IN THE ENVIRONMENT COURT OF NEW ZEALAND
CHRISTCHURCH REGISTRY

I TE KŌTI TAIAO O AOTEAROA
ŌTAUTAHI ROHE

ENV-2020-CHC-127

UNDER	the Resource Management Act 1991 (RMA)
IN THE MATTER	of the Water Permits Plan Change - PLan Change 7, being part of a proposal of national significance directed by the Minister for the Environment to be referred to the Environment Court under section 142(2)(b) of the RMA
BETWEEN	**OTAGO REGIONAL COUNCIL**
	Applicant

STATEMENT OF EVIDENCE OF ANTONIUS HUGH SNELDER ON BEHALF OF THE OTAGO REGIONAL COUNCIL
19 February 2021

Judicial Officer: Judge Borthwick

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WYNNWILLIAMS

Introduction

1 My full name is Antonius Hugh Snelder.

2 I am a director of Land Water People Limited and consultant/researcher in the field of water and land resources management.

3 I hold a bachelor of agricultural engineering degree from the University of Canterbury, a post graduate diploma in hydrology from the University of New South Wales (Australia) and a PhD in environmental management from Lincoln University. I have 31 years of experience in the field of water resource management including 14 years as a water resources scientist at the National Institute of Water and Atmosphere (**NIWA**), and prior positions in regional councils and in consultancies as a water resources engineer. I am a specialist in the field of water quality.

4 In my current and previous positions, I have led many projects that have assessed water quality in freshwater environments and the association between water quality and land use at regional and national scales. I have written several guidelines for the management of water quality and quantity and developed several tools for water management purposes. I have authored or co-authored 50 scientific publications in the field of water resources management, including those that address water quality. I led or contributed to a sequence of studies (2002, 2003 and 2010, 2015, 2018) that analysed and reported on river and lake water quality state and trends at the national scale for MFE and Statistics New Zealand. I regularly undertake analysis of water quality data for regional councils and have been involved in the development of methods of water quality analysis. I am also a specialist in water quality modelling. I led the development of the River Environment Classification (**REC**). The REC classifies all New Zealand's rivers into types that differ with respect to their natural characteristics, including water quality and ecological communities, and their sensitivities to resource use. The REC has been used extensively across New Zealand as a framework for both regional and national-level policy and environmental reporting.

5 I have been engaged by the Otago Regional Council (**Council**) to prepare evidence for these proceedings.

Code of Conduct

6 I confirm that I have read the Code of Conduct for expert witnesses as contained in the Environment Court Practice Note 2014. I confirm that I have read and am familiar with the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2014. I agree to comply with that Code. Other than where I state that I am relying on the evidence of another person, my evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of evidence

7 At paragraph 14 of his Statement of Evidence in Chief dated 5 February 2021, Dr Olsen for the Otago Water Resources User Group Inc states that the Council's State of Environment (**SoE**) monitoring programme also needs to reflect the requirements of national regulations, such as the National Policy Statement for Freshwater Management 2020 (**NPSFM**).

8 Given the recent changes to the NPSFM, the Council engaged Land Water People Limited to undertake a study of water quality state at river and lake monitoring sites in the Otago Region using the most up to date available data. The scope of the study was to evaluate water quality state and to grade each site into relevant attribute bands designated in Appendix 2A and 2B of the NPSFM.

9 The document entitled State of Lake and River Water Quality in the Otago Region was prepared by Caroline Fraser from Land Water People Limited and reviewed by me. The document presents the results of the study. It does not provide an interpretation of the results. The document was provided to the Council in late January 2021.

10 The document, and two spreadsheets containing lake and river quality data respectively, are attached as **Appendix A** to **C** respectively.

Dated this 19th day of February 2021

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Dr Ton Snelder

Appendix A

State of Lake and River Water Quality in the Otago Region

State of Lake and River Water Quality in the Otago Region

For records up to 30 June 2020

January 2021

Prepared By:

Caroline Fraser

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Quality Assurance Statement

Version	**Reviewed By**	
Final	Ton Snelder	

Table of Contents

1 Introduction

This report details a study of water quality state at river and lake monitoring sites in the Otago Region using the most up to date available data. The scope of the study was to evaluate water quality state and to grade each site into relevant attribute bands designated in Appendix 2A and 2B of the National Policy Statement – Freshwater Management (NZ Government, 2020).

The scope of this study does not include interpretation of the results of the state assessments or the attribute gradings. Therefore, this report only describes the methodology used and the structure of supplementary files, which contain a complete set of analytical outputs.

2 Data

The data used in this assessment were collected and provided by Otago Regional Council (ORC). Full details about data preparation (i.e., removal of duplicates, correcting censor inequalities and taking summaries of multiple observations in a day) and data availability can be found in the most recent trend evaluation report prepared for ORC (Fraser and Snelder, 2021). In addition to the data preparation performed for the trend assessments, the data were summarised to ensure that there was no more than one observation within a month; this was done to prevent biases in statistics to periods where brief periods of more intensive data collection were conducted. The water quality data were also supplied with metadata information about the sites. In particular the metadata included the River Environment Classification (REC; Snelder and Biggs, 2002) class for each river monitoring site that is required to assign the attribute grades for the periphyton and suspended fine sediment attributes.

3 Water quality state analyses

3.1 Grading of monitoring sites

The water quality state for river and lake monitoring sites is graded based on attributes and associated attribute state bands defined by the National Objectives Framework (NOF) of the National Policy Statement – Freshwater Management (NPS-FM) (Ministry for the Environment, 2020) (Table 1).

Each table of appendix 2 of the NPS-FM (2020) represents an **attribute** that must be used to define an objective that provides for a particular environmental **value**. For example, Appendix 2A, Table 6 defines the nitrate toxicity attribute, which is defined by nitrate-nitrogen concentrations that will ensure an acceptable level of support for "Ecosystem health (Water quality)" value. Objectives are defined by one or more **numeric attribute states** associated with each attribute. For example, for the nitrate-nitrogen attribute there are two numeric attribute states defined by the annual median and the 95th percentile concentrations.

For each numeric attribute, the NOF defines categorical numeric attribute states as four (or five) **attribute bands**, which are designated A to D (or A to E, in the case of the *E. coli* attribute). The attribute bands represent a graduated range of support for environmental values from high (A band) to low (D or E band). The ranges for numeric attribute states that define each attribute band are defined in Appendix 2 of the NPS-FM (2020). For most attributes, the D band represents a condition that is unacceptable (with the threshold between the C and the D band being referred to as "**bottom line"**) in any waterbody nationally. In the

case of the Nitrate (toxicity) and Ammonia (toxicity) attributes in the 2020 NPS-FM, the C band is unacceptable, and for the DRP attribute, no bottom line is specified.

The primary aim of the attribute bands designated in the NPS-FM is as a basis for objective setting as part of the NOF process. The attribute bands are intended to be simple shorthand for communities and decision makers to discuss options and aspirations for acceptable water quality and to define objectives. Attribute bands avoid the need to discuss objectives in terms of technically complicated numeric attribute states and associated numeric ranges. Each band is associated with a narrative description of the outcomes for values that can be expected if that attribute band is chosen as the objective. However, it is also logical to use attribute bands to provide a grading of the current state of water quality; either as a starting point for objective setting or to track progress toward objectives.

A site can be **graded** for each attribute by assigning it to attribute bands (e.g., a site can be assigned to the A band for the Nitrate toxicity attribute). A site grading is done by using the numeric attribute state (e.g., annual median nitrate-nitrogen) as a **compliance statistic**. The value of the compliance statistic for a site is calculated from a record of the relevant water quality variable (e.g., the median value is calculated from the observed monthly nitrate-nitrogen concentrations). The site's compliance statistic is then compared against the numeric ranges associated with each attribute band and a grade assigned for the site (e.g., an annual median nitrate-nitrogen concentration of 1.3 mg/l would be graded as "B-band", because it lies in the range >1.0 to ≤2.4 mg/l). Note that for attributes with more than one numeric attribute state, we have provided a grade for each numeric attribute state (e.g., for the Nitrate (toxicity) attribute, grades are defined for both the median and 95th percentile concentrations).

Table 1: Details of the NOF attributes used to grade the state of the river and lake monitoring sites.

NPS-FM Reference – NOF Attribute	Water body type	Calculation guidance	Numeric attribute state description	Units
A2A; Table 1 – Phytoplankton	Lakes		Median of phytoplankton chlorophyll-*a*	mg chl-a m^{-3}
			Annual maximum of phytoplankton chlorophyll-*a*	mg chl-a m^{-3}
A2A; Table 2 – Periphyton	Rivers	Minimum of 3 years of data	92nd percentile of periphyton chlorophyll-*a* for default river class[2]	mg chl-a m^{-2}
			83rd percentile of periphyton chlorophyll-*a* for productive river class[1]	mg chl-a m^{-2}
A2A; Table 3 – Total Nitrogen	Lakes		Median concentration of total nitrogen	mg m^{-3}
A2A; Table 4 – Total Nitrogen	Lakes		Median concentration of total phosphorus	mg m^{-3}
A2A; Table 5 - Ammonia	Lakes and Rivers		Median concentration of Ammoniacal-N	mg l^{-1}
			Maximum concentration of Ammoniacal-N	mg l^{-1}
A2A; Table 6 - Nitrate	Rivers		Median concentration of Nitrate	mg l^{-1}
			95th percentile concentration of Nitrate	mg l^{-1}
A2A.; Table 8 - Suspended fine sediment	Rivers	Median of 5 years of at least monthly samples (at least 60 samples)	Median visual clarity	m
A2A; Table 9 - *Escherichia coli*	Rivers and Lakes	minimum of 60 samples over a maximum of 5 years,	% exceedances over 260 cfu 100 mL^{-1}	%
			% exceedances over 540 cfu 100 mL^{-1}	%
			Median concentration of *E. coli*	cfu 100 ml^{-1}
			95th percentile concentration of *E. coli*	cfu 100 ml^{-1}
A2B; Table 14 - Macroinvertebrates	Rivers	State calculated as 5 year median	Median MCI score	-
A2B; Table 15 - Macroinvertebrates	Rivers		Median ASPM score	-
A2B; Table 20 - DRP	Rivers		Median concentration of DRP	mg l^{-1}
			95th percentile concentration of DRP	mg l^{-1}

1. Classes are streams and rivers defined according to types in the River Environment Classification (REC; Snelder and Biggs, 2002). The Productive periphyton class is defined by the combination of REC “Dry” Climate categories (i.e. Warm-Dry (WD) and Cool-Dry (CD)) and REC Geology categories that have naturally high levels of nutrient enrichment due to their catchment geology (i.e. Soft-Sedimentary (SS), Volcanic Acidic (VA) and Volcanic Basic (VB)).

3.2 Handling censored values

Censored values were replaced by imputation for the purposes of calculating the compliance statistics. Left censored values (values below the detection limit(s)) were replaced with imputed values generated using ROS (Regression on Order Statistics; Helsel, 2012), following the procedure described in Larned *et al.* (2015). The ROS procedure produces estimated values for the censored data that are consistent with the distribution of the uncensored values and can accommodate multiple censoring limits. When there are insufficient non-censored data to evaluate a distribution from which to estimate values for the censored observations, censored values are replaced with half of their reported value.

Censored values above the detection limit were replaced with values estimated using a procedure based on "survival analysis" (Helsel, 2012). A parametric distribution is fitted to the uncensored observations and then values for the censored observations are estimated by randomly sampling values larger than the censored values from the distribution. The survival analysis requires a minimum number of observations for the distribution to be fitted; hence in the case that there were fewer than 24 observations, censored values above the detection limit were replaced with 1.1* the detection limit. The supplementary file outputs provide details about whether and how imputation was conducted for each site by criteria assessment.

3.3 Time period for assessments

When grading sites based on NPS-FM attributes, it is general practice to define consistent time periods for all sites and to define the acceptable proportion of missing observations (i.e., data gaps) and how these are distributed across sample intervals so that site grades are assessed from comparable data. The time period, acceptable proportion of gaps and representation of sample intervals by observations within the time period are commonly referred to as site inclusion or filtering rules (e.g.,(Larned *et al.*, 2018).

The grading assessments were made for the 5-year time period to end of June 2020. The start and end dates for this period were determined by the availability of quality assured data provided by ORC, ORC reporting time periods and consideration of statistical precision of the compliance statistics used in the grading of sites. The statistical precision of the compliance statistics depends on the variability in the water quality observations and the number of observations. For a given level of variability, the precision of a compliance statistic increases with the number of observations. This is particularly important for sites that are close to a threshold defined by an attribute band because the confidence that the assessment of state is 'correct' (i.e., that the site has been correctly graded) increases with the precision of the compliance statistics (and therefore with the number of observations). As a general rule, the rate of increase in the precision of compliance statistics slows for sample sizes greater than 30 (i.e., there are diminishing returns on increasing sample size with respect to precision (and therefore confidence in the assigned grade) above this number of observations; McBride, 2005).

In this study, a period of five years represented a reasonable trade-off for most of the attributes because it yielded a sample size of 30 or more observations for many sites and attribute combinations. The five-year period for the state analyses is also consistent with national water-quality state analyses (e.g., Larned *et al.*, 2015, 2018), as well as guidance for a number of specific attributes within the NPS-FM (2020) (Table *1*). Where no guidance was provided, we used a default filtering rule that required at least 30 observations in the 5-year time period. For annually sampled macroinvertebrate variables, which are generally less variable than physical

or chemical water quality variables, the nominated minimum sample size requirement was reduced to 5.

For grading the suspended fine sediment and *E. coli* attributes, the NPS-FM requires 60 observations over 5 years. For monthly monitoring, this requires collection of all monthly observations (i.e., no missing data). All ORC records have at least one missing observation associated with the national COVID-19 lockdown in April 2020, and so no sites met this requirement for the selected time periods. For this study, we relaxed the rule to require observations for 90% of months over the 5-year period (54 observations). Both this relaxation and our default sample number are subjective choices. Therefore, within the supplementary files we provide state assessments for all sites regardless of whether they meet the filtering rules, as well as details about the number of observations and number of years with observations. This will allow ORC to apply tighter or more lenient filtering rules as required.

3.4 Calculation of water clarity

The NPS-FM suspended fine sediment attribute is based on observations of visual clarity. The ORC river monitoring programme does not include visual clarity but does routinely collect turbidity observations. Franklin et al. (2020) define a relationship between median clarity and median turbidity, based on a regression of 582 sites across New Zealand as:

$$\ln(CLAR) = 1.21 - 0.72 \ln(TURB)$$

where CLAR is site median visual clarity (m) and TURB is site median turbidity (NTU). In this study, we first calculated median turbidity values over the 5 year time period, and then calculated median clarity using the above relationship in order to grade the sites against the NPS-FM suspended find sediment attribute.

3.5 pH Adjustment of Ammonia

Ammonia is toxic to aquatic animals and is directly bioavailable. When in solution, ammonia occurs in two forms: the ammonium cation (NH_4^+) and unionised ammonia (NH_3); the relative proportions of the forms are strongly dependent on pH (and temperature). Unionised ammonia is significantly more toxic to fish than ammonium, hence the total ammonia toxicity increases with increasing pH (and/or temperature) (ANZECC, 2000). Standards related to ammoniacal-N concentrations in freshwater typically require a correction to account for pH and temperature. We applied a pH correction to NH_4-N to adjust values to equivalent pH 8 values, following the methodology outlined in Hickey (2014). For pH values outside the range of the correction relationship (pH 6-9), the maximum (pH<6) and minimum (pH>9) correction ratios were applied.

3.6 Evaluation of compliance statistics

For compliance statistics specified and “Annual” (maximum, median, 95th percentile) in the NPS-FM, we have calculated these compliance statistics over the entire 5 year state period.

4 Results

The results for the state assessment are provided in the supplementary files: “ORCRiverState_092015to092020.xlsx” and “ORCLakeState_072015to072020.xlsx”. In each spreadsheet there is one sheet per relevant NPS-FM attribute (Appendix 2 of the NPS-FM 2020).

Common to all attributes are the following results:

Column Name	Explanation
sID	Site Name
npID	Variable name
N.values	Number of observations
N.years	Number of years with at least one observation
N.Leftcensored	Number of left censored values (below detection limit)
N.Rightcensored	Number of right censored values (above reporting limit)
DL	The detection limit
AL	The reporting limit
nOK	Number of observations meets the minimum number of observations required

In addition, the sheets include a column containing the compliance statistics (numeric attribute states as listed in Table 1 and using the same units). Each sheet also has columns of the NOF grade assignments for each numeric attribute state at each site.

Acknowledgements

Thanks to Jason Augsperger, Hugo Borges, Tom De Pelsemaeker, Rachel Ozanne and Karen Warrington for provision of data, site information, reviews, and advice of various types during the study.

