	0.02	0.52	0.01
<b>Hauraki</b>								
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	0.02	0.01	0.01	0.10	0.01	<u>2.79</u>	0.01
Oraka Stm @ Lake Rd	12	0.24	0.06	0.01	0.89	0.39	1.20	0.03
Piako River @ Kiwitahi	12	0.07	0.06	0.01	0.14	0.09	0.35	0.05
Piako River @ Paeroa-Tahuna Rd Br	12	0.11	0.08	0.01	0.34	0.11	1.02	0.08
Piakonui Stm @ Piakonui Rd	12	0.01	0.01	0.01	0.03	0.00	<u>2.83</u>	0.01
Waihou River @ Okauia	12	0.03	0.01	0.01	0.11	0.06	0.99	0.01
Waihou River @ Whites Rd	12	0.01	0.01	0.01	0.06	0.00	<u>1.98</u>	0.01
Waihotu Stm @ Waihotu Rd (Off SH5)	12	0.02	0.01	0.01	0.08	0.01	<u>1.87</u>	0.01
Waiomou Stm @ Matamata-Tauranga Rd	12	0.04	0.02	0.01	0.12	0.04	1.23	0.02
Waikakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	0.03	0.02	0.01	0.08	0.04	0.67	0.02
Waitoa River @ Landsdowne Rd Br	12	0.06	0.07	0.01	0.15	0.07	0.37	0.04
Waitoa River @ Mellon Rd Recorder	12	0.09	0.06	0.01	0.24	0.13	0.64	0.09
<b>Tributaries to the lower Waikato River</b>								
Awaroa River (Waiuku) @ Otaua Rd Br opp Moseley Rd	12	0.09	0.07	0.01	0.24	0.12	0.72	0.04
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	0.06	0.07	0.01	0.14	0.04	0.30	0.03
Karapiro Stm @ Hickey Rd Bridge	12	0.03	0.03	0.01	0.06	0.02	0.41	0.02
Kirikiriira Stm @ Tauhara Dr	12	0.34	0.33	0.12	0.61	0.20	0.27	0.33
Komakorau Stm @ Henry Rd	12	0.78	0.65	0.49	1.34	0.44	0.90	0.85
Little Waipa Stm @ Arapuni - Putaruru Rd	12	0.12	0.03	0.01	0.80	0.10	<u>2.55</u>	0.02
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	0.30	0.26	0.07	0.77	0.13	1.47	0.31
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	0.07	0.06	0.01	0.16	0.08	0.40	0.08
Mangaone Stm @ Annebrooke Rd Br	12	0.03	0.03	0.01	0.04	0.02	-0.31	0.03
Mangaonua Stm @ Hoeka Rd	12	0.09	0.09	0.03	0.13	0.03	-0.27	0.07
Mangaonua Stm @ Te Miro Rd	12	0.01	0.01	0.01	0.03	0.02	0.95	0.01
Mangatangi River @ SH2 Maramarua	12	0.03	0.01	0.01	0.10	0.05	1.13	0.01
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	0.01	0.01	0.01	0.02	0.00	1.59	0.01
Mangawara Stm @ Rutherford Rd Br	12	0.32	0.30	0.08	0.54	0.25	-0.03	0.40
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	0.12	0.11	0.06	0.20	0.06	0.66	0.11
Matahuru Stm @ Waiterimu Road Below Confluence	12	0.07	0.06	0.01	0.21	0.09	1.09	0.05
Ohaeroa Stm @ SH22 Br	12	0.01	0.01	0.01	0.03	0.01	1.24	0.01
Opuatia Stm @ Ponganui Rd	12	0.01	0.01	0.01	0.03	0.01	1.38	0.01
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	0.03	0.02	0.01	0.09	0.03	1.59	0.02
Waerenga Stm @ Taniwha Rd	12	0.01	0.01	0.01	0.03	0.02	0.87	0.01
Waitawhiriwhiri Stm @ Edgecumbe Street	12	0.58	0.66	0.22	0.86	0.31	-0.56	0.68
Whakapipi Stm @ SH22 Br	12	0.03	0.01	0.01	0.11	0.05	1.12	0.02
Whakauru Stm @ U/S SH1 Br	12	0.01	0.01	0.01	0.03	0.01	<u>1.72</u>	0.01
Whangamarino River @ Island Block Rd	12	0.06	0.06	0.01	0.14	0.09	0.42	0.07
Whangamarino River @ Jefferies Rd Br	12	0.06	0.05	0.01	0.23	0.09	1.31	0.05
Whangape Stm @ Rangiriri-Glen Murray Rd	12	0.02	0.01	0.01	0.08	0.01	<u>2.16</u>	0.01

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

Nitrate/Nitrite (g m<sup>-3</sup>)

Location	02-06							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
<b>Coromandel</b>								
Hikutaia River @ Old Maratoto Rd	12	0.058	0.034	0.005	0.248	0.062	<u>1.73</u>	0.036
Kauaeranga River @ Smiths Cableway/Recorder	12	0.033	0.012	0.001	0.112	0.051	1.07	0.017
Ohinemuri River @ Queens Head	12	0.866	1.015	0.239	1.210	0.514	-0.69	0.755
Ohinemuri River @ SH25 Br	12	0.486	0.460	0.185	0.902	0.255	0.49	0.482
Tairua River @ Morrisons Br Hikuai	12	0.033	0.015	0.001	0.124	0.050	1.21	0.022
Tapu River @ Tapu-Coroglen Rd	12	0.008	0.003	0.001	0.063	0.005	<u>2.88</u>	0.003
Waiau River @ E309 Rd Ford	12	0.052	0.040	0.009	0.168	0.046	1.58	0.043
Waitekauri River @ U/S Ohinemuri Conflu	12	0.150	0.125	0.015	0.389	0.099	1.00	0.121
Waiwawa River @ SH25 Coroglen	12	0.015	0.010	0.003	0.064	0.015	<u>2.20</u>	0.010
Wharekawa River @ SH25	12	0.057	0.047	0.008	0.186	0.072	1.31	0.036
<b>Hauraki</b>								
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	0.371	0.329	0.243	0.933	0.146	<u>2.37</u>	0.337
Oraka Stm @ Lake Rd	12	1.991	1.995	1.610	2.350	0.320	-0.23	2.045
Piako River @ Kiwitahi	12	1.199	0.942	0.144	2.390	1.691	0.20	1.060
Piako River @ Paeroa-Tahuna Rd Br	12	1.790	1.665	0.854	3.320	1.430	0.32	1.750
Piakonui Stm @ Piakonui Rd	12	0.282	0.223	0.129	0.659	0.195	1.20	0.264
Waihou River @ Okauia	12	1.135	1.170	0.854	1.330	0.232	-0.53	1.140
Waihou River @ Whites Rd	12	0.630	0.640	0.509	0.687	0.050	-1.38	0.621
Waihotu Stm @ Waihotu Rd (Off SH5)	12	0.204	0.204	0.140	0.268	0.050	-0.10	0.197
Waiomou Stm @ Matamata-Tauranga Rd	12	0.569	0.524	0.233	0.865	0.430	0.11	0.493
Waikakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	0.312	0.235	0.021	0.918	0.414	0.87	0.268
Waitoa River @ Landsdowne Rd Br	12	1.621	1.515	0.917	2.530	0.810	0.31	1.615
Waitoa River @ Mellon Rd Recorder	12	2.033	1.900	1.060	2.900	1.210	0.03	2.300
<b>Tributaries to the lower Waikato River</b>								
Awaroa River (Waiuku) @ Otaua Rd Br opp Moseley Rd	12	1.365	1.250	0.362	2.690	1.291	0.21	1.240
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	0.540	0.523	0.134	1.250	0.329	0.76	0.328
Karapiro Stm @ Hickey Rd Bridge	12	0.724	0.636	0.257	1.720	0.623	0.86	0.614
Kirikiriira Stm @ Tauhara Dr	12	1.167	1.017	0.544	1.990	0.622	0.66	1.055
Komakorau Stm @ Henry Rd	12	2.006	1.540	1.120	4.680	1.375	1.52	1.490
Little Waipa Stm @ Arapuni - Putaruru Rd	12	1.518	1.495	1.150	1.860	0.350	-0.06	1.385
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	1.177	0.985	0.621	2.700	0.319	<u>1.69</u>	1.080
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	2.891	2.730	1.620	3.890	0.860	-0.22	2.795
Mangaone Stm @ Annebrooke Rd Br	12	2.482	2.460	1.720	3.110	0.525	-0.22	2.555
Mangaonua Stm @ Hoeka Rd	12	1.498	1.410	1.210	1.910	0.475	0.46	1.380
Mangaonua Stm @ Te Miro Rd	12	0.561	0.423	0.221	1.320	0.482	1.02	0.476
Mangatangi River @ SH2 Maramarua	12	0.407	0.256	0.015	1.090	0.781	0.46	0.219
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	0.126	0.030	0.002	0.425	0.249	1.01	0.032
Mangawara Stm @ Rutherford Rd Br	12	1.346	0.878	0.604	4.070	1.063	<u>1.87</u>	0.929
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	1.846	1.820	1.370	2.560	0.515	0.47	1.630
Matahuru Stm @ Waiterimu Road Below Confluence	12	0.868	0.843	0.226	1.850	1.036	0.33	0.735
Ohaeroa Stm @ SH22 Br	12	1.358	1.315	0.942	1.900	0.535	0.30	1.295
Opuatia Stm @ Ponganui Rd	12	0.761	0.779	0.435	1.110	0.323	0.04	0.658
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	1.623	1.590	1.130	2.010	0.395	-0.38	1.575
Waerenga Stm @ Taniwha Rd	12	0.788	0.766	0.262	1.290	0.611	0.06	0.716
Waitawhiriwhiri Stm @ Edgecumbe Street	12	0.929	0.884	0.362	2.140	0.278	1.65	0.905
Whakapipi Stm @ SH22 Br	12	3.640	3.460	2.330	5.250	1.670	0.25	3.585
Whakauru Stm @ U/S SH1 Br	12	0.085	0.083	0.050	0.140	0.030	0.66	0.072
Whangamarino River @ Island Block Rd	12	0.162	0.104	0.001	0.482	0.289	0.55	0.077
Whangamarino River @ Jefferies Rd Br	12	0.792	0.584	0.064	1.960	1.310	0.44	0.653
Whangape Stm @ Rangiriri-Glen Murray Rd	12	0.120	0.016	0.001	0.472	0.225	1.14	0.004



Waipa River and Tributaries								
Kaniwhaniwha Stm @ Wright Rd	12	0.02	0.02	0.01	0.09	0.02	<u>2.13</u>	0.03
Mangaohoi Stm @ South Branch Maru Rd	12	0.01	0.01	0.01	0.09	0.01	<u>2.85</u>	0.01
Mangaokewa Stm @ Te Kuiti Borough W/S Intake	12	0.01	0.01	0.01	0.03	0.00	<u>1.72</u>	0.01
Mangapiko Stm (Pirongia/Te Awamutu) @ Bowman Rd	12	0.08	0.07	0.02	0.19	0.07	0.85	0.06
Mangapu River @ Otorohanga	12	0.02	0.03	0.01	0.04	0.04	-0.18	0.03
Mangatutu Stm (Waikeria) @ Walker Rd Br	12	0.02	0.01	0.01	0.09	0.01	<u>2.74</u>	0.01
Manguaika Stm @ Te Awamutu Borough W/S Intake	12	0.01	0.01	0.01	0.07	0.00	<u>2.98</u>	0.01
Ohote Stm @ Whatawhata/Horotiu Rd	12	0.04	0.03	0.01	0.12	0.03	1.43	0.05
Puniu River @ Bartons Corner Rd Br	12	0.02	0.02	0.01	0.08	0.02	1.37	0.02
Waipa River @ Mangaokewa Rd	12	0.01	0.01	0.01	0.02	0.00	<u>3.02</u>	0.01
Waipa River @ Pirongia-Ngutunui Rd Br	12	0.04	0.03	0.01	0.22	0.03	<u>2.63</u>	0.03
Waipa River @ SH3 Otorohanga	12	0.02	0.02	0.01	0.05	0.03	0.49	0.02
Waitomo Stm @ SH31 Otorohanga	12	0.03	0.02	0.01	0.09	0.03	1.43	0.02
Waitomo Stm @ Tumutumu Rd	12	0.01	0.01	0.01	0.03	0.01	<u>1.85</u>	0.01

	12	0.386	0.263	0.051	0.879	0.608	0.53	0.319
	12	0.292	0.288	0.161	0.426	0.147	0.06	0.315
	12	0.560	0.534	0.214	0.897	0.464	-0.12	0.501
	12	1.674	1.695	0.611	2.710	1.248	-0.07	1.820
	12	0.829	0.886	0.287	1.300	0.581	-0.33	0.765
	12	0.477	0.392	0.049	0.941	0.595	0.17	0.357
	12	0.180	0.176	0.072	0.298	0.030	0.34	0.173
	12	0.744	0.720	0.087	1.460	0.875	0.16	0.641
	12	0.801	0.699	0.301	1.550	0.788	0.33	0.623
	12	0.404	0.391	0.224	0.602	0.274	0.12	0.353
	12	0.690	0.639	0.210	1.240	0.707	0.15	0.616
	12	0.493	0.503	0.111	0.866	0.593	-0.03	0.434
	12	0.535	0.529	0.267	0.788	0.237	0.00	0.521
	12	0.642	0.612	0.526	0.753	0.141	0.29	0.614

