Department of Environment
and Resource Management

Regional Chemistry of the Fitzroy Basin Groundwater

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Contents

1 Executive summary

Significant regional variation in natural salinity levels exists throughout Queensland in freshwater systems at the surface and in groundwater. These differences reflect variations in soils/geology, surface cover and rainfall, with localised influence by human activities. Previously developed salinity guidelines for Queensland fresh surface-water systems are based on, and reflect, regional ranges in natural salinity, and these have been incorporated into the current Queensland Water Quality Guidelines. The intention of this report is to develop similar guidelines for groundwater. It describes a pilot study for Fitzroy Basin groundwater, where groundwater zones have been delineated and described in terms of their individual chemical characteristics. Groundwater salinity guidelines will need to be based on naturally occurring background levels that vary spatially in the landscape.

To establish groundwater chemistry zones for the Fitzroy Basin, all useable surface water and groundwater chemistry data available for this region in Department of Environment and Resource Management (DERM) databases were collated. They were then differentiated into 10 separate water classes, using a standard cluster analysis technique based on percentage equivalents of the major ions. The resulting water classes were then confirmed with a principal component analysis technique applied to define the association between the variables.

The classified bores were plotted as a map layer in such a way that the geographical distributions of the water types could be defined, and visually compared with available information about geology, climate, land use and surface water chemistry. Zone boundaries were refined on the basis of this information. Areas with no groundwater data, and/or data that were too complex to define remained uncategorised. Forty-four separate groundwater zones were delineated throughout the Fitzroy Basin, and their salinity ranges and dominant chemical characteristics were statistically described. Deep and shallow groundwater chemistry was separately assessed for each zone to determine whether they were significantly different. If so, separate sets of ranges were calculated for each. Shallow groundwater chemistry was also compared with surface water chemistry in the same zone, to identify possible areas of groundwater and surface water interaction.

While the groundwater chemistry data in the Fitzroy Basin is complex, some distinct patterns emerged in the data. Two major chemical evolutionary series were evident, each covering a wide range of salinity. The first was designated the ‘alluvial sequence’. It occurs in surface waters and associated alluvial groundwaters along the eastern coastal strip and in the western areas of the Fitzroy Basin in areas of relatively high rainfall. The other sequence, referred to as the ‘sodic sequence’, approaches a marine ionic balance. It aligns with deep and occasionally shallow groundwaters, which are associated with older sedimentary rocks in lower rainfall areas of the central Fitzroy and in the southern section of the basin. Other minor water types occur locally in the Fitzroy.

Each zone has been summarized and reported in terms of geographical extent, dominant geology, dominant land use, relative rainfall, dominant water chemistry, and observed ranges of salinity. Ranges of major ions are also included, along with a description of chemical equivalence. These ranges are based on the existing condition of the groundwater as discernable from data that is currently available, and won’t account for changes from the natural which may have occurred before the data was collected. Since data has mostly been collected on an opportunistic basis, both spatially and temporally, it can’t be considered fully representative in all cases, particularly where data is limited. For this reason, ongoing monitoring will help to refine the current understanding of groundwater chemistry in the Fitzroy Basin and support the appropriate management of the resource.

The data used in this assessment was collected throughout the history of groundwater development in the Fitzroy. It therefore represents existing background water quality, but not necessarily pre-European quality. There may have been changes in quality in some areas, particularly where water tables are shallow, or where recharge has been supplemented. Despite this, the information delivers a useful basis for the development of groundwater salinity guidelines for the Fitzroy, and allows for such guidelines to take natural water quality ranges into consideration. This product also clarifies some of the relationships between groundwater chemistry and its likely sources, and provides insights into recharge pathways and groundwater and surface water interactions in the Fitzroy. This is the first time such research has been undertaken for groundwater systems in Australia, and its methodology can be applied to other areas.

2 Introduction

Salinity problems and deteriorating water quality have the potential to seriously affect the sustainability of Queensland's agricultural production, the viability of its infrastructure, and the welfare of its regional communities (NAP 2002). Salinity is also one of the priority issues for the maintenance of ecological health and biodiversity in Queensland's groundwater and surface water ecosystems (Dunlop & McGregor 2007). However, there are significant regional variations in the natural levels of ground and surface water salinity, reflecting changes in soil, geology and rainfall, with localised influence by human activities as well as localised interaction between water bodies (McNeil, Cox & Preda 2005; Hancock 2002; Searl, Armitage & Dawson 1999). The previously established salinity guidelines for Queensland's fresh surface-waters (DERM 2009) have been based on, and reflect, these natural ranges. In order to develop appropriate groundwater guidelines, zones with similar chemistry must be differentiated, taking into account geology, climate and landscape as well as the distinctive characteristics of groundwater hydrology.

This project is a pilot study to develop a methodology for defining zones of similar salinity and chemistry in the groundwaters of a large, complex catchment. The Fitzroy River Basin has been selected (Figure 1). It represents a major inland river system, draining through the Great Dividing Range to the east central coast of Queensland. It contains several large, discrete subcatchments, heterogeneous patterns of rainfall and geology, several large towns, and a variety of land uses including irrigation, grazing, mining, and power generation, as well as significant areas of state forest and national park.

The methodology developed is a combination of statistical techniques based on multivariate analysis to examine and group the water chemistry, followed by conceptual techniques to fine-tune zonal boundaries using geographic information such as geology and rainfall which could be expected to relate to water quality. Shallow and deep groundwaters are differentiated, as are areas with surface water groundwater connectivity. This methodology could be extended to classify groundwater chemistry in other large or complex catchments.

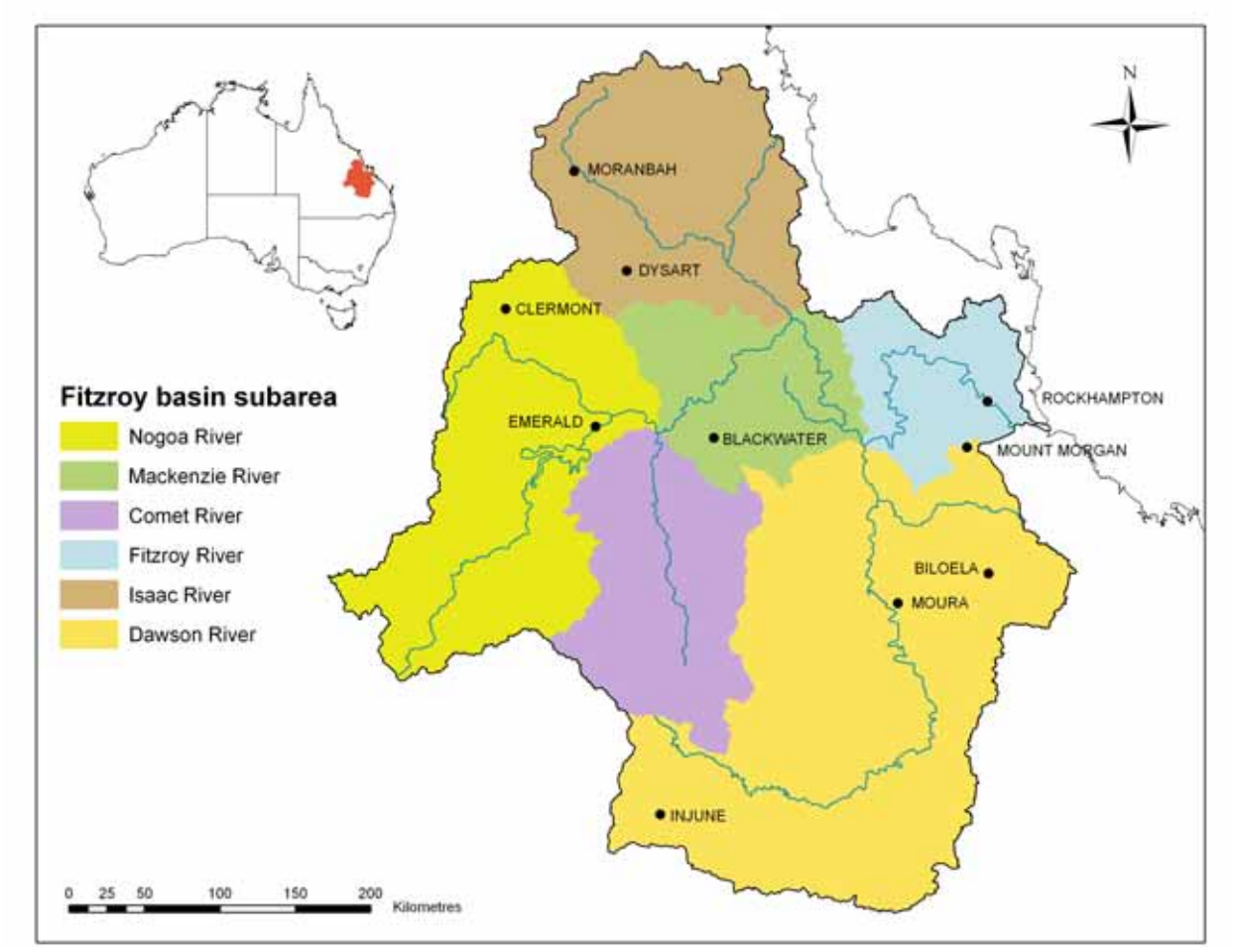

Figure 1: The Fitzroy River Basin with tributary sub-basins.

2.1 Objectives

This project aimed to define regional zones of differing chemistry in the groundwater systems of the Fitzroy Basin, in order to underpin the development of regional guidelines for groundwater salinity. The aims of this project were to define, within the Fitzroy:

- zones of similar chemical balance;
- salinity ranges within each zone; and
- ranges of other identified water quality characteristics.

The data used in this assessment was collected throughout the history of groundwater development in the Fitzroy. It therefore represents existing background water quality, but not necessarily pre-European quality. There may have been changes in quality in some areas, particularly where water tables are shallow, or where recharge has been supplemented.