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Appendix B

State of Lake and River Water Quality in the Otago Region: spreadsheet of lake water quality data

Table 1 Phytoplankton														
sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Median*	*AnnMax*	*ImputedLower*	*ImputedUpper*	*NOFband_median*	*NOFband_max*	*nOK*
Lake Dunstan at Dead Mans Point	Chlorophyll a	58	5	3	0	0.6		1.2	2.8999999	Imputed	No censored - no imputation required	A	A	TRUE
Lake Hawea North Open Water 10m	Chlorophyll a	13	4	0	0			0.00042	0.00139	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Lake Hawea Outflow at Dam	Chlorophyll a	35	3	13	0	0.79		0.4	1.7	Imputed	No censored - no imputation required	A	A	TRUE
Lake Hawea South Open Water 10m	Chlorophyll a	42	4	0	0			0.415	1.3	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Lake Hayes at Bendemeer Bay	Chlorophyll a	35	3	2	0	0.6		4.8	39	Imputed	No censored - no imputation required	B	C	TRUE
Lake Hayes at Mid Lake 10m	Chlorophyll a	41	4	0	0			16	84	No censored - no imputation required	No censored - no imputation required	D	D	TRUE
Lake Johnson at South Beach huts	Chlorophyll a	35	3	1	0	0.6		12	130	Imputed	No censored - no imputation required	C	D	TRUE
Lake Onslow at Boat Ramp	Chlorophyll a	47	5	1	0	0.5		3	6.5	Imputed	No censored - no imputation required	B	A	TRUE
Lake Tuakitoto at Outlet	Chlorophyll a	56	6	3	0	1		5.85	103	Imputed	No censored - no imputation required	C	D	TRUE
Lake Waihola at End of jetty	Chlorophyll a	34	3	0	0			6.15	33	No censored - no imputation required	No censored - no imputation required	C	C	TRUE
Lake Waihola at Waihola Mid	Chlorophyll a	17	4	0	0			9	21	No censored - no imputation required	No censored - no imputation required	C	B	FALSE
Lake Wakatipu at Frankton Arm 10m	Chlorophyll a	41	4	0	0			0.00051	0.00116	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Lake Wakatipu at Outflow	Chlorophyll a	35	3	7	0	0.6		0.6	4.2	Imputed	No censored - no imputation required	A	A	TRUE
Lake Wakatipu Open Water 10m	Chlorophyll a	42	4	0	0			0.42	1.14	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Lake Wanaka at Outlet	Chlorophyll a	35	3	6	0	0.6		0.8	3.8	Imputed	No censored - no imputation required	A	A	TRUE
Lake Wanaka Open Water 10m	Chlorophyll a	44	4	0	0			0.695	1.6	No censored - no imputation required	No censored - no imputation required	A	A	TRUE

Table 3 TN												
sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Median*	*ImputedLower*	*ImputedUpper*	*NOFband_median*	*nOK*
Lake Dunstan at Dead Mans Point	Total Nitrogen	57	5	1	0	0.01		0.075	Imputed	No censored - no imputation required	A	TRUE
Lake Hawea North Open Water 10m	Total Nitrogen	13	4	0	0			0.036	No censored - no imputation required	No censored - no imputation required	A	FALSE
Lake Hawea Outflow at Dam	Total Nitrogen	35	3	3	0	0.01		0.036	Imputed	No censored - no imputation required	A	FALSE
Lake Hawea South Open Water 10m	Total Nitrogen	42	4	0	0			0.031	No censored - no imputation required	No censored - no imputation required	A	FALSE
Lake Hayes at Bendemeer Bay	Total Nitrogen	35	3	0	0			0.29	No censored - no imputation required	No censored - no imputation required	A	FALSE
Lake Hayes at Mid Lake 10m	Total Nitrogen	41	4	0	0			0.35	No censored - no imputation required	No censored - no imputation required	A	FALSE
Lake Johnson at South Beach huts	Total Nitrogen	35	3	0	0			0.86	No censored - no imputation required	No censored - no imputation required	A	FALSE
Lake Onslow at Boat Ramp	Total Nitrogen	48	5	0	0			0.25	No censored - no imputation required	No censored - no imputation required	A	TRUE
Lake Tuakitoto at Outlet	Total Nitrogen	59	6	0	0			1.05	No censored - no imputation required	No censored - no imputation required	A	TRUE
Lake Waihola at End of jetty	Total Nitrogen	34	3	0	0			0.46	No censored - no imputation required	No censored - no imputation required	A	FALSE
Lake Waihola at Waihola Mid	Total Nitrogen	17	4	0	0			0.53	No censored - no imputation required	No censored - no imputation required	A	FALSE
Lake Wakatipu at Frankton Arm 10m	Total Nitrogen	41	4	0	0			0.049	No censored - no imputation required	No censored - no imputation required	A	FALSE
Lake Wakatipu at Outflow	Total Nitrogen	35	3	1	0	0.01		0.046	Imputed	No censored - no imputation required	A	FALSE
Lake Wakatipu Open Water 10m	Total Nitrogen	42	4	0	0			0.053	No censored - no imputation required	No censored - no imputation required	A	FALSE
Lake Wanaka at Outlet	Total Nitrogen	35	3	0	0			0.065	No censored - no imputation required	No censored - no imputation required	A	FALSE
Lake Wanaka Open Water 10m	Total Nitrogen	44	4	0	0			0.054	No censored - no imputation required	No censored - no imputation required	A	FALSE

Table 4 TP

sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Median*	*ImputedLower*	*ImputedUpper*	*NOFband_median*	*nOK*
Lake Dunstan at Dead Mans Point	Total Phosphorus	58	5	32	0	0.004		0.0037	Imputed	No censored - no imputation required	A	TRUE
Lake Hawea North Open Water 10m	Total Phosphorus	13	4	5	0	0.001		0.001	Not Imputed - model fit failed	No censored - no imputation required	A	FALSE
Lake Hawea Outflow at Dam	Total Phosphorus	36	3	18	0	0.004		0.00349	Imputed	No censored - no imputation required	A	TRUE
Lake Hawea South Open Water 10m	Total Phosphorus	42	4	20	0	0.004		0.001	Imputed	No censored - no imputation required	A	TRUE
Lake Hayes at Bendemeer Bay	Total Phosphorus	36	3	0	0			0.0265	No censored - no imputation required	No censored - no imputation required	A	TRUE
Lake Hayes at Mid Lake 10m	Total Phosphorus	36	4	0	0			0.039	No censored - no imputation required	No censored - no imputation required	A	TRUE
Lake Johnson at South Beach huts	Total Phosphorus	36	3	0	0			0.0455	No censored - no imputation required	No censored - no imputation required	A	TRUE
Lake Onslow at Boat Ramp	Total Phosphorus	48	5	0	0			0.023	No censored - no imputation required	No censored - no imputation required	A	TRUE
Lake Tuakitoto at Outlet	Total Phosphorus	59	6	0	0			0.11	No censored - no imputation required	No censored - no imputation required	A	TRUE
Lake Waihola at End of jetty	Total Phosphorus	34	3	0	0			0.042	No censored - no imputation required	No censored - no imputation required	A	TRUE
Lake Waihola at Waihola Mid	Total Phosphorus	17	4	0	0			0.045	No censored - no imputation required	No censored - no imputation required	A	FALSE
Lake Wakatipu at Frankton Arm 10m	Total Phosphorus	40	4	21	0	0.004		0.001	Imputed	No censored - no imputation required	A	TRUE
Lake Wakatipu at Outflow	Total Phosphorus	36	3	32	0	0.004		0.002	Not Imputed - model fit failed	No censored - no imputation required	A	TRUE
Lake Wakatipu Open Water 10m	Total Phosphorus	41	4	16	0	0.004		0.001	Imputed	No censored - no imputation required	A	TRUE
Lake Wanaka at Outlet	Total Phosphorus	36	3	22	0	0.004		0.00225	Imputed	No censored - no imputation required	A	TRUE
Lake Wanaka Open Water 10m	Total Phosphorus	43	4	19	0	0.004		0.001	Imputed	No censored - no imputation required	A	TRUE

Table 5 Ammonia

sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Median*	*AnnMax*	*ImputedLower*	*ImputedUpper*	*NOFband_median*	*NOFband_max*	*nOK*
Lake Dunstan at Dead Mans Point	Ammoniacal Nitrogen (adjusted)	58	5	42	0	0.008609		0.00105	0.035589309	Imputed	No censored - no imputation required	A	A	TRUE
Lake Hawea North Open Water 10m	Ammoniacal Nitrogen (adjusted)	9	3	9	0	0.003048		0.00126	0.00152421	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Lake Hawea South Open Water 10m	Ammoniacal Nitrogen (adjusted)	28	3	28	0	0.003048		0.00127	0.00152421	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Lake Hayes at Bendemeer Bay	Ammoniacal Nitrogen (adjusted)	35	3	13	0	0.025		0.016888	0.122101215	Imputed	No censored - no imputation required	A	B	TRUE
Lake Hayes at Mid Lake 10m	Ammoniacal Nitrogen (adjusted)	24	3	15	0	0.025		0.006288	0.102187618	Not Imputed - model fit failed	No censored - no imputation required	A	B	FALSE
Lake Johnson at South Beach huts	Ammoniacal Nitrogen (adjusted)	35	3	6	0	0.022152		0.055	0.238181665	Imputed	No censored - no imputation required	B	B	TRUE
Lake Onslow at Boat Ramp	Ammoniacal Nitrogen (adjusted)	44	5	28	0	0.001954		0.00137	0.005863013	Imputed	No censored - no imputation required	A	A	TRUE
Lake Tuakitoto at Outlet	Ammoniacal Nitrogen (adjusted)	59	6	7	0	0.025		0.02327	0.165	Imputed	No censored - no imputation required	A	B	TRUE
Lake Waihola at End of jetty	Ammoniacal Nitrogen (adjusted)	34	3	12	0	0.002762		0.00396	0.015243833	Imputed	No censored - no imputation required	A	A	TRUE
Lake Waihola at Waihola Mid	Ammoniacal Nitrogen (adjusted)	7	2	4	0	0.002762		0.00138	0.019727327	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Lake Wakatipu at Frankton Arm 10m	Ammoniacal Nitrogen (adjusted)	25	3	23	0	0.003402		0.00138	0.022281511	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Lake Wakatipu at Outflow	Ammoniacal Nitrogen (adjusted)	35	3	27	0	0.003842		0.0017	0.010756591	Not Imputed - model fit failed	No censored - no imputation required	A	A	TRUE
Lake Wakatipu Open Water 10m	Ammoniacal Nitrogen (adjusted)	26	3	25	0	0.002762		0.00126	0.003034973	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Lake Wanaka at Outlet	Ammoniacal Nitrogen (adjusted)	36	3	18	0	0.010578		0.00367	0.030733118	Imputed	No censored - no imputation required	A	A	TRUE
Lake Wanaka Open Water 10m	Ammoniacal Nitrogen (adjusted)	28	3	27	0	0.002529		0.00069	0.002762085	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE

Table 9 E. coli

sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Median*	*Q95*	*G540*	*G260*	*ImputedLower*	*ImputedUpper*	*NOFG260*	*NOFG540*	*NOFmed*	*NOFp95*	*NOFswim*	*nOK*
Lake Dunstan at Dead Mans Point	E-Coli MPN	58	5	19	0	10		3	47.2	0.017241379	0.017241379	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Lake Hawea North Open Water 10m	E-Coli MPN	9	3	9	0	1		0.5	0.5	0	0	All censored - cannot impute	No censored - no imputation required	A	A	A	A	A	FALSE
Lake Hawea Outflow at Dam	E-Coli MPN	36	3	31	0	3.5		0.8	1.925	0	0	Not Imputed - model fit failed	No censored - no imputation required	A	A	A	A	A	FALSE
Lake Hawea South Open Water 10m	E-Coli MPN	28	3	23	0	0.5		0.25	1	0	0	Not Imputed - model fit failed	No censored - no imputation required	A	A	A	A	A	FALSE
Lake Hayes at Bendemeer Bay	E-Coli MPN	35	3	8	0	10		4.9	565	0.057142857	0.057142857	Imputed	No censored - no imputation required	A	B	A	B	B	FALSE
Lake Hayes at Mid Lake 10m	E-Coli MPN	25	3	9	0	1		1	4.5	0	0	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Lake Johnson at South Beach huts	E-Coli MPN	35	3	12	0	10		2	60	0	0.028571429	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Lake Onslow at Boat Ramp	E-Coli MPN	44	5	13	0	1.7		1.8	26	0	0	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Lake Tuakitoto at Outlet	E-Coli MPN	59	6	0	0			48	875	0.067796611	0.084745763	No censored - no imputation required	No censored - no imputation required	A	B	A	B	B	TRUE
Lake Waihola at End of jetty	E-Coli MPN	35	3	2	0	1.6		29	647.5	0.057142857	0.057142857	Imputed	No censored - no imputation required	A	B	A	B	B	FALSE
Lake Waihola at Waihola Mid	E-Coli MPN	17	4	0	0			39	384.55	0	0.117647059	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	FALSE
Lake Wakatipu at Frankton Arm 10m	E-Coli MPN	25	3	18	0	1		0.5	2	0	0	Not Imputed - model fit failed	No censored - no imputation required	A	A	A	A	A	FALSE
Lake Wakatipu at Outflow	E-Coli MPN	35	3	11	0	10		2	33.5	0	0	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Lake Wakatipu Open Water 10m	E-Coli MPN	26	3	23	0	1		0.5	1.2	0	0	Not Imputed - model fit failed	No censored - no imputation required	A	A	A	A	A	FALSE
Lake Wanaka at Outlet	E-Coli MPN	36	3	23	0	10		0.32145	73.6	0	0	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE

Appendix C

State of Lake and River Water Quality in the Otago Region: spreadsheet of river water quality data

Table 2 Periphyton														
sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Q83*	*Q92*	*ImputedLower*	*ImputedUpper*	*Peri_class*	*NOFband*	*nOK*
12 Mile Creek at Glenorchy Queenstown Road	Chlorophyll a	8	2	0	0			2.452	3.748	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
25 Mile Creek at Glenorchy Queenstown Road	Chlorophyll a	10	2	0	0			4.48	5.44	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Akatore Creek at Akatore Creek Road	Chlorophyll a	8	2	0	0			184.381	311.569	No censored - no imputation required	No censored - no imputation required	Productive	C	FALSE
Arrow at Morven Ferry Road	Chlorophyll a	9	2	0	0			30.04	30.712	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Blackcleugh Burn at Rongahere Road	Chlorophyll a	8	2	0	0			19.441	25.309	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Bullock Creek at Dunmore Street Footbridge	Chlorophyll a	9	2	0	0			99.947	492.986	No censored - no imputation required	No censored - no imputation required	Default	D	FALSE
Cardrona at Mt Barker	Chlorophyll a	10	3	0	0			18.3	38.8	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Dart at The Hillocks	Chlorophyll a	8	2	0	0			7.964	13.436	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Dunstan Creek at Beattie Road	Chlorophyll a	12	3	0	0			54.324	78.678	No censored - no imputation required	No censored - no imputation required	Default	B	FALSE
Greenstone at Greenstone Station Road	Chlorophyll a	10	2	0	0			11.94	17.8	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Kaikorai Stream at Brighton Road	Chlorophyll a	8	2	0	0			507.154	533.146	No censored - no imputation required	No censored - no imputation required	Productive	D	FALSE
Kakanui at Clifton Falls Bridge	Chlorophyll a	7	3	0	0			131.719	197.806	No censored - no imputation required	No censored - no imputation required	Default	C	FALSE
Kakanui at McCones	Chlorophyll a	36	5	4	0	0.6		349.748	461.334	Imputed	No censored - no imputation required	Default	D	TRUE
Kauru at Ewings	Chlorophyll a	2	1	0	0			8.9	8.9	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Kye Burn at SH85 Bridge	Chlorophyll a	11	3	0	0			9.961	38.794	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Lindis at Ardgour Road	Chlorophyll a	12	3	0	0			148.534	210.796	No censored - no imputation required	No censored - no imputation required	Default	D	FALSE
Lindis at Lindis Peak	Chlorophyll a	2	1	0	0			88.9	88.9	No censored - no imputation required	No censored - no imputation required	Default	B	FALSE
Luggate Creek at SH6 Bridge	Chlorophyll a	13	3	0	0			96.794	105.568	No censored - no imputation required	No censored - no imputation required	Default	B	FALSE
Manuherikia at Blackstone Hill	Chlorophyll a	10	2	0	0			50.64	59.12	No censored - no imputation required	No censored - no imputation required	Default	B	FALSE
Manuherikia at Galloway	Chlorophyll a	15	3	0	0			85.71	169.05	No censored - no imputation required	No censored - no imputation required	Default	C	FALSE
Manuherikia at Ophir	Chlorophyll a	14	3	0	0			129.876	131.9	No censored - no imputation required	No censored - no imputation required	Default	C	FALSE
Motatapu at Wanaka Mt Aspiring Road	Chlorophyll a	12	3	0	0			19.99	30.088	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Oamaru Creek at SH1	Chlorophyll a	11	2	0	0			451.801	484.466	No censored - no imputation required	No censored - no imputation required	Productive	D	FALSE
Owaka at Katea Road	Chlorophyll a	9	2	0	0			114.6055	161.02	No censored - no imputation required	No censored - no imputation required	Default	C	FALSE
Pomahaka at Burkes Ford	Chlorophyll a	1	1	0	0			116.9	116.9	No censored - no imputation required	No censored - no imputation required	Default	B	FALSE
Precipice Creek at Glenorchy Paradise Road	Chlorophyll a	10	2	0	0			9.2	15.15	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Shag at Craig Road	Chlorophyll a	2	1	0	0			421.8	421.8	No censored - no imputation required	No censored - no imputation required	Default	D	FALSE
Shag at Goodwood Pump	Chlorophyll a	13	3	0	0			158.364	195.736	No censored - no imputation required	No censored - no imputation required	Default	C	FALSE
Silverstream at Taieri Depot	Chlorophyll a	9	2	0	0			93.557	94.034	No censored - no imputation required	No censored - no imputation required	Default	B	FALSE
Tahakopa at Tahakopa	Chlorophyll a	10	2	0	0			13.04	26.71	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Taieri at Outram	Chlorophyll a	5	2	0	0			9.9	13.4	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Taieri at Sutton	Chlorophyll a	2	2	0	0			35.2	35.2	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Taieri at Waipiata	Chlorophyll a	4	2	0	0			66.162	75	No censored - no imputation required	No censored - no imputation required	Default	B	FALSE
The Neck Creek at Meads Road	Chlorophyll a	11	2	0	0			6.126	11.408	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Tuapeka at 700m u/s bridge	Chlorophyll a	1	1	0	0			63	63	No censored - no imputation required	No censored - no imputation required	Default	B	FALSE
Turner Creek at Kinloch Road	Chlorophyll a	9	2	0	0			39.8015	48.491	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Upper Pomahaka at Aitchison Runs Road	Chlorophyll a	10	2	0	0			25.35	33.89	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Waianakarua at Browns	Chlorophyll a	13	3	0	0			154.673	181.528	No censored - no imputation required	No censored - no imputation required	Default	C	FALSE
Waianakarua at South Branch SH1	Chlorophyll a	2	1	0	0			245.4	245.4	No censored - no imputation required	No censored - no imputation required	Default	D	FALSE
Waipahi at Waipahi	Chlorophyll a	8	2	0	0			16.632	19.368	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Waitahuna at Tweeds Bridge	Chlorophyll a	8	2	0	0			33.074	54.026	No censored - no imputation required	No censored - no imputation required	Default	B	FALSE