Tributaries to the upper Waikato River								
Kawaunui Stm @ SH5 Br	12	0.16	0.02	0.01	1.18	0.08	<u>2.52</u>	0.03
Mangaharakeke Stm (Atiamuri) @ SH30 (Off Jct SH1)	12	0.02	0.02	0.01	0.09	0.02	<u>1.72</u>	0.01
Mangakara Stm (Reporoa) @ SH5	12	0.03	0.02	0.01	0.10	0.03	1.22	0.03
Mangakino Stm (Whakamaru) @ Sandel Rd	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.01
Otamakokore Stm @ Hossack Rd	12	0.05	0.01	0.01	0.27	0.05	<u>1.93</u>	0.01
Pueto Stm @ Broadlands Rd Br	12	0.01	0.01	0.01	0.06	0.01	<u>2.41</u>	0.01
Tahunaatara Stm @ Ohakuri Rd	12	0.02	0.01	0.01	0.05	0.04	0.63	0.01
Torepatutahi Stm @ Vaile Rd Br	12	0.01	0.01	0.01	0.05	0.02	1.60	0.01
Waiotapu Stm @ Campbell Rd Br	12	0.78	0.79	0.64	0.98	0.10	0.51	0.90
Waiotapu Stm @ Homestead Rd Br	12	0.30	0.31	0.17	0.45	0.08	-0.15	0.31
Waipapa Stm (Mokai) @ Tirohanga Rd Br	12	0.01	0.01	0.01	0.05	0.00	<u>2.95</u>	0.01
Whirinaki Stm @ Corbett Rd	12	0.01	0.01	0.01	0.02	0.00	<u>3.02</u>	0.01

	12	2.526	2.430	1.910	3.490	0.645	0.73	2.185
	12	0.447	0.409	0.325	0.652	0.203	0.53	0.332
	12	1.231	1.195	0.845	1.540	0.270	-0.07	1.090
	12	0.591	0.594	0.105	0.851	0.257	-0.96	0.550
	12	0.969	0.886	0.671	1.410	0.488	0.63	0.733
	12	0.397	0.396	0.344	0.456	0.048	0.22	0.375
	12	0.594	0.536	0.399	0.904	0.268	0.63	0.494
	12	0.501	0.473	0.363	0.701	0.169	0.55	0.372
	12	0.756	0.767	0.635	0.881	0.129	-0.20	0.753
	12	1.321	1.275	1.110	1.600	0.265	0.47	1.280
	12	0.849	0.845	0.517	1.150	0.166	-0.10	0.722
	12	0.666	0.657	0.589	0.755	0.057	0.47	0.615

West Coast								
Awakino River @ Gribbon Rd	12	0.01	0.01	0.01	0.01	0.00	1.15	0.01
Awakino River @ SH3 Awakau Rd Junction	12	0.01	0.01	0.01	0.03	0.00	<u>2.83</u>	0.01
Manganui River @ Off Manganui Rd	12	0.01	0.01	0.01	0.01	0.01	0.34	0.01
Mangaotaki River @ SH3 Br	12	0.01	0.01	0.01	0.04	0.01	<u>2.19</u>	0.01
Marokopa River @ Speedies Rd (Off Te Anga Rd)	12	0.01	0.01	0.01	0.05	0.01	<u>2.21</u>	0.01
Mokau River @ Awakau Rd	12	0.02	0.02	0.01	0.04	0.01	0.82	0.02
Mokau River @ Mangaokewa Rd (Off SH30)	12	0.01	0.01	0.01	0.01	0.00	<u>1.79</u>	0.01
Mokau River @ Totoro Rd Recorder	12	0.02	0.01	0.01	0.04	0.01	1.02	0.01
Mokauiti Stm @ Three Way Point - Aria	12	0.02	0.02	0.01	0.06	0.04	0.82	0.02
Ohautira Stm @ Waingaro Te Uku Rd	12	0.01	0.01	0.01	0.05	0.01	<u>2.47</u>	0.01
Oparau River @ Langdon Rd (Off Okupata Rd)	12	0.01	0.01	0.01	0.01	0.01	0.71	0.01
Tawarau River @ Off Speedies Rd	12	0.02	0.01	0.01	0.11	0.01	<u>2.17</u>	0.01
Waingaro River (Pukemiro) @ Ruakiwi Rd Off SH22	12	0.02	0.01	0.01	0.08	0.02	1.52	0.01
Waitetuna River @ Te Uku-Waingaro Rd	12	0.03	0.02	0.01	0.11	0.02	<u>1.70</u>	0.02

	12	0.117	0.127	0.027	0.202	0.131	-0.06	0.125
	12	0.218	0.242	0.005	0.405	0.335	-0.23	0.201
	12	0.162	0.192	0.003	0.317	0.159	-0.31	0.119
	12	0.685	0.737	0.385	0.970	0.520	-0.15	0.648
	12	0.253	0.264	0.109	0.408	0.171	-0.14	0.261
	12	0.459	0.512	0.099	0.834	0.547	-0.11	0.366
	12	0.355	0.338	0.199	0.506	0.229	0.13	0.298
	12	0.619	0.618	0.289	0.921	0.554	-0.12	0.525
	12	0.397	0.317	0.015	0.902	0.613	0.18	0.270
	12	0.307	0.239	0.081	0.830	0.336	1.06	0.260
	12	0.165	0.127	0.005	0.458	0.330	0.51	0.141
	12	0.280	0.297	0.151	0.433	0.159	0.05	0.282
	12	0.423	0.303	0.001	1.270	0.815	0.66	0.355
	12	0.364	0.305	0.082	0.818	0.434	0.55	0.305

Inflows to Lake Taupo								
Hinemaiaia River @ SH1	12	0.01	0.01	0.01	0.01	0.00	<u>1.79</u>	0.01
Kuratau River @ 43 Te Rae Street	12	0.01	0.01	0.01	0.08	0.01	<u>2.80</u>	0.01
Kuratau River @ SH41 Moerangi	12	0.01	0.01	0.01	0.02	0.01	<u>1.92</u>	0.01
Mapara Stm (Lake Taupo) @ Off Mapara Rd (Whakaipo Res)	12	0.01	0.01	0.01	0.02	0.01	1.00	0.01
Tauranga-Taupo River @ Te Kono Slackline	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.01
Tokaanu Power Station Tailrace Canal @ SH41 Bridge Over C:	12	0.01	0.01	0.01	0.02	0.00	<u>3.02</u>	0.01
Tokaanu Stm @ Off SH41 Turangi	12	0.01	0.01	0.01	0.03	0.00	<u>2.83</u>	0.01
Waihaha River @ SH32	12	0.01	0.01	0.01	0.01	0.00	<u>3.02</u>	0.01
Waihanui River @ Blake Rd	12	0.01	0.01	0.01	0.01	0.00	<u>1.79</u>	0.01
Whanganui Stm @ Lakeside Lake Taupo	12	0.01	0.01	0.01	0.03	0.01	1.64	0.01
Whareroa Stm (Taupo District) @ Lakeside Lake Taupo	12	0.01	0.01	0.01	0.03	0.01	<u>2.54</u>	0.01
Whareroa Stm (Taupo District) @ Whareroa Station Bridge	12	0.01	0.01	0.01	0.04	0.01	<u>2.67</u>	0.01

	12	0.058	0.055	0.001	0.101	0.049	-0.18	0.058
	12	0.091	0.091	0.047	0.155	0.051	0.29	0.089
	12	0.504	0.496	0.343	0.697	0.186	0.26	0.474
	12	0.657	0.670	0.224	0.807	0.133	<u>-1.99</u>	0.715
	12	0.056	0.054	0.002	0.086	0.032	-0.76	0.051
	12	0.002	0.001	0.001	0.007	0.004	1.01	0.001
	12	0.378	0.395	0.187	0.433	0.038	<u>-2.36</u>	0.401
	12	0.113	0.113	0.076	0.164	0.040	0.28	0.110
	12	0.399	0.421	0.055	0.467	0.029	<u>-2.88</u>	0.374
	12	0.402	0.391	0.196	0.564	0.181	-0.11	0.409
	12	0.750	0.741	0.505	1.010	0.211	0.01	0.656
	12	0.772	0.759	0.537	1.040	0.200	0.10	0.666

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

Total Kjeldahl Nitrogen (g m<sup>-3</sup>)

Location	02-06							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
<b>Coromandel</b>								
Hikutaia River @ Old Maratoto Rd	12	0.12	0.12	0.07	0.16	0.02	0.22	0.12
Kauaeranga River @ Smiths Cableway/Recorder	12	0.14	0.12	0.07	0.34	0.06	1.60	0.09
Ohinemuri River @ Queens Head	12	0.46	0.38	0.18	0.86	0.47	0.47	0.29
Ohinemuri River @ SH25 Br	12	0.15	0.15	0.10	0.22	0.08	0.28	0.14
Tairua River @ Morrisons Br Hikuai	12	0.10	0.10	0.08	0.13	0.03	0.51	0.10
Tapu River @ Tapu-Coroglen Rd	12	0.09	0.08	0.06	0.14	0.04	0.86	0.07
Waiau River @ E309 Rd Ford	12	0.10	0.11	0.05	0.13	0.04	-0.54	0.09
Waitekauri River @ U/S Ohinemuri Conflu	12	0.13	0.13	0.09	0.18	0.05	0.27	0.12
Waiwawa River @ SH25 Coroglen	12	0.10	0.10	0.05	0.14	0.03	-0.56	0.10
Wharekawa River @ SH25	12	0.12	0.11	0.10	0.19	0.03	<u>2.02</u>	0.12
<b>Hauraki</b>								
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	0.43	0.15	0.12	2.55	0.18	<u>2.56</u>	0.13
Oraka Stm @ Lake Rd	12	0.59	0.34	0.22	1.40	0.73	0.90	0.36
Piako River @ Kiwitahi	12	0.56	0.57	0.30	1.00	0.25	0.80	0.48
Piako River @ Paeroa-Tahuna Rd Br	12	0.82	0.69	0.56	1.69	0.29	<u>1.93</u>	0.74
Piakonui Stm @ Piakonui Rd	12	0.20	0.18	0.11	0.39	0.05	1.36	0.20
Waihou River @ Okauia	12	0.32	0.25	0.19	0.84	0.13	<u>1.98</u>	0.24
Waihou River @ Whites Rd	12	0.04	0.03	0.03	0.07	0.03	0.88	0.05
Waihotu Stm @ Waihotu Rd (Off SH5)	12	0.20	0.16	0.09	0.49	0.14	1.33	0.15
Waiomou Stm @ Matamata-Tauranga Rd	12	0.28	0.23	0.13	0.61	0.22	1.05	0.21
Waitakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	0.39	0.39	0.19	0.54	0.17	-0.34	0.37
Waitoa River @ Landsdowne Rd Br	12	0.60	0.53	0.33	1.22	0.26	1.21	0.49
Waitoa River @ Mellon Rd Recorder	12	0.68	0.63	0.33	1.66	0.37	1.65	0.67
<b>Tributaries to the lower Waikato River</b>								
Awaroa River (Waiuku) @ Otaua Rd Br opp Moseley Rd	12	0.72	0.68	0.42	1.16	0.37	0.42	0.55
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	0.36	0.33	0.24	0.61	0.11	1.26	0.28
Karapiro Stm @ Hickey Rd Bridge	12	0.41	0.38	0.24	0.76	0.17	1.15	0.37
Kirikiri Stm @ Tauhara Dr	12	0.91	0.81	0.51	2.13	0.26	<u>2.09</u>	0.84
Komakorau Stm @ Henry Rd	12	1.93	1.94	1.24	3.21	0.82	0.71	1.95
Little Waipa Stm @ Arapuni - Putaruru Rd	12	0.55	0.24	0.12	2.93	0.33	<u>2.61</u>	0.22
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	1.46	1.35	0.83	2.70	0.69	0.98	1.39
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	0.49	0.48	0.39	0.62	0.13	0.15	0.51
Mangaone Stm @ Annebrooke Rd Br	12	0.71	0.58	0.44	1.50	0.20	1.66	0.52
Mangaonua Stm @ Hoeka Rd	12	0.62	0.56	0.31	0.99	0.36	0.42	0.41
Mangaonua Stm @ Te Miro Rd	12	0.29	0.24	0.14	0.89	0.11	<u>2.34</u>	0.24
Mangatangi River @ SH2 Maramarua	12	0.47	0.41	0.20	1.01	0.26	1.08	0.34
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	0.18	0.18	0.03	0.35	0.08	0.22	0.15
Mangawara Stm @ Rutherford Rd Br	12	1.30	1.32	0.67	2.08	0.83	0.13	1.29
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	0.90	0.78	0.46	2.13	0.40	<u>1.76</u>	0.78
Matahuru Stm @ Waiterimu Road Below Confluence	12	0.73	0.67	0.36	1.30	0.53	0.48	0.56
Ohaeroa Stm @ SH22 Br	12	0.37	0.31	0.23	0.79	0.18	1.66	0.28
Opuatia Stm @ Ponganui Rd	12	0.32	0.29	0.23	0.54	0.11	1.24	0.26
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	0.30	0.26	0.16	0.68	0.17	1.46	0.26
Waerenga Stm @ Taniwha Rd	12	0.30	0.25	0.20	0.51	0.13	1.07	0.23
Waitawhiriwhiri Stm @ Edgecumbe Street	12	1.32	1.34	0.74	1.70	0.33	-0.50	1.35
Whakapipi Stm @ SH22 Br	12	0.46	0.43	0.33	0.84	0.15	1.62	0.44
Whakauru Stm @ U/S SH1 Br	12	0.18	0.17	0.11	0.42	0.07	<u>2.09</u>	0.16
Whangamarino River @ Island Block Rd	12	1.74	1.67	1.09	2.85	0.79	0.70	1.43
Whangamarino River @ Jefferies Rd Br	12	0.56	0.47	0.27	1.18	0.29	1.15	0.44
Whangape Stm @ Rangiriri-Glen Murray Rd	12	2.02	1.91	0.37	4.11	1.54	0.59	1.54