3 Establishing groundwater chemistry types

3.1 Assessing groundwater chemistry

3.1.1 Data

The DERM groundwater database (GWDB) contains more than 13,000 subartesian water quality samples collected from 4,780 bores in the Fitzroy Basin since the 1950s. Of these samples 9,659 are from 3,444 shallow bores, taken as having a depth of less than 30m and therefore more likely to be in recent contact with the surface through recharge or baseflow. The water quality parameters almost always include EC, but this is usually accompanied by a full analysis which includes pH, colour (hazen), turbidity (NTU), SiO_2, hardness, alkalinity, Sodium Adsorption Ratio (SAR), Residual Alkali Hazard (RAH), Total Dissolved Ions (TDI), Total Dissolved Solids (TDS), Na, K, Ca, Mg, Fe, Mn, HCO_3 CO_3, Cl, F, NO_3, SO_4, Zn, Al, B, Cu, PO_4, Dissolved Oxygen (DO), EH, Temperature (°C), Water Level (m). Units not specifically mentioned can be regarded as being mg/L. The samples were mainly collected on an ad hoc basis as part of localised groundwater investigations, short and long term monitoring programs, and interactions with the community.

In addition to the groundwater quality data, there are 5,037 surface water samples in the DERM surface water database (SWDB), obtained from 110 gauging stations in the basin. The surface water samples were accumulated through ambient monitoring by DERM and by various organisations for specific projects such as NRM&E and the Australian Centre for Tropical Freshwater Research (Congdon 1991; McNeil & Cox 2000) and the Fitzroy National Landcare Program (Noble et al. 1997).The surface water data were used to compare local ground and surface water chemistry to gauge whether there was a significant zone of influence. All processed data have been archived, and Appendix B contains a list of DERM bores with details of their water level and quality records. This list may be of use in future monitoring to improve the certainty of this analysis.

3.1.2 Data adequacy and quality

Validation of salinity and major ion concentrations was based on chemical balance. These tests identified any errors in bulk chemistry and atypical outliers. Once the unreliable data had been removed, 6,500 groundwater samples and 1,500 surface water samples remained in the file.

The groundwater systems within the Fitzroy Basin are very complex, with several important alluvial aquifers as well as broad regions where groundwater is only found sporadically, mostly in non- alluvial aquifers such as sandstone or basalt. Because sampling has been largely unsystematic, the distribution of data is not even throughout the Fitzroy, with most emphasis having been given to irrigation areas. For this reason, the degree of subdivision and levels of uncertainty will vary across the basin.

The data were analysed at the Queensland Health Scientific Services (QHSS) laboratories, a NATA registered facility with high levels of internal quality control and a documented history of changes in analytical procedures. Analyses are now transferred electronically to DERM databases, but were historically typed in by hand, allowing the possibility of transcription errors.

3.1.2.1 Chemical balance test

The multivariate procedures to be used in this study require complete analysis with all major ions accounted for. Validation of the water chemistry data was therefore based on the chemical balance of the major cations (Na, K, Ca, Mg) and anions (HCO_3 CO_3, Cl, NO_3, SO_4), as well as a multivariate comparison of salinity measures. The applied balance test was the formula for the percent charge balance error (%CBE) recommended by Freeze and Cherry (1979) and Eaton et al. (1995). It need only include the major ions because as long as the salinity is moderately high, for instance > 200 mg/L which is usual in groundwater, no other constituent would be likely to make a significant contribution. The equation for the %CBE is:

1)

$$\%CBE = \frac{100 * \left(\sum z * m_c - \sum z * m_a\right)}{\sum z * m_c + \sum z * m_a}$$

where z = the charge on an individual anion or cation (absolute value), mc= molality of a cation, and ma = molality of an anion (where molality in most natural waters can be regarded as the concentration of the ion in mg/L divided by 1000 times the atomic weight).

If chemical balance were exact, the %CBE would be zero, but this is never the case, particularly in surface water and generally if salinity is low. There are a number of reasons for this, including 'rounding off' approximations, non-analysed constituents such as organic acids and complexes, minor constituents such as iron and ammonia, and charged colloidal particles. Differing analytical procedures used for anions and cations by some laboratories (not QHSS) can also contribute to poor chemical balance (Fritz 1994; Murray and Wade 1996; Oliver, Thurman & Malcolm 1983 & G. Denaro pers. com.1). Because of this, a %CBE of up to 5% was accepted if the TDI was at least 200 mg/L, in accordance with QHSS and recent studies such as Lambrakis (2006). Tolerance was increased to a %CBE of 10% for TDI 100 - 200mg/L, and 15% if the TDI was below 100mg/L, which has only been found in Queensland in rare surface waters and rainfall.

3.1.2.2 Salinity measures test

Salinity represents the majority of dissolved constituents in natural water, and can be measured in several independent or semi-independent ways which are not exactly comparable. These are:

1. Total Dissolved Ions (TDI), which is the sum of the directly measured dissolved ions in solution, whether they are dissociated or not;
2. Total Dissolved Solids (TDS), which is the concentration of dissolved substances in water, which includes organic matter and mineral such as silica, whether or not they are in ionic form (Helmer 1987). The TDS can be approximated as the silica (SiO_2), plus half of the HCO_3- (because HCO_3- converts to divalent CO_3^{2-} on precipitation), plus the rest of the major ions.
3. Electrical Conductivity (EC in µS/cm), which is the ability of a solution to conduct an electric current. It is not only dependent on the concentration of dissociated salts and dissolved gases (Pelkie et al. 1992), but also on colloidal suspensions. Consequently, conductivity is affected by temperature, pressure and rate of flow, but it is not affected by dissolved silica or undissociated salts such as H_2CO_3 which do not carry an electric charge.

TDS and TDI are recalculated during the validation process, and the TDI/EC ratio is also checked to ensure it is within normal ranges as presented in McNeil and Cox (2000).

All samples which passed the validation procedures were considered sufficiently accurate and complete to be used in the multivariate analysis to define groupings and interrelationships.

3.1.3 Multivariate analysis of chemical data

The ground and surface water datasets were combined to define groupings and similarities. It is assumed that if the groundwater and surface water systems are not connected, the proportions of major ions in each would be substantially different, reflecting their disparate physical and chemical environments. Conversely, if the groundwater were reasonably similar in bulk chemistry to the nearby surface water, this would imply that the two had been in recent contact either through recharge or baseflow or both. There are a variety of multivariate techniques which are suited to differing types of data and assessment objectives. Those selected here have proved suitable for defining regional water types that would indicate the stream/aquifer/geology relationship using a large and unevenly sampled set of water chemistry data.

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3.1.3.1 Cluster analysis

The water samples were subjected to a multi-stage cluster analysis which sorted them into ten separate water types categorised by their distribution of major ions. In this procedure, the combined groundwater and surface water dataset was sorted through a two-stage cluster analysis described in McNeil, Cox and Preda (2005). This method differentiates groups of predominant water chemistry, and avoids domination by the outliers which are common for analyses of water from complex sources. The variables used for clustering are the percentage equivalents of the major ions. These are readily available and reasonably reliable, and previous studies (for instance, McNeil 1983; McNeil & Poplawski 1993, McNeil, Cox & Preda 2005) prove that they form a very good basis for classifying Queensland groundwaters and surface waters. The type of clustering selected as being most suitable was K-Means Divisive Clustering, based on Hartigan (1975) and Hartigan and Wong (1979). This procedure assigns samples to a specified number of clusters. No relationship 'tree' is produced, because the data is divided by allocating from above rather than joining from below. It works well on larger data sets.

Before clustering, the data were sorted by EC and split into groups of 100 samples, each representing a narrow salinity range. Each bunch was then clustered into five groups. These groups were replaced by simulated samples with ion percentages representing the means of the samples in the group. The new data set consisting of 910 simulated samples was then re-clustered into 10 regional water types.

3.1.3.2 Principal component analyses

Because of the size of, and variability within the chemistry dataset and its ubiquitous outliers, the water types identified by the cluster analysis were further confirmed by using principal component analysis (PCA). This multivariate procedure is frequently combined with cluster analysis in water quality assessments, for instance by van Tonder and Hodgson (1986). Cluster analysis groups cases on the basis of selected variables, whereas the function of PCA is to define the association between the variables (Wilkinson 1990). This can be represented as lines of best fit, plotted in terms of components derived from relationships detected within the data. The PCA technique used for this study was developed by Swain (1993), using inbuilt routines provided by the SYSTAT statistical and graphical package. It was designed to complement the multi-stage clustering procedure. The results of the PCA, shown on Figure 2, indicate that the water types are suitably representative.

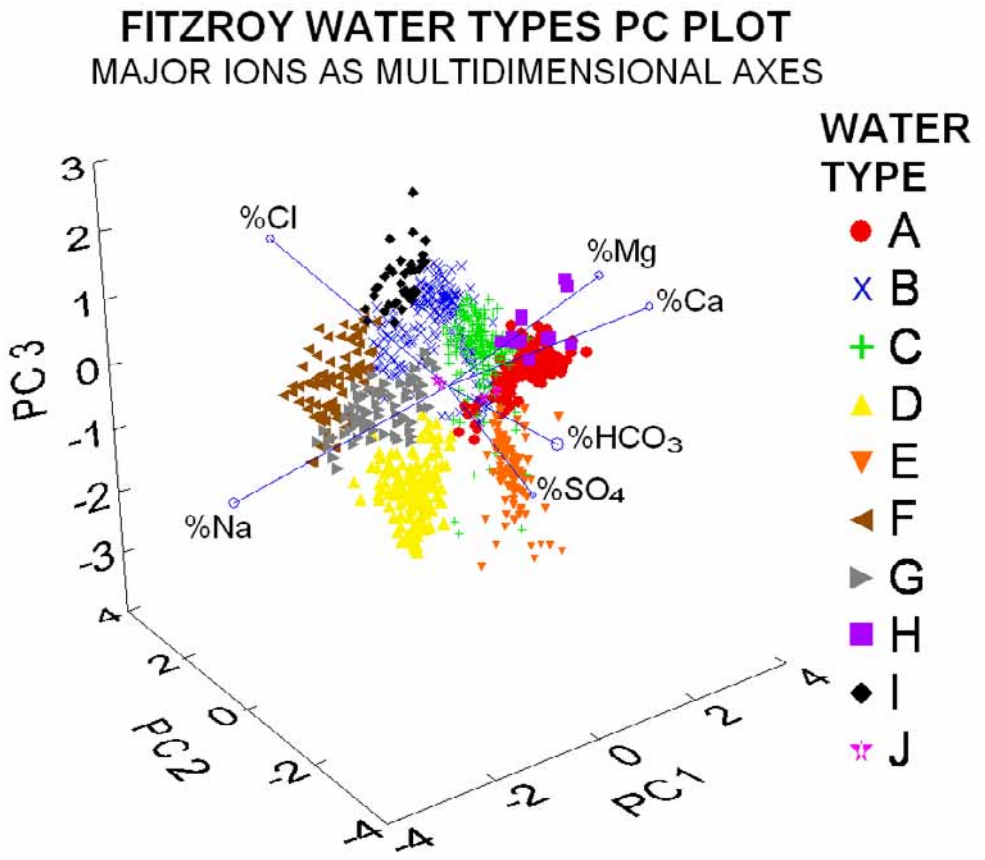

Figure 2: Principal components analysis to verify water type groupings. This plot shows that the ten clusters are distinct from each other and sufficiently compact not to require further subdivision.