Table 5 Ammonia

sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Median*	*AnnMax*	*ImputedLower*	*ImputedUpper*	*NOFband_median*	*NOFband_max*	*nOK*
12 Mile Creek at Glenorchy Queenstown Road	Ammoniacal Nitrogen (adjusted)	20	3	19	0	0		0.00122	0.003034973	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
25 Mile Creek at Glenorchy Queenstown Road	Ammoniacal Nitrogen (adjusted)	20	3	18	0	0		0.00152	0.007587433	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Akatore Creek at Akatore Creek Road	Ammoniacal Nitrogen (adjusted)	20	2	13	0	0		0.00117	0.004937225	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Arrow at Morven Ferry Road	Ammoniacal Nitrogen (adjusted)	22	3	22	0	0		0.00192	0.002543775	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Awamoko at SH83	Ammoniacal Nitrogen (adjusted)	55	6	28	0	0		0.01022	0.284902834	Imputed	No censored - no imputation required	A	B	TRUE
Bannockburn at Lake Dunstan	Ammoniacal Nitrogen (adjusted)	58	6	41	0	0		0.00249	0.025437753	Imputed	No censored - no imputation required	A	A	TRUE
Benger burn at SH8	Ammoniacal Nitrogen (adjusted)	34	4	10	0	0		0.00513	0.015262652	Imputed	No censored - no imputation required	A	A	TRUE
Blackcleugh Burn at Rongahere Road	Ammoniacal Nitrogen (adjusted)	19	3	18	0	0		0.00117	0.003057333	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Buckler Burn at Glenorchy Queenstown Road	Ammoniacal Nitrogen (adjusted)	20	3	20	0	0		0.00168	0.00192082	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Bullock Creek at Dunmore Street Footbridge	Ammoniacal Nitrogen (adjusted)	21	3	20	0	0		0.00152	0.009943507	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Cardrona at Mt Barker	Ammoniacal Nitrogen (adjusted)	58	6	41	0	0		0.00167	0.027897039	Imputed	No censored - no imputation required	A	A	TRUE
Catlins at Houipapa	Ammoniacal Nitrogen (adjusted)	59	6	23	0	0		0.00349	0.053163678	Imputed	No censored - no imputation required	A	B	TRUE
Contour Channel at No. 4 Bridge	Ammoniacal Nitrogen (adjusted)	59	6	14	0	0		0.0086	0.0910492	Imputed	No censored - no imputation required	A	B	TRUE
Craig Burn at SH6	Ammoniacal Nitrogen (adjusted)	19	3	18	0	0		0.00152	0.008164987	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Crookston Burn at Kelso Road	Ammoniacal Nitrogen (adjusted)	57	6	10	0	0		0.00961	0.136803629	Imputed	No censored - no imputation required	A	B	TRUE
Dart at The Hillocks	Ammoniacal Nitrogen (adjusted)	55	6	40	0	0		0.00166	0.027897039	Imputed	No censored - no imputation required	A	A	TRUE
Deep Stream at SH87	Ammoniacal Nitrogen (adjusted)	58	6	42	0	0		0.0012	0.008535579	Imputed	No censored - no imputation required	A	A	TRUE
Dundas Creek at Mill Flat	Ammoniacal Nitrogen (adjusted)	19	3	19	0	0		0.00138	0.00192082	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Dunstan Creek at Beattie Road	Ammoniacal Nitrogen (adjusted)	59	6	46	0	0		0.00082	0.015174867	Imputed	No censored - no imputation required	A	A	TRUE
Fraser at Old Man Range	Ammoniacal Nitrogen (adjusted)	22	3	19	0	0		0.00109	0.002527674	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Greenstone at Greenstone Station Road	Ammoniacal Nitrogen (adjusted)	19	3	19	0	0		0.00117	0.001449265	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Hawea at Camphill Bridge	Ammoniacal Nitrogen (adjusted)	58	6	48	0	0		0.0017	0.04	Not Imputed - model fit failed	No censored - no imputation required	A	A	TRUE
Heriot Burn at Park Hill Road	Ammoniacal Nitrogen (adjusted)	57	6	9	0	0		0.01062	0.061715317	Imputed	No censored - no imputation required	A	B	TRUE
Hills Creek at SH85	Ammoniacal Nitrogen (adjusted)	22	3	21	0	0		0.00109	0.052848181	Not Imputed - model fit failed	No censored - no imputation required	A	B	FALSE
Horn Creek at Queenstown Bay	Ammoniacal Nitrogen (adjusted)	22	3	6	0	0		0.00667	0.013413052	Imputed	No censored - no imputation required	A	A	FALSE
Invincible Creek at Rees Valley Road	Ammoniacal Nitrogen (adjusted)	19	3	19	0	0		0.0017	0.002196065	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Kaikorai Stream at Brighton Road	Ammoniacal Nitrogen (adjusted)	58	6	16	0	0		0.01097	1.932536894	Imputed	No censored - no imputation required	A	C	TRUE
Kakaho Creek at SH1	Ammoniacal Nitrogen (adjusted)	18	3	3	0	0		0.01048	0.123516862	Imputed	No censored - no imputation required	A	B	FALSE
Kakanui at Clifton Falls Bridge	Ammoniacal Nitrogen (adjusted)	55	6	41	0	0		0.00119	0.019221498	Imputed	No censored - no imputation required	A	A	TRUE

Kakanui at McCones	Ammoniacal Nitrogen (adjusted)	55	6	26	0	0		0.0025	0.019325369	Imputed	No censored - no imputation required	A	A	TRUE
Kauru at Ewings	Ammoniacal Nitrogen (adjusted)	55	6	35	0	0		0.00187	0.028471447	Imputed	No censored - no imputation required	A	A	TRUE
Kye Burn at SH85 Bridge	Ammoniacal Nitrogen (adjusted)	59	6	43	0	0		0.00137	0.008093262	Imputed	No censored - no imputation required	A	A	TRUE
Leaping Burn at Wanaka Mt Aspiring Road	Ammoniacal Nitrogen (adjusted)	20	3	20	0	0		0.00152	0.00192082	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Leith at Dundas Street Bridge	Ammoniacal Nitrogen (adjusted)	57	6	21	0	0		0.00615	0.228390724	Imputed	No censored - no imputation required	A	B	TRUE
Lindis at Ardgour Road	Ammoniacal Nitrogen (adjusted)	58	6	48	0	0		0.00145	0.01054111	Not Imputed - model fit failed	No censored - no imputation required	A	A	TRUE
Lindis at Lindis Peak	Ammoniacal Nitrogen (adjusted)	58	6	50	0	0		0.00152	0.01701039	Not Imputed - model fit failed	No censored - no imputation required	A	A	TRUE
Lindsays Creek at North Road Bridge	Ammoniacal Nitrogen (adjusted)	58	6	11	0	0		0.00748	0.085414342	Imputed	No censored - no imputation required	A	B	TRUE
Lovells Creek at Station Road	Ammoniacal Nitrogen (adjusted)	58	6	18	0	0		0.00561	0.027515995	Imputed	No censored - no imputation required	A	A	TRUE
Luggate Creek at SH6 Bridge	Ammoniacal Nitrogen (adjusted)	58	6	47	0	0		0.00173	0.010886649	Imputed	No censored - no imputation required	A	A	TRUE
Maclennan at Kahuiku School Road	Ammoniacal Nitrogen (adjusted)	22	3	7	0	0		0.00303	0.010045522	Imputed	No censored - no imputation required	A	A	FALSE
Makarora at Makarora	Ammoniacal Nitrogen (adjusted)	21	3	21	0	0		0.00126	0.001701039	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Manuherikia at Blackstone Hill	Ammoniacal Nitrogen (adjusted)	59	6	50	0	0		0.00117	0.036925509	Not Imputed - model fit failed	No censored - no imputation required	A	A	TRUE
Manuherikia at Galloway	Ammoniacal Nitrogen (adjusted)	59	6	36	0	0		0.0025	0.01692506	Imputed	No censored - no imputation required	A	A	TRUE
Manuherikia at Ophir	Ammoniacal Nitrogen (adjusted)	59	6	25	0	0		0.00354	0.038360676	Imputed	No censored - no imputation required	A	A	TRUE
Manuherikia downstream of Fork	Ammoniacal Nitrogen (adjusted)	33	4	33	0	0		0.00109	0.00192082	All censored - cannot impute	No censored - no imputation required	A	A	TRUE
Meggat Burn at Berwick Road	Ammoniacal Nitrogen (adjusted)	22	3	8	0	0		0.0036	0.022027972	Imputed	No censored - no imputation required	A	A	FALSE
Mill Creek at Fish Trap	Ammoniacal Nitrogen (adjusted)	58	6	32	0	0		0.00406	0.03601546	Imputed	No censored - no imputation required	A	A	TRUE
Motatapu at Wanaka Mt Aspiring Road	Ammoniacal Nitrogen (adjusted)	21	3	21	0	0		0.00152	0.002196065	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Nenthorn at Mt Stoker Road	Ammoniacal Nitrogen (adjusted)	58	6	34	0	0		0.00173	0.014034394	Imputed	No censored - no imputation required	A	A	TRUE
Nevis at Wentworth Station	Ammoniacal Nitrogen (adjusted)	57	6	44	0	0		0.00044	0.068041559	Imputed	No censored - no imputation required	A	B	TRUE
Oamaru Creek at SH1	Ammoniacal Nitrogen (adjusted)	21	3	8	0	0		0.0173	0.1469741	Imputed	No censored - no imputation required	A	B	FALSE
Owaka at Katea Road	Ammoniacal Nitrogen (adjusted)	56	6	22	0	0		0.00418	0.022453714	Imputed	No censored - no imputation required	A	A	TRUE
Ox Burn at Rees Valley Road	Ammoniacal Nitrogen (adjusted)	19	3	18	0	0		0.0017	0.006146624	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Pleasant at Patterson Road Ford	Ammoniacal Nitrogen (adjusted)	21	3	12	0	0		0.00192	0.017124929	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Pomahaka at Burkes Ford	Ammoniacal Nitrogen (adjusted)	57	6	18	0	0		0.0061	0.031446851	Imputed	No censored - no imputation required	A	A	TRUE
Pomahaka at Glenken	Ammoniacal Nitrogen (adjusted)	57	6	32	0	0		0.00195	0.01692506	Imputed	No censored - no imputation required	A	A	TRUE
Poolburn at Cob Cottage	Ammoniacal Nitrogen (adjusted)	33	4	12	0	0		0.00387	0.029196462	Imputed	No censored - no imputation required	A	A	TRUE
Precipice Creek at Glenorchy Paradise Road	Ammoniacal Nitrogen (adjusted)	20	3	20	0	0		0.0017	0.00192082	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Quartz Creek at Maungawera Valley Road	Ammoniacal Nitrogen (adjusted)	17	3	16	0	0		0.00152	0.012803368	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Quartz Reef Creek at SH8	Ammoniacal Nitrogen (adjusted)	22	3	20	0	0		0.00192	0.005378296	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE

Rees at Glenorchy Paradise Road Bridge	Ammoniacal Nitrogen (adjusted)	20	3	19	0	0		0.00152	0.00386692	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Roaring Meg at SH6	Ammoniacal Nitrogen (adjusted)	22	3	22	0	0		0.00138	0.00192082	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Scott Creek at Routeburn Road	Ammoniacal Nitrogen (adjusted)	20	3	19	0	0		0.00063	0.002529144	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Shag at Craig Road	Ammoniacal Nitrogen (adjusted)	58	6	39	0	0		0.00221	0.024785615	Imputed	No censored - no imputation required	A	A	TRUE
Shag at Goodwood Pump	Ammoniacal Nitrogen (adjusted)	57	6	25	0	0		0.00303	0.013608312	Imputed	No censored - no imputation required	A	A	TRUE
Silverstream at Taieri Depot	Ammoniacal Nitrogen (adjusted)	59	6	28	0	0		0.00331	0.315014461	Imputed	No censored - no imputation required	A	B	TRUE
Silverstream at Three Mile Hill Road	Ammoniacal Nitrogen (adjusted)	22	3	22	0	0		0.00192	0.002543775	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Sutton Stream at SH87	Ammoniacal Nitrogen (adjusted)	31	3	29	0	0		0.00103	0.003291484	Not Imputed - model fit failed	No censored - no imputation required	A	A	TRUE
Tahakopa at Tahakopa	Ammoniacal Nitrogen (adjusted)	22	3	8	0	0		0.00351	0.006549384	Imputed	No censored - no imputation required	A	A	FALSE
Taieri at Allanton Bridge	Ammoniacal Nitrogen (adjusted)	58	6	20	0	0		0.00464	0.075	Imputed	No censored - no imputation required	A	B	TRUE
Taieri at Linnburn Runs Road	Ammoniacal Nitrogen (adjusted)	59	6	34	0	0		0.0013	0.021396497	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Outram	Ammoniacal Nitrogen (adjusted)	59	6	36	0	0		0.00215	0.015242105	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Stonehenge	Ammoniacal Nitrogen (adjusted)	59	6	34	0	0		0.00171	0.017470473	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Sutton	Ammoniacal Nitrogen (adjusted)	57	6	37	0	0		0.00192	0.021367713	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Tiroiti	Ammoniacal Nitrogen (adjusted)	59	6	36	0	0		0.00247	0.010116578	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Waipiata	Ammoniacal Nitrogen (adjusted)	59	6	28	0	0		0.00262	0.068041559	Imputed	No censored - no imputation required	A	B	TRUE
Teviot at Bridge Huts Road	Ammoniacal Nitrogen (adjusted)	22	3	17	0	0		0.0009	0.006993007	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
The Neck Creek at Meads Road	Ammoniacal Nitrogen (adjusted)	21	3	21	0	0		0.00152	0.00192082	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Thomsons Creek at SH85	Ammoniacal Nitrogen (adjusted)	58	6	18	0	0		0.00449	0.050582889	Imputed	No censored - no imputation required	A	B	TRUE
Timaru at Peter Muir Bridge	Ammoniacal Nitrogen (adjusted)	20	3	19	0	0		0.00069	0.002762085	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Tokomairiro at Blackbridge	Ammoniacal Nitrogen (adjusted)	57	6	8	0	0		0.00821	0.062538802	Imputed	No censored - no imputation required	A	B	TRUE
Tokomairiro at Lisnatunny	Ammoniacal Nitrogen (adjusted)	34	4	10	0	0		0.00602	0.013474567	Imputed	No censored - no imputation required	A	A	TRUE
Tokomairiro at West Branch Bridge	Ammoniacal Nitrogen (adjusted)	57	6	20	0	0		0.00327	0.015723426	Imputed	No censored - no imputation required	A	A	TRUE
Trotters Creek at Mathesons	Ammoniacal Nitrogen (adjusted)	57	6	13	0	0		0.00556	0.095272666	Imputed	No censored - no imputation required	A	B	TRUE
Tuapeka at 700m u/s bridge	Ammoniacal Nitrogen (adjusted)	52	5	23	0	0		0.00471	0.023167999	Imputed	No censored - no imputation required	A	A	TRUE
Turner Creek at Kinloch Road	Ammoniacal Nitrogen (adjusted)	20	3	20	0	0		0.00109	0.00120192	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Upper Cardrona at Tuohys Gully Road	Ammoniacal Nitrogen (adjusted)	21	3	21	0	0		0.0017	0.002196065	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Upper Pomahaka at Aitchison Runs Road	Ammoniacal Nitrogen (adjusted)	22	3	22	0	0		0.00113	0.001381043	All censored - cannot impute	No censored - no imputation required	A	A	FALSE
Upper Shag at SH85 Culvert	Ammoniacal Nitrogen (adjusted)	22	3	18	0	0		0.0017	0.023777684	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Waianakarua at Browns	Ammoniacal Nitrogen (adjusted)	56	6	37	0	0		0.00167	0.015851789	Imputed	No censored - no imputation required	A	A	TRUE
Waianakarua at South Branch SH1	Ammoniacal Nitrogen (adjusted)	20	3	13	0	0		0.00145	0.005524171	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE

Waiareka Creek at Taipo Road	Ammoniacal Nitrogen (adjusted)	54	6	18	0	0		0.01404	0.16134887	Imputed	No censored - no imputation required	A	B	TRUE
Waikouaiti at Confluence d/s	Ammoniacal Nitrogen (adjusted)	35	4	14	0	0		0.00384	0.020203795	Imputed	No censored - no imputation required	A	A	TRUE
Waipahi at Cairns Peak	Ammoniacal Nitrogen (adjusted)	57	6	12	0	0		0.00704	0.022670316	Imputed	No censored - no imputation required	A	A	TRUE
Waipahi at Waipahi	Ammoniacal Nitrogen (adjusted)	57	6	21	0	0		0.00476	0.050255612	Imputed	No censored - no imputation required	A	B	TRUE
Waipori at Waipori Falls Reserve	Ammoniacal Nitrogen (adjusted)	59	6	38	0	0		0.00119	0.010291889	Imputed	No censored - no imputation required	A	A	TRUE
Wairuna at Millar Road	Ammoniacal Nitrogen (adjusted)	57	6	12	0	0		0.01708	0.108006899	Imputed	No censored - no imputation required	A	B	TRUE
Waitahuna at Tweeds Bridge	Ammoniacal Nitrogen (adjusted)	57	6	18	0	0		0.00561	0.031979533	Imputed	No censored - no imputation required	A	A	TRUE
Waitati at Mt Cargill Road	Ammoniacal Nitrogen (adjusted)	57	6	37	0	0		0.00275	0.195	Imputed	No censored - no imputation required	A	B	TRUE
Waiwera at Maws Farm	Ammoniacal Nitrogen (adjusted)	59	6	18	0	0		0.0068	0.039872759	Imputed	No censored - no imputation required	A	A	TRUE
Whare Creek at Whare Flat Road	Ammoniacal Nitrogen (adjusted)	22	3	22	0	0		0.00109	0.001264572	All censored - cannot impute	No censored - no imputation required	A	A	FALSE