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

Total Nitrogen (g m<sup>-3</sup>)

Location	02-06							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
<b>Coromandel</b>								
Hikutaia River @ Old Maratoto Rd	12	0.18	0.17	0.08	0.36	0.07	1.05	0.18
Kauaeranga River @ Smiths Cableway/Recorder	12	0.17	0.14	0.07	0.44	0.10	1.49	0.11
Ohinemuri River @ Queens Head	12	1.32	1.34	0.49	1.96	0.96	-0.31	1.01
Ohinemuri River @ SH25 Br	12	0.64	0.60	0.34	1.02	0.23	0.48	0.64
Tairua River @ Morrisons Br Hikuai	12	0.13	0.13	0.09	0.21	0.05	0.90	0.13
Tapu River @ Tapu-Coroglen Rd	12	0.09	0.09	0.06	0.14	0.05	0.59	0.08
Waiau River @ E309 Rd Ford	12	0.15	0.14	0.10	0.25	0.03	1.37	0.14
Waitekauri River @ U/S Ohinemuri Conflu	12	0.28	0.23	0.19	0.52	0.08	1.50	0.24
Waiwawa River @ SH25 Coroglen	12	0.12	0.12	0.06	0.15	0.03	-0.70	0.11
Wharekawa River @ SH25	12	0.17	0.17	0.11	0.32	0.06	1.26	0.17
<b>Hauraki</b>								
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	0.80	0.50	0.38	2.97	0.16	<u>2.10</u>	0.46
Oraka Stm @ Lake Rd	12	2.59	2.38	1.91	3.57	0.89	0.81	2.40
Piako River @ Kiwitahi	12	1.75	1.58	0.47	3.39	1.82	0.22	1.82
Piako River @ Paeroa-Tahuna Rd Br	12	2.61	2.45	1.43	4.02	1.76	0.15	2.72
Piakonui Stm @ Piakonui Rd	12	0.49	0.46	0.29	1.05	0.20	1.67	0.47
Waihou River @ Okauia	12	1.45	1.45	1.04	2.08	0.40	0.58	1.41
Waihou River @ Whites Rd	12	0.67	0.67	0.53	0.75	0.07	-0.78	0.67
Waihotu Stm @ Waihotu Rd (Off SH5)	12	0.40	0.37	0.31	0.63	0.09	1.38	0.36
Waiomou Stm @ Matamata-Tauranga Rd	12	0.85	0.81	0.40	1.42	0.36	0.30	0.78
Waitakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	0.70	0.58	0.30	1.42	0.40	0.91	0.61
Waitoa River @ Landsdowne Rd Br	12	2.22	2.22	1.38	2.95	0.99	-0.05	2.17
Waitoa River @ Mellon Rd Recorder	12	2.72	2.53	1.46	4.32	1.66	0.21	2.96
<b>Tributaries to the lower Waikato River</b>								
Awaroa River (Waiuku) @ Otaua Rd Br opp Moseley Rd	12	2.09	2.19	0.87	3.53	1.44	-0.07	1.86
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	0.90	0.85	0.46	1.86	0.39	1.28	0.59
Karapiro Stm @ Hickey Rd Bridge	12	1.13	1.08	0.50	2.48	0.70	1.03	0.93
Kirikiri Stm @ Tauhara Dr	12	2.07	1.81	1.34	4.12	1.02	1.48	1.99
Komakorau Stm @ Henry Rd	12	3.94	3.23	2.65	7.06	1.77	1.13	3.36
Little Waipa Stm @ Arapuni - Putaruru Rd	12	2.07	1.95	1.30	4.37	0.62	<u>2.08</u>	1.60
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	2.64	2.24	1.78	5.40	1.02	1.63	2.42
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	3.38	3.29	2.24	4.28	0.84	-0.18	3.34
Mangaone Stm @ Annebrooke Rd Br	12	3.19	3.17	2.44	3.69	0.68	-0.27	3.09
Mangaonua Stm @ Hoeka Rd	12	2.12	2.08	1.63	2.77	0.69	0.21	1.82
Mangaonua Stm @ Te Miro Rd	12	0.85	0.69	0.39	1.74	0.55	0.99	0.72
Mangatangi River @ SH2 Maramarua	12	0.87	0.67	0.22	1.97	1.04	0.67	0.64
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	0.31	0.21	0.03	0.69	0.30	0.72	0.20
Mangawara Stm @ Rutherford Rd Br	12	2.65	2.24	1.27	6.15	1.87	1.34	2.31
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	2.75	2.73	1.99	4.69	0.74	1.42	2.43
Matahuru Stm @ Waiterimu Road Below Confluence	12	1.60	1.57	0.61	3.15	1.44	0.36	1.44
Ohaeroa Stm @ SH22 Br	12	1.72	1.66	1.36	2.39	0.53	0.63	1.57
Opuatia Stm @ Ponganui Rd	12	1.08	1.05	0.76	1.56	0.26	0.65	0.99
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	1.92	1.87	1.45	2.46	0.34	0.23	1.89
Waerenga Stm @ Taniwha Rd	12	1.09	1.17	0.51	1.61	0.66	-0.18	1.04
Waitawhiriwhiri Stm @ Edgecumbe Street	12	2.25	2.24	1.21	3.42	0.59	0.30	2.26
Whakapipi Stm @ SH22 Br	12	4.10	3.91	2.66	5.62	1.52	0.14	4.05
Whakauru Stm @ U/S SH1 Br	12	0.27	0.25	0.20	0.47	0.04	<u>2.28</u>	0.24
Whangamarino River @ Island Block Rd	12	1.90	1.77	1.36	2.85	0.64	0.87	1.70
Whangamarino River @ Jefferies Rd Br	12	1.36	1.16	0.33	3.14	1.56	0.66	1.17
Whangape Stm @ Rangiriri-Glen Murray Rd	12	2.14	1.94	0.54	4.12	1.16	0.74	1.58

**Waipa River and Tributaries**

Kaniwhaniwha Stm @ Wright Rd	12	0.25	0.21	0.15	0.83	0.07	<u>2.79</u>	0.22
Mangaohoi Stm @ South Branch Maru Rd	12	0.14	0.14	0.06	0.18	0.05	-0.55	0.15
Mangaokewa Stm @ Te Kuiti Borough W/S Intake	12	0.25	0.24	0.15	0.50	0.11	1.44	0.26
Mangapiko Stm (Pirongia/Te Awamutu) @ Bowman Rd	12	0.74	0.69	0.33	1.28	0.29	0.66	0.72
Mangapu River @ Otorohanga	12	0.36	0.32	0.19	0.72	0.09	1.46	0.32
Mangatutu Stm (Waikeria) @ Walker Rd Br	12	0.18	0.19	0.08	0.27	0.10	-0.13	0.18
Manguaika Stm @ Te Awamutu Borough W/S Intake	12	0.08	0.07	0.03	0.18	0.09	0.65	0.06
Ohote Stm @ Whatawhata/Horotiu Rd	12	0.83	0.82	0.52	1.24	0.22	0.49	0.79
Puniu River @ Bartons Corner Rd Br	12	0.30	0.28	0.12	0.54	0.15	0.63	0.28
Waipa River @ Mangaokewa Rd	12	0.20	0.21	0.11	0.39	0.09	1.07	0.20
Waipa River @ Pirongia-Ngutunui Rd Br	12	0.41	0.26	0.19	1.88	0.08	<u>2.91</u>	0.29
Waipa River @ SH3 Otorohanga	12	0.32	0.20	0.15	1.19	0.20	<u>2.42</u>	0.22
Waitomo Stm @ SH31 Otorohanga	12	0.25	0.18	0.08	1.00	0.08	<u>2.79</u>	0.24
Waitomo Stm @ Tumutumu Rd	12	0.15	0.12	0.07	0.57	0.04	<u>2.84</u>	0.14

**Tributaries to the upper Waikato River**

Kawaunui Stm @ SH5 Br	12	0.63	0.39	0.23	2.40	0.31	<u>2.27</u>	0.44
Mangaharakeke Stm (Atiamuri) @ SH30 (Off Jct SH1)	12	0.26	0.23	0.16	0.60	0.09	<u>1.77</u>	0.18
Mangakara Stm (Reporoa) @ SH5	12	0.46	0.31	0.15	1.31	0.42	1.34	0.29
Mangakino Stm (Whakamaru) @ Sandel Rd	12	0.17	0.14	0.11	0.45	0.05	<u>2.62</u>	0.12
Otamakokore Stm @ Hossack Rd	12	0.41	0.28	0.21	1.28	0.15	<u>1.98</u>	0.27
Pueto Stm @ Broadlands Rd Br	12	0.12	0.11	0.07	0.18	0.04	0.78	0.10
Tahunaatara Stm @ Ohakuri Rd	12	0.28	0.19	0.15	0.72	0.19	1.52	0.20
Torepatutahi Stm @ Vaile Rd Br	12	0.14	0.14	0.09	0.23	0.05	0.93	0.12
Waiotapu Stm @ Campbell Rd Br	12	1.04	1.04	0.91	1.26	0.14	0.67	1.08
Waiotapu Stm @ Homestead Rd Br	12	0.74	0.75	0.45	1.39	0.21	1.47	0.68
Waipapa Stm (Mokai) @ Tirohanga Rd Br	12	0.20	0.19	0.12	0.31	0.05	0.80	0.16
Whirinaki Stm @ Corbett Rd	12	0.09	0.09	0.03	0.19	0.03	0.92	0.09

**West Coast**

Awakino River @ Gribbon Rd	12	0.10	0.08	0.03	0.28	0.06	1.51	0.07
Awakino River @ SH3 Awakau Rd Junction	12	0.20	0.14	0.06	0.52	0.20	1.11	0.14
Manganui River @ Off Manganui Rd	12	0.25	0.12	0.05	1.40	0.13	<u>2.71</u>	0.11
Mangaotaki River @ SH3 Br	12	0.29	0.19	0.08	1.12	0.20	<u>2.34</u>	0.20
Marokopa River @ Speedies Rd (Off Te Anga Rd)	12	0.19	0.12	0.07	0.50	0.12	1.42	0.14
Mokau River @ Awakau Rd	12	0.36	0.27	0.23	1.17	0.08	<u>2.75</u>	0.29
Mokau River @ Mangaokewa Rd (Off SH30)	12	0.25	0.23	0.12	0.59	0.09	<u>1.71</u>	0.23
Mokau River @ Totoro Rd Recorder	12	0.35	0.24	0.19	1.00	0.12	<u>1.82</u>	0.24
Mokauiti Stm @ Three Way Point - Aria	12	0.37	0.34	0.25	0.67	0.12	1.40	0.32
Ohautira Stm @ Waingaro Te Uku Rd	12	0.32	0.19	0.11	1.15	0.11	<u>1.91</u>	0.19
Oparau River @ Langdon Rd (Off Okupata Rd)	12	0.16	0.14	0.03	0.36	0.13	0.78	0.13
Tawarau River @ Off Speedies Rd	12	0.19	0.14	0.06	0.57	0.15	1.41	0.14
Waingaro River (Pukemiro) @ Ruakiwi Rd Off SH22	12	0.45	0.31	0.22	1.97	0.15	<u>2.86</u>	0.27
Waitetuna River @ Te Uku-Waingaro Rd	12	0.36	0.22	0.15	1.25	0.08	<u>1.84</u>	0.21

**Inflows to Lake Taupo**

Hinemaiaia River @ SH1	12	0.08	0.09	0.03	0.14	0.04	-0.07	0.07
Kuratau River @ 43 Te Rae Street	12	0.10	0.09	0.08	0.14	0.04	0.78	0.08
Kuratau River @ SH41 Moerangi	12	0.17	0.18	0.14	0.22	0.05	0.09	0.15
Mapara Stm (Lake Taupo) @ Off Mapara Rd (Whakaipo Res)	12	0.30	0.27	0.16	0.80	0.10	<u>2.37</u>	0.20
Tauranga-Taupo River @ Te Kono Slackline	12	0.05	0.03	0.03	0.18	0.04	<u>2.16</u>	0.03
Tokaanu Power Station Tailrace Canal @ SH41 Bridge Over Cana	12	0.09	0.08	0.03	0.18	0.04	0.81	0.09
Tokaanu Stm @ Off SH41 Turangi	12	0.05	0.04	0.03	0.13	0.05	0.95	0.03
Waihaha River @ SH32	12	0.09	0.08	0.06	0.27	0.02	<u>2.86</u>	0.07
Waitahanui River @ Blake Rd	12	0.07	0.07	0.03	0.10	0.04	-0.57	0.06
Whanganui Stm @ Lakeside Lake Taupo	12	0.14	0.12	0.09	0.32	0.02	<u>2.72</u>	0.12
Whareroa Stm (Taupo District) @ Lakeside Lake Taupo	12	0.21	0.18	0.13	0.51	0.03	<u>2.53</u>	0.16
Whareroa Stm (Taupo District) @ Whareroa Station Bridge	12	0.20	0.18	0.13	0.39	0.10	1.28	0.17