PCA is dependent on the original data being normally distributed, and is therefore less robust than cluster analysis. However it is useful for confirming the results by indicating whether the clusters are sufficiently tight, whether they substantially overlap, or whether they contain natural separations.

The resulting water types, when spatially mapped, formed consistent regional patterns and the basis of a zonal structure, however geological and climatic information provided as GIS layers provided conceptual guidance in defining boundaries where there were few if any data.

3.2 Resulting water types characterised for the Fitzroy Basin

The 10 water types classified for the Fitzroy Basin are provided as a multidimensional presentation of major ions for each type on Figure 2. Chemical compositions are displayed on Figure 3, with ionic distributions listed on Table 1 (see also Figure 4 for geographical distributions). It was observed that they formed into two chemical groups, each covering a wide range of salinity. The first, designated the 'alluvial sequence', comprises groups A, C, B and I, in increasing order of salinity. This group occurs in surface waters and associated alluvial groundwaters. Their cations are moderately balanced and dominated by bicarbonate (HCO_3), except in the highest salinity range where sodium chloride (NaCl) begins to dominate, as is typical of most central and southern alluvial aquifers in Queensland (McNeil, Cox & Preda 2005). The other sequence, comprising groups D, G and F, and referred to as the 'sodic sequence', is dominated throughout by NaCl although HCO_3 may be high at the lowest salinities. It approaches a marine ionic balance, and is associated with deep and occasionally shallow groundwaters, which are associated with older sedimentary rocks. Water types E and H occur locally in the Fitzroy, dominated by SO_4 and Mg respectively.

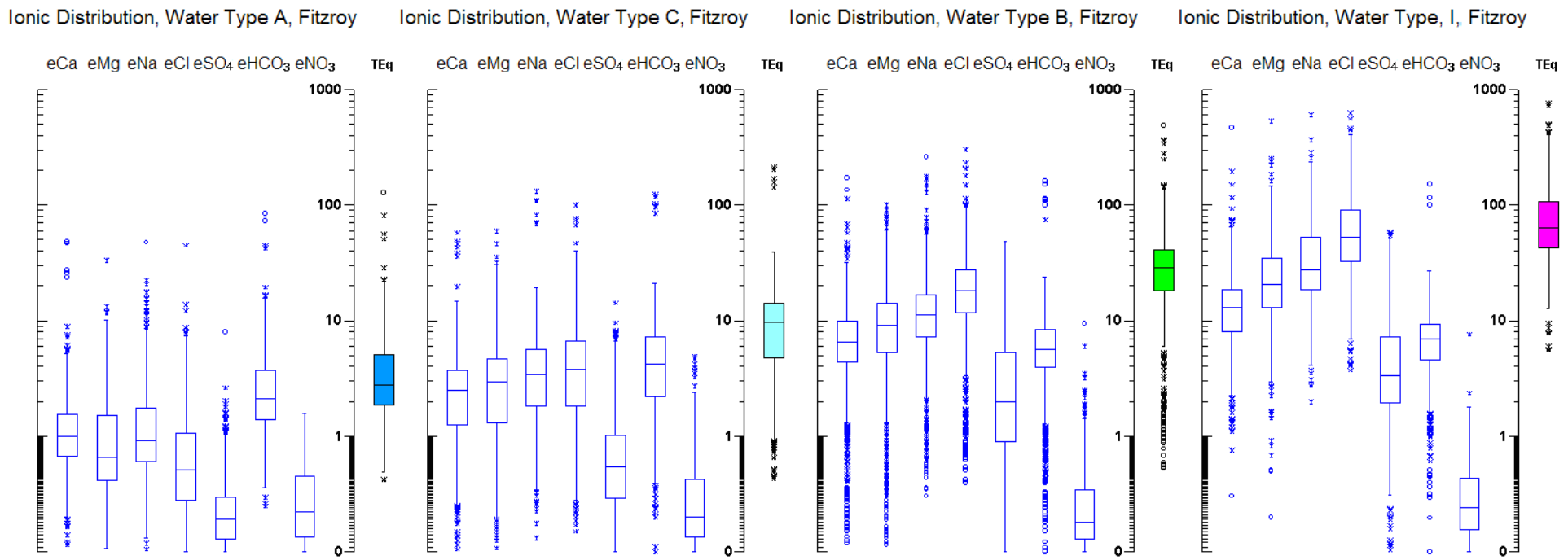

Figure 3a: Comparative salinities and ionic distributions of water types – alluvial series.

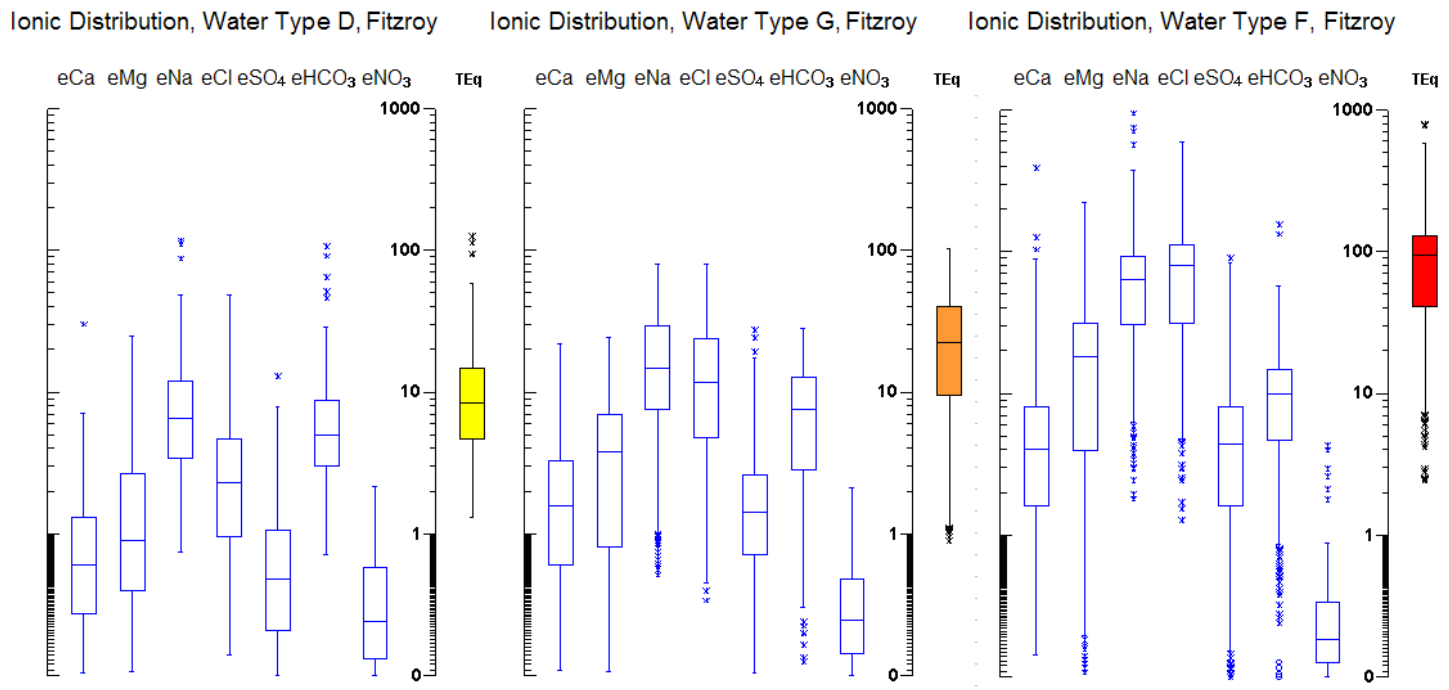

Figure 3b: Comparative salinities and ionic distributions of water types – sodic series.

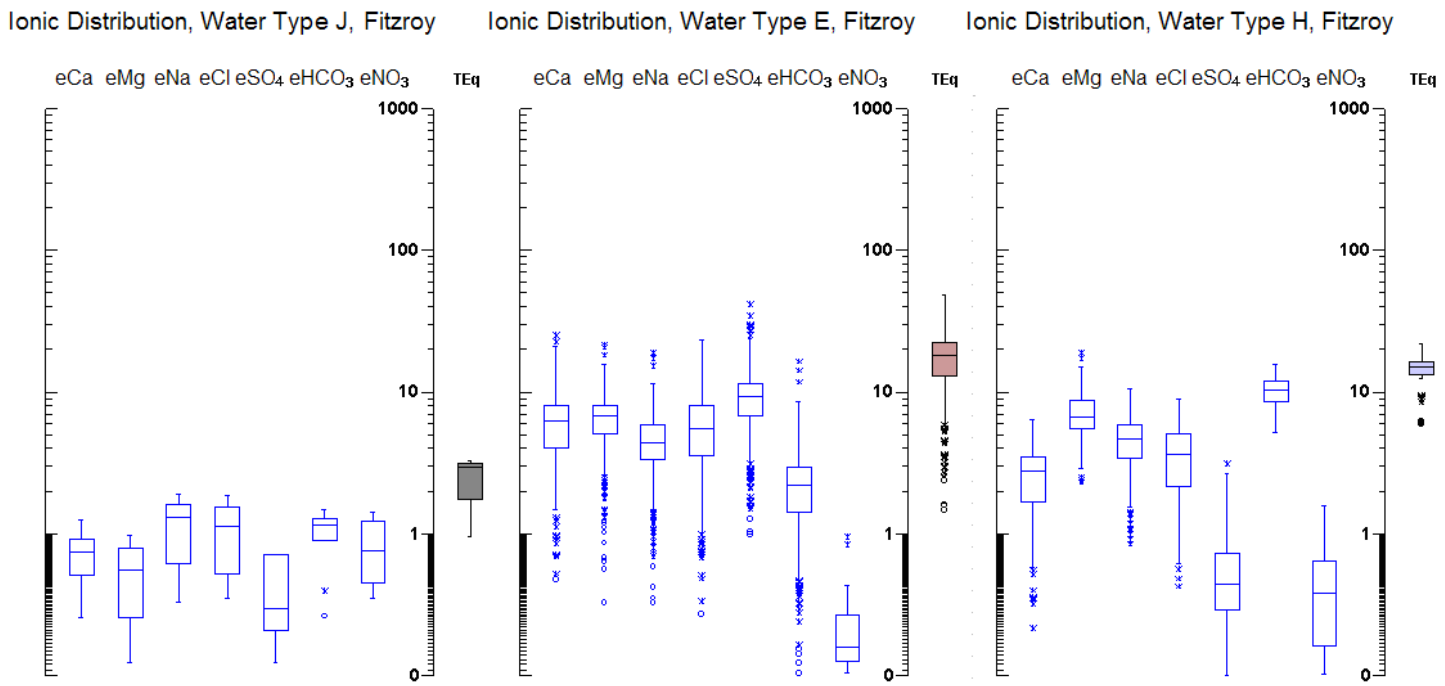

Figure 3c: Comparative salinities and ionic distributions of water types – three unrelated types.