Table 6 Nitrate

sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Median*	*Q95*	*ImputedLower*	*ImputedUpper*	*NOFband_median*	*NOFband_Q95*	*nOK*
12 Mile Creek at Glenorchy Queenstown Road	Nitrite/Nitrate Nitrogen	20	3	4	0	0		0.00225	0.0086	Imputed	No censored - no imputation required	A	A	FALSE
25 Mile Creek at Glenorchy Queenstown Road	Nitrite/Nitrate Nitrogen	20	3	4	0	0		0.0045	0.01152	Imputed	No censored - no imputation required	A	A	FALSE
3 OClock Stream at Hindon	Nitrite/Nitrate Nitrogen	37	4	0	0			0.026	0.15185	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Akatore Creek at Akatore Creek Road	Nitrite/Nitrate Nitrogen	20	2	0	0			0.215	1.87	No censored - no imputation required	No censored - no imputation required	A	B	FALSE
Arrow at Morven Ferry Road	Nitrite/Nitrate Nitrogen	22	3	0	0			0.0835	0.1218	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Awamoko at SH83	Nitrite/Nitrate Nitrogen	55	6	1	0	0		0.46	1.1725	Imputed	No censored - no imputation required	A	A	TRUE
Bannockburn at Lake Dunstan	Nitrite/Nitrate Nitrogen	58	6	45	0	0		0.0004	0.0073	Imputed	No censored - no imputation required	A	A	TRUE
Benger burn at SH8	Nitrite/Nitrate Nitrogen	35	4	0	0			0.26	1.43	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Blackcleugh Burn at Rongahere Road	Nitrite/Nitrate Nitrogen	19	3	0	0			0.048	0.08845	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Buckler Burn at Glenorchy Queenstown Road	Nitrite/Nitrate Nitrogen	20	3	0	0			0.0176	0.03325	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Bullock Creek at Dunmore Street Footbridge	Nitrite/Nitrate Nitrogen	21	3	0	0			0.66	0.7735	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Cardrona at Mt Barker	Nitrite/Nitrate Nitrogen	58	6	0	0			0.076	0.1976	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Catlins at Houipapa	Nitrite/Nitrate Nitrogen	59	6	0	0			0.4	0.7055	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Contour Channel at No. 4 Bridge	Nitrite/Nitrate Nitrogen	59	6	7	0	0		0.24	0.758	Imputed	No censored - no imputation required	A	A	TRUE
Craig Burn at SH6	Nitrite/Nitrate Nitrogen	19	3	7	0	0		0.003	0.01262	Imputed	No censored - no imputation required	A	A	FALSE
Crookston Burn at Kelso Road	Nitrite/Nitrate Nitrogen	57	6	0	0			1.44	2.465	No censored - no imputation required	No censored - no imputation required	B	B	TRUE
Dart at The Hillocks	Nitrite/Nitrate Nitrogen	55	6	0	0			0.027	0.04725	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Deep Stream at SH87	Nitrite/Nitrate Nitrogen	58	6	33	0	0		0.00095	0.1266	Imputed	No censored - no imputation required	A	A	TRUE
Dundas Creek at Mill Flat	Nitrite/Nitrate Nitrogen	19	3	0	0			0.032	0.05475	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Dunstan Creek at Beattie Road	Nitrite/Nitrate Nitrogen	59	6	0	0			0.067	0.1656	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Fraser at Old Man Range	Nitrite/Nitrate Nitrogen	22	3	1	0	0		0.00315	0.0127	Imputed	No censored - no imputation required	A	A	FALSE
Greenstone at Greenstone Station Road	Nitrite/Nitrate Nitrogen	19	3	1	0	0		0.0119	0.02565	Imputed	No censored - no imputation required	A	A	FALSE
Hawea at Camphill Bridge	Nitrite/Nitrate Nitrogen	58	6	2	0	0		0.0142	0.0362	Imputed	No censored - no imputation required	A	A	TRUE
Hayes Creek at SH6	Nitrite/Nitrate Nitrogen	10	1	8	0	0		0.0005	0.026	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Heriot Burn at Park Hill Road	Nitrite/Nitrate Nitrogen	57	6	0	0			1.42	2.051	No censored - no imputation required	No censored - no imputation required	B	B	TRUE
Hills Creek at SH85	Nitrite/Nitrate Nitrogen	22	3	0	0			0.0315	0.1852	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Horn Creek at Queenstown Bay	Nitrite/Nitrate Nitrogen	22	3	0	0			0.148	0.2	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Invincible Creek at Rees Valley Road	Nitrite/Nitrate Nitrogen	19	3	2	0	0		0.0095	0.02365	Imputed	No censored - no imputation required	A	A	FALSE

Kaikorai Stream at Brighton Road	Nitrite/Nitrate Nitrogen	58	6	0	0			0.41	1.136	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Kakaho Creek at SH1	Nitrite/Nitrate Nitrogen	18	3	0	0			0.185	1.106	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Kakanui at Clifton Falls Bridge	Nitrite/Nitrate Nitrogen	55	6	1	0	0		0.0175	0.125	Imputed	No censored - no imputation required	A	A	TRUE
Kakanui at McCones	Nitrite/Nitrate Nitrogen	57	6	0	0			0.28	0.689	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Kauru at Ewings	Nitrite/Nitrate Nitrogen	55	6	2	0	0		0.0106	0.1025	Imputed	No censored - no imputation required	A	A	TRUE
Kye Burn at SH85 Bridge	Nitrite/Nitrate Nitrogen	59	6	0	0			0.049	0.22615	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Leaping Burn at Wanaka Mt Aspiring Road	Nitrite/Nitrate Nitrogen	21	3	0	0			0.025	0.03872	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Leith at Dundas Street Bridge	Nitrite/Nitrate Nitrogen	57	6	0	0			0.52	0.993	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Lindis at Ardgour Road	Nitrite/Nitrate Nitrogen	58	6	2	0	0		0.037	0.13	Imputed	No censored - no imputation required	A	A	TRUE
Lindis at Lindis Peak	Nitrite/Nitrate Nitrogen	58	6	3	0	0		0.0165	0.0834	Imputed	No censored - no imputation required	A	A	TRUE
Lindsays Creek at North Road Bridge	Nitrite/Nitrate Nitrogen	58	6	1	0	0		0.69	1.26	Imputed	No censored - no imputation required	A	A	TRUE
Lovells Creek at Station Road	Nitrite/Nitrate Nitrogen	58	6	0	0			0.81	2.32	No censored - no imputation required	No censored - no imputation required	A	B	TRUE
Luggate Creek at SH6 Bridge	Nitrite/Nitrate Nitrogen	58	6	19	0	0		0.0025	0.01548	Imputed	No censored - no imputation required	A	A	TRUE
Maclennan at Kahuiku School Road	Nitrite/Nitrate Nitrogen	22	3	0	0			0.0215	0.0558	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Makarora at Makarora	Nitrite/Nitrate Nitrogen	21	3	0	0			0.048	0.0667	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Manuherikia at Blackstone Hill	Nitrite/Nitrate Nitrogen	59	6	12	0	0		0.004	0.07565	Imputed	No censored - no imputation required	A	A	TRUE
Manuherikia at Galloway	Nitrite/Nitrate Nitrogen	59	6	3	0	0		0.03	0.2	Imputed	No censored - no imputation required	A	A	TRUE
Manuherikia at Ophir	Nitrite/Nitrate Nitrogen	59	6	0	0			0.055	0.262	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Manuherikia downstream of Fork	Nitrite/Nitrate Nitrogen	33	4	9	0	0		0.002	0.01272	Imputed	No censored - no imputation required	A	A	TRUE
Meggat Burn at Berwick Road	Nitrite/Nitrate Nitrogen	22	3	0	0			0.0755	0.438	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Mill Creek at Fish Trap	Nitrite/Nitrate Nitrogen	59	6	0	0			0.34	0.49	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Motatapu at Wanaka Mt Aspiring Road	Nitrite/Nitrate Nitrogen	21	3	0	0			0.028	0.04637	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Nenthorn at Mt Stoker Road	Nitrite/Nitrate Nitrogen	58	6	33	0	0		0.00087	0.01434	Imputed	No censored - no imputation required	A	A	TRUE
Nevis at Wentworth Station	Nitrite/Nitrate Nitrogen	58	6	19	0	0		0.00186	0.01214	Imputed	No censored - no imputation required	A	A	TRUE
Oamaru Creek at SH1	Nitrite/Nitrate Nitrogen	21	3	0	0			0.62	1.2185	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Owaka at Katea Road	Nitrite/Nitrate Nitrogen	56	6	0	0			1.195	2.27	No censored - no imputation required	No censored - no imputation required	B	B	TRUE
Owhiro Stream at Riverside Rd	Nitrite/Nitrate Nitrogen	37	4	0	0			0.37	0.902	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Ox Burn at Rees Valley Road	Nitrite/Nitrate Nitrogen	19	3	1	0	0		0.0157	0.026	Imputed	No censored - no imputation required	A	A	FALSE
Pleasant at Patterson Road Ford	Nitrite/Nitrate Nitrogen	21	3	1	0	0		0.046	1.267	Imputed	No censored - no imputation required	A	A	FALSE
Pomahaka at Burkes Ford	Nitrite/Nitrate Nitrogen	57	6	0	0			0.63	2.1145	No censored - no imputation required	No censored - no imputation required	A	B	TRUE
Pomahaka at Glenken	Nitrite/Nitrate Nitrogen	57	6	5	0	0		0.06	0.3865	Imputed	No censored - no imputation required	A	A	TRUE

Poolburn at Cob Cottage	Nitrite/Nitrate Nitrogen	33	4	2	0	0		0.04	0.356	Imputed	No censored - no imputation required	A	A	TRUE
Precipice Creek at Glenorchy Paradise Road	Nitrite/Nitrate Nitrogen	20	3	3	0	0		0.00665	0.01435	Imputed	No censored - no imputation required	A	A	FALSE
Quartz Creek at Maungawera Valley Road	Nitrite/Nitrate Nitrogen	17	3	0	0			0.057	0.17795	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Quartz Reef Creek at SH8	Nitrite/Nitrate Nitrogen	22	3	1	0	0		0.01245	0.059	Imputed	No censored - no imputation required	A	A	FALSE
Rees at Glenorchy Paradise Road Bridge	Nitrite/Nitrate Nitrogen	20	3	2	0	0		0.0133	0.0245	Imputed	No censored - no imputation required	A	A	FALSE
Roaring Meg at SH6	Nitrite/Nitrate Nitrogen	22	3	1	0	0		0.0114	0.0416	Imputed	No censored - no imputation required	A	A	FALSE
Scott Creek at Routeburn Road	Nitrite/Nitrate Nitrogen	20	3	0	0			0.023	0.036	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Shag at Craig Road	Nitrite/Nitrate Nitrogen	58	6	0	0			0.1015	0.4936	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Shag at Goodwood Pump	Nitrite/Nitrate Nitrogen	57	6	1	0	0		0.21	0.733	Imputed	No censored - no imputation required	A	A	TRUE
Silverstream at Taieri Depot	Nitrite/Nitrate Nitrogen	59	6	0	0			0.39	0.774	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Silverstream at Three Mile Hill Road	Nitrite/Nitrate Nitrogen	22	3	2	0	0		0.0126	0.0756	Imputed	No censored - no imputation required	A	A	FALSE
Sutton Stream at SH87	Nitrite/Nitrate Nitrogen	31	3	9	0	0		0.0051	0.06505	Imputed	No censored - no imputation required	A	A	TRUE
Tahakopa at Tahakopa	Nitrite/Nitrate Nitrogen	22	3	0	0			0.325	0.606	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Taieri at Allanton Bridge	Nitrite/Nitrate Nitrogen	58	6	1	0	0		0.062	0.276	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Creamery Road bridge	Nitrite/Nitrate Nitrogen	37	4	11	0	0		0.0058	0.05995	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Linnburn Runs Road	Nitrite/Nitrate Nitrogen	59	6	17	0	0		0.0026	0.01169	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Outram	Nitrite/Nitrate Nitrogen	59	6	1	0	0		0.05	0.23715	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Patearoa Maniototo Road	Nitrite/Nitrate Nitrogen	37	4	15	0	0		0.0026	0.01925	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Puketoi	Nitrite/Nitrate Nitrogen	37	4	15	0	0		0.0037	0.02805	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Stonehenge	Nitrite/Nitrate Nitrogen	59	6	13	0	0		0.006	0.045	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Sutton	Nitrite/Nitrate Nitrogen	57	6	7	0	0		0.032	0.166	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Tiroiti	Nitrite/Nitrate Nitrogen	59	6	8	0	0		0.025	0.10825	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Waipiata	Nitrite/Nitrate Nitrogen	59	6	6	0	0		0.0143	0.0712	Imputed	No censored - no imputation required	A	A	TRUE
Teviot at Bridge Huts Road	Nitrite/Nitrate Nitrogen	22	3	3	0	0		0.0041	0.01664	Imputed	No censored - no imputation required	A	A	FALSE
The Neck Creek at Meads Road	Nitrite/Nitrate Nitrogen	21	3	3	0	0		0.0026	0.01333	Imputed	No censored - no imputation required	A	A	FALSE
Thomsons Creek at SH85	Nitrite/Nitrate Nitrogen	58	6	0	0			0.1825	0.478	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Timaru at Peter Muir Bridge	Nitrite/Nitrate Nitrogen	20	3	4	0	0		0.006	0.02035	Imputed	No censored - no imputation required	A	A	FALSE
Tokomairiro at Blackbridge	Nitrite/Nitrate Nitrogen	57	6	0	0			0.39	2.56	No censored - no imputation required	No censored - no imputation required	A	B	TRUE
Tokomairiro at Lisnatunny	Nitrite/Nitrate Nitrogen	35	4	0	0			0.27	1.0575	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Tokomairiro at West Branch Bridge	Nitrite/Nitrate Nitrogen	57	6	0	0			0.28	1.172	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Trotters Creek at Mathesons	Nitrite/Nitrate Nitrogen	57	6	1	0	0		0.46	2.0215	Imputed	No censored - no imputation required	A	B	TRUE

Tuapeka at 700m u/s bridge	Nitrite/Nitrate Nitrogen	52	5	1	0	0		0.225	1.282	Imputed	No censored - no imputation required	A	A	TRUE
Turner Creek at Kinloch Road	Nitrite/Nitrate Nitrogen	20	3	0	0			0.0425	0.054	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Upper Cardrona at Tuohys Gully Road	Nitrite/Nitrate Nitrogen	21	3	0	0			0.024	0.0577 5	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Upper Pomahaka at Aitchison Runs Road	Nitrite/Nitrate Nitrogen	22	3	1	0	0		0.0144	0.0522	Imputed	No censored - no imputation required	A	A	FALSE
Upper Shag at SH85 Culvert	Nitrite/Nitrate Nitrogen	22	3	0	0			0.0154 5	0.0894	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Waianakarua at Browns	Nitrite/Nitrate Nitrogen	56	6	0	0			0.25	0.527	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Waianakarua at South Branch SH1	Nitrite/Nitrate Nitrogen	20	3	0	0			0.35	0.605	No censored - no imputation required	No censored - no imputation required	A	A	FALSE
Waiareka Creek at Taipo Road	Nitrite/Nitrate Nitrogen	54	6	2	0	0		0.61	2	Imputed	No censored - no imputation required	A	B	TRUE
Waikouaiti at Confluence d/s	Nitrite/Nitrate Nitrogen	36	4	0	0			0.0095	0.336	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Waipahi at Cairns Peak	Nitrite/Nitrate Nitrogen	57	6	0	0			0.73	1.649	No censored - no imputation required	No censored - no imputation required	A	B	TRUE
Waipahi at Waipahi	Nitrite/Nitrate Nitrogen	57	6	1	0	0		1.17	2.565	Imputed	No censored - no imputation required	B	B	TRUE
Waipori at Waipori Falls Reserve	Nitrite/Nitrate Nitrogen	59	6	3	0	0		0.02	0.1022	Imputed	No censored - no imputation required	A	A	TRUE
Wairuna at Millar Road	Nitrite/Nitrate Nitrogen	57	6	1	0	0		1.3	5.555	Imputed	No censored - no imputation required	B	C	TRUE
Waitahuna at Tweeds Bridge	Nitrite/Nitrate Nitrogen	57	6	0	0			0.159	1.2545	No censored - no imputation required	No censored - no imputation required	A	A	TRUE
Waitati at Mt Cargill Road	Nitrite/Nitrate Nitrogen	57	6	5	0	0		0.042	0.4095	Imputed	No censored - no imputation required	A	A	TRUE
Waiwera at Maws Farm	Nitrite/Nitrate Nitrogen	59	6	1	0	0		0.89	2.61	Imputed	No censored - no imputation required	A	B	TRUE
Welcome Creek at Steward Road	Nitrite/Nitrate Nitrogen	30	4	0	0			1.525	3.5	No censored - no imputation required	No censored - no imputation required	B	B	TRUE
Whare Creek at Whare Flat Road	Nitrite/Nitrate Nitrogen	22	3	0	0			0.0365	0.087	No censored - no imputation required	No censored - no imputation required	A	A	FALSE