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

	12	0.64	0.47	0.25	1.52	0.69	0.91	0.57
	12	0.43	0.43	0.22	0.61	0.14	-0.24	0.46
	12	0.81	0.85	0.37	1.21	0.44	-0.32	0.78
	12	2.41	2.62	0.94	3.83	1.36	-0.15	2.73
	12	1.19	1.30	0.59	1.66	0.63	-0.43	1.16
	12	0.66	0.59	0.13	1.12	0.64	0.03	0.53
	12	0.26	0.25	0.18	0.37	0.10	0.59	0.22
	12	1.58	1.53	0.61	2.70	0.98	0.14	1.44
	12	1.10	1.03	0.42	2.09	0.84	0.37	0.92
	12	0.61	0.66	0.46	0.72	0.22	-0.27	0.63
	12	1.10	0.96	0.43	2.91	0.77	1.60	0.95
	12	0.81	0.79	0.26	1.63	0.75	0.36	0.72
	12	0.79	0.73	0.43	1.56	0.33	1.19	0.78
	12	0.79	0.73	0.67	1.28	0.13	<u>2.14</u>	0.78

	12	3.15	2.94	2.26	4.58	0.88	0.71	2.93
	12	0.70	0.71	0.49	0.93	0.27	-0.03	0.53
	12	1.69	1.65	1.24	2.42	0.41	0.81	1.41
	12	0.76	0.71	0.56	1.00	0.29	0.39	0.67
	12	1.38	1.27	0.90	2.12	0.58	0.47	1.08
	12	0.51	0.50	0.44	0.62	0.05	0.59	0.47
	12	0.88	0.84	0.57	1.25	0.30	0.34	0.76
	12	0.64	0.66	0.49	0.81	0.16	0.13	0.52
	12	1.80	1.79	1.62	2.00	0.10	0.28	1.84
	12	2.06	2.03	1.69	2.68	0.33	0.72	1.96
	12	1.05	1.06	0.64	1.34	0.23	-0.43	0.91
	12	0.76	0.77	0.64	0.84	0.04	-0.94	0.70

	12	0.21	0.23	0.10	0.34	0.10	-0.10	0.21
	12	0.41	0.43	0.10	0.78	0.30	0.07	0.37
	12	0.41	0.31	0.07	1.53	0.15	<u>2.21</u>	0.27
	12	0.97	1.00	0.47	1.68	0.50	0.36	0.89
	12	0.44	0.38	0.19	0.80	0.30	0.63	0.42
	12	0.82	0.76	0.35	1.88	0.56	1.20	0.76
	12	0.60	0.63	0.37	0.87	0.20	-0.09	0.56
	12	0.97	0.99	0.51	1.87	0.62	0.67	0.84
	12	0.77	0.70	0.34	1.57	0.56	0.69	0.62
	12	0.62	0.44	0.23	1.98	0.45	<u>1.74</u>	0.48
	12	0.32	0.26	0.08	0.82	0.36	0.81	0.28
	12	0.47	0.41	0.23	0.87	0.29	0.72	0.46
	12	0.87	0.61	0.24	3.24	0.81	<u>2.07</u>	0.64
	12	0.73	0.55	0.25	2.07	0.53	1.45	0.53

	12	0.14	0.14	0.09	0.18	0.03	-0.22	0.12
	12	0.19	0.18	0.13	0.24	0.06	-0.08	0.17
	12	0.68	0.68	0.53	0.87	0.17	0.25	0.61
	12	0.96	0.95	0.52	1.46	0.26	0.31	0.91
	12	0.11	0.10	0.07	0.18	0.05	0.73	0.09
	12	0.09	0.08	0.03	0.18	0.04	0.80	0.09
	12	0.43	0.44	0.21	0.52	0.10	-1.48	0.44
	12	0.21	0.19	0.15	0.36	0.05	1.65	0.17
	12	0.47	0.50	0.15	0.57	0.05	<u>-2.48</u>	0.45
	12	0.54	0.53	0.38	0.69	0.16	0.18	0.52
	12	0.96	0.95	0.73	1.27	0.17	0.41	0.83
	12	0.98	0.96	0.72	1.31	0.20	0.38	0.84

Turbidity (NTU)

pH (pH units)

Location	02-06							Median
	Count	Mean	Median	Min	Max	IQR	Skew	
<b>Coromandel</b>								
Hikutaia River @ Old Maratoto Rd	12	2.0	1.4	1.0	5.6	1.1	1.58	1.5
Kauaeranga River @ Smiths Cableway/Recorder	12	6.5	1.1	0.6	54.7	1.6	<u>2.86</u>	1.4
Ohinemuri River @ Queens Head	12	1.5	1.1	0.7	4.0	0.9	1.53	1.2
Ohinemuri River @ SH25 Br	12	1.2	0.8	0.6	4.2	0.4	<u>2.18</u>	1.0
Tairua River @ Morrisons Br Hikuai	12	1.9	1.5	1.1	5.3	0.6	<u>2.07</u>	1.3
Tapu River @ Tapu-Coroglen Rd	12	1.6	0.9	0.5	3.5	2.4	0.44	1.2
Waiau River @ E309 Rd Ford	12	3.9	2.8	1.7	9.6	1.8	1.52	2.6
Waitekauri River @ U/S Ohinemuri Conflu	12	1.6	0.9	0.7	6.9	0.5	<u>2.48</u>	0.9
Waiwawa River @ SH25 Coroglen	12	2.4	1.5	0.8	8.6	1.8	<u>1.80</u>	1.5
Wharekawa River @ SH25	12	5.1	4.2	2.0	16.4	2.2	<u>2.04</u>	2.2
<b>Hauraki</b>								
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	30.3	6.0	4.0	257.0	9.0	<u>2.94</u>	5.7
Oraka Stm @ Lake Rd	12	7.0	5.6	2.6	15.9	5.0	0.93	4.9
Piako River @ Kiwitahi	12	6.7	4.9	1.0	31.9	2.4	<u>2.75</u>	4.6
Piako River @ Paeroa-Tahuna Rd Br	12	16.9	10.0	3.5	85.8	8.7	<u>2.70</u>	12.1
Piakonui Stm @ Piakonui Rd	12	5.0	3.6	2.6	14.2	2.4	<u>1.87</u>	4.3
Waihou River @ Okauia	12	8.2	5.3	2.2	32.5	3.9	<u>2.09</u>	4.2
Waihou River @ Whites Rd	12	0.5	0.4	0.2	0.9	0.2	1.27	0.4
Waihotu Stm @ Waihotu Rd (Off SH5)	12	5.4	4.5	1.9	8.9	4.7	0.20	5.8
Waiomou Stm @ Matamata-Tauranga Rd	12	5.4	3.9	1.8	15.1	5.7	1.16	3.5
Waitakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	10.1	9.1	3.4	18.6	7.5	0.47	9.3
Waitoa River @ Landsdowne Rd Br	12	13.6	6.4	2.7	70.2	9.9	<u>2.43</u>	5.7
Waitoa River @ Mellon Rd Recorder	12	12.9	8.3	3.7	56.4	10.2	<u>2.43</u>	8.4
<b>Tributaries to the lower Waikato River</b>								
Awaroa River (Waiuku) @ Otawa Rd Br opp Moseley Rd	12	19.3	17.7	6.9	37.5	14.1	0.58	12.1
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	18.8	6.0	3.7	101.0	1.9	<u>1.99</u>	4.7
Karapiro Stm @ Hickey Rd Bridge	12	10.0	7.1	3.7	47.7	3.7	<u>2.82</u>	5.2
Kirikiriira Stm @ Tauhara Dr	12	30.2	29.0	19.5	56.7	8.0	<u>1.82</u>	30.1
Komakorau Stm @ Henry Rd	12	75.1	84.2	26.2	112.0	45.1	-0.66	77.5
Little Waipa Stm @ Arapuni - Putaruru Rd	12	3.7	3.0	0.6	9.4	4.6	0.61	1.5
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	26.9	25.0	10.6	60.6	8.5	<u>1.78</u>	24.9
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	3.2	3.2	1.8	5.3	1.5	0.48	3.2
Mangaone Stm @ Annebrooke Rd Br	12	22.1	12.6	9.9	121.0	4.4	<u>2.96</u>	10.0
Mangaonua Stm @ Hoeka Rd	12	22.1	16.7	8.0	66.5	12.4	<u>1.85</u>	9.9
Mangaonua Stm @ Te Miro Rd	12	13.4	4.6	2.5	75.3	2.5	<u>2.15</u>	4.6
Mangatangi River @ SH2 Maramarua	12	13.8	12.8	3.2	35.1	8.3	1.18	7.0
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	9.2	4.7	1.2	47.6	5.1	<u>2.19</u>	3.0
Mangawara Stm @ Rutherford Rd Br	12	45.2	44.3	22.8	67.3	21.6	-0.02	41.7
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	43.5	42.5	25.7	71.0	9.8	1.11	40.1
Matahuru Stm @ Waiterimu Road Below Confluence	12	38.8	32.9	19.1	77.2	23.3	0.89	27.6
Ohaeroa Stm @ SH22 Br	12	14.7	9.2	3.0	60.9	12.1	<u>2.04</u>	6.3
Opuatia Stm @ Ponganui Rd	12	15.5	7.7	4.5	68.5	13.7	<u>2.24</u>	8.5
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	4.4	3.4	1.5	14.7	3.2	<u>1.99</u>	2.4
Waerenga Stm @ Taniwha Rd	12	9.3	7.6	2.0	23.9	11.8	0.79	5.1
Waitawhiriwhiri Stm @ Edgecumbe Street	12	43.9	36.9	26.6	133.0	6.7	<u>2.87</u>	34.4
Whakapipi Stm @ SH22 Br	12	8.6	6.4	2.4	31.7	6.7	<u>2.08</u>	5.2
Whakauru Stm @ U/S SH1 Br	12	3.6	3.4	1.7	6.7	2.0	0.78	3.4
Whangamarino River @ Island Block Rd	12	46.7	51.0	18.3	65.8	33.6	-0.57	43.5
Whangamarino River @ Jefferies Rd Br	12	18.8	14.6	4.5	52.3	15.1	1.22	14.1
Whangape Stm @ Rangiriri-Glen Murray Rd	12	56.0	48.5	10.4	136.0	41.7	0.96	30.4

Count	02-06						Median
	Mean	Median	Min	Max	IQR	Skew	
12	7.2	7.2	6.7	7.5	0.3	-0.57	7.1
12	7.1	7.1	6.8	7.3	0.2	-0.68	7.0
12	7.2	7.2	6.8	7.5	0.4	-0.09	7.2
12	7.1	7.1	6.8	7.7	0.3	0.85	7.0
12	6.9	6.9	6.7	7.1	0.3	0.16	6.9
12	7.6	7.6	7.3	7.9	0.2	0.60	7.5
12	7.5	7.5	7.3	7.6	0.2	-0.22	7.4
12	7.2	7.2	6.9	7.4	0.3	-0.43	7.2
12	7.2	7.2	7.1	7.3	0.1	-0.05	7.1
12	6.8	6.8	6.6	7.0	0.3	-0.14	6.9
<b>Hauraki</b>							
12	7.3	7.4	6.7	7.6	0.2	-1.20	7.4
12	7.3	7.3	6.7	7.5	0.1	-1.48	7.3
12	7.1	7.1	6.8	7.5	0.3	0.18	7.1
12	7.1	7.1	6.6	7.6	0.6	0.14	7.2
12	7.3	7.3	7.0	7.5	0.3	-0.29	7.2
12	7.3	7.4	6.8	7.5	0.2	-1.31	7.3
12	6.8	6.9	6.5	7.0	0.2	-0.84	7.0
12	7.2	7.2	6.6	7.3	0.2	<u>-1.92</u>	7.1
12	7.1	7.2	6.6	7.4	0.3	-1.31	7.1
12	7.3	7.2	7.0	7.7	0.5	0.42	7.3
12	7.1	7.2	6.9	7.4	0.4	0.00	7.1
12	7.3	7.4	6.8	7.6	0.5	-0.24	7.3
<b>Tributaries to the lower Waikato River</b>							
12	7.1	7.3	6.6	7.6	0.8	-0.43	7.3
12	7.8	7.9	7.1	8.2	0.5	-0.97	7.8
12	7.2	7.3	6.8	7.5	0.4	-0.43	7.3
12	6.8	6.9	6.5	7.0	0.3	-0.68	6.9
12	6.5	6.6	6.1	6.9	0.5	-0.27	6.7
12	7.0	7.0	6.5	7.2	0.2	-1.20	7.1
12	6.9	7.0	6.2	7.3	0.5	-0.90	7.0
12	7.5	7.5	7.0	7.8	0.3	-0.66	7.5
12	7.3	7.3	7.0	7.6	0.2	0.00	7.3
12	7.0	7.0	6.7	7.2	0.3	-0.24	7.0
12	7.4	7.4	7.1	7.7	0.4	-0.26	7.4
12	7.1	7.1	6.7	7.4	0.3	-0.18	7.1
12	7.4	7.5	6.9	7.9	0.5	-0.19	7.4
12	6.7	6.8	6.2	7.0	0.5	-0.51	6.9
12	7.0	7.1	6.5	7.3	0.3	-0.71	7.0
12	7.0	7.1	6.5	7.5	0.5	-0.23	7.2
12	7.6	7.6	7.0	8.0	0.5	-0.28	7.5
12	7.6	7.6	7.3	7.8	0.2	-0.48	7.6
12	7.2	7.3	6.7	7.3	0.2	<u>-1.79</u>	7.2
12	7.3	7.3	6.9	7.5	0.3	-0.49	7.3
12	7.0	7.0	6.6	7.2	0.3	-0.82	7.0
12	7.3	7.4	6.9	7.6	0.3	-0.51	7.3
12	7.4	7.5	6.8	7.6	0.2	<u>-1.70</u>	7.3
12	6.9	6.9	6.4	7.5	0.4	0.68	6.8
12	7.1	7.1	6.6	7.4	0.3	-0.36	7.1
12	7.7	7.7	7.0	8.1	0.4	-0.62	7.6