Table 1: Fitzroy groundwater chemistry types as derived from cluster analysis.

Type	Cations	Anions	Salinity	Occurrence
A	Balanced	HCO_3	Low	Predominant surface water type in Fitzroy basin as a whole, and in most sub-basins other than those with extensive alluvium. Rare in groundwater apart from lower salinity sub-basins (Isaac, Comet and Nogoa).
C	Balanced	HCO_3, Cl	Low-Moderate	Only common surface water type apart from A, and dominant in alluvial sub-basins (Lower Fitzroy, Isaac and Callide). Also most common shallow groundwater type apart from B. Significant proportions of Type C in surface and groundwater, as occurs in the main alluvial sub-basins, indicates substantial interaction.
B	Na>Mg>Ca	Cl (SO_4 above average)	Moderate	Most common in shallow groundwater except in Comet sub-basin, rare in surface water apart from Callide sub-basin.
I	Na	Cl	Saline	Saline groundwater which is enriched in Cl with respect to Na which may have been replaced by divalent cations. Significant only in deep groundwaters of the eastern sub-basins, including the Callide and lower Fitzroy.
D	Na	HCO_3>Cl	Low-Moderate	Most common deep groundwater type overall, and in southern and western sub-basins. Occasionally significant in shallow groundwater. In comparison to Type B, it is enriched in HCO_3 and Na at the expense of Cl and the divalent cations respectively, with little overall change in salinity.
G	Na	Cl>HCO_3	Low-Moderate	Minor type, similar to Type F with which it is associated, but less saline and evolved towards marine-like composition. Also more common in shallow groundwater.
F	Na	Cl	Saline	Mainly deep groundwater type, evolving towards a seawater composition. Most significant in Isaac and Mackenzie sub-basins.
J	Na	Cl, HCO_3, NO_3	Low	Very rare and insignificant low salinity type, high in sodium and nitrate, usually associated with irrigation areas.
E	Balanced	SO_4	Moderate	Rare, sulphate rich type, insignificant except occasional occurrences in shallow groundwaters of the Callide and Mackenzie, and historically in the surface waters of the Don and Dee Rivers.
H	Mg	HCO_3	Moderate	Rare magnesium bicarbonate dominated groundwater expected to be associated with basalts.

4 Defining groundwater chemistry zones

4.1 Alignment with landscape and climate

The shallow and deep groundwater sample data, having been assigned into water type classes, were spatially mapped across the Fitzroy Basin using ArcMap 9.3.1 (Figure 4). Data were visually assessed to identify areas where characteristic suites of water types could be grouped. As bores varied in density, with tight concentrations divided by sparsely populated peripheral areas, the refinement of boundaries was primarily driven by features likely to be associated with particular groundwater chemistry such as the dominant geology, and further guided by land use, historical rainfall, relative recharge and surface water chemistry.

4.1.1 Refinement by geology

Dominant rock unit information was drawn from the DERM SIR-QRY database and categorised into 15 groups based on hydrological and hydro-geochemical characteristics (Figure 5). Plotting of the groups indicated a significant alignment between sequences of water type and broad geological divisions. The sodic sequence of groundwater chemistry tended to occur in the vicinity of Mesozoic sandstones, concurrent with or related to the Great Artesian Basin (GAB), or material derived from them through erosion and transportation. On the other hand, the alluvial sequence water types were generally aligned with alluvial deposits derived from the mixed sediments and volcanics of the Great Dividing Range, or from basaltic rocks.

4.1.2 Refinement by rainfall and recharge

Total annual and long term average rainfall data sets were obtained from the SILO Australian climate archive, which stores daily time step rainfall interpolations in 5km grids (for interpolation methods, see Jeffrey et al. 2001). The data was then processed for visualisation in ArcGIS 9.3.1 (Figure 6). The effect of rainfall was aligned with other factors, such as topography and geology, and particularly with relative recharge rates obtained from the DERM SIR-QRY database (Figure 7). High rainfall and recharge areas near the coast and along the ranges extending across the Dawson subcatchment were dominated by alluvial sequence chemistry types, as would be expected from the geology in those areas. Sodic types, particularly those of high salinity, tended to coincide with low rainfall and low recharge areas. This led to some zones cutting across catchments due to observed variations in water chemistry consistent with trend in average rainfall.

4.1.3 Refinement by land use

Land use was mapped into discrete categories following the method of Cogle, Carroll and Sherman (2006). The category choices reflect the types of landscape intervention occurring, as opposed to land use descriptions based on outputs (Cogle, Carroll & Sherman 2006). The state-wide land use data set was obtained from the Queensland Land Use Mapping Project (QLUMP) which uses the Australian Land Use and Management classification (ALUM) Version 5 Feb 2002. The aggregated land use data set was then rasterised into 100m grids in ArcGIS 9.3.1 (Figure 8). Very broad alignments were sometimes noted between alluvial sequence groundwater types and areas of undeveloped or forested land, and between sodic sequence groundwater types and areas of grazing; however these were not exclusive relationships. Both chemistry sequences occurred in cropping areas for example and these areas often reflected complex groundwater chemistry with some indications of surface water and groundwater interaction. A general alignment was expected between groundwater chemistry and land use because they are both related to geology, soils, topography and climate. Local anomalies in the groundwater type within a region could also be related to specific land use.

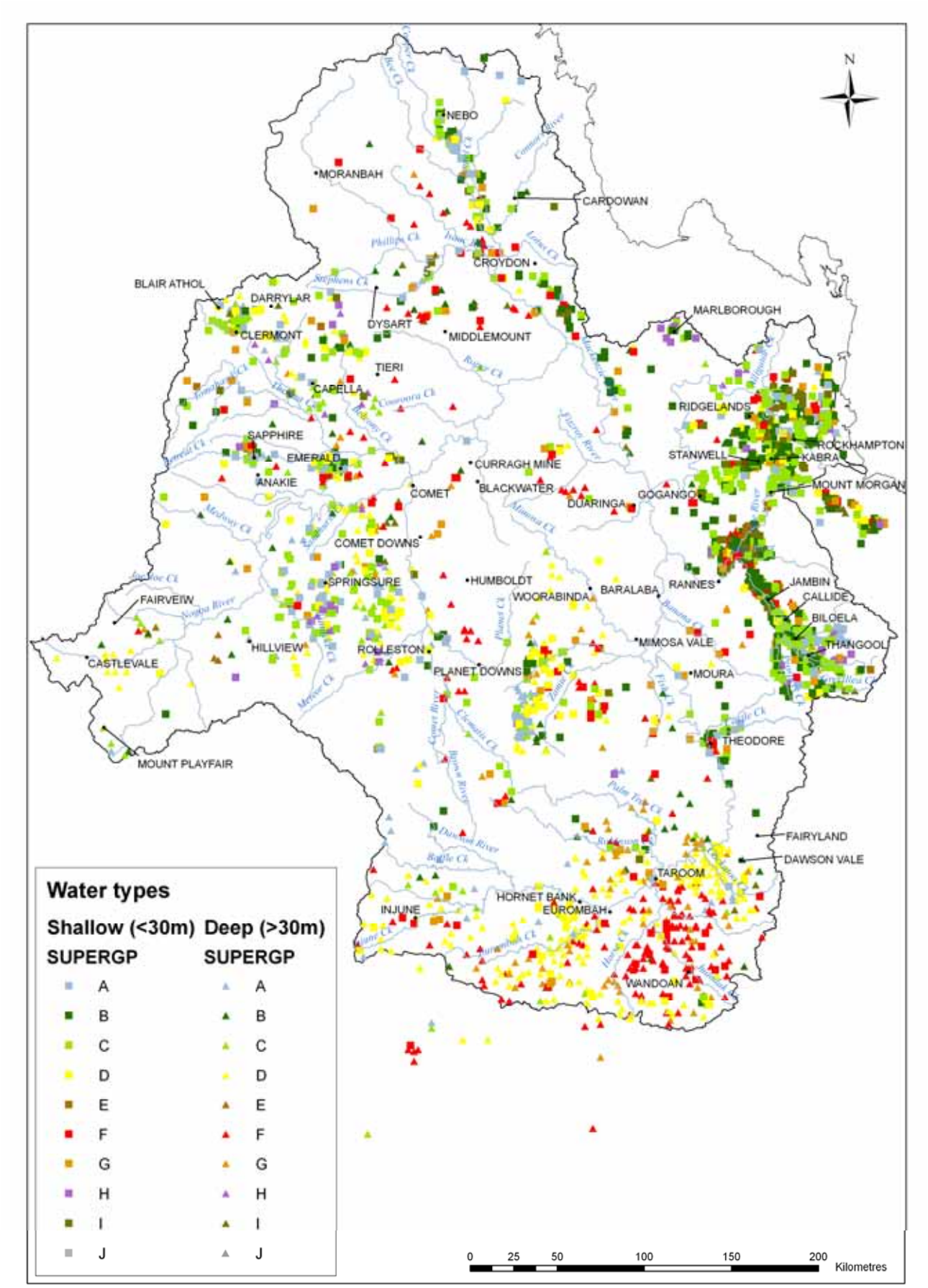

Figure 4: Shallow and deep groundwater chemistry types in the Fitzroy.