Table 8 Clarity

sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Median*	*Median_Clar*	*ImputedLower*	*ImputedUpper*	*Sed_class*	*NOFband*	*nOK*
12 Mile Creek at Glenorchy Queenstown Road	Turbidity [Turbidity (X)]	20	3	0	0			0.3	7.979377645	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
25 Mile Creek at Glenorchy Queenstown Road	Turbidity [Turbidity (X)]	20	3	0	0			0.35	7.141136445	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
3 OClock Stream at Hindon	Turbidity [Turbidity (X)]	37	4	0	0			0.85	3.769768634	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
3 OClock Stream at Hindon	Turbidity [Turbidity (X)]	37	4	0	0			0.85	3.769768634	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Akatore Creek at Akatore Creek Road	Turbidity [Turbidity (X)]	20	2	0	0			1.135	3.061253557	No censored - no imputation required	No censored - no imputation required	2	A	FALSE
Arrow at Morven Ferry Road	Turbidity [Turbidity (X)]	22	3	0	0			1.41	2.618536078	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Awamoko at SH83	Turbidity [Turbidity (X)]	54	6	0	0			0.825	3.851673629	No censored - no imputation required	No censored - no imputation required	2	A	TRUE
Bannockburn at Lake Dunstan	Turbidity [Turbidity (X)]	58	6	0	0			1.02	3.306010278	No censored - no imputation required	No censored - no imputation required	3	A	TRUE
Benger burn at SH8	Turbidity [Turbidity (X)]	35	4	0	0			2	2.035891955	No censored - no imputation required	No censored - no imputation required	3	D	FALSE
Blackcleugh Burn at Rongahere Road	Turbidity [Turbidity (X)]	19	3	0	0			0.97	3.427841043	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Buckler Burn at Glenorchy Queenstown Road	Turbidity [Turbidity (X)]	20	3	0	0			4.05	1.224979177	No censored - no imputation required	No censored - no imputation required	1	D	FALSE
Bullock Creek at Dunmore Street Footbridge	Turbidity [Turbidity (X)]	21	3	0	0			0.31	7.793201466	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Cardrona at Mt Barker	Turbidity [Turbidity (X)]	58	6	0	0			1.345	2.709045369	No censored - no imputation required	No censored - no imputation required	3	B	TRUE
Catlins at Houipapa	Turbidity [Turbidity (X)]	59	6	0	0			3.2	1.451404077	No censored - no imputation required	No censored - no imputation required	4	D	TRUE
Contour Channel at No. 4 Bridge	Turbidity [Turbidity (X)]	59	6	0	0			3	1.520439066	No censored - no imputation required	No censored - no imputation required	1	C	TRUE
Craig Burn at SH6	Turbidity [Turbidity (X)]	19	3	0	0			0.67	4.474272855	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Crookston Burn at Kelso Road	Turbidity [Turbidity (X)]	57	6	0	0			4.7	1.100489404	No censored - no imputation required	No censored - no imputation required	1	D	TRUE
Dart at The Hillocks	Turbidity [Turbidity (X)]	55	6	0	0			17	0.436086959	No censored - no imputation required	No censored - no imputation required	3	D	TRUE
Deep Stream at SH87	Turbidity [Turbidity (X)]	58	6	0	0			0.755	4.105579989	No censored - no imputation required	No censored - no imputation required	3	A	TRUE
Dundas Creek at Mill Flat	Turbidity [Turbidity (X)]	19	3	0	0			0.17	12.0108322	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Dunstan Creek at Beattie Road	Turbidity [Turbidity (X)]	59	6	1	0	0.1		0.8	3.937962104	Imputed	No censored - no imputation required	3	A	TRUE
Fraser at Old Man Range	Turbidity [Turbidity (X)]	22	3	0	0			0.655	4.547812878	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Greenstone at Greenstone Station Road	Turbidity [Turbidity (X)]	19	3	0	0			0.31	7.793201466	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Hawea at Camphill Bridge	Turbidity [Turbidity (X)]	58	6	0	0			0.38	6.730574465	No censored - no imputation required	No censored - no imputation required	1	A	TRUE
Hayes Creek at SH6	Turbidity [Turbidity (X)]	10	1	0	0			0.86	3.738156145	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Heriot Burn at Park Hill Road	Turbidity [Turbidity (X)]	57	6	0	0			5.2	1.023231534	No censored - no imputation required	No censored - no imputation required	1	D	TRUE
Hills Creek at SH85	Turbidity [Turbidity (X)]	22	3	0	0			1.32	2.745889729	No censored - no imputation required	No censored - no imputation required	3	B	FALSE
Horn Creek at Queenstown Bay	Turbidity [Turbidity (X)]	22	3	0	0			1.84	2.161859624	No censored - no imputation required	No censored - no imputation required	3	D	FALSE
Invincible Creek at Rees Valley Road	Turbidity [Turbidity (X)]	19	3	0	0			2.1	1.965614879	No censored - no imputation required	No censored - no imputation required	3	D	FALSE

Kaikorai Stream at Brighton Road	Turbidity [Turbidity (X)]	58	6	0	0			3.05	1.502451421	No censored - no imputation required	No censored - no imputation required	2	A	TRUE
Kakaho Creek at SH1	Turbidity [Turbidity (X)]	18	3	0	0			2.7	1.640266491	No censored - no imputation required	No censored - no imputation required	2	A	FALSE
Kakanui at Clifton Falls Bridge	Turbidity [Turbidity (X)]	55	6	0	0			0.4	6.48654043	No censored - no imputation required	No censored - no imputation required	3	A	TRUE
Kakanui at McCones	Turbidity [Turbidity (X)]	55	6	0	0			0.6	4.844259759	No censored - no imputation required	No censored - no imputation required	3	A	TRUE
Kauru at Ewings	Turbidity [Turbidity (X)]	55	6	0	0			0.4	6.48654043	No censored - no imputation required	No censored - no imputation required	3	A	TRUE
Kye Burn at SH85 Bridge	Turbidity [Turbidity (X)]	59	6	0	0			1.03	3.282868761	No censored - no imputation required	No censored - no imputation required	3	A	TRUE
Leaping Burn at Wanaka Mt Aspiring Road	Turbidity [Turbidity (X)]	21	3	0	0			0.4	6.48654043	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Leith at Dundas Street Bridge	Turbidity [Turbidity (X)]	57	6	0	0			2.1	1.965614879	No censored - no imputation required	No censored - no imputation required	1	A	TRUE
Lindis at Ardgour Road	Turbidity [Turbidity (X)]	58	6	0	0			1.48	2.5287616	No censored - no imputation required	No censored - no imputation required	3	C	TRUE
Lindis at Lindis Peak	Turbidity [Turbidity (X)]	58	6	0	0			1.85	2.153439518	No censored - no imputation required	No censored - no imputation required	3	D	TRUE
Lindsays Creek at North Road Bridge	Turbidity [Turbidity (X)]	58	6	0	0			2.7	1.640266491	No censored - no imputation required	No censored - no imputation required	1	B	TRUE
Lovells Creek at Station Road	Turbidity [Turbidity (X)]	58	6	0	0			3.1	1.484963926	No censored - no imputation required	No censored - no imputation required	1	C	TRUE
Luggate Creek at SH6 Bridge	Turbidity [Turbidity (X)]	58	6	0	0			1.1	3.131075859	No censored - no imputation required	No censored - no imputation required	1	A	TRUE
Maclennan at Kahuiku School Road	Turbidity [Turbidity (X)]	22	3	0	0			1.795	2.200745979	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Makarora at Makarora	Turbidity [Turbidity (X)]	21	3	0	0			1.08	3.172716149	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Manuherikia at Blackstone Hill	Turbidity [Turbidity (X)]	59	6	0	0			2.9	1.558008292	No censored - no imputation required	No censored - no imputation required	3	D	TRUE
Manuherikia at Galloway	Turbidity [Turbidity (X)]	59	6	0	0			2.6	1.6854486	No censored - no imputation required	No censored - no imputation required	3	D	TRUE
Manuherikia at Ophir	Turbidity [Turbidity (X)]	59	6	0	0			2.9	1.558008292	No censored - no imputation required	No censored - no imputation required	3	D	TRUE
Manuherikia downstream of Fork	Turbidity [Turbidity (X)]	33	4	0	0			0.26	8.845359989	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Meggat Burn at Berwick Road	Turbidity [Turbidity (X)]	22	3	0	0			2.85	1.577640417	No censored - no imputation required	No censored - no imputation required	3	D	FALSE
Mill Creek at Fish Trap	Turbidity [Turbidity (X)]	59	6	0	0			4	1.235984798	No censored - no imputation required	No censored - no imputation required	3	D	TRUE
Motatapu at Wanaka Mt Aspiring Road	Turbidity [Turbidity (X)]	21	3	0	0			0.73	4.206335059	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Nenthorn at Mt Stoker Road	Turbidity [Turbidity (X)]	58	6	0	0			1.035	3.271442348	No censored - no imputation required	No censored - no imputation required	3	A	TRUE
Nevis at Wentworth Station	Turbidity [Turbidity (X)]	58	6	0	0			0.865	3.72258588	No censored - no imputation required	No censored - no imputation required	1	A	TRUE
Oamaru Creek at SH1	Turbidity [Turbidity (X)]	21	3	0	0			2.9	1.558008292	No censored - no imputation required	No censored - no imputation required	2	A	FALSE
Owaka at Katea Road	Turbidity [Turbidity (X)]	56	6	0	0			2.2	1.900868146	No censored - no imputation required	No censored - no imputation required	4	D	TRUE
Owhiro Stream at Riverside Rd	Turbidity [Turbidity (X)]	37	4	0	0			18.3	0.413553346	No censored - no imputation required	No censored - no imputation required	1	D	FALSE
Ox Burn at Rees Valley Road	Turbidity [Turbidity (X)]	19	3	0	0			4.1	1.214204802	No censored - no imputation required	No censored - no imputation required	3	D	FALSE
Pleasant at Patterson Road Ford	Turbidity [Turbidity (X)]	21	3	0	0			3.6	1.33339408	No censored - no imputation required	No censored - no imputation required	2	A	FALSE
Pomahaka at Burkes Ford	Turbidity [Turbidity (X)]	57	6	0	0			3.8	1.282484525	No censored - no imputation required	No censored - no imputation required	1	D	TRUE
Pomahaka at Glenken	Turbidity [Turbidity (X)]	57	6	0	0			1.77	2.223082456	No censored - no imputation required	No censored - no imputation required	3	C	TRUE

Poolburn at Cob Cottage	Turbidity [Turbidity (X)]	33	4	0	0			2.5	1.733722226	No censored - no imputation required	No censored - no imputation required	3	D	FALSE
Precipice Creek at Glenorchy Paradise Road	Turbidity [Turbidity (X)]	20	3	0	0			0.615	4.758896283	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Quartz Creek at Maungawera Valley Road	Turbidity [Turbidity (X)]	17	3	0	0			0.28	8.385762158	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Quartz Reef Creek at SH8	Turbidity [Turbidity (X)]	22	3	0	0			2.25	1.870358726	No censored - no imputation required	No censored - no imputation required	3	D	FALSE
Rees at Glenorchy Paradise Road Bridge	Turbidity [Turbidity (X)]	20	3	0	0			8.55	0.71528764	No censored - no imputation required	No censored - no imputation required	1	D	FALSE
Roaring Meg at SH6	Turbidity [Turbidity (X)]	22	3	0	0			0.875	3.691905065	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Scott Creek at Routeburn Road	Turbidity [Turbidity (X)]	20	3	0	0			0.4525	5.935412992	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Shag at Craig Road	Turbidity [Turbidity (X)]	57	6	0	0			0.66	4.522980231	No censored - no imputation required	No censored - no imputation required	3	A	TRUE
Shag at Goodwood Pump	Turbidity [Turbidity (X)]	57	6	1	0	0.1		0.63	4.677040466	Imputed	No censored - no imputation required	1	A	TRUE
Silverstream at Taieri Depot	Turbidity [Turbidity (X)]	59	6	0	0			1.14	3.051580494	No censored - no imputation required	No censored - no imputation required	1	A	TRUE
Silverstream at Three Mile Hill Road	Turbidity [Turbidity (X)]	22	3	0	0			0.56	5.090974757	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Sutton Stream at SH87	Turbidity [Turbidity (X)]	31	3	0	0			1.03	3.282868761	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Tahakopa at Tahakopa	Turbidity [Turbidity (X)]	22	3	0	0			4	1.235984798	No censored - no imputation required	No censored - no imputation required	4	D	FALSE
Taieri at Allanton Bridge	Turbidity [Turbidity (X)]	58	6	0	0			4.55	1.126492015	No censored - no imputation required	No censored - no imputation required	3	D	TRUE
Taieri at Creamery Road bridge	Turbidity [Turbidity (X)]	37	4	0	0			2.3	1.84099361	No censored - no imputation required	No censored - no imputation required	3	D	FALSE
Taieri at Linnburn Runs Road	Turbidity [Turbidity (X)]	59	6	0	0			1.35	2.701817497	No censored - no imputation required	No censored - no imputation required	3	B	TRUE
Taieri at Outram	Turbidity [Turbidity (X)]	59	6	0	0			2.8	1.597874038	No censored - no imputation required	No censored - no imputation required	3	D	TRUE
Taieri at Patearoa Maniototo Road	Turbidity [Turbidity (X)]	37	4	0	0			2.2	1.900868146	No censored - no imputation required	No censored - no imputation required	3	D	FALSE
Taieri at Puketoi	Turbidity [Turbidity (X)]	37	4	0	0			1.9	2.11248547	No censored - no imputation required	No censored - no imputation required	3	D	FALSE
Taieri at Stonehenge	Turbidity [Turbidity (X)]	59	6	0	0			1.25	2.855756104	No censored - no imputation required	No censored - no imputation required	3	B	TRUE
Taieri at Sutton	Turbidity [Turbidity (X)]	57	6	0	0			3.9	1.258721951	No censored - no imputation required	No censored - no imputation required	1	D	TRUE
Taieri at Tiroiti	Turbidity [Turbidity (X)]	59	6	0	0			3.6	1.33339408	No censored - no imputation required	No censored - no imputation required	3	D	TRUE
Taieri at Waipiata	Turbidity [Turbidity (X)]	59	6	0	0			2.8	1.597874038	No censored - no imputation required	No censored - no imputation required	3	D	TRUE
Teviot at Bridge Huts Road	Turbidity [Turbidity (X)]	22	3	0	0			4.3	1.173272888	No censored - no imputation required	No censored - no imputation required	3	D	FALSE
The Neck Creek at Meads Road	Turbidity [Turbidity (X)]	21	3	0	0			0.17	12.0108322	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Thomsons Creek at SH85	Turbidity [Turbidity (X)]	58	6	0	0			4.85	1.075876128	No censored - no imputation required	No censored - no imputation required	3	D	TRUE
Timaru at Peter Muir Bridge	Turbidity [Turbidity (X)]	20	3	0	0			4.2	1.193319765	No censored - no imputation required	No censored - no imputation required	1	D	FALSE
Tokomairiro at Blackbridge	Turbidity [Turbidity (X)]	57	6	0	0			5.2	1.023231534	No censored - no imputation required	No censored - no imputation required	1	D	TRUE
Tokomairiro at Lisnatunny	Turbidity [Turbidity (X)]	35	4	0	0			3.6	1.33339408	No censored - no imputation required	No censored - no imputation required	2	A	FALSE
Tokomairiro at West Branch Bridge	Turbidity [Turbidity (X)]	57	6	0	0			2.6	1.6854486	No censored - no imputation required	No censored - no imputation required	1	B	TRUE
Trotters Creek at Mathesons	Turbidity [Turbidity (X)]	57	6	0	0			1.7	2.288616895	No censored - no imputation required	No censored - no imputation required	2	A	TRUE

Tuapeka at 700m u/s bridge	Turbidity [Turbidity (X)]	52	5	0	0			3.5	1.360715498	No censored - no imputation required	No censored - no imputation required	1	C	FALSE
Turner Creek at Kinloch Road	Turbidity [Turbidity (X)]	20	3	0	0			0.28	8.385762158	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Upper Cardrona at Tuohys Gully Road	Turbidity [Turbidity (X)]	21	3	0	0			1.82	2.178938255	No censored - no imputation required	No censored - no imputation required	3	D	FALSE
Upper Pomahaka at Aitchison Runs Road	Turbidity [Turbidity (X)]	22	3	0	0			1.045	3.248871946	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Upper Shag at SH85 Culvert	Turbidity [Turbidity (X)]	22	3	0	0			0.28	8.385762158	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Waianakarua at Browns	Turbidity [Turbidity (X)]	56	6	0	0			0.485	5.646278183	No censored - no imputation required	No censored - no imputation required	3	A	TRUE
Waianakarua at South Branch SH1	Turbidity [Turbidity (X)]	20	3	0	0			0.355	7.068575627	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Waiareka Creek at Taipo Road	Turbidity [Turbidity (X)]	54	6	0	0			1.96	2.065722366	No censored - no imputation required	No censored - no imputation required	2	A	TRUE
Waikouaiti at Confluence d/s	Turbidity [Turbidity (X)]	36	4	0	0			0.86	3.738156145	No censored - no imputation required	No censored - no imputation required	3	A	FALSE
Waipahi at Cairns Peak	Turbidity [Turbidity (X)]	57	6	0	0			4.2	1.193319765	No censored - no imputation required	No censored - no imputation required	2	A	TRUE
Waipahi at Waipahi	Turbidity [Turbidity (X)]	57	6	0	0			2.4	1.785435761	No censored - no imputation required	No censored - no imputation required	4	D	TRUE
Waipori at Waipori Falls Reserve	Turbidity [Turbidity (X)]	59	6	0	0			1.8	2.196342773	No censored - no imputation required	No censored - no imputation required	1	A	TRUE
Wairuna at Millar Road	Turbidity [Turbidity (X)]	57	6	0	0			8.2	0.73714063	No censored - no imputation required	No censored - no imputation required	1	D	TRUE
Waitahuna at Tweeds Bridge	Turbidity [Turbidity (X)]	57	6	0	0			3.9	1.258721951	No censored - no imputation required	No censored - no imputation required	1	D	TRUE
Waitati at Mt Cargill Road	Turbidity [Turbidity (X)]	57	6	0	0			1.6	2.390726721	No censored - no imputation required	No censored - no imputation required	1	A	TRUE
Waiwera at Maws Farm	Turbidity [Turbidity (X)]	59	6	0	0			2.7	1.640266491	No censored - no imputation required	No censored - no imputation required	2	A	TRUE
Welcome Creek at Steward Road	Turbidity [Turbidity (X)]	28	4	0	0			0.6	4.844259759	No censored - no imputation required	No censored - no imputation required	1	A	FALSE
Whare Creek at Whare Flat Road	Turbidity [Turbidity (X)]	22	3	0	0			0.755	4.105579989	No censored - no imputation required	No censored - no imputation required	2	A	FALSE