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

**Waipa River and Tributaries**

Kaniwhaniwha Stm @ Wright Rd	12	8.9	5.4	2.5	48.6	2.2	<u>2.83</u>	6.3
Mangaohoi Stm @ South Branch Maru Rd	12	1.7	1.7	0.7	3.5	0.5	1.21	2.1
Mangaokewa Stm @ Te Kuiti Borough W/S Intake	12	6.1	5.2	2.1	13.0	5.1	0.83	4.7
Mangapiko Stm (Pirongia/Te Awamutu) @ Bowman Rd	12	16.1	17.4	5.6	24.7	7.4	-0.45	15.2
Mangapu River @ Otorohanga	12	13.5	9.9	1.8	34.6	15.7	0.64	11.0
Mangatutu Stm (Waikeria) @ Walker Rd Br	12	4.4	3.4	1.1	11.0	2.2	1.36	2.7
Manguaika Stm @ Te Awamutu Borough W/S Intake	12	1.7	1.4	0.6	4.4	0.8	1.40	1.3
Ohote Stm @ Whatawhata/Horotiu Rd	12	11.0	7.7	5.9	26.2	6.7	1.37	10.2
Puniu River @ Bartons Corner Rd Br	12	6.0	5.5	1.3	10.2	4.1	0.18	4.9
Waipa River @ Mangaokewa Rd	12	2.0	2.1	1.2	3.2	1.0	0.27	2.3
Waipa River @ Pirongia-Ngutunui Rd Br	12	24.2	11.1	2.4	176.0	9.4	<u>2.96</u>	11.6
Waipa River @ SH3 Otorohanga	12	8.4	4.8	1.4	25.5	10.0	1.16	5.0
Waitomo Stm @ SH31 Otorohanga	12	22.2	9.3	3.0	148.0	11.6	<u>2.84</u>	13.8
Waitomo Stm @ Tumutumu Rd	12	12.0	6.7	1.6	77.0	4.9	<u>2.89</u>	6.8

**Tributaries to the upper Waikato River**

Kawaunui Stm @ SH5 Br	12	5.5	4.3	1.9	13.7	3.8	1.25	4.2
Mangaharakeke Stm (Atiamuri) @ SH30 (Off Jct SH1)	12	5.7	4.8	3.5	11.3	2.4	1.32	4.5
Mangakara Stm (Reporoa) @ SH5	12	8.1	5.0	3.6	22.9	7.1	1.41	5.1
Mangakino Stm (Whakamaru) @ Sandel Rd	12	2.8	1.8	1.0	14.7	1.0	<u>2.90</u>	1.5
Otamakokore Stm @ Hossack Rd	12	3.8	3.2	2.2	7.4	1.6	1.25	3.3
Pueto Stm @ Broadlands Rd Br	12	2.3	2.4	1.5	3.4	0.6	0.32	2.2
Tahunaatara Stm @ Ohakuri Rd	12	3.7	3.3	1.8	8.0	2.2	1.12	2.7
Torepatutahi Stm @ Vaile Rd Br	12	1.3	0.9	0.7	3.9	0.6	<u>2.19</u>	1.0
Waiotapu Stm @ Campbell Rd Br	12	7.0	6.8	4.2	10.8	2.2	0.55	5.6
Waiotapu Stm @ Homestead Rd Br	12	14.8	14.8	7.0	22.9	7.8	-0.01	12.5
Waipapa Stm (Mokai) @ Tirohanga Rd Br	12	4.4	3.9	2.7	8.7	1.6	1.33	3.7
Whirinaki Stm @ Corbett Rd	12	0.7	0.5	0.2	2.1	0.4	<u>1.99</u>	0.5

**West Coast**

Awakino River @ Gribbon Rd	12	2.8	2.2	0.6	5.5	3.2	0.35	1.7
Awakino River @ SH3 Awakau Rd Junction	12	18.9	5.5	0.9	75.0	29.3	1.26	4.3
Manganui River @ Off Manganui Rd	12	37.7	12.7	1.6	222.0	13.0	<u>2.06</u>	5.5
Mangaotaki River @ SH3 Br	12	17.7	7.1	1.3	76.2	24.5	1.61	5.9
Marokopa River @ Speedies Rd (Off Te Anga Rd)	12	11.8	5.8	1.3	54.0	11.7	<u>1.80</u>	3.8
Mokau River @ Awakau Rd	12	41.4	23.6	2.2	222.0	29.3	<u>2.37</u>	17.2
Mokau River @ Mangaokewa Rd (Off SH30)	12	4.6	3.5	1.9	17.1	2.6	<u>2.51</u>	3.3
Mokau River @ Totoro Rd Recorder	12	27.8	12.2	1.2	138.0	28.4	<u>2.00</u>	9.7
Mokauiti Stm @ Three Way Point - Aria	12	20.8	15.0	3.6	59.4	12.9	1.39	14.7
Ohautira Stm @ Waingaro Te Uku Rd	12	53.0	15.8	5.1	337.0	32.8	<u>2.43</u>	12.0
Oparau River @ Langdon Rd (Off Okupata Rd)	12	8.3	2.7	1.7	43.5	5.5	<u>2.26</u>	3.3
Tawarau River @ Off Speedies Rd	12	9.6	5.4	1.4	35.2	12.0	1.35	4.4
Waingaro River (Pukemiro) @ Ruakiwi Rd Off SH22	12	60.5	10.8	5.6	546.0	20.9	<u>2.98</u>	12.5
Waitetuna River @ Te Uku-Waingaro Rd	12	45.3	10.9	4.6	392.0	16.9	<u>2.97</u>	9.3

**Inflows to Lake Taupo**

Hinemaiaia River @ SH1	12	1.1	1.1	0.7	1.9	0.4	0.99	1.0
Kuratau River @ 43 Te Rae Street	12	1.6	1.4	1.0	2.9	0.7	1.15	1.5
Kuratau River @ SH41 Moerangi	12	1.4	1.2	1.1	2.6	0.4	<u>1.89</u>	1.1
Mapara Stm (Lake Taupo) @ Off Mapara Rd (Whakaipo Res)	12	3.8	3.0	2.0	11.9	0.9	<u>2.44</u>	2.9
Tauranga-Taupo River @ Te Kono Slackline	12	1.6	0.8	0.5	8.7	0.6	<u>2.77</u>	0.7
Tokaanu Power Station Tailrace Canal @ SH41 Bridge Over Cana	12	1.0	1.0	0.6	1.3	0.2	-0.35	1.1
Tokaanu Stm @ Off SH41 Turangi	12	0.2	0.1	0.1	0.3	0.1	0.91	0.1
Waihaha River @ SH32	12	1.3	0.6	0.3	7.8	0.6	<u>2.88</u>	0.5
Waitahanui River @ Blake Rd	12	0.9	1.0	0.5	1.8	0.4	0.71	0.6
Whanganui Stm @ Lakeside Lake Taupo	12	2.4	1.4	0.8	7.6	1.8	<u>1.69</u>	1.3
Whareroa Stm (Taupo District) @ Lakeside Lake Taupo	12	5.2	4.0	2.1	16.3	3.8	<u>1.90</u>	3.4
Whareroa Stm (Taupo District) @ Whareroa Station Bridge	12	4.1	3.0	1.7	9.3	4.4	0.76	3.0

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

	12	7.1	7.0	6.6	7.5	0.2	0.15	7.1
	12	7.3	7.4	7.0	7.6	0.4	-0.34	7.3
	12	7.3	7.3	6.9	7.6	0.5	-0.16	7.3
	12	7.1	7.1	6.6	7.5	0.7	-0.21	7.2
	12	7.7	7.6	7.0	8.6	0.4	1.02	7.7
	12	7.1	7.1	6.8	7.3	0.3	-0.09	7.1
	12	7.3	7.3	7.0	7.5	0.2	-0.16	7.3
	12	6.6	6.6	6.3	6.9	0.3	-0.13	6.7
	12	7.0	7.0	6.7	7.4	0.3	0.53	7.1
	12	7.2	7.2	6.3	7.6	0.3	<u>-1.82</u>	7.2
	12	7.2	7.2	6.7	7.5	0.2	-0.63	7.2
	12	7.1	7.2	6.7	7.5	0.5	-0.08	7.2
	12	7.8	7.8	7.2	8.3	0.4	-0.20	7.8
	12	7.9	7.9	7.5	8.2	0.2	-0.42	7.9

	12	6.9	6.9	6.5	7.1	0.2	-0.78	7.1
	12	7.3	7.3	6.9	7.5	0.2	-1.15	7.3
	12	7.0	7.1	6.6	7.2	0.2	-1.32	7.1
	12	7.3	7.4	6.7	7.5	0.2	<u>-2.00</u>	7.4
	12	7.9	8.0	7.1	8.3	0.2	<u>-1.78</u>	8.0
	12	7.4	7.5	7.1	7.6	0.2	-0.42	7.5
	12	7.4	7.5	6.9	7.7	0.2	-1.57	7.4
	12	7.3	7.3	6.8	7.5	0.2	-1.06	7.4
	12	5.4	5.5	4.8	5.8	0.6	-0.38	5.5
	12	6.8	6.8	6.3	7.0	0.2	-1.52	6.9
	12	7.7	7.7	7.4	7.8	0.1	-0.93	7.7
	12	7.2	7.3	6.7	7.4	0.2	-1.63	7.2

	12	7.4	7.4	6.7	7.9	0.4	-0.25	7.3
	12	7.6	7.5	7.0	8.4	0.7	0.72	7.5
	12	7.3	7.3	7.0	7.8	0.4	0.56	7.3
	12	7.7	7.7	7.3	8.3	0.3	0.58	7.7
	12	7.9	7.9	7.5	8.4	0.5	0.28	7.9
	12	7.4	7.4	6.9	7.8	0.3	0.00	7.4
	12	7.2	7.2	6.6	7.5	0.3	-0.83	7.2
	12	7.6	7.6	6.9	8.2	0.2	-0.45	7.6
	12	7.3	7.3	6.7	7.7	0.3	-0.42	7.3
	12	7.2	7.3	6.6	7.6	0.4	-0.62	7.3
	12	7.4	7.4	6.9	7.8	0.2	-0.01	7.3
	12	7.9	7.8	7.5	8.4	0.5	0.45	7.8
	12	7.5	7.6	6.6	7.8	0.5	-1.20	7.4
	12	7.2	7.2	6.6	7.5	0.3	-0.93	7.2

	12	7.4	7.4	7.1	7.6	0.2	-0.72	7.4
	12	7.0	7.0	6.7	7.2	0.1	-0.60	6.9
	12	7.5	7.5	7.1	7.7	0.2	-0.78	7.4
	12	7.4	7.4	7.0	7.6	0.2	-0.69	7.5
	12	7.3	7.4	6.9	7.5	0.3	-1.17	7.3
	12	7.5	7.5	7.2	7.7	0.2	-0.61	7.4
	12	7.2	7.2	6.9	7.3	0.2	-0.57	7.2
	12	7.2	7.3	6.5	7.4	0.1	<u>-1.97</u>	7.2
	12	7.5	7.5	7.2	7.6	0.2	-0.93	7.4
	12	7.3	7.4	6.9	7.5	0.2	-1.35	7.4
	12	7.4	7.4	7.1	7.6	0.1	-0.94	7.4
	12	7.4	7.4	7.0	7.6	0.1	-0.80	7.4