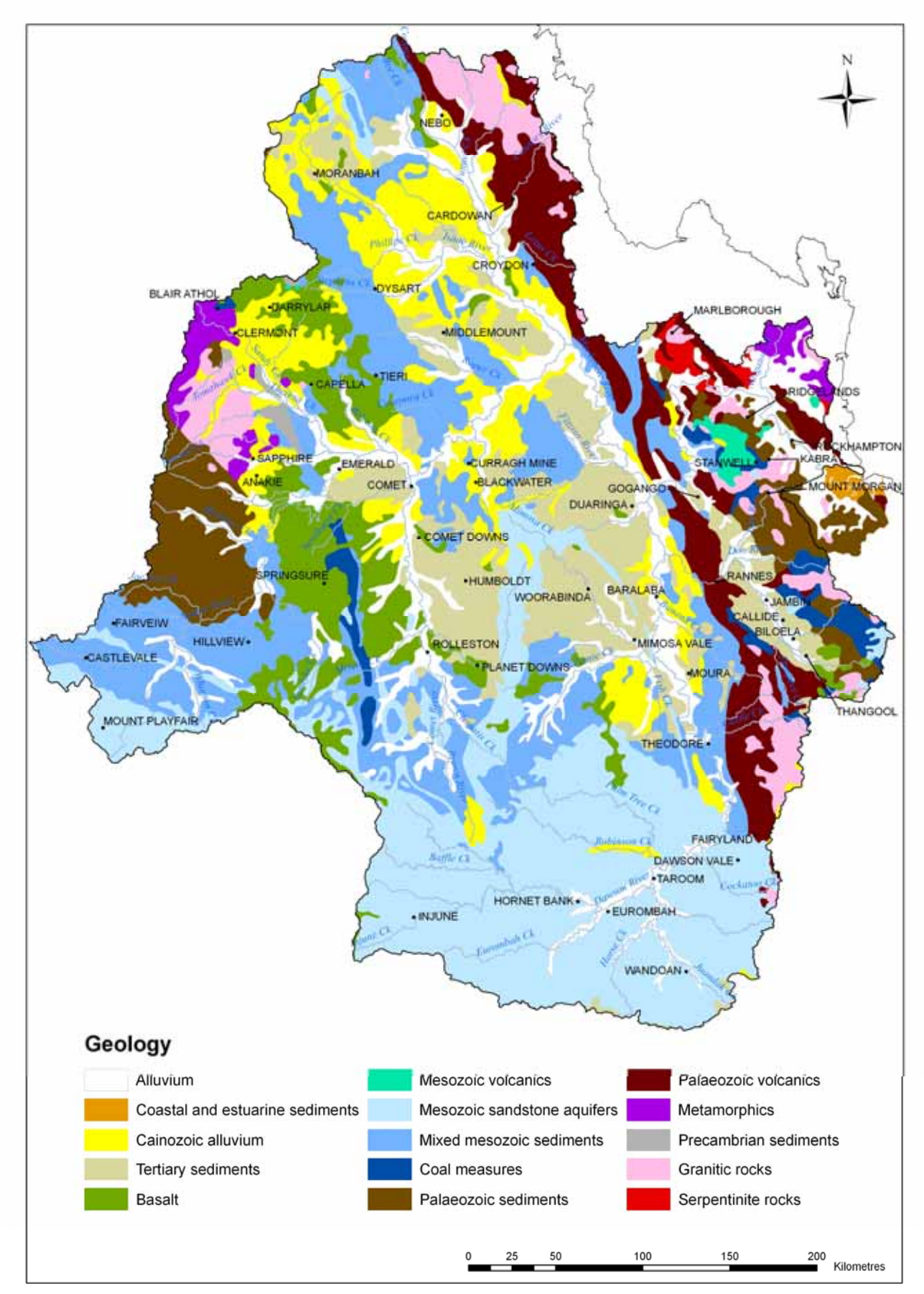

Figure 5: Dominant geology in the Fitzroy.

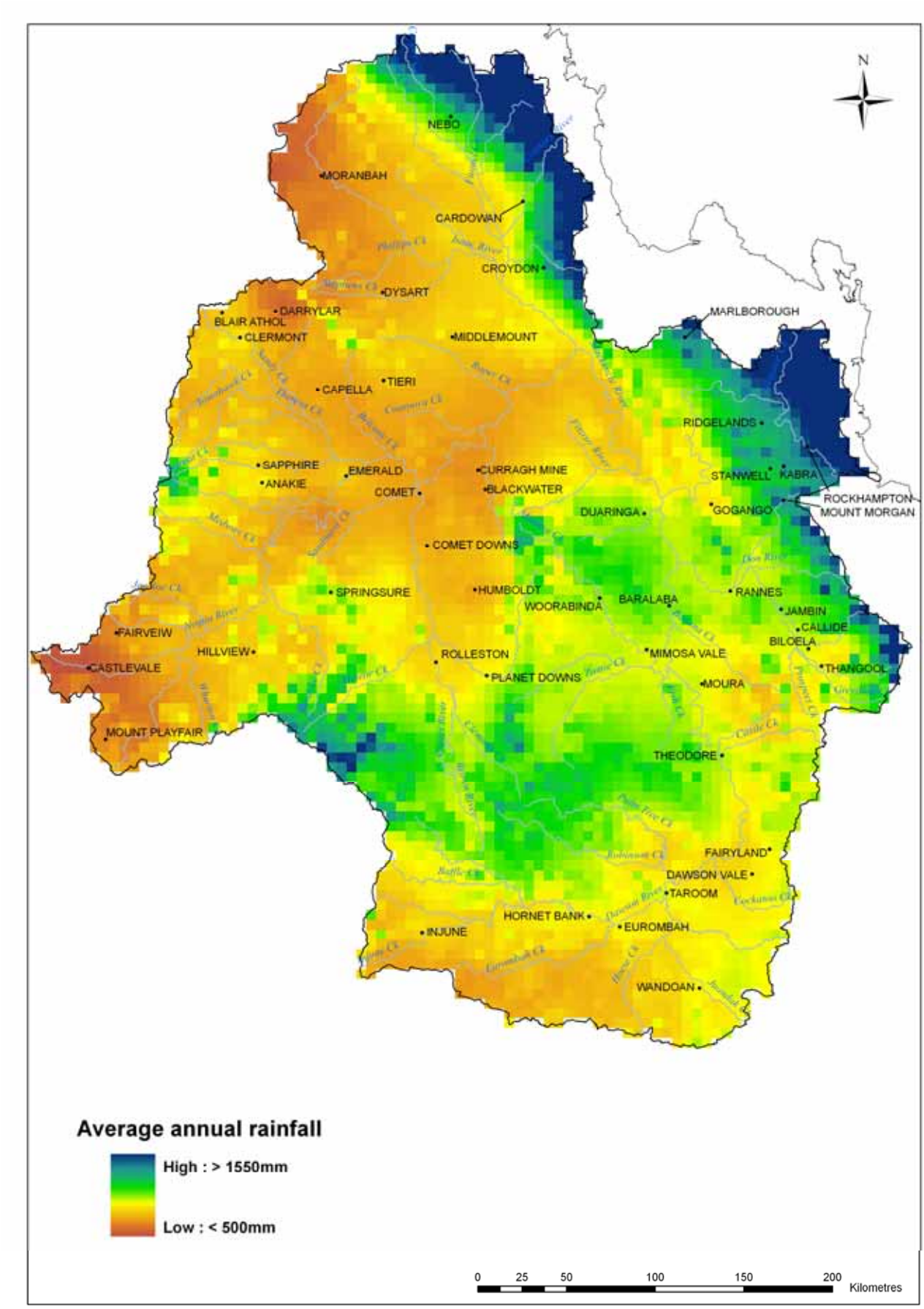

Figure 6: Average annual rainfall (mm) from 1900 to 1999 in the Fitzroy.

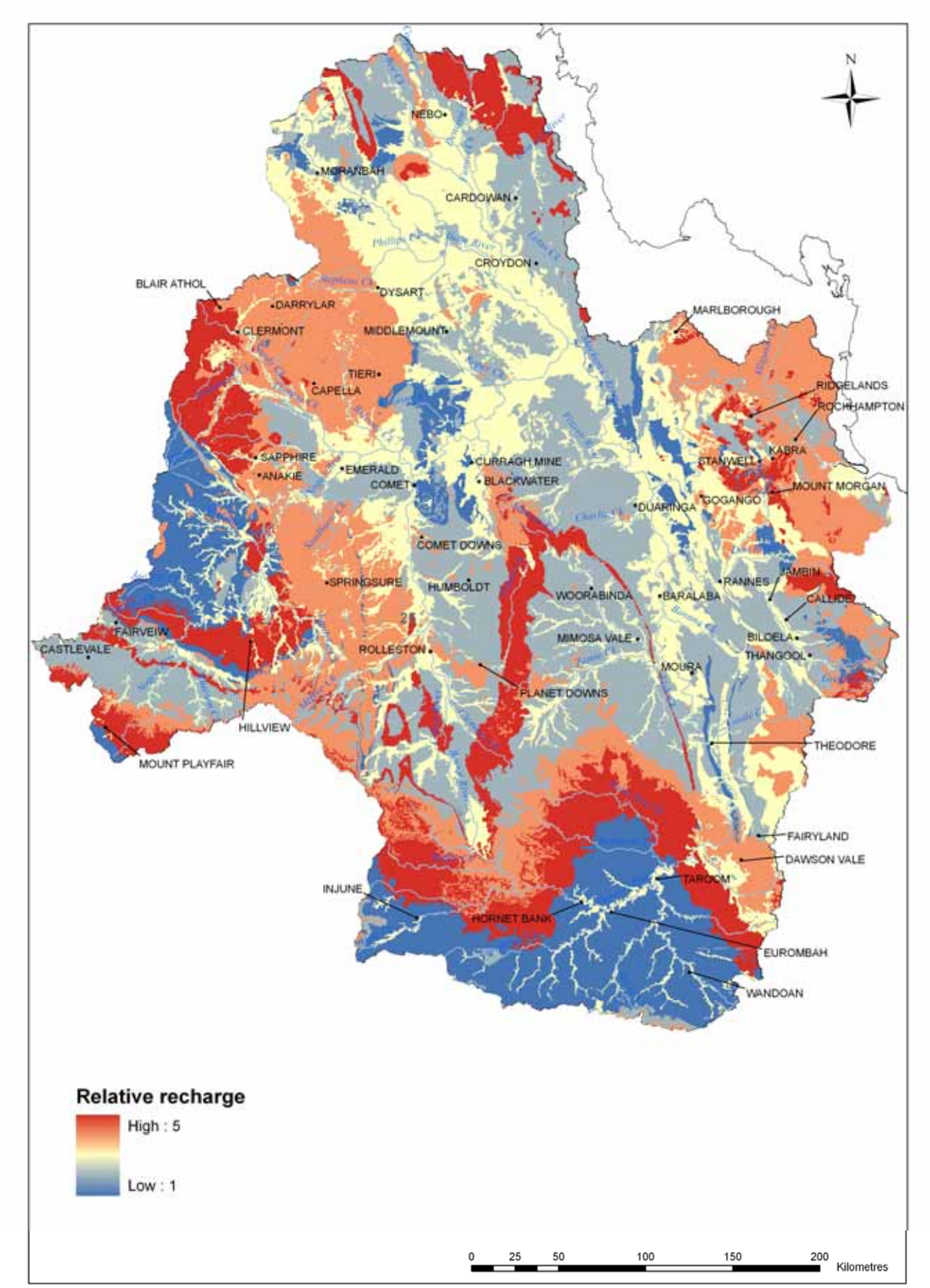

Figure 7: Relative recharge in the Fitzroy (DERM, unpublished).