Table 9 E.coli

sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*G260*	*G540*	*Median*	*Q95*	*ImputedLower*	*ImputedUpper*	*NOFG260*	*NOFG540*	*NOFmed*	*NOFp95*	*NOFwim*	*nOK*
12 Mile Creek at Glenorchy Queenstown Road	E-Coli MPN	20	3	2	0	1		0	0	4	52.5	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
25 Mile Creek at Glenorchy Queenstown Road	E-Coli MPN	20	3	0	0			0	0	15	33.5	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	FALSE
3 OClock Stream at Hindon	E-Coli MPN	37	4	3	0	1.7		0.027027	0.027027	15	201	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Akatore Creek at Akatore Creek Road	E-Coli MPN	20	2	0	0			0.25	0.2	166	3780	No censored - no imputation required	No censored - no imputation required	B	C	D	D	D	FALSE
Arrow at Morven Ferry Road	E-Coli MPN	22	3	1	0	1		0.045455	0	9	316.8	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Awamoko at SH83	E-Coli MPN	55	6	0	0			0.418182	0.218182	160	8272.5	No censored - no imputation required	No censored - no imputation required	D	D	D	D	D	TRUE
Bannockburn at Lake Dunstan	E-Coli MPN	58	6	6	0	1.7		0.051724	0	29	256.6	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Benger burn at SH8	E-Coli MPN	34	4	0	0			0.264706	0.117647	105	10800	No censored - no imputation required	No censored - no imputation required	B	C	A	D	D	FALSE
Blackcleugh Burn at Rongahere Road	E-Coli MPN	19	3	1	0	1		0	0	10	41.7	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Buckler Burn at Glenorchy Queenstown Road	E-Coli MPN	19	3	5	0	10.5		0.052632	0.052632	5	318.05	Imputed	No censored - no imputation required	A	B	A	A	B	FALSE
Bullock Creek at Dunmore Street Footbridge	E-Coli MPN	20	3	0	0			0.35	0.25	162.5	1251.5	No censored - no imputation required	No censored - no imputation required	D	D	D	D	D	FALSE
Cardrona at Mt Barker	E-Coli MPN	58	6	3	0	1.7		0.068966	0.034483	44	392.6	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Catlins at Houipapa	E-Coli MPN	59	6	0	0			0.186441	0.101695	120	1057	No censored - no imputation required	No censored - no imputation required	A	C	A	C	C	TRUE
Contour Channel at No. 4 Bridge	E-Coli MPN	59	6	0	0			0.40678	0.288136	167	1610	No censored - no imputation required	No censored - no imputation required	D	D	D	D	D	TRUE
Craig Burn at SH6	E-Coli MPN	17	3	0	0			0	0	19	139.975	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	FALSE
Crookston Burn at Kelso Road	E-Coli MPN	55	6	0	0			0.763636	0.454545	490	4150	No censored - no imputation required	No censored - no imputation required	E	E	E	D	E	TRUE
Dart at The Hillocks	E-Coli MPN	54	6	17	0	10		0.148148	0.055556	4.5	617.6	Imputed	No censored - no imputation required	A	B	A	B	B	TRUE
Deep Stream at SH87	E-Coli MPN	58	6	0	0			0.034483	0.017241	51	236	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	TRUE
Dundas Creek at Mill Flat	E-Coli MPN	18	3	8	0	1.5		0	0	1.5	13	Not Imputed - model fit failed	No censored - no imputation required	A	A	A	A	A	FALSE
Dunstan Creek at Beattie Road	E-Coli MPN	59	6	1	0	1.6		0.067797	0.067797	38	1024.15	Imputed	No censored - no imputation required	A	B	A	C	C	TRUE
Fraser at Old Man Range	E-Coli MPN	22	3	5	0	1		0	0	3	29.6	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Greenstone at Greenstone Station Road	E-Coli MPN	18	3	0	0			0	0	21	120	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	FALSE
Hawea at Camphill Bridge	E-Coli MPN	57	6	20	0	3		0.017544	0	1.6	34.85	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Hayes Creek at SH6	E-Coli MPN	10	1	0	0			0	0	15	150	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	FALSE
Heriot Burn at Park Hill Road	E-Coli MPN	56	6	0	0			0.660714	0.446429	455	2354	No censored - no imputation required	No censored - no imputation required	E	E	E	D	E	TRUE
Hills Creek at SH85	E-Coli MPN	22	3	0	0			0.272727	0.136364	148	13559.6	No censored - no imputation required	No censored - no imputation required	B	C	D	D	D	FALSE
Horn Creek at Queenstown Bay	E-Coli MPN	22	3	0	0			0.227273	0.045455	99.5	540.2	No censored - no imputation required	No censored - no imputation required	B	A	A	B	B	FALSE
Invincible Creek at Rees Valley Road	E-Coli MPN	18	3	6	0	1		0	0	1	5.4	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE

Kaikorai Stream at Brighton Road	E-Coli MPN	56	6	0	0			0.803571	0.482143	525	3906	No censored - no imputation required	No censored - no imputation required	E	E	E	D	E	TRUE
Kakaho Creek at SH1	E-Coli MPN	18	3	0	0			0.444444	0.277778	183	157520	No censored - no imputation required	No censored - no imputation required	D	D	D	D	D	FALSE
Kakanui at Clifton Falls Bridge	E-Coli MPN	55	6	1	0	1.6		0.254545	0.163636	124	1769.5	Imputed	No censored - no imputation required	B	C	A	D	D	TRUE
Kakanui at McCones	E-Coli MPN	55	6	1	0	1.6		0.218182	0.109091	93	1101.5	Imputed	No censored - no imputation required	B	C	A	C	C	TRUE
Kauru at Ewings	E-Coli MPN	55	6	2	0	1.6		0.181818	0.072727	79.1	727	Imputed	No censored - no imputation required	A	B	A	B	B	TRUE
Kye Burn at SH85 Bridge	E-Coli MPN	59	6	2	0	1.6		0.050847	0.016949	43	267.5	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Leaping Burn at Wanaka Mt Aspiring Road	E-Coli MPN	20	3	1	0	1		0.1	0.05	29.75	1157	Imputed	No censored - no imputation required	A	B	A	C	C	FALSE
Leith at Dundas Street Bridge	E-Coli MPN	56	6	0	0			0.75	0.5	524	3824	No censored - no imputation required	No censored - no imputation required	E	E	E	D	E	TRUE
Lindis at Ardgour Road	E-Coli MPN	57	6	1	0	1.7		0.087719	0.035088	33	478.65	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Lindis at Lindis Peak	E-Coli MPN	57	6	6	0	10		0.087719	0.035088	25	496.75	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Lindsays Creek at North Road Bridge	E-Coli MPN	57	6	0	0			0.684211	0.403509	387	2800	No censored - no imputation required	No censored - no imputation required	E	E	E	D	E	TRUE
Lovells Creek at Station Road	E-Coli MPN	58	6	0	0			0.482759	0.241379	245	1711.6	No censored - no imputation required	No censored - no imputation required	D	D	D	D	D	TRUE
Luggate Creek at SH6 Bridge	E-Coli MPN	58	6	2	0	1.6		0.086207	0.034483	27	296.2	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Maclennan at Kahuiku School Road	E-Coli MPN	22	3	1	0	1		0.181818	0.181818	54	777	Imputed	No censored - no imputation required	A	C	A	B	C	FALSE
Makarora at Makarora	E-Coli MPN	20	3	0	0			0.05	0.05	16.5	2239.5	No censored - no imputation required	No censored - no imputation required	A	B	A	D	D	FALSE
Manuherikia at Blackstone Hill	E-Coli MPN	59	6	2	0	10		0.118644	0.050847	42	726.15	Imputed	No censored - no imputation required	A	B	A	B	B	TRUE
Manuherikia at Galloway	E-Coli MPN	59	6	0	0			0.186441	0.101695	48	1916	No censored - no imputation required	No censored - no imputation required	A	C	A	D	D	TRUE
Manuherikia at Ophir	E-Coli MPN	59	6	0	0			0.288136	0.169492	124	3280	No censored - no imputation required	No censored - no imputation required	B	C	A	D	D	TRUE
Manuherikia downstream of Fork	E-Coli MPN	33	4	6	0	7.5		0.030303	0	6	202.95	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Meggat Burn at Berwick Road	E-Coli MPN	22	3	0	0			0.318182	0.090909	163.5	1335.8	No censored - no imputation required	No censored - no imputation required	C	B	D	D	D	FALSE
Mill Creek at Fish Trap	E-Coli MPN	58	6	1	0	10		0.206897	0.068966	100	698.2	Imputed	No censored - no imputation required	B	B	A	B	B	TRUE
Motatapu at Wanaka Mt Aspiring Road	E-Coli MPN	20	3	1	0	1		0.05	0.05	25.875	510.75	Imputed	No censored - no imputation required	A	B	A	A	B	FALSE
Nenthorn at Mt Stoker Road	E-Coli MPN	58	6	2	0	1.7		0.086207	0	34.5	384.2	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Nevis at Wentworth Station	E-Coli MPN	57	6	10	0	10		0	0	5	131.3	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Oamaru Creek at SH1	E-Coli MPN	21	3	0	0			0.523811	0.380952	291	40755	No censored - no imputation required	No censored - no imputation required	E	E	E	D	E	FALSE
Owaka at Katea Road	E-Coli MPN	55	6	0	0			0.4	0.218182	180	2513.25	No censored - no imputation required	No censored - no imputation required	D	D	D	D	D	TRUE
Owhiro Stream at Riverside Rd	E-Coli MPN	37	4	0	0			0.702703	0.486486	530	3490	No censored - no imputation required	No censored - no imputation required	E	E	E	D	E	FALSE
Ox Burn at Rees Valley Road	E-Coli MPN	18	3	2	0	1		0	0	4.5	18.6	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Pleasant at Patterson Road Ford	E-Coli MPN	21	3	0	0			0.238095	0.142857	91	39630	No censored - no imputation required	No censored - no imputation required	B	C	A	D	D	FALSE
Pomahaka at Burkes Ford	E-Coli MPN	56	6	0	0			0.25	0.125	97.5	1600	No censored - no imputation required	No censored - no imputation required	B	C	A	D	D	TRUE
Pomahaka at Glenken	E-Coli MPN	56	6	0	0			0.339286	0.089286	162.5	1580	No censored - no imputation required	No censored - no imputation required	C	B	D	D	D	TRUE

Poolburn at Cob Cottage	E-Coli MPN	33	4	0	0			0.333333	0.212121	111	4127.45	No censored - no imputation required	No censored - no imputation required	C	D	A	D	D	FALSE
Precipice Creek at Glenorchy Paradise Road	E-Coli MPN	19	3	1	0	1		0.052632	0	7	182.625	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Quartz Creek at Maungawera Valley Road	E-Coli MPN	15	3	0	0			0.133333	0.066667	46	3691.25	No censored - no imputation required	No censored - no imputation required	A	B	A	D	D	FALSE
Quartz Reef Creek at SH8	E-Coli MPN	22	3	0	0			0	0	43	230.6	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	FALSE
Rees at Glenorchy Paradise Road Bridge	E-Coli MPN	19	3	2	0	1		0.052632	0.052632	12	9887.85	Imputed	No censored - no imputation required	A	B	A	D	D	FALSE
Roaring Meg at SH6	E-Coli MPN	22	3	0	0			0	0	10	106.4	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	FALSE
Scott Creek at Routeburn Road	E-Coli MPN	19	3	2	0	1		0.052632	0	7	236.85	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Shag at Craig Road	E-Coli MPN	56	6	1	0	1.6		0.125	0.035714	44.5	488	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Shag at Goodwood Pump	E-Coli MPN	55	6	2	0	100		0.163636	0.036364	66	491.25	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Silverstream at Taieri Depot	E-Coli MPN	59	6	0	0			0.288136	0.220339	110	2355	No censored - no imputation required	No censored - no imputation required	B	D	A	D	D	TRUE
Silverstream at Three Mile Hill Road	E-Coli MPN	22	3	1	0	1		0.045455	0.045455	26	312.6	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Sutton Stream at SH87	E-Coli MPN	31	3	0	0			0.419355	0.129032	230	857.05	No censored - no imputation required	No censored - no imputation required	D	C	D	B	D	FALSE
Tahakopa at Tahakopa	E-Coli MPN	21	3	0	0			0.380952	0.238095	166	4045.5	No censored - no imputation required	No censored - no imputation required	D	D	D	D	D	FALSE
Taieri at Allanton Bridge	E-Coli MPN	58	6	0	0			0.224138	0.137931	100.5	1852	No censored - no imputation required	No censored - no imputation required	B	C	A	D	D	TRUE
Taieri at Creamery Road bridge	E-Coli MPN	37	4	0	0			0.162162	0.054054	94	542.5	No censored - no imputation required	No censored - no imputation required	A	B	A	B	B	FALSE
Taieri at Linnburn Runs Road	E-Coli MPN	59	6	0	0			0.186441	0.067797	50	825	No censored - no imputation required	No censored - no imputation required	A	B	A	B	B	TRUE
Taieri at Outram	E-Coli MPN	59	6	0	0			0.084746	0.033898	40	456.5	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	TRUE
Taieri at Patearoa Maniototo Road	E-Coli MPN	37	4	0	0			0.162162	0.081081	110	754.5	No censored - no imputation required	No censored - no imputation required	A	B	A	B	B	FALSE
Taieri at Puketoi	E-Coli MPN	37	4	1	0	10		0.108108	0	46	306.5	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Taieri at Stonehenge	E-Coli MPN	59	6	0	0			0.050847	0.033898	39	282	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	TRUE
Taieri at Sutton	E-Coli MPN	57	6	0	0			0.157895	0.052632	110	697.3	No censored - no imputation required	No censored - no imputation required	A	B	A	B	B	TRUE
Taieri at Tiroiti	E-Coli MPN	59	6	0	0			0.084746	0	78	333.75	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	TRUE
Taieri at Waipiata	E-Coli MPN	59	6	0	0			0.101695	0.050847	90	672.65	No censored - no imputation required	No censored - no imputation required	A	B	A	B	B	TRUE
Teviot at Bridge Huts Road	E-Coli MPN	22	3	0	0			0.136364	0.090909	27.5	1487.6	No censored - no imputation required	No censored - no imputation required	A	B	A	D	D	FALSE
The Neck Creek at Meads Road	E-Coli MPN	20	3	2	0	1		0.05	0	4	268	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Thomsons Creek at SH85	E-Coli MPN	58	6	0	0			0.517241	0.37931	318.25	3490	No censored - no imputation required	No censored - no imputation required	E	E	E	D	E	TRUE
Timaru at Peter Muir Bridge	E-Coli MPN	19	3	3	0	1		0	0	3	12.2	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Tokomairiro at Blackbridge	E-Coli MPN	57	6	0	0			0.789474	0.666667	687	8895	No censored - no imputation required	No censored - no imputation required	E	E	E	D	E	TRUE
Tokomairiro at Lisnatunny	E-Coli MPN	35	4	1	0	10		0.371429	0.171429	190	977.5	Imputed	No censored - no imputation required	D	C	D	B	D	FALSE
Tokomairiro at West Branch Bridge	E-Coli MPN	57	6	1	0	1		0.368421	0.280702	160	3131.5	Imputed	No censored - no imputation required	D	D	D	D	D	TRUE
Trotters Creek at Mathesons	E-Coli MPN	55	6	1	0	1.6		0.236364	0.109091	110	899.75	Imputed	No censored - no imputation required	B	C	A	B	C	TRUE