**E. Coli (n/100mL)**

									02-06
Location	Count	Mean	Median	Min	Max	IQR	Skew	Median	
<b>Coromandel</b>									
Hikutaia River @ Old Maratoto Rd	4	248	240	60	450	255	0.13	290	
Kauaeranga River @ Smiths Cableway/Recorder	4	104	115	16	170	102	-0.44	90	
Ohinemuri River @ Queens Head	4	545	200	80	1700	920	1.09	120	
Ohinemuri River @ SH25 Br	4	138	129	26	270	214	0.08	245	
Tairua River @ Morrisons Br Hikuai	4	208	155	50	470	235	0.86	120	
Tapu River @ Tapu-Coroglen Rd	4	193	150	51	420	245	0.66	120	
Waiau River @ E309 Rd Ford	4	112	94	20	240	147	0.50	59	
Waitekauri River @ U/S Ohinemuri Conflu	4	71	63	19	140	73	0.51	114	
Waiwawa River @ SH25 Coroglen	4	161	152	40	300	228	0.06	123	
Wharekawa River @ SH25	4	305	315	170	420	130	-0.33	340	
<b>Hauraki</b>									
Mangawhero Stm (Kaihere) @ Mangawara Rd	4	126	110	5	280	178	0.39	73	
Oraka Stm @ Lake Rd	4	1123	445	100	3500	1885	1.09	670	
Piako River @ Kiwitahi	4	1159	395	47	3800	2222	1.05	490	
Piako River @ Paeroa-Tahuna Rd Br	4	1380	1300	220	2700	1940	0.12	770	
Piakonui Stm @ Piakonui Rd	4	74	74	28	120	63	0.02	86	
Waihou River @ Okauia	4	655	415	90	1700	950	0.92	400	
Waihou River @ Whites Rd	4	124	32	11	420	224	1.13	45	
Waihotu Stm @ Waihotu Rd (Off SH5)	4	335	114	14	1100	640	1.05	80	
Waiomou Stm @ Matamata-Tauranga Rd	4	853	545	120	2200	1175	0.95	365	
Waitakaruru River (Hauraki Plains) @ Coxhead Rd Br	4	768	255	160	2400	1195	1.14	310	
Waitoa River @ Landsdowne Rd Br	4	315	305	190	460	140	0.31	630	
Waitoa River @ Mellon Rd Recorder	4	1083	740	350	2500	1335	0.90	680	
<b>Tributaries to the lower Waikato River</b>									
Awaroa River (Waiuku) @ Otatau Rd Br opp Moseley Rd	-	-	-	-	-	-	-	-	
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	4	428	390	80	850	495	0.33	425	
Karapiro Stm @ Hickey Rd Bridge	4	463	470	210	700	315	-0.11	515	
Kirikiriira Stm @ Tauhara Dr	4	1298	725	240	3500	2105	0.89	475	
Komakorau Stm @ Henry Rd	4	1700	1350	200	3900	2500	0.54	1500	
Little Waipa Stm @ Arapuni - Putaruru Rd	4	1175	125	50	4400	2230	1.15	200	
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	4	1205	1170	380	2100	1490	0.04	1450	
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	4	745	415	50	2100	1380	0.79	705	
Mangaone Stm @ Annebrooke Rd Br	4	730	680	560	1000	220	0.83	850	
Mangaonua Stm @ Hoeka Rd	4	2043	2005	660	3500	2715	0.01	945	
Mangaonua Stm @ Te Miro Rd	4	188	155	100	340	175	0.57	290	
Mangatangi River @ SH2 Maramarua	-	-	-	-	-	-	-	-	
Mangatawhiri River @ Lyons Rd At Buckingham Br	-	-	-	-	-	-	-	-	
Mangawara Stm @ Rutherford Rd Br	-	-	-	-	-	-	-	-	
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	4	888	680	390	1800	725	0.98	1250	
Matahuru Stm @ Waiterimu Road Below Confluence	-	-	-	-	-	-	-	-	
Ohaeroa Stm @ SH22 Br	-	-	-	-	-	-	-	-	
Opuatia Stm @ Ponganui Rd	4	335	195	130	820	380	1.10	320	
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	4	300	230	10	730	520	0.46	245	
Waerenga Stm @ Taniwha Rd	4	1975	310	280	7000	3360	1.15	465	
Waitawhiriwhiri Stm @ Edgecumbe Street	4	760	495	450	1600	610	1.14	665	
Whakapipi Stm @ SH22 Br	-	-	-	-	-	-	-	-	
Whakauru Stm @ U/S SH1 Br	4	455	235	50	1300	720	1.02	415	
Whangamarino River @ Island Block Rd	-	-	-	-	-	-	-	-	
Whangamarino River @ Jefferies Rd Br	-	-	-	-	-	-	-	-	
Whangape Stm @ Rangiriri-Glen Murray Rd	-	-	-	-	-	-	-	-	

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

**Enterococci (n/100ml)**

								02-06
Count	Mean	Median	Min	Max	IQR	Skew	Median	
<b>Coromandel</b>								
4	116	120	24	200	158	-0.03	78	
4	29	33	1	50	42	-0.19	25	
4	51	6	1	190	97	1.15	12	
4	23	18	3	54	34	0.62	31	
4	100	27	7	340	167	1.14	26	
4	143	61	41	410	204	1.12	52	
4	99	105	15	170	113	-0.19	67	
4	6	3	1	17	10	0.94	13	
4	91	55	24	230	128	0.94	51	
4	104	103	30	180	142	0.00	52	
<b>Hauraki</b>								
4	228	185	2	540	314	0.59	120	
4	680	355	110	1900	1050	1.02	330	
4	173	185	40	280	155	-0.35	190	
4	455	405	1	1010	540	0.40	395	
4	321	142	1	1000	608	0.97	47	
4	496	470	43	1000	799	0.07	150	
4	64	14	6	220	113	1.14	20	
4	139	42	3	470	272	1.07	16	
4	1060	555	31	3100	1800	0.97	105	
4	222	116	26	630	366	0.97	85	
4	170	140	80	320	170	0.59	180	
4	285	330	120	360	140	-1.03	330	
<b>Tributaries to the lower Waikato River</b>								
-	-	-	-	-	-	-	-	
4	157	116	18	380	236	0.68	140	
4	130	100	18	300	181	0.65	205	
4	423	490	82	630	374	-0.64	550	
4	888	690	270	1900	1045	0.72	495	
4	362	59	28	1300	654	1.15	70	
4	368	365	100	640	375	0.03	685	
4	437	215	18	1300	736	1.01	370	
4	468	535	1	800	465	-0.62	500	
4	538	355	140	1300	645	0.99	420	
4	117	55	28	330	157	1.12	58	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
4	318	380	1	510	265	-0.87	440	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
4	140	160	18	220	131	-0.62	170	
4	143	136	19	280	225	0.06	52	
4	348	183	47	980	594	0.91	245	
4	758	445	240	1900	865	1.09	520	
-	-	-	-	-	-	-	-	
4	526	195	12	1700	919	1.09	215	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	

Waipa River and Tributaries								
Kaniwhaniwha Stm @ Wright Rd	-	-	-	-	-	-	-	-
Mangaohoi Stm @ South Branch Maru Rd	4	39	26	14	90	42	1.03	58
Mangaokewa Stm @ Te Kuiti Borough W/S Intake	-	-	-	-	-	-	-	-
Mangapiko Stm (Pirongia/Te Awamutu) @ Bowman Rd	-	-	-	-	-	-	-	-
Mangapu River @ Otorohanga	4	353	275	140	720	395	0.69	600
Mangatutu Stm (Waikeria) @ Walker Rd Br	4	153	125	70	290	115	0.88	260
Mangauika Stm @ Te Awamutu Borough W/S Intake	4	110	17	4	400	209	1.14	13
Ohote Stm @ Whatawhata/Horotiu Rd	4	175	145	110	300	100	1.01	155
Puniu River @ Bartons Corner Rd Br	-	-	-	-	-	-	-	-
Waipa River @ Mangaokewa Rd	-	-	-	-	-	-	-	-
Waipa River @ Pirongia-Ngutu Rd Br	4	353	390	200	430	135	-0.97	385
Waipa River @ SH3 Otorohanga	4	363	320	280	530	165	0.84	400
Waitomo Stm @ SH31 Otorohanga	4	505	400	220	1000	490	0.80	380
Waitomo Stm @ Tumutumu Rd	4	190	190	140	240	90	0.00	240

Tributaries to the upper Waikato River								
Kawaunui Stm @ SH5 Br	4	1548	1175	140	3700	1905	0.77	815
Mangaharakeke Stm (Atiamuri) @ SH30 (Off Jct SH1)	4	645	255	70	2000	1010	1.12	300
Mangakara Stm (Reporoa) @ SH5	4	1485	575	90	4700	2720	1.04	210
Mangakino Stm (Whakamaru) @ Sandel Rd	-	-	-	-	-	-	-	-
Otamakokore Stm @ Hossack Rd	4	943	560	150	2500	1245	1.03	335
Pueto Stm @ Broadlands Rd Br	4	33	17	6	90	45	1.08	22
Tahunaatara Stm @ Ohakuri Rd	4	518	250	70	1500	805	1.06	180
Torepatutahi Stm @ Vaile Rd Br	-	-	-	-	-	-	-	-
Waiotapu Stm @ Campbell Rd Br	4	3	2	1	5	4	0.09	2
Waiotapu Stm @ Homestead Rd Br	-	-	-	-	-	-	-	-
Waipapa Stm (Mokai) @ Tirohanga Rd Br	4	287	165	18	800	496	0.86	115
Whirinaki Stm @ Corbett Rd	-	-	-	-	-	-	-	-

West Coast								
Awakino River @ Gribbon Rd	4	128	130	53	200	124	-0.03	160
Awakino River @ SH3 Awakau Rd Junction	4	1101	240	22	3900	2019	1.14	180
Manganui River @ Off Manganui Rd	4	518	395	80	1200	845	0.44	285
Mangaotaki River @ SH3 Br	-	-	-	-	-	-	-	-
Marokopa River @ Speedies Rd (Off Te Anga Rd)	4	420	395	90	800	480	0.22	205
Mokau River @ Awakau Rd	4	280	145	29	800	411	1.06	315
Mokau River @ Mangaokewa Rd (Off SH30)	4	173	175	110	230	65	-0.17	175
Mokau River @ Totoro Rd Recorder	4	1670	610	60	5400	3060	1.07	365
Mokauiti Stm @ Three Way Point - Aria	4	1240	1015	430	2500	1520	0.48	480
Ohautira Stm @ Waingaro Te Uku Rd	4	668	635	100	1300	735	0.20	580
Oparau River @ Langdon Rd (Off Okupata Rd)	-	-	-	-	-	-	-	-
Tawarau River @ Off Speedies Rd	-	-	-	-	-	-	-	-
Waingaro River (Pukemiro) @ Ruakiwi Rd Off SH22	-	-	-	-	-	-	-	-
Waitetuna River @ Te Uku-Waingaro Rd	4	2285	2250	540	4100	3030	0.02	770

Inflows to Lake Taupo								
Hinemaiaia River @ SH1	4	35	40	12	48	23	-0.80	26
Kuratau River @ 43 Te Rae Street	-	-	-	-	-	-	-	-
Kuratau River @ SH41 Moerangi	4	98	58	8	270	154	1	46
Mapara Stm (Lake Taupo) @ Off Mapara Rd (Whakaipo Res)	4	49	42	14	100	70	0.27	64
Tauranga-Taupo River @ Te Kono Slackline	-	-	-	-	-	-	-	-
Tokaanu Power Station Tailrace Canal @ SH41 Bridge Over Cana	-	-	-	-	-	-	-	-
Tokaanu Stm @ Off SH41 Turangi	-	-	-	-	-	-	-	-
Waihaha River @ SH32	4	10	3	1	32	16	1.14	8
Waitahanui River @ Blake Rd	4	30	12	2	93	49	1.10	23
Whanganui Stm @ Lakeside Lake Taupo	4	69	80	6	110	72	-0.56	23
Whareroa Stm (Taupo District) @ Lakeside Lake Taupo	4	143	128	15	300	225	0.19	96
Whareroa Stm (Taupo District) @ Whareroa Station Bridge	4	71	32	10	210	110	1.09	57

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

-	-	-	-	-	-	-	-	-
4	26	11	1	80	42	1.09	37	
-	-	-	-	-	-	-	-	
4	80	59	31	170	76	0.98	66	
4	72	54	1	180	116	0.62	163	
4	30	31	1	58	40	-0.08	17	
4	44	37	21	80	41	0.60	71	
-	-	-	-	-	-	-	-	
4	198	165	80	380	205	0.58	105	
4	115	103	43	210	111	0.44	97	
4	102	100	10	200	116	0.11	80	
4	50	60	10	70	34	-1.01	61	

4	192	200	7	360	207	-0.18	285
4	150	98	24	380	201	0.95	111
4	981	450	23	3000	1749	1.01	180
-	-	-	-	-	-	-	-
4	214	215	37	390	222	-0.02	135
4	22	22	2	44	38	0.03	10
4	531	155	13	1800	999	1.10	49
-	-	-	-	-	-	-	-
4	7	5	1	19	11	0.94	8
-	-	-	-	-	-	-	-
4	110	88	15	250	180	0.37	42
-	-	-	-	-	-	-	-

4	38	41	23	46	12	-0.91	45
4	176	71	2	560	309	1.07	36
4	109	66	3	300	203	0.72	49
-	-	-	-	-	-	-	-
4	212	114	30	590	346	0.95	58
4	44	16	5	140	70	1.13	33
4	42	39	36	54	12	0.91	53
4	237	104	19	720	427	0.99	90
4	139	136	42	240	173	0.02	85
4	352	370	47	620	307	-0.26	95
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
4	763	605	440	1400	625	0.85	340

4	9	8	1	21	16	0.23	2
-	-	-	-	-	-	-	-
4	37	22	4	100	63	1	21
4	59	23	1	190	108	1.06	45
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
4	5	6	1	10	7	-0.06	5
4	5	4	2	8	4	0.50	5
4	29	24	3	65	43	0.47	16
4	81	80	15	150	118	0.02	39
4	96	69	5	240	159	0.63	35

Temperature (°C)