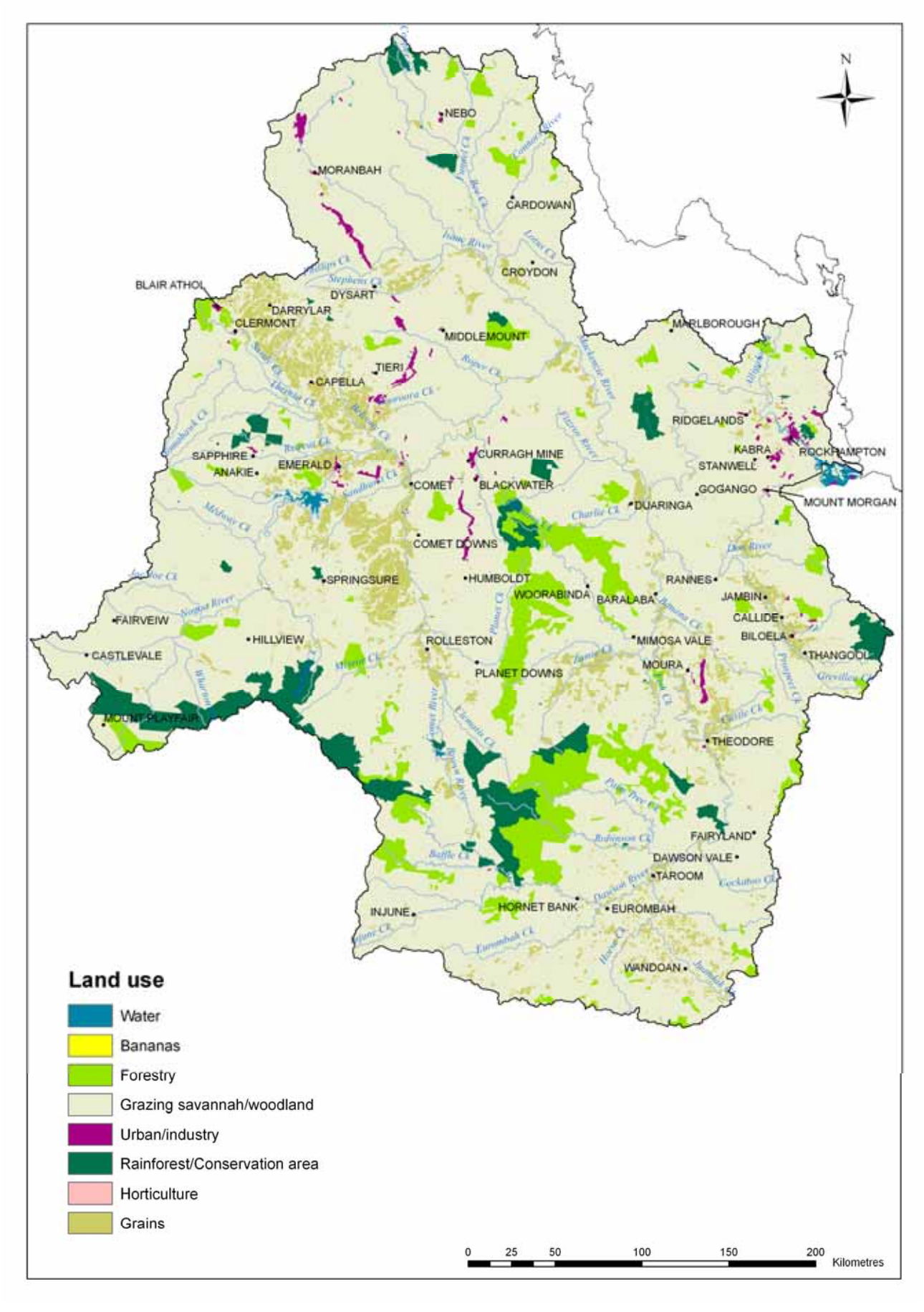

Figure 8: Land use in the Fitzroy.

4.2 Resulting chemistry zones delineated for the Fitzroy Basin groundwater

Despite the uneven distribution and uneven density of groundwater data, 44 discrete chemistry zones were able to be delineated across the Fitzroy Basin. These are shown in Figure 9 and summarised in Table 2. More detailed descriptive information for each zone is provided in Table 3 in Appendix A, along with nomograms of chemical equivalence in samples from deep and shallow groundwater in the zone (Table 4 in Appendix A). Statistical summaries of salinity and major ions are presented in Table 5 in Appendix A. Where groundwater data was abundant, and relatively homogenous in chemistry type, the zones could be defined and characterised with a high degree of confidence. In other areas, where the data was less adequate or the water chemistry patterns very complex, zones were delineated with less confidence. However, these areas still reflected a relatively consistent chemistry and were generally aligned with relevant geological, climatic and land use indicators to enable an association with a particular water type for a given area. Some areas with little or no groundwater data, and/or data that was too complex to define, remained uncategorised. Some uncategorised areas will likely have no groundwater reserves, while others may need further study to clarify their dominant water types. In areas of complex data, small local groundwater supplies are likely to be highly variable in chemistry because of local environments and land use influences.

Most areas of the Fitzroy Basin with sufficient data were found to have alluvial or sodic sequences of groundwater chemistry. Alluvial water types generally aligned with alluvial and basaltic rocks, which are largely found in eastern and western areas which have relatively higher rainfall and groundwater recharge than the rest of the basin. Sodic water types were found to align mostly with older sedimentary rocks in lower rainfall and recharge areas of the central parts and southern tip of the basin. Some additional water types occur in the Fitzroy Basin. However, these tend to be rare and related to local factors. A zone of Mg and HCO_3 dominant groundwater (water type H) was found to occur near Marlborough (Zone 39) and zones of SO_4 dominant groundwater (water type E) were found in the upper Nogoa sub-basin and near Mt Morgan (Zones 40 and 41). Un-incorporated areas contained either no groundwater data or data that was too complex to group into any water class. Zones 2, 3, 13, and 35 have been highlighted as particularly problematic due to data complexity, but broadly align with their descriptive water types and supporting indicators. Some parts of the northern and western fringes of the basin had sparse data, indicating that there may be little or no substantial aquifers, and therefore no zones have been mapped in these areas.

Significant differences in bulk chemistry across deep and shallow groundwater may indicate the overlaying of separate and probably unconnected groundwater systems within a particular zone, reflecting disparate physical and chemical environments. Of the 44 zones identified, about half of these reflected similar bulk chemistry in deep and shallow groundwater; about a third reflected differences in chemical balance across depths; and the remainder had no groundwater data in either deep or shallow layers. Differences in chemistry across depths was mostly found in alluvial sequence zones, and was associated with more balanced cations in shallow groundwater. However, in most of these cases the groundwater data was found to be limited in either shallow or deep groundwater, or at all depths, reducing overall confidence in these observations. Depth differences in the alluvial sequence Zone 2 (Anakie-Sapphire, dominated overall by water type A) and in the sodic sequence Zone 27 (Cockatoo, dominated overall by water type D) are supported with a greater abundance of data.