Tuapeka at 700m u/s bridge	E-Coli MPN	52	5	0	0			0.461538	0.25	238	3618.6	No censored - no imputation required	No censored - no imputation required	D	D	D	D	D	FALSE
Turner Creek at Kinloch Road	E-Coli MPN	19	3	3	0	1		0	0	4	42.4	Imputed	No censored - no imputation required	A	A	A	A	A	FALSE
Upper Cardrona at Tuohys Gully Road	E-Coli MPN	21	3	0	0			0.095238	0.047619	51	1257.3	No censored - no imputation required	No censored - no imputation required	A	A	A	D	D	FALSE
Upper Pomahaka at Aitchison Runs Road	E-Coli MPN	22	3	0	1		2420	0.136364	0.090909	80	1477	No censored - no imputation required	Increased by 10%	A	B	A	D	D	FALSE
Upper Shag at SH85 Culvert	E-Coli MPN	22	3	0	0			0.045455	0	29	264.8	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	FALSE
Waianakarua at Browns	E-Coli MPN	54	6	4	0	10		0.166667	0.074074	78	1280	Imputed	No censored - no imputation required	A	B	A	D	D	TRUE
Waianakarua at South Branch SH1	E-Coli MPN	20	3	0	0			0.2	0.15	102	3681.5	No censored - no imputation required	No censored - no imputation required	B	C	A	D	D	FALSE
Waiareka Creek at Taipo Road	E-Coli MPN	54	6	0	0			0.462963	0.240741	170	1214	No censored - no imputation required	No censored - no imputation required	D	D	D	D	D	TRUE
Waikouaiti at Confluence d/s	E-Coli MPN	35	4	0	1		6000	0.114286	0.057143	27	545	No censored - no imputation required	Imputed	A	B	A	B	B	FALSE
Waipahi at Cairns Peak	E-Coli MPN	57	6	0	0			0.368421	0.245614	185	2285	No censored - no imputation required	No censored - no imputation required	D	D	D	D	D	TRUE
Waipahi at Waipahi	E-Coli MPN	57	6	0	0			0.22807	0.070175	120	672.05	No censored - no imputation required	No censored - no imputation required	B	B	A	B	B	TRUE
Waipori at Waipori Falls Reserve	E-Coli MPN	59	6	3	0	1.6		0	0	10	53.55	Imputed	No censored - no imputation required	A	A	A	A	A	TRUE
Wairuna at Millar Road	E-Coli MPN	57	6	0	0			0.807018	0.473684	517	3722.5	No censored - no imputation required	No censored - no imputation required	E	E	E	D	E	TRUE
Waitahuna at Tweeds Bridge	E-Coli MPN	57	6	0	0			0.631579	0.298246	330	3145	No censored - no imputation required	No censored - no imputation required	E	D	E	D	E	TRUE
Waitati at Mt Cargill Road	E-Coli MPN	56	6	0	0			0.142857	0.071429	83	696.4	No censored - no imputation required	No censored - no imputation required	A	B	A	B	B	TRUE
Waiwera at Maws Farm	E-Coli MPN	59	6	0	0			0.355932	0.152542	200	1553	No censored - no imputation required	No censored - no imputation required	D	C	D	D	D	TRUE
Welcome Creek at Steward Road	E-Coli MPN	28	4	0	0			0.178571	0.178571	44	2120	No censored - no imputation required	No censored - no imputation required	A	C	A	D	D	FALSE
Whare Creek at Whare Flat Road	E-Coli MPN	22	3	0	0			0	0	8	100	No censored - no imputation required	No censored - no imputation required	A	A	A	A	A	FALSE

Table 14 MCI												
sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Median*	*ImputedLower*	*ImputedUpper*	*NOFband_median*	*nOK*
12 Mile Creek at Glenorchy Queenstown Road	MCI	2	2	0	0			122.59	No censored - no imputation required	No censored - no imputation required	B	FALSE
25 Mile Creek at Glenorchy Queenstown Road	MCI	2	2	0	0			111.93	No censored - no imputation required	No censored - no imputation required	B	FALSE
Akatore Creek at Akatore Creek Road	MCI	2	2	0	0			102.565	No censored - no imputation required	No censored - no imputation required	C	FALSE
Arrow at Morven Ferry Road	MCI	2	2	0	0			118.95	No censored - no imputation required	No censored - no imputation required	B	FALSE
Blackcleugh Burn at Rongahere Road	MCI	2	2	0	0			120.11	No censored - no imputation required	No censored - no imputation required	B	FALSE
Bullock Creek at Dunmore Street Footbridge	MCI	2	2	0	0			102.58	No censored - no imputation required	No censored - no imputation required	C	FALSE
Cardrona at Mt Barker	MCI	5	5	0	0			104.44	No censored - no imputation required	No censored - no imputation required	C	TRUE
Catlins at Houipapa	MCI	3	3	0	0			107.69	No censored - no imputation required	No censored - no imputation required	C	FALSE
Dart at The Hillocks	MCI	1	1	0	0			117.78	No censored - no imputation required	No censored - no imputation required	B	FALSE
Dunstan Creek at Beattie Road	MCI	5	5	0	0			120	No censored - no imputation required	No censored - no imputation required	B	TRUE
Greenstone at Greenstone Station Road	MCI	2	2	0	0			112.98	No censored - no imputation required	No censored - no imputation required	B	FALSE
Heriot Burn at Park Hill Road	MCI	3	3	0	0			103.2	No censored - no imputation required	No censored - no imputation required	C	FALSE
Kaikorai Stream at Brighton Road	MCI	5	5	0	0			68	No censored - no imputation required	No censored - no imputation required	D	TRUE
Kakanui at Clifton Falls Bridge	MCI	3	3	0	0			104	No censored - no imputation required	No censored - no imputation required	C	FALSE
Kakanui at McCones	MCI	5	5	0	0			89.17	No censored - no imputation required	No censored - no imputation required	D	TRUE
Kauru at Ewings	MCI	3	3	0	0			109.52	No censored - no imputation required	No censored - no imputation required	C	FALSE
Kye Burn at SH85 Bridge	MCI	5	5	0	0			105	No censored - no imputation required	No censored - no imputation required	C	TRUE
Leith at Dundas Street Bridge	MCI	4	3	0	0			90	No censored - no imputation required	No censored - no imputation required	D	FALSE
Lindis at Ardgour Road	MCI	5	5	0	0			101.25	No censored - no imputation required	No censored - no imputation required	C	TRUE
Lindsays Creek at North Road Bridge	MCI	4	3	0	0			89.09	No censored - no imputation required	No censored - no imputation required	D	FALSE
Luggate Creek at SH6 Bridge	MCI	5	5	0	0			106.32	No censored - no imputation required	No censored - no imputation required	C	TRUE
Manuherikia at Blackstone Hill	MCI	5	5	0	0			98.4	No censored - no imputation required	No censored - no imputation required	C	TRUE
Manuherikia at Galloway	MCI	2	2	0	0			108.63	No censored - no imputation required	No censored - no imputation required	C	FALSE
Manuherikia at Ophir	MCI	4	4	0	0			110.265	No censored - no imputation required	No censored - no imputation required	B	FALSE
Mill Creek at Fish Trap	MCI	3	3	0	0			85	No censored - no imputation required	No censored - no imputation required	D	FALSE
Motatapu at Wanaka Mt Aspiring Road	MCI	2	2	0	0			106.86	No censored - no imputation required	No censored - no imputation required	C	FALSE
Oamaru Creek at SH1	MCI	2	2	0	0			82.135	No censored - no imputation required	No censored - no imputation required	D	FALSE
Owaka at Katea Road	MCI	6	5	0	0			92.205	No censored - no imputation required	No censored - no imputation required	C	TRUE
Precipice Creek at Glenorchy Paradise Road	MCI	2	2	0	0			111.455	No censored - no imputation required	No censored - no imputation required	B	FALSE
Shag at Craig Road	MCI	3	3	0	0			94	No censored - no imputation required	No censored - no imputation required	C	FALSE
Shag at Goodwood Pump	MCI	5	5	0	0			83.64	No censored - no imputation required	No censored - no imputation required	D	TRUE
Silverstream at Taieri Depot	MCI	5	5	0	0			90.43	No censored - no imputation required	No censored - no imputation required	C	TRUE
Tahakopa at Tahakopa	MCI	2	2	0	0			107.905	No censored - no imputation required	No censored - no imputation required	C	FALSE
Taieri at Outram	MCI	1	1	0	0			98.1	No censored - no imputation required	No censored - no imputation required	C	FALSE
Taieri at Sutton	MCI	1	1	0	0			97.39	No censored - no imputation required	No censored - no imputation required	C	FALSE
Taieri at Waipiata	MCI	1	1	0	0			97.89	No censored - no imputation required	No censored - no imputation required	C	FALSE
The Neck Creek at Meads Road	MCI	2	2	0	0			119.83	No censored - no imputation required	No censored - no imputation required	B	FALSE
Tokomairiro at West Branch Bridge	MCI	5	5	0	0			107.59	No censored - no imputation required	No censored - no imputation required	C	TRUE
Trotters Creek at Mathesons	MCI	3	3	0	0			82.07	No censored - no imputation required	No censored - no imputation required	D	FALSE
Turner Creek at Kinloch Road	MCI	2	2	0	0			114.54	No censored - no imputation required	No censored - no imputation required	B	FALSE
Upper Pomahaka at Aitchison Runs Road	MCI	2	2	0	0			118.46	No censored - no imputation required	No censored - no imputation required	B	FALSE
Waianakarua at Browns	MCI	5	5	0	0			105.6	No censored - no imputation required	No censored - no imputation required	C	TRUE

Waiareka Creek at Taipo Road	MCI	3	3	0	0			74.44	No censored - no imputation required	No censored - no imputation required	D	FALSE
Waikouaiti at Confluence d/s	MCI	3	3	0	0			92	No censored - no imputation required	No censored - no imputation required	C	FALSE
Waipahi at Cairns Peak	MCI	3	3	0	0			106	No censored - no imputation required	No censored - no imputation required	C	FALSE
Waipahi at Waipahi	MCI	5	5	0	0			89.09	No censored - no imputation required	No censored - no imputation required	D	TRUE
Waipori at Waipori Falls Reserve	MCI	4	3	0	0			95.495	No censored - no imputation required	No censored - no imputation required	C	FALSE
Wairuna at Millar Road	MCI	3	3	0	0			84	No censored - no imputation required	No censored - no imputation required	D	FALSE
Waitahuna at Tweeds Bridge	MCI	5	5	0	0			100	No censored - no imputation required	No censored - no imputation required	C	TRUE
Waiwera at Clutha confluence u/s 1km	MCI	3	3	0	0			84.55	No censored - no imputation required	No censored - no imputation required	D	FALSE

Table 15 APSM												
sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Median*	*ImputedLower*	*ImputedUpper*	*NOFband_median*	*nOK*
12 Mile Creek at Glenorchy Queenstown Road	ASPM	2	2	0	0			0.58	No censored - no imputation required	No censored - no imputation required	B	FALSE
25 Mile Creek at Glenorchy Queenstown Road	ASPM	2	2	0	0			0.435	No censored - no imputation required	No censored - no imputation required	B	FALSE
Akatore Creek at Akatore Creek Road	ASPM	2	2	0	0			0.53	No censored - no imputation required	No censored - no imputation required	B	FALSE
Arrow at Morven Ferry Road	ASPM	2	2	0	0			0.57	No censored - no imputation required	No censored - no imputation required	B	FALSE
Blackcleugh Burn at Rongahere Road	ASPM	2	2	0	0			0.56	No censored - no imputation required	No censored - no imputation required	B	FALSE
Bullock Creek at Dunmore Street Footbridge	ASPM	2	2	0	0			0.395	No censored - no imputation required	No censored - no imputation required	C	FALSE
Cardrona at Mt Barker	ASPM	5	5	0	0			0.48	No censored - no imputation required	No censored - no imputation required	B	TRUE
Catlins at Houipapa	ASPM	3	3	0	0			0.58	No censored - no imputation required	No censored - no imputation required	B	FALSE
Dart at The Hillocks	ASPM	1	1	0	0			0.54	No censored - no imputation required	No censored - no imputation required	B	FALSE
Dunstan Creek at Beattie Road	ASPM	5	5	0	0			0.65	No censored - no imputation required	No censored - no imputation required	A	TRUE
Greenstone at Greenstone Station Road	ASPM	2	2	0	0			0.575	No censored - no imputation required	No censored - no imputation required	B	FALSE
Heriot Burn at Park Hill Road	ASPM	2	2	0	0			0.48	No censored - no imputation required	No censored - no imputation required	B	FALSE
Kaikorai Stream at Brighton Road	ASPM	6	5	0	0			0.145	No censored - no imputation required	No censored - no imputation required	D	TRUE
Kakanui at Clifton Falls Bridge	ASPM	3	3	0	0			0.48	No censored - no imputation required	No censored - no imputation required	B	FALSE
Kakanui at McCones	ASPM	5	5	0	0			0.31	No censored - no imputation required	No censored - no imputation required	C	TRUE
Kauru at Ewings	ASPM	3	3	0	0			0.48	No censored - no imputation required	No censored - no imputation required	B	FALSE
Kye Burn at SH85 Bridge	ASPM	5	5	0	0			0.55	No censored - no imputation required	No censored - no imputation required	B	TRUE
Leith at Dundas Street Bridge	ASPM	2	2	0	0			0.26	No censored - no imputation required	No censored - no imputation required	D	FALSE
Lindis at Ardgour Road	ASPM	5	5	0	0			0.42	No censored - no imputation required	No censored - no imputation required	B	TRUE
Lindsays Creek at North Road Bridge	ASPM	3	3	0	0			3.13	No censored - no imputation required	No censored - no imputation required	A	FALSE
Luggate Creek at SH6 Bridge	ASPM	5	5	0	0			0.47	No censored - no imputation required	No censored - no imputation required	B	TRUE
Manuherikia at Blackstone Hill	ASPM	5	5	0	0			0.55	No censored - no imputation required	No censored - no imputation required	B	TRUE
Manuherikia at Galloway	ASPM	2	2	0	0			0.57	No censored - no imputation required	No censored - no imputation required	B	FALSE
Manuherikia at Ophir	ASPM	4	4	0	0			0.56	No censored - no imputation required	No censored - no imputation required	B	FALSE
Mill Creek at Fish Trap	ASPM	3	3	0	0			0.26	No censored - no imputation required	No censored - no imputation required	D	FALSE
Motatapu at Wanaka Mt Aspiring Road	ASPM	2	2	0	0			0.555	No censored - no imputation required	No censored - no imputation required	B	FALSE
Oamaru Creek at SH1	ASPM	2	2	0	0			0.2	No censored - no imputation required	No censored - no imputation required	D	FALSE
Owaka at Katea Road	ASPM	5	5	0	0			0.41	No censored - no imputation required	No censored - no imputation required	B	TRUE
Precipice Creek at Glenorchy Paradise Road	ASPM	2	2	0	0			0.395	No censored - no imputation required	No censored - no imputation required	C	FALSE
Shag at Craig Road	ASPM	3	3	0	0			0.37	No censored - no imputation required	No censored - no imputation required	C	FALSE
Shag at Goodwood Pump	ASPM	4	4	0	0			0.41	No censored - no imputation required	No censored - no imputation required	B	FALSE
Silverstream at Taieri Depot	ASPM	5	5	0	0			0.28	No censored - no imputation required	No censored - no imputation required	D	TRUE
Tahakopa at Tahakopa	ASPM	2	2	0	0			0.575	No censored - no imputation required	No censored - no imputation required	B	FALSE
Taieri at Outram	ASPM	1	1	0	0			0.49	No censored - no imputation required	No censored - no imputation required	B	FALSE
Taieri at Sutton	ASPM	1	1	0	0			0.46	No censored - no imputation required	No censored - no imputation required	B	FALSE
The Neck Creek at Meads Road	ASPM	2	2	0	0			0.48	No censored - no imputation required	No censored - no imputation required	B	FALSE
Tokomairiro at West Branch Bridge	ASPM	5	5	0	0			0.48	No censored - no imputation required	No censored - no imputation required	B	TRUE
Trotters Creek at Mathesons	ASPM	3	3	0	0			0.22	No censored - no imputation required	No censored - no imputation required	D	FALSE
Turner Creek at Kinloch Road	ASPM	2	2	0	0			0.445	No censored - no imputation required	No censored - no imputation required	B	FALSE
Upper Pomahaka at Aitchison Runs Road	ASPM	2	2	0	0			0.59	No censored - no imputation required	No censored - no imputation required	B	FALSE
Waianakarua at Browns	ASPM	4	4	0	0			0.495	No censored - no imputation required	No censored - no imputation required	B	FALSE
Waiareka Creek at Taipo Road	ASPM	3	3	0	0			0.15	No censored - no imputation required	No censored - no imputation required	D	FALSE

Waikouaiti at Confluence d/s	ASPM	2	2	0	0			0.265	No censored - no imputation required	No censored - no imputation required	D	FALSE
Waipahi at Cairns Peak	ASPM	3	3	0	0			0.39	No censored - no imputation required	No censored - no imputation required	C	FALSE
Waipahi at Waipahi	ASPM	5	5	0	0			0.36	No censored - no imputation required	No censored - no imputation required	C	TRUE
Waipori at Waipori Falls Reserve	ASPM	3	3	0	0			0.36	No censored - no imputation required	No censored - no imputation required	C	FALSE
Waitahuna at Tweeds Bridge	ASPM	4	4	0	0			0.495	No censored - no imputation required	No censored - no imputation required	B	FALSE
Waiwera at Clutha confluence u/s 1km	ASPM	3	3	0	0			0.3	No censored - no imputation required	No censored - no imputation required	D	FALSE