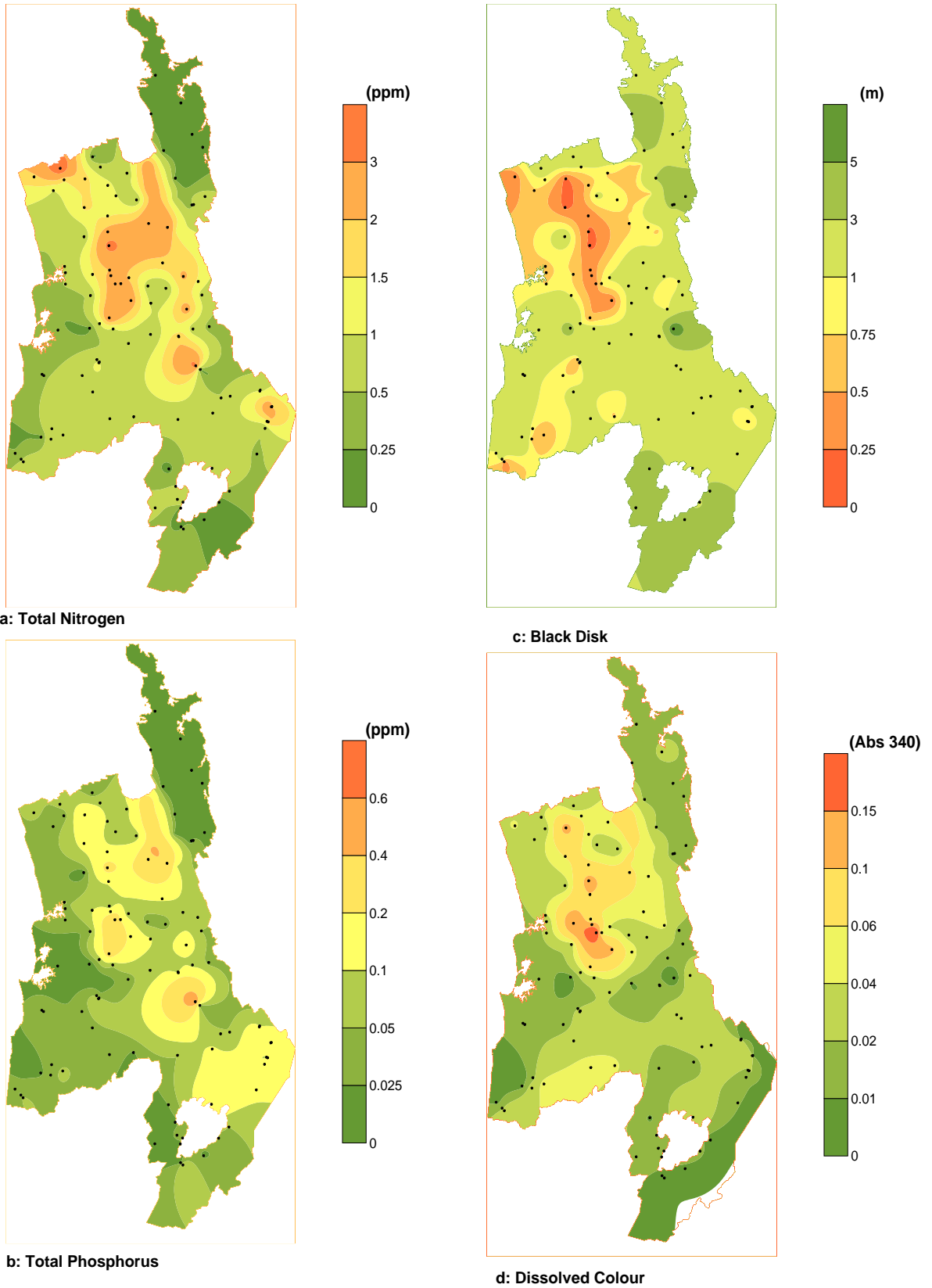
Location	Count	Mean	Median	Min	Max	IQR	Skew	02-06 Median
<b>Coromandel</b>								
Hikutaia River @ Old Maratoto Rd	12	14.3	14.2	9.6	19.0	6.2	0.11	12.9
Kauaeranga River @ Smiths Cableway/Recorder	12	14.9	14.5	9.2	20.5	7.9	0.09	13.1
Ohinemuri River @ Queens Head	12	16.7	16.7	11.9	23.0	6.9	0.21	16.0
Ohinemuri River @ SH25 Br	12	16.3	15.8	11.7	22.7	5.3	0.50	15.6
Tairua River @ Morrisons Br Hikuai	12	15.9	16.1	10.6	21.9	7.1	0.09	14.5
Tapu River @ Tapu-Coroglen Rd	12	14.6	14.8	9.7	20.1	6.7	0.09	13.5
Waiau River @ E309 Rd Ford	12	14.1	14.5	10.2	18.5	6.0	0.06	13.7
Waitekauri River @ U/S Ohinemuri Conflu	12	15.5	14.8	10.9	20.8	6.2	0.26	14.8
Waiwawa River @ SH25 Coroglen	12	15.3	15.4	9.6	21.0	7.2	0.03	14.5
Wharekawa River @ SH25	12	15.3	15.2	10.2	21.7	6.8	0.27	14.6
<b>Hauraki</b>								
Mangawhero Stm (Kaihere) @ Mangawara Rd	12	13.3	13.5	8.3	17.8	6.1	-0.02	13.8
Oraka Stm @ Lake Rd	12	13.8	14.4	8.7	16.8	3.5	-0.70	14.3
Piako River @ Kiwitahi	12	15.7	16.0	9.0	21.9	6.1	-0.08	15.0
Piako River @ Paeroa-Tahuna Rd Br	12	15.5	15.0	10.0	20.7	5.7	0.07	15.0
Piakonui Stm @ Piakonui Rd	12	12.6	13.0	7.9	16.2	3.8	-0.30	12.5
Waihou River @ Okauia	12	14.1	14.6	8.8	17.4	3.3	-0.77	14.4
Waihou River @ Whites Rd	12	13.4	13.4	12.3	14.3	0.9	-0.27	13.3
Waiohotu Stm @ Waiohotu Rd (Off SH5)	12	11.0	11.1	5.4	13.9	4.3	-0.61	10.8
Waiomou Stm @ Matamata-Tauranga Rd	12	13.4	13.6	7.1	17.5	3.8	-0.66	13.5
Waitakaruru River (Hauraki Plains) @ Coxhead Rd Br	12	15.6	16.5	9.4	21.1	8.1	-0.11	15.4
Waitoa River @ Landsdowne Rd Br	12	14.8	14.7	8.6	19.9	5.3	-0.14	14.4
Waitoa River @ Mellon Rd Recorder	12	15.2	15.3	9.5	20.4	5.8	-0.13	14.9
<b>Tributaries to the lower Waikato River</b>								
Awaroa River (Waiuku) @ Otatau Rd Br opp Moseley Rd	12	16.4	16.0	9.9	22.3	8.9	-0.07	16.3
Awaroa Stm (Rotowaro) @ Sansons Br @ Rotowaro-Huntly Rd	12	14.4	14.7	9.2	19.4	7.3	-0.07	14.1
Karapiro Stm @ Hickey Rd Bridge	12	14.6	14.6	8.3	18.7	5.2	-0.35	14.3
Kirikiriira Stm @ Tauhara Dr	12	15.0	14.8	11.2	17.7	3.8	-0.19	14.9
Komakorau Stm @ Henry Rd	12	14.6	14.3	10.7	18.2	5.7	-0.01	14.6
Little Waipa Stm @ Arapuni - Putaruru Rd	12	14.1	14.8	10.3	15.9	3.0	-0.78	14.2
Mangakotukutuku Stm (Rukuhia) @ Peacocks Rd	12	15.2	15.0	9.5	19.3	5.0	-0.24	14.9
Mangamingi Stm (Tokoroa) @ Paraonui Rd Br	12	13.6	14.9	7.9	17.0	5.4	-0.64	13.8
Mangaone Stm @ Annebrooke Rd Br	12	13.2	13.0	8.3	16.2	3.4	-0.47	13.5
Mangaonua Stm @ Hoeka Rd	12	13.9	13.4	8.5	17.5	4.3	-0.29	13.8
Mangaonua Stm @ Te Miro Rd	12	14.0	13.9	8.5	17.9	4.5	-0.24	13.8
Mangatangi River @ SH2 Maramarua	12	15.5	16.4	9.5	20.5	7.4	-0.25	15.7
Mangatawhiri River @ Lyons Rd At Buckingham Br	12	16.3	17.3	9.8	22.9	8.5	-0.14	17.0
Mangawara Stm @ Rutherford Rd Br	12	14.8	15.2	9.3	20.2	7.5	-0.12	14.5
Mangawhero Stm (Cambridge) @ Cambridge-Ohaupo Rd	12	13.8	13.8	9.1	16.6	3.0	-0.52	14.1
Matahuru Stm @ Waiterimu Road Below Confluence	12	14.4	14.9	8.8	19.6	7.6	-0.16	14.1
Ohaeroa Stm @ SH22 Br	12	14.2	14.5	8.6	18.9	6.5	-0.20	14.2
Opuatia Stm @ Ponganui Rd	12	14.4	14.7	8.5	19.9	8.0	-0.14	14.3
Pokaiwhenua Stm @ Arapuni - Putaruru Rd	12	13.6	14.1	8.3	16.4	4.4	-0.68	13.7
Waerenga Stm @ Taniwha Rd	12	13.4	13.9	7.4	18.2	7.1	-0.19	13.6
Waitawhiriwhiri Stm @ Edgecumbe Street	12	16.2	15.5	12.3	19.7	4.6	0.12	15.9
Whakapipi Stm @ SH22 Br	12	14.7	15.5	9.5	18.6	6.6	-0.31	14.7
Whakauru Stm @ U/S SH1 Br	12	11.9	13.1	6.5	14.8	3.9	-0.77	12.3
Whangamarino River @ Island Block Rd	12	16.8	17.2	6.3	23.6	10.0	-0.32	17.1
Whangamarino River @ Jefferies Rd Br	12	14.1	14.9	8.3	19.1	8.2	-0.20	13.9
Whangape Stm @ Rangiriri-Glen Murray Rd	12	16.1	16.4	8.4	23.9	7.5	0.06	16.5

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



<b>Waipa River and Tributaries</b>								
Kaniwhaniwha Stm @ Wright Rd	12	14.1	13.9	9.7	18.8	6.7	0.18	13.6
Mangaohoi Stm @ South Branch Maru Rd	12	13.6	13.5	9.3	18.8	2.6	0.33	13.1
Mangaokewa Stm @ Te Kuiti Borough W/S Intake	12	12.8	12.8	8.0	17.3	5.6	-0.05	12.1
Mangapiko Stm (Pirongia/Te Awamutu) @ Bowman Rd	12	16.5	16.6	10.8	22.7	4.7	0.07	15.5
Mangapu River @ Otorohanga	12	15.0	15.0	10.1	21.1	8.2	0.13	14.2
Mangatutu Stm (Waikeria) @ Walker Rd Br	12	14.6	14.5	8.8	20.2	3.8	0.03	13.8
Mangauika Stm @ Te Awamutu Borough W/S Intake	12	11.7	11.6	8.8	15.0	3.3	0.11	11.8
Ohote Stm @ Whatawhata/Horotiu Rd	12	15.1	15.2	9.9	19.6	3.4	-0.20	15.2
Puniu River @ Bartons Corner Rd Br	12	15.7	15.4	9.8	22.0	4.7	0.09	14.7
Waipa River @ Mangaokewa Rd	12	12.4	12.9	8.2	17.4	6.5	0.00	12.0
Waipa River @ Pirongia-Ngutu Rd Br	12	14.6	14.4	10.0	20.0	7.6	0.19	14.3
Waipa River @ SH3 Otorohanga	12	14.5	14.3	9.2	20.5	8.3	0.05	13.9
Waitomo Stm @ SH31 Otorohanga	12	14.5	14.4	10.8	19.3	5.3	0.26	14.2
Waitomo Stm @ Tumutumu Rd	12	13.3	13.4	11.0	16.1	3.5	0.12	13.4
<b>Tributaries to the upper Waikato River</b>								
Kawaunui Stm @ SH5 Br	12	14.1	15.1	9.9	16.9	4.2	-0.70	14.5
Mangaharakeke Stm (Atiamuri) @ SH30 (Off Jct SH1)	12	12.3	13.0	8.0	14.6	3.7	-0.65	12.6
Mangakara Stm (Reporoa) @ SH5	12	13.0	13.7	9.2	15.1	3.5	-0.74	13.4
Mangakino Stm (Whakamaru) @ Sandel Rd	12	11.6	12.0	7.3	15.1	2.7	-0.36	12.1
Otamakokore Stm @ Hossack Rd	12	20.4	20.9	16.4	23.5	3.2	-0.50	20.4
Pueto Stm @ Broadlands Rd Br	12	13.1	13.8	10.1	15.0	2.4	-0.68	13.3
Tahunaatara Stm @ Ohakuri Rd	12	13.3	14.3	7.2	16.7	5.0	-0.78	13.3
Torepatutahi Stm @ Vaile Rd Br	12	13.8	14.7	9.3	16.2	3.9	-0.79	14.0
Waiotapu Stm @ Campbell Rd Br	12	28.1	28.5	24.2	31.0	3.3	-0.50	28.5
Waiotapu Stm @ Homestead Rd Br	12	18.3	19.1	13.7	21.8	4.4	-0.54	19.1
Waipapa Stm (Mokai) @ Tirohanga Rd Br	12	21.7	22.1	18.1	24.2	3.1	-0.50	22.0
Whirinaki Stm @ Corbett Rd	12	12.1	12.3	10.5	13.8	1.7	-0.12	11.9
<b>West Coast</b>								
Awakino River @ Gribbon Rd	12	12.5	12.5	8.4	16.5	5.6	0.01	12.2
Awakino River @ SH3 Awakau Rd Junction	12	14.0	13.7	8.8	19.8	7.2	0.14	13.4
Manganui River @ Off Manganui Rd	12	13.2	13.9	8.6	17.9	5.7	-0.09	13.5
Mangaotaki River @ SH3 Br	12	13.2	13.2	8.6	17.4	6.3	-0.04	12.6
Marokopa River @ Speedies Rd (Off Te Anga Rd)	12	13.1	13.0	9.7	16.8	5.4	0.02	13.3
Mokau River @ Awakau Rd	12	14.1	14.3	9.1	20.3	7.9	0.11	14.4
Mokau River @ Mangaokewa Rd (Off SH30)	12	11.9	11.9	7.2	16.0	5.6	-0.14	11.5
Mokau River @ Totoro Rd Recorder	12	14.0	14.3	9.1	19.2	8.0	-0.02	13.3
Mokauiti Stm @ Three Way Point - Aria	12	14.2	14.4	8.8	19.9	8.9	-0.02	13.5
Ohautira Stm @ Waingaro Te Uku Rd	12	12.8	12.3	8.2	17.0	6.4	0.10	12.0
Oparau River @ Langdon Rd (Off Okupata Rd)	12	14.2	14.1	10.2	19.0	5.8	0.27	14.1
Tawarau River @ Off Speedies Rd	12	13.1	13.0	9.6	16.8	5.5	0.10	13.2
Waingaro River (Pukemiro) @ Ruakiwi Rd Off SH22	12	15.0	14.6	9.1	21.3	7.9	0.10	14.5
Waitetuna River @ Te Uku-Waingaro Rd	12	13.8	13.7	9.1	18.6	6.7	0.04	13.2
<b>Inflows to Lake Taupo</b>								
Hinemaiaia River @ SH1	12	11.0	12.0	5.0	16.0	4.2	-0.35	11.2
Kuratau River @ 43 Te Rae Street	12	8.8	9.4	4.2	12.3	2.2	-0.46	8.9
Kuratau River @ SH41 Moerangi	12	12.5	13.5	5.8	17.9	5.6	-0.26	12.8
Mapara Stm (Lake Taupo) @ Off Mapara Rd (Whakaipo Res)	12	10.6	10.8	7.5	13.1	1.2	-0.41	10.8
Tauranga-Taupo River @ Te Kono Slackline	12	9.5	10.1	5.0	13.9	3.4	-0.19	9.8
Tokaanu Power Station Tailrace Canal @ SH41 Bridge Over Cana	12	12.0	12.2	5.4	17.9	6.2	-0.13	12.1
Tokaanu Stm @ Off SH41 Turangi	12	12.0	12.1	11.4	12.6	0.4	-0.11	11.9
Waihaha River @ SH32	12	10.5	10.8	5.6	14.2	1.9	-0.49	10.6
Waitahanui River @ Blake Rd	12	10.3	10.6	8.0	12.3	1.9	-0.45	10.5
Whanganui Stm @ Lakeside Lake Taupo	12	10.7	11.0	5.4	14.9	2.2	-0.39	10.9
Whareroa Stm (Taupo District) @ Lakeside Lake Taupo	12	11.1	11.4	5.8	15.0	2.2	-0.52	11.5
Whareroa Stm (Taupo District) @ Whareroa Station Bridge	12	11.0	11.4	6.4	14.4	1.8	-0.48	11.2