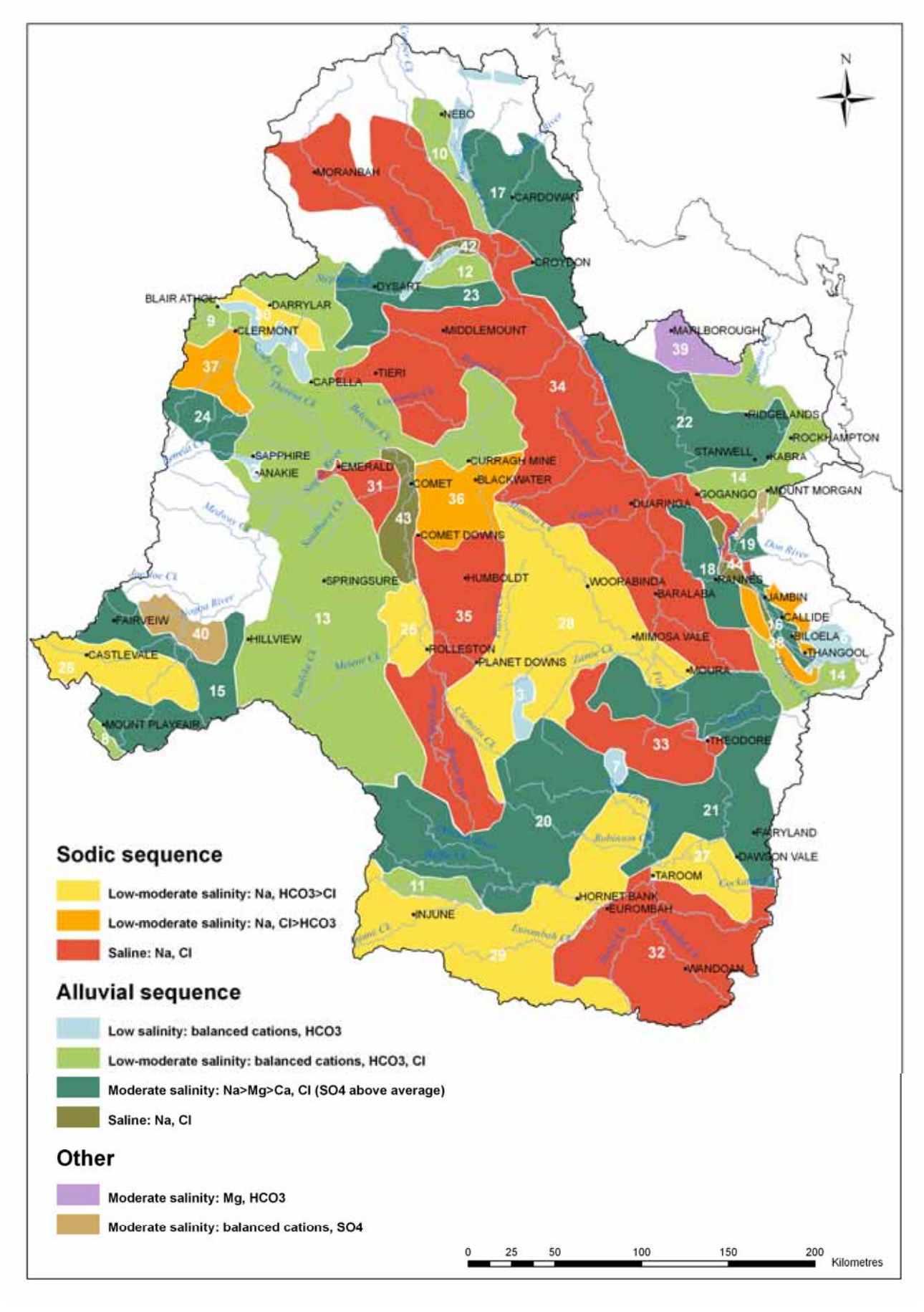

Figure 9: Groundwater chemistry zones mapped across the Fitzroy.

4.2.1 Refinement by surface water chemistry

The distribution of chemistry types between surface water, shallow groundwater and deep groundwater was examined in each zone to determine whether there was significant interchange between ground and surface water, and whether it was justified to differentiate chemically between shallow and deep groundwater (Figure 10). The alluvial groundwater sequence usually extends into the adjacent surface water with reduced salinity. The surface water then tends to maintain its character downstream, including over sodic groundwater sequences which are very rarely expressed in the surface water. Surface waters, as expected, were found to be mostly fresh and belonging to alluvial sequence chemistry types (mostly water type A). Where groundwater chemistry was reflected at the surface, this can be considered to indicate groundwater and surface water interaction. Potentially significant interaction was noted in some areas, particularly around Mt Morgan (Zone 41).

Groundwater and surface water systems are considered to be physically unconnected where their proportions of major ions are different. Where bulk chemistries are reasonably similar there is a stronger likelihood of surface water and groundwater systems being in recent contact through recharge or baseflow. However, the ranges of major ions in each zone reported from this study are based on the existing condition of the groundwater as discernable from available data, and can't account for changes from the natural which may have occurred before the data was collected. Since data has mostly been collected on an opportunistic basis, both spatially and temporally, it can't be considered to be fully representative in all cases, particularly where data is limited. For this reason ongoing monitoring, particularly in areas where data is limited or chemically complex, is of paramount importance in further refining groundwater understanding and managing the resource.

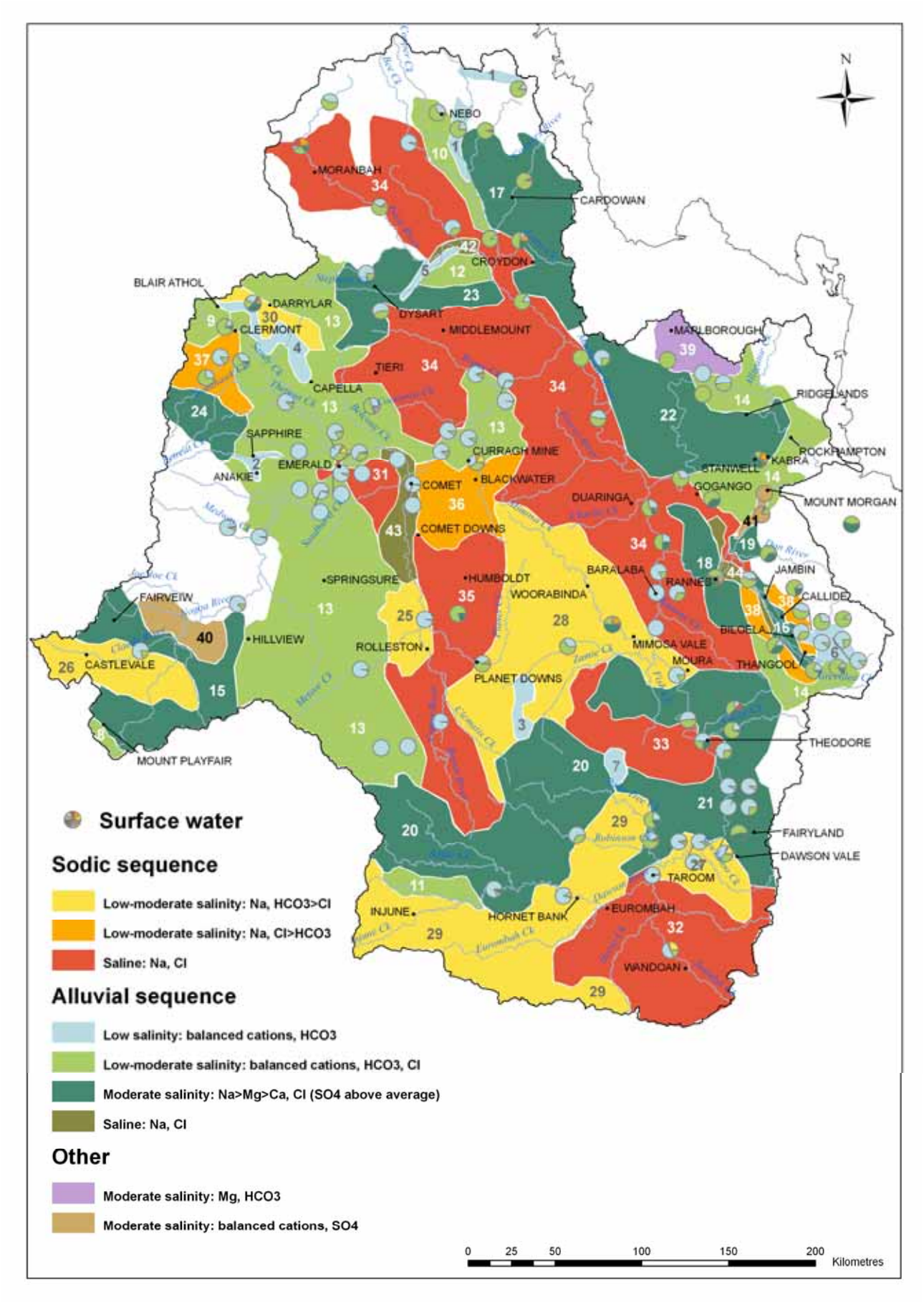

Figure 10: Groundwater zones and surface water types in the Fitzroy.

Table 2: Summary of groundwater chemistry zones in the Fitzroy Basin.

Zone	Depth	Groundwater data	Dominant ions		EC (µScm-1) Percentile value		
			Cations	Anions	20th	50th	80th
1 - Dennison	Deep	Nil to moderate	Balanced	HCO_3	345	565	901
	Shallow	Limited to moderate	Balanced	HCO_3	490	640	984
2 - Anakie-Sapphire	Deep	Limited to abundant	Balanced	HCO_3	332	410	493
	Shallow	Limited to abundant	Balanced	HCO_3	559	892	1,047
3 - Mt Aldis-Concilliation	Deep	Abundant	Balanced	HCO_3	660	780	1,036
	Shallow	Abundant	Balanced	HCO_3	746	858	926
4 - Blair Athol-Capella	Deep	Moderate	Balanced	HCO_3	765	938	1,243
	Shallow	Moderate	Balanced	HCO_3	625	740	1,012
5 - Lower-Stephens	Deep	Limited	Na	Cl, HCO_3	914	2,400	4,219
	Shallow	Limited	Balanced	HCO_3	633	680	750
6 - Krombit-Kariboe	Deep	Limited	Balanced	HCO_3	1,100	1,350	2,300
	Shallow	Moderate to abundant	Balanced	HCO_3	650	910	1,293
7 - Zamie-Fish	Deep	Limited	Mg	HCO_3	744	780	807
	Shallow	Limited	Mg	HCO_3	-	-	-
8 - Mt Playfair	Deep	Limited to moderate	Na	HCO_3, Cl	31	310	641
	Shallow	nil	-	-	-	-	-
9 - Sandy	Deep	Limited	Balanced	Cl	18,117	19,800	20,372
	Shallow	Moderate	Na	Cl, HCO_3	526	642	889
10 - Bee-Cooper	Deep	Limited	Na	HCO_3	475	800	1,200
	Shallow	Moderate to abundant	Na	Cl, HCO_3	485	739	2,360
11 - Hutton	Deep	Moderate	Na	Cl, HCO_3	386	569	696
	Shallow	Limited	Na	Cl	429	625	1,250
12 - Stephens-Isaac	Deep	Limited	Na	HCO_3	1,298	1,835	2,085
	Shallow	Limited	Na	HCO_3, Cl	690	761	832
13 - Phillips-Fairbairn-Meteor	Deep	Moderate to abundant	Na	HCO_3	720	1,256	1,950
	Shallow	Moderate to abundant	Na	HCO_3	630	1,150	2,509
14 - Prospect-Fitzroy	Deep	Moderate to abundant	Na	HCO_3	756	1,420	2,150
	Shallow	Abundant	Na	Cl, HCO_3	1,006	1,619	2,765
15 - Upper-Nogoa	Deep	Limited to moderate	Na	Cl	330	1,200	1,340
	Shallow	Limited	Mg	HCO_3	229	1,050	1,515
16 - Thangool-Jambin	Deep	Limited to moderate	Na	Cl, HCO_3	1,859	2,000	2,285
	Shallow	Abundant	Balanced	Cl	1,000	1,700	2,800