Table 20 DRP														
sID	*npID*	*N.values*	*N.years*	*N.Leftcensored*	*N.Rightcensored*	*DL*	*AL*	*Median*	*Q95*	*ImputedLower*	*ImputedUpper*	*NOFband_median*	*NOFband_Q95*	*nOK*
12 Mile Creek at Glenorchy Queenstown Road	Dissolved Reactive Phosphorus	20	3	10	0	0		0.002	0.004	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
25 Mile Creek at Glenorchy Queenstown Road	Dissolved Reactive Phosphorus	20	3	10	0	0		0.002	0.00505	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
3 OClock Stream at Hindon	Dissolved Reactive Phosphorus	37	4	6	0	0		0.004	0.00765	Imputed	No censored - no imputation required	A	A	TRUE
Akatore Creek at Akatore Creek Road	Dissolved Reactive Phosphorus	20	2	8	0	0		0.00361	0.00805	Imputed	No censored - no imputation required	A	A	FALSE
Arrow at Morven Ferry Road	Dissolved Reactive Phosphorus	22	3	16	0	0		0.00058	0.002	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Awamoko at SH83	Dissolved Reactive Phosphorus	54	6	0	0			0.05375	0.191	No censored - no imputation required	No censored - no imputation required	D	D	TRUE
Bannockburn at Lake Dunstan	Dissolved Reactive Phosphorus	58	6	16	0	0		0.00385	0.008	Imputed	No censored - no imputation required	A	A	TRUE
Benger burn at SH8	Dissolved Reactive Phosphorus	35	4	0	0			0.015	0.04275	No censored - no imputation required	No censored - no imputation required	C	C	TRUE
Blackcleugh Burn at Rongahere Road	Dissolved Reactive Phosphorus	19	3	0	0			0.012	0.021	No censored - no imputation required	No censored - no imputation required	C	A	FALSE
Buckler Burn at Glenorchy Queenstown Road	Dissolved Reactive Phosphorus	20	3	14	0	0		0.0006	0.0023	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Bullock Creek at Dunmore Street Footbridge	Dissolved Reactive Phosphorus	21	3	11	0	0		0.0005	0.00184	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Cardrona at Mt Barker	Dissolved Reactive Phosphorus	58	6	22	0	0		0.00221	0.00464	Imputed	No censored - no imputation required	A	A	TRUE
Catlins at Houipapa	Dissolved Reactive Phosphorus	59	6	0	0			0.0115	0.01855	No censored - no imputation required	No censored - no imputation required	C	A	TRUE
Contour Channel at No. 4 Bridge	Dissolved Reactive Phosphorus	59	6	2	0	0		0.0162	0.0441	Imputed	No censored - no imputation required	C	C	TRUE
Craig Burn at SH6	Dissolved Reactive Phosphorus	19	3	8	0	0		0.0023	0.00551	Imputed	No censored - no imputation required	A	A	FALSE
Crookston Burn at Kelso Road	Dissolved Reactive Phosphorus	56	6	0	0			0.03	0.0641	No censored - no imputation required	No censored - no imputation required	D	D	TRUE
Dart at The Hillocks	Dissolved Reactive Phosphorus	55	6	22	0	0		0.0023	0.005	Imputed	No censored - no imputation required	A	A	TRUE
Deep Stream at SH87	Dissolved Reactive Phosphorus	58	6	20	0	0		0.003	0.0056	Imputed	No censored - no imputation required	A	A	TRUE
Dundas Creek at Mill Flat	Dissolved Reactive Phosphorus	19	3	8	0	0		0.0023	0.00455	Imputed	No censored - no imputation required	A	A	FALSE
Dunstan Creek at Beattie Road	Dissolved Reactive Phosphorus	59	6	16	0	0		0.00324	0.00686	Imputed	No censored - no imputation required	A	A	TRUE
Fraser at Old Man Range	Dissolved Reactive Phosphorus	22	3	12	0	0		0.002	0.00406	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Greenstone at Greenstone Station Road	Dissolved Reactive Phosphorus	19	3	16	0	0		0.0006	0.00204	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Hawea at Camphill Bridge	Dissolved Reactive Phosphorus	58	6	35	0	0		0.002	0.00311	Imputed	No censored - no imputation required	A	A	TRUE
Hayes Creek at SH6	Dissolved Reactive Phosphorus	9	1	3	0	0		0.002	0.038	Not Imputed - model fit failed	No censored - no imputation required	A	C	FALSE
Heriot Burn at Park Hill Road	Dissolved Reactive Phosphorus	56	6	0	0			0.029	0.0567	No censored - no imputation required	No censored - no imputation required	D	D	TRUE
Hills Creek at SH85	Dissolved Reactive Phosphorus	22	3	10	0	0		0.00229	0.0092	Imputed	No censored - no imputation required	A	A	FALSE
Horn Creek at Queenstown Bay	Dissolved Reactive Phosphorus	22	3	2	0	0		0.0072	0.0128	Imputed	No censored - no imputation required	B	A	FALSE
Invincible Creek at Rees Valley Road	Dissolved Reactive Phosphorus	19	3	14	0	0		0.00052	0.00206	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Kaikorai Stream at Brighton Road	Dissolved Reactive Phosphorus	57	6	4	0	0		0.0092	0.02165	Imputed	No censored - no imputation required	B	B	TRUE

Kakaho Creek at SH1	Dissolved Reactive Phosphorus	18	3	0	0			0.021	0.2136	No censored - no imputation required	No censored - no imputation required	D	D	FALSE
Kakanui at Clifton Falls Bridge	Dissolved Reactive Phosphorus	54	6	20	0	0		0.00268	0.01	Imputed	No censored - no imputation required	A	A	TRUE
Kakanui at McCones	Dissolved Reactive Phosphorus	54	6	9	0	0		0.00362	0.0138	Imputed	No censored - no imputation required	A	A	TRUE
Kauru at Ewings	Dissolved Reactive Phosphorus	54	6	15	0	0		0.00271	0.0084	Imputed	No censored - no imputation required	A	A	TRUE
Kye Burn at SH85 Bridge	Dissolved Reactive Phosphorus	59	6	16	0	0		0.004	0.007	Imputed	No censored - no imputation required	A	A	TRUE
Leaping Burn at Wanaka Mt Aspiring Road	Dissolved Reactive Phosphorus	21	3	17	0	0		0.0005	0.00168	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Leith at Dundas Street Bridge	Dissolved Reactive Phosphorus	56	6	0	0			0.0185	0.0327	No censored - no imputation required	No censored - no imputation required	D	C	TRUE
Lindis at Ardgour Road	Dissolved Reactive Phosphorus	57	6	22	0	0		0.003	0.00546	Imputed	No censored - no imputation required	A	A	TRUE
Lindis at Lindis Peak	Dissolved Reactive Phosphorus	57	6	19	0	0		0.0027	0.00665	Imputed	No censored - no imputation required	A	A	TRUE
Lindsays Creek at North Road Bridge	Dissolved Reactive Phosphorus	57	6	0	0			0.017	0.028	No censored - no imputation required	No censored - no imputation required	C	B	TRUE
Lovells Creek at Station Road	Dissolved Reactive Phosphorus	58	6	2	0	0		0.01	0.024	Imputed	No censored - no imputation required	B	B	TRUE
Luggate Creek at SH6 Bridge	Dissolved Reactive Phosphorus	58	6	2	0	0		0.00975	0.0136	Imputed	No censored - no imputation required	B	A	TRUE
Maclennan at Kahuiku School Road	Dissolved Reactive Phosphorus	22	3	1	0	0		0.00815	0.01232	Imputed	No censored - no imputation required	B	A	FALSE
Makarora at Makarora	Dissolved Reactive Phosphorus	21	3	12	0	0		0.002	0.00406	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Manuherikia at Blackstone Hill	Dissolved Reactive Phosphorus	59	6	15	0	0		0.0039	0.01055	Imputed	No censored - no imputation required	A	A	TRUE
Manuherikia at Galloway	Dissolved Reactive Phosphorus	59	6	3	0	0		0.009	0.0263	Imputed	No censored - no imputation required	B	B	TRUE
Manuherikia at Ophir	Dissolved Reactive Phosphorus	59	6	3	0	0		0.011	0.0363	Imputed	No censored - no imputation required	C	C	TRUE
Manuherikia downstream of Fork	Dissolved Reactive Phosphorus	33	4	6	0	0		0.0046	0.008	Imputed	No censored - no imputation required	A	A	TRUE
Meggat Burn at Berwick Road	Dissolved Reactive Phosphorus	22	3	0	0			0.0079	0.01276	No censored - no imputation required	No censored - no imputation required	B	A	FALSE
Mill Creek at Fish Trap	Dissolved Reactive Phosphorus	58	6	15	0	0		0.00448	0.0086	Imputed	No censored - no imputation required	A	A	TRUE
Motatapu at Wanaka Mt Aspiring Road	Dissolved Reactive Phosphorus	21	3	20	0	0		0.00061	0.00145	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Nenthorn at Mt Stoker Road	Dissolved Reactive Phosphorus	58	6	7	0	0		0.0066	0.023	Imputed	No censored - no imputation required	B	B	TRUE
Nevis at Wentworth Station	Dissolved Reactive Phosphorus	57	6	19	0	0		0.0036	0.00665	Imputed	No censored - no imputation required	A	A	TRUE
Oamaru Creek at SH1	Dissolved Reactive Phosphorus	21	3	0	0			0.23	0.4545	No censored - no imputation required	No censored - no imputation required	D	D	FALSE
Owaka at Katea Road	Dissolved Reactive Phosphorus	56	6	1	0	0		0.016	0.0247	Imputed	No censored - no imputation required	C	B	TRUE
Owhiro Stream at Riverside Rd	Dissolved Reactive Phosphorus	37	4	0	0			0.027	0.05395	No censored - no imputation required	No censored - no imputation required	D	C	TRUE
Ox Burn at Rees Valley Road	Dissolved Reactive Phosphorus	19	3	12	0	0		0.001	0.0031	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Pleasant at Patterson Road Ford	Dissolved Reactive Phosphorus	21	3	8	0	0		0.00303	0.0235	Imputed	No censored - no imputation required	A	B	FALSE
Pomahaka at Burkes Ford	Dissolved Reactive Phosphorus	56	6	2	0	0		0.0115	0.0261	Imputed	No censored - no imputation required	C	B	TRUE
Pomahaka at Glenken	Dissolved Reactive Phosphorus	56	6	6	0	0		0.007	0.01677	Imputed	No censored - no imputation required	B	A	TRUE
Poolburn at Cob Cottage	Dissolved Reactive Phosphorus	33	4	1	0	0		0.03	0.0661	Imputed	No censored - no imputation required	D	D	TRUE

Precipice Creek at Glenorchy Paradise Road	Dissolved Reactive Phosphorus	20	3	13	0	0		0.00058	0.00225	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Quartz Creek at Maungawera Valley Road	Dissolved Reactive Phosphorus	17	3	9	0	0		0.002	0.00602	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Quartz Reef Creek at SH8	Dissolved Reactive Phosphorus	22	3	12	0	0		0.00082	0.00318	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Rees at Glenorchy Paradise Road Bridge	Dissolved Reactive Phosphorus	20	3	13	0	0		0.001	0.0029	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Roaring Meg at SH6	Dissolved Reactive Phosphorus	22	3	1	0	0		0.00545	0.00764	Imputed	No censored - no imputation required	A	A	FALSE
Scott Creek at Routeburn Road	Dissolved Reactive Phosphorus	20	3	13	0	0		0.002	0.00435	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Shag at Craig Road	Dissolved Reactive Phosphorus	58	6	12	0	0		0.004	0.0118	Imputed	No censored - no imputation required	A	A	TRUE
Shag at Goodwood Pump	Dissolved Reactive Phosphorus	57	6	10	0	0		0.005	0.01365	Imputed	No censored - no imputation required	A	A	TRUE
Silverstream at Taieri Depot	Dissolved Reactive Phosphorus	59	6	15	0	0		0.005	0.0368	Imputed	No censored - no imputation required	A	C	TRUE
Silverstream at Three Mile Hill Road	Dissolved Reactive Phosphorus	22	3	14	0	0		0.00078	0.00262	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Sutton Stream at SH87	Dissolved Reactive Phosphorus	31	3	11	0	0		0.0037	0.00918	Imputed	No censored - no imputation required	A	A	TRUE
Tahakopa at Tahakopa	Dissolved Reactive Phosphorus	22	3	1	0	0		0.006	0.00882	Imputed	No censored - no imputation required	A	A	FALSE
Taieri at Allanton Bridge	Dissolved Reactive Phosphorus	58	6	4	0	0		0.01	0.022	Imputed	No censored - no imputation required	B	B	TRUE
Taieri at Creamery Road bridge	Dissolved Reactive Phosphorus	37	4	0	0			0.0182	0.05465	No censored - no imputation required	No censored - no imputation required	D	D	TRUE
Taieri at Linnburn Runs Road	Dissolved Reactive Phosphorus	59	6	21	0	0		0.0027	0.009	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Outram	Dissolved Reactive Phosphorus	59	6	5	0	0		0.008	0.01855	Imputed	No censored - no imputation required	B	A	TRUE
Taieri at Patearoa Maniototo Road	Dissolved Reactive Phosphorus	37	4	1	0	0		0.014	0.03885	Imputed	No censored - no imputation required	C	C	TRUE
Taieri at Puketoi	Dissolved Reactive Phosphorus	37	4	2	0	0		0.008	0.0163	Imputed	No censored - no imputation required	B	A	TRUE
Taieri at Stonehenge	Dissolved Reactive Phosphorus	59	6	12	0	0		0.0059	0.011	Imputed	No censored - no imputation required	A	A	TRUE
Taieri at Sutton	Dissolved Reactive Phosphorus	57	6	3	0	0		0.009	0.03025	Imputed	No censored - no imputation required	B	C	TRUE
Taieri at Tiroiti	Dissolved Reactive Phosphorus	59	6	1	0	0		0.0107	0.0333	Imputed	No censored - no imputation required	C	C	TRUE
Taieri at Waipiata	Dissolved Reactive Phosphorus	59	6	1	0	0		0.017	0.05085	Imputed	No censored - no imputation required	C	C	TRUE
Teviot at Bridge Huts Road	Dissolved Reactive Phosphorus	22	3	16	0	0		0.002	0.00876	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
The Neck Creek at Meads Road	Dissolved Reactive Phosphorus	21	3	13	0	0		0.00072	0.00268	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Thomsons Creek at SH85	Dissolved Reactive Phosphorus	58	6	2	0	0		0.019	0.107	Imputed	No censored - no imputation required	D	D	TRUE
Timaru at Peter Muir Bridge	Dissolved Reactive Phosphorus	20	3	7	0	0		0.0038	0.00635	Imputed	No censored - no imputation required	A	A	FALSE
Tokomairiro at Blackbridge	Dissolved Reactive Phosphorus	57	6	0	0			0.017	0.03465	No censored - no imputation required	No censored - no imputation required	C	C	TRUE
Tokomairiro at Lisnatunny	Dissolved Reactive Phosphorus	35	4	0	0			0.017	0.02675	No censored - no imputation required	No censored - no imputation required	C	B	TRUE
Tokomairiro at West Branch Bridge	Dissolved Reactive Phosphorus	57	6	4	0	0		0.009	0.01532	Imputed	No censored - no imputation required	B	A	TRUE
Trotters Creek at Mathesons	Dissolved Reactive Phosphorus	57	6	12	0	0		0.004	0.009	Imputed	No censored - no imputation required	A	A	TRUE
Tuapeka at 700m u/s bridge	Dissolved Reactive Phosphorus	52	5	0	0			0.0205	0.0367	No censored - no imputation required	No censored - no imputation required	D	C	TRUE

Turner Creek at Kinloch Road	Dissolved Reactive Phosphorus	20	3	9	0	0		0.00175	0.0032	Imputed	No censored - no imputation required	A	A	FALSE
Upper Cardrona at Tuohys Gully Road	Dissolved Reactive Phosphorus	21	3	16	0	0		0.00068	0.00248	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Upper Pomahaka at Aitchison Runs Road	Dissolved Reactive Phosphorus	22	3	7	0	0		0.00405	0.00946	Imputed	No censored - no imputation required	A	A	FALSE
Upper Shag at SH85 Culvert	Dissolved Reactive Phosphorus	22	3	14	0	0		0.00072	0.00254	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE
Waianakarua at Browns	Dissolved Reactive Phosphorus	56	6	11	0	0		0.0039	0.0117	Imputed	No censored - no imputation required	A	A	TRUE
Waianakarua at South Branch SH1	Dissolved Reactive Phosphorus	20	3	9	0	0		0.0026	0.0095	Imputed	No censored - no imputation required	A	A	FALSE
Waiareka Creek at Taipo Road	Dissolved Reactive Phosphorus	53	6	0	0			0.147	0.35	No censored - no imputation required	No censored - no imputation required	D	D	TRUE
Waikouaiti at Confluence d/s	Dissolved Reactive Phosphorus	36	4	10	0	0		0.003	0.006	Imputed	No censored - no imputation required	A	A	TRUE
Waipahi at Cairns Peak	Dissolved Reactive Phosphorus	57	6	1	0	0		0.013	0.03895	Imputed	No censored - no imputation required	C	C	TRUE
Waipahi at Waipahi	Dissolved Reactive Phosphorus	57	6	1	0	0		0.013	0.028	Imputed	No censored - no imputation required	C	B	TRUE
Waipori at Waipori Falls Reserve	Dissolved Reactive Phosphorus	59	6	28	0	0		0.00259	0.00455	Imputed	No censored - no imputation required	A	A	TRUE
Wairuna at Millar Road	Dissolved Reactive Phosphorus	57	6	0	0			0.03	0.133	No censored - no imputation required	No censored - no imputation required	D	D	TRUE
Waitahuna at Tweeds Bridge	Dissolved Reactive Phosphorus	57	6	0	0			0.013	0.02295	No censored - no imputation required	No censored - no imputation required	C	B	TRUE
Waitati at Mt Cargill Road	Dissolved Reactive Phosphorus	56	6	11	0	0		0.006	0.0127	Imputed	No censored - no imputation required	A	A	TRUE
Waiwera at Maws Farm	Dissolved Reactive Phosphorus	59	6	2	0	0		0.019	0.06085	Imputed	No censored - no imputation required	D	D	TRUE
Welcome Creek at Steward Road	Dissolved Reactive Phosphorus	30	4	0	0			0.0145	0.0315	No censored - no imputation required	No censored - no imputation required	C	C	TRUE
Whare Creek at Whare Flat Road	Dissolved Reactive Phosphorus	22	3	12	0	0		0.00085	0.00322	Not Imputed - model fit failed	No censored - no imputation required	A	A	FALSE