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



**Figure 2: Spatial contour plots of four water quality parameters (based on 5 year median values, 2002-2006); 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 (2006) that comply with Satisfactory Water Quality Standards and with Excellent Water Quality Standards and Guidelines

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

Waipa River and Tributaries										
Kaniwhaniwha Strm @ Wright Rd	12	12	5	12	11	10	7	1	n/a	n/a
Mangaohoi Strm @ South Branch Maru Rd	12	12	12	12	9	1	9	5	4/4	Y
Mangaokewa Strm @ Te Kuiti Borough W/S Intake	12	12	6	12	12	8	3	3	n/a	n/a
Mangapiko Strm (Pirongia/Te Awamutu) @ Bowman Rd	12	10	0	12	7	0	0	0	n/a	n/a
Mangapu River @ Otorohanga	12	11	3	12	10	0	0	2	3/4	N
Mangatutu Strm (Waikeria) @ Walker Rd Br	12	12	10	12	8	10	6	6	4/4	Y
Mangauika Strm @ Te Awamutu Borough W/S Intake	12	12	12	12	12	12	12	4/4	Y	Y
Ohote Strm @ Whatawhata/Horotiu Rd	9	0	0	12	9	0	0	0	4/4	N
Puniu River @ Bartons Corner Rd Br	12	12	4	12	7	1	1	2	n/a	n/a
Waipa River @ Mangaokewa Rd	11	12	12	12	11	11	4	8	n/a	n/a
Waipa River @ Pirongia-Ngutu Rd Br	12	12	2	12	10	1	2	0	4/4	N
Waipa River @ SH3 Otorohanga	12	12	6	12	10	7	4	4	4/4	N
Waitomo Strm @ SH31 Otorohanga	12	12	3	12	11	8	2	1	3/4	N
Waitomo Strm @ Tumutumu Rd	12	12	5	12	11	11	0	2	4/4	N

10	6	0	12	4	0	0	0	n/a	n/a
12	12	10	12	6	0	0	0	3/4	N
11	11	0	12	6	0	0	0	n/a	n/a
8	4	0	9	1	0	0	0	n/a	n/a
10	10	1	12	2	0	0	0	0/4	N
9	12	1	12	5	0	0	0	0/4	N
12	12	9	12	10	10	0	5	3/4	N
0	0	0	11	2	0	0	0	0/4	N
6	11	1	12	3	0	0	0	n/a	n/a
11	12	5	12	9	0	0	0	n/a	n/a
11	6	0	11	3	0	0	0	0/4	N
8	12	2	12	5	0	0	0	0/4	N
10	10	0	12	4	0	0	0	0/4	N
11	12	1	12	6	0	0	0	0/4	N

Tributaries to the Upper Waikato River										
Kawaunui Strm @ SH5 Br	12	12	7	11	10	0	0	1	1/4	N
Mangaharakeke Strm (Atiamuri) @ SH30 (Off Jct SH1)	12	12	6	12	11	1	1	0	3/4	N
Mangakara Strm (Reporoa) @ SH5	12	12	6	12	11	0	0	0	2/4	N
Mangakino Strm (Whakamaru) @ Sandel Rd	12	12	11	12	11	0	0	7	n/a	n/a
Otamakokore Strm @ Hossack Rd	12	11	10	12	0	0	0	0	2/4	N
Pueto Strm @ Broadlands Rd Br	12	12	12	12	10	0	4	6	4/4	Y
Tahunaaatara Strm @ Ohakuri Rd	12	12	10	12	11	1	0	2	3/4	N
Torepatutahi Strm @ Vaile Rd Br	12	12	12	12	10	0	1	n/a	n/a	n/a
Waiotapu Strm @ Campbell Rd Br	0	12	1	11	0	0	0	0	4/4	Y
Waiotapu Strm @ Homestead Rd Br	11	11	0	12	3	0	0	0	n/a	n/a
Waipapa Strm (Mokai) @ Tirohanga Rd Br	12	12	9	12	0	0	0	1	3/4	N
Whirinaki Strm @ Corbett Rd	12	12	12	12	11	0	0	n/a	n/a	n/a

4	6	1	9	5	0	0	0	0/4	N
11	12	0	12	10	0	0	0	0/4	N
9	12	0	11	9	0	0	0	0/4	N
11	12	7	12	10	0	0	0	n/a	n/a
10	9	0	9	0	0	0	0	0/4	N
12	12	3	12	7	0	0	0	3/4	N
11	12	3	12	8	0	0	0	0/4	N
10	12	10	12	7	0	0	n/a	n/a	n/a
0	0	0	0	0	0	0	0	4/4	Y
1	3	0	0	0	0	0	0	n/a	n/a
12	12	0	12	0	0	0	0	1/4	N
11	12	11	12	7	0	0	n/a	n/a	n/a

West Coast										
Awakino River @ Gribbon Rd	12	12	9	12	12	11	12	6	4/4	N
Awakino River @ SH3 Awakau Rd Junction	12	12	6	12	11	9	8	3	3/4	N
Manganui River @ Off Manganui Rd	12	12	3	12	11	7	10	3	2/4	N
Mangaotaki River @ SH3 Br	12	12	5	12	12	7	1	2	n/a	n/a
Marokopa River @ Speedies Rd (Off Te Angra Rd)	12	12	5	12	11	9	8	3	3/4	N
Mokau River @ Awakau Rd	12	12	2	12	10	5	4	0	3/4	N
Mokau River @ Mangaokewa Rd (Off SH30)	12	12	9	12	12	8	3	2	4/4	N
Mokau River @ Totoro Rd Recorder	12	12	3	12	11	5	0	1	2/4	N
Mokauti Strm @ Three Way Point - Aria	12	12	1	12	11	3	4	0	2/4	N
Ohautira Strm @ Waingarua Te Uku Rd	12	12	0	12	12	5	7	0	2/4	N
Oparau River @ Langdon Rd (Off Okupata Rd)	12	12	7	12	11	11	10	5	n/a	n/a
Tawarau River @ Off Speedies Rd	12	12	6	12	11	9	7	4	n/a	n/a
Waingarua River (Pukemiro) @ Ruakiwi Rd Off SH22	12	11	0	12	8	6	4	0	n/a	n/a
Waitetuna River @ Te Uku-Waingarua Rd	12	12	2	12	11	7	5	0	1/4	N

10	12	5	12	9	0	1	0	1/4	N
9	12	2	12	6	0	1	0	1/4	N
12	12	1	12	6	0	1	0	0/4	N
11	12	2	12	5	0	0	0	n/a	n/a
8	12	3	12	7	0	0	0	0/4	N
11	12	0	12	7	0	0	0	1/4	N
11	12	2	12	10	0	0	0	0/4	N
10	12	1	12	6	0	0	0	0/4	N
11	10	0	12	6	0	0	0	0/4	N
10	10	0	12	6	0	0	0	0/4	N
11	12	2	12	4	1	2	0	n/a	n/a
8	12	3	11	7	0	0	0	n/a	n/a
11	8	0	12	4	0	0	0	n/a	n/a
11	12	0	11	6	0	0	0	0/4	N

Inflows to Lake Taupo										
Hinemaiaia River @ SH1	12	12	12	12	11	8	12	11	4/4	Y
Kuratau River @ SH41 Moerangi	12	12	12	12	12	12	10	n/a	n/a	Y
Kuratau River @ Te Rae Street	12	12	12	12	11	12	0	n/a	4/4	Y
Mapara Strm @ Off Mapara Rd (Whakaipo Res)	12	12	10	12	12	0	0	2	4/4	Y
Tauranga-Taupo River @ Te Kono Slackline	12	12	11	12	12	12	9	n/a	n/a	Y
Tokaanu Power Station Tailrace Canal @ SH41 Bridge O.	12	12	12	12	12	12	n/a	n/a	n/a	Y
Tokaanu Strm @ Off SH41 Turangi	12	10	12	12	10	0	10	n/a	n/a	Y
Waihaha River @ SH32	12	12	11	12	12	11	12	10	4/4	Y
Waitahanui River @ Blake Rd	12	12	12	12	12	0	6	12	4/4	Y
Whanganui Strm @ Lakeside Lake Taupo	12	12	11	12	12	12	5	n/a	4/4	Y
Whareroa Strm @ Lakeside Lake Taupo	12	12	8	12	11	8	0	n/a	4/4	N
Whareroa Strm @ Whareroa Station Bridge	12	12	8	12	11	7	0	n/a	4/4	Y

12	12	12	12	10	0	1	1	4/4	N
10	12	9	12	12	9	0	1	n/a	n/a
12	12	11	12	9	0	0	n/a	2/4	N
12	5	0	12	10	0	0	0	2/4	N
11	12	10	12	11	0	6	3	n/a	n/a
12	12	12	12	8	2	8	n/a	n/a	n/a
10	0	12	12	7	0	0	n/a	n/a	n/a
10	12	11	12	10	0	0	3	4/4	Y
12	12	12	12	10	0	0	3	3/4	Y
11	12	7	12	10	0	0	n/a	1/4	N
12	12	0	12	10	0	0	n/a	2/4	N
12	12	2	12	10	0	0	n/a	3/4	N

*E.coli-m* refers to whether the 2006 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

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

<sup>1</sup> see the next table for the meaning of the abbreviations.

<sup>2</sup> routine means sampled monthly.



## Regional Rivers Monitoring - Water Quality Parameters & Analytical Methods of Analysis

Id <sup>1</sup>	Parameter	Method
A340F	Absorbance @ 340 nm Filtered	Spectrophotometer, 1 cm path length, APHA method 5910B
A440F	Absorbance @ 440 nm Filtered	Spectrophotometer, 1 cm path length, APHA method 5910B
A780F	Absorbance @ 780 nm Filtered	Spectrophotometer, 1 cm path length, APHA method 5910B
BDISK	Black Disk	Field measurement, horizontal water transparency (20mm, 60mm, 100mm, 200mm disk) in river or trough (20mm only)
COND	Conductivity	Lab Meter @ 25°C. APHA method 2510B
DO	Dissolved Oxygen	Field measurement (WTW DO meter, model 340A)
DO (% Sat)	Dissolved Oxygen (percent saturation)	Field measurement (WTW DO meter, model 340A)
pH	pH	Lab Meter @ 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 <sub>4</sub> -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 <sub>3</sub> (proposed).
TKN	Total Kjeldahl-Nitrogen	Acid digestion. Phenol/Hypochlorite Colorimetry. APHA method 4500-N <sub>org</sub> 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

### Major Ions, analysed during 2005

Id <sup>1</sup>	Parameter	Method
ALKT	Alkalinity Total	Potentiometric autotitration to pH 4.5
HCO <sub>3</sub>	Bicarbonate	Bicarbonate Calculation from alkalinity & pH (APHA 1989.Method 4500-CO <sub>2</sub> D)
Ca Diss	Calcium Dissolved	Filtered, ICP-MS. APHA Method 3125B.
Cl	Chloride	Filtered Sample.Ferric thiocyanide colorimetry. Discrete Analyser. APHA 4110 - CL E (modified from continuous flow analysis).
K Diss	Potassium Dissolved	Filtered, Atomic Emission Spectroscopy. APHA 3500-K B.
Mg Diss	Magnesium Dissolved	Filtered, ICP-MS.APHA Method 3125B.
Na Diss	Sodium Dissolved	Filtered, ICP-MS. APHA Method 3125B.
SO <sub>4</sub> Chro	Sulphate Dissolved	Ion chromatography APHA 4110B

<sup>1</sup> Parameter Id refers to Environment Waikato's water quality database (HYDROL) parameter short name