Zone	Depth	Groundwater data	Dominant ions		EC (µScm-1) Percentile value		
			Cations	Anions	20th	50th	80th
17 - Lotus-Connors-Funnel	Deep	Limited	Na	Cl	2,370	3,000	4,925
	Shallow	Moderate	Na	Cl	414	900	2,276
18 - Rannes	Deep	Limited	Na		3,310	4,675	5,900
	Shallow	Moderate	Mg	Cl, HCO_3	1,532	2,400	4,440
19 - Dee-Don	Deep	Moderate to abundant	Na	Cl	2,721	3,900	7,200
	Shallow	Abundant	Balanced	Cl	2,000	3,500	5,100
20 - Robinson-Baffle	Deep	Limited to moderate	Na	Cl, HCO_3	317	595	743
	Shallow	Limited	Na	Cl, HCO_3	90	785	1,195
21 - Dawson	Deep	Limited to moderate	Na	Cl, HCO_3	217	585	2,060
	Shallow	Limited to moderate	Na	Cl, HCO_3	1,033	2,000	4,609
22 - Fitzroy	Deep	Limited to abundant	Balanced	Cl	1,507	2,735	5,276
	Shallow	Moderate to abundant	Balanced	Cl	1403	2,220	3,722
23 - Dysart	Deep	Limited to moderate	Na	Cl	2,496	3,465	7,450
	Shallow	Limited	Na	Cl	3,333	3,850	4,506
24 - Tomahawk	Deep	Nil	-	-	-	-	-
	Shallow	Limited to moderate	Na	Cl	1,790	3,140	6,908
25 - Lower-Meteor	Deep	Moderate to abundant	Na	HCO_3	791	1,037	1,345
	Shallow	Moderate to abundant	Na	HCO_3	685	1,085	1,420
26 - Wharton-Claude	Deep	Moderate	Na	HCO_3	450	550	667
	Shallow	Limited	Na	HCO_3	-	-	-
27 - Cockatoo	Deep	Abundant	Na	HCO_3	158	210	297
	Shallow	Moderate	Na	HCO_3	177	215	284
28 - Conciliation-Mimosa	Deep	Limited to abundant	Na	HCO_3	308	425	723
	Shallow	Limited to abundant	Na	HCO_3	300	615	1,644
29 - Injune-PalmTree	Deep	Abundant	Na	Cl, HCO_3	689	1,200	2,205
	Shallow	Moderate	Na	Cl, HCO_3	890	1,565	2,515
30 - Retro-Darrylar	Deep	Limited to moderate	Na	HCO_3	530	665	960
	Shallow	Limited to moderate	Na	HCO_3	536	1,030	1,689
31 - Sandhurst	Deep	Limited to moderate	Na	Cl, HCO_3	2,151	3,150	3,540
	Shallow	Limited to moderate	Na	Cl, HCO_3	874	2,450	4,200
32 - Juandak-Horse	Deep	Abundant	Na	Cl, HCO_3	0	2,050	5,165
	Shallow	Moderate	Na	Cl, HCO_3	371	1,440	6,040
33 - Zamie-Castle	Deep	Limited to moderate	Na	Cl	0	6,310	8,712

Zone	Depth	Groundwater data	Dominant ions		EC (µScm-1) Percentile value		
			Cations	Anions	20th	50th	80th
	Shallow	Limited to moderate	Na	Cl	878	3,700	12,158
34 - Isaac-Dawson	Deep	Limited to moderate	Na	Cl	3,419	6,100	16,000
	Shallow	Limited to moderate	Na	Cl	498	2,150	8910
35 - Brown-Humbolt	Deep	Limited to moderate	Na	Cl	4,103	9,375	13,604
	Shallow	Limited	Na	HCO_3, Cl	84	870	1,983
36 - Blackwater	Deep	Limited	Na	Cl, HCO_3	3,475	4,150	7,255
	Shallow	Limited	Na	Cl, HCO_3	3,100	6,300	7,410
37 - Clermont-Theresa	Deep	Nil	-	-	-	-	-
	Shallow	Limited to moderate	Na		544	3,400	4,418
38 - Callide	Deep	Limited	Na	Cl, HCO_3	1,333	1,675	2,450
	Shallow	Limited to moderate	Balanced	Cl	693	1,050	1,610
39 - Marlborough	Deep	Limited	Mg	HCO_3	665	1,270	1,422
	Shallow	Limited to moderate	Mg	HCO_3	1,314	1,646	2,725
40 - Balmy	Deep	Limited	Balanced	SO4	805	1,363	1,616
	Shallow	Nil	-	-	-	-	-
41 - Mt Morgan	Deep	Limited	Balanced	SO_4	974	1,356	1,656
	Shallow	Abundant	Balanced	Cl, SO_4	1611	2,020	2,600
42 - Black Hole	Deep	Limited	Balanced	Cl	8,080	11,500	12,220
	Shallow	Limited	Na	Cl	465	560	1,738
43 - Lower-Comet	Deep	Limited to moderate	Balanced	Cl	3,460	5,500	7,720
	Shallow	Limited to moderate	Na	Cl	2,725	6,300	15,495
44 - Dee-Don-Callide	Deep	Limited to moderate	Balanced	Cl	7,380	13,500	17,350
	Shallow	Limited to moderate	Balanced	Cl	3,900	7,235	12,175

5 Discussion

This pilot study demonstrates a methodology for classifying groundwater zones over a large, diverse catchment so that regionally consistent salinity ranges may be defined. The methodology relies on a multivariate assessment of ground and surface water chemistry, with consideration of environmental factors represented as GIS layers. This approach is similar to that taken by Acworth and Janowski (1993), who combined groundwater chemistry, geology and hydrological information to characterise three hydro-geochemical zones in the Botany Sands aquifer, Sydney. It also aligns conceptually with more recent applications in GIS modelling, where multiple large data sets are computationally combined to quantify landscape processes in two dimensions (see for example Lamble & Fraser 2005).

The present study is based on multivariate techniques which are widely used in the analysis of water chemistry, and was adapted from that used in previous studies, for instance McNeil, Cox and Preda (2005). However, the addition of surface water samples to the data set was introduced so that areas of ground/surface interaction, either through recharge or baseflow or both, could be delineated. The potential for chemical differences to occur across depths should be considered when developing salinity guidelines in some zones, especially if the chemical differences are significant and if the potential mixing of the waters—such as through physical disturbance—is considered likely to cause ecological harm to associated groundwater ecosystems. Significant interaction between surface and groundwater systems may be involved with human activity, especially if it affects changes to natural hydrological regimes, or when it occurs in areas with a larger proportion of irrigation or mining, for instance: McMahon, Böhlke and Lehman (2004); Karro, Marandi and Vaikm (2004); and Rosenthal et al. (1992).

Salinity in undisturbed aquifers usually increases with depth below the water table as the residence time of ground water increases and rock/water reactions progress (McMahon, Böhlke & Lehman 2004, Kumar and Sinha 2010), although this is not always the case. For instance, McMahon, Böhlke and Lehman (2004) found a band of higher salinity close to the surface of the water table of the Texas (USA) High Plains aquifer, a condition that they attributed to overlying agriculture. Similar instances have been reported by other authors such as Lambrakis (2006) and Rosenthal et al. (1992). Alternatively, in places where there are multiple discrete aquifers, as in much of the Great Artesian Basin, their salinities may be unrelated to each other. The selection of a depth of 30m to subdivide shallow and deep groundwater is based on the usual depth of alluvium in the area, and on the distribution of EC with depth in the Fitzroy Basin which is shown in Figure 11. Most samples were collected at depths of less than 30m, so designated ‘shallow’. The figure indicates that EC was declining and becoming less variable with depth within this range. It is also clear that the depth distribution is skewed, with a wide range of deeper bores which would be presumed to represent a range of aquifers. The salinity range increases at these greater depths, although the median is irregular. It does not necessarily follow that shallow ranges are more reliable, because that depends on the representation within individual zones.

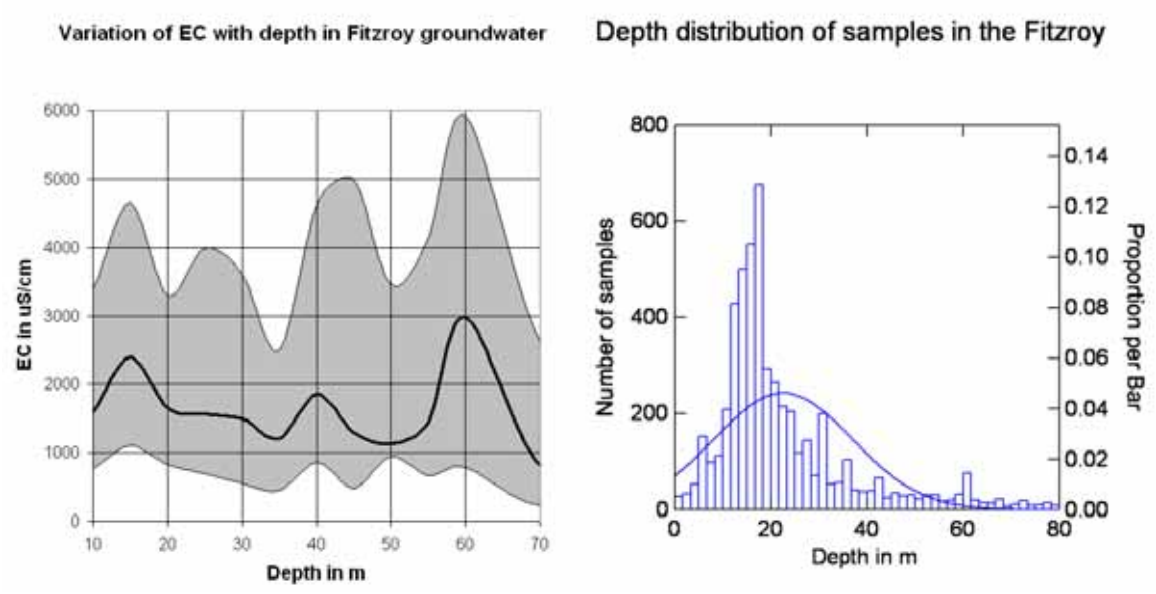

Figure 11: Range of sampling depths for Fitzroy bores in the dataset, with median and 20-80 percentile range of EC to show variability with depth.

This study has helped to clarify some of the processes acting on groundwater chemistry in the Fitzroy Basin. In particular, broad alignments were defined between two sequences of water type, defined in Figure 3, each evolving through a wide range of salinities. The alluvial sequence is typical of many actively weathering landscapes such as basalt and the Great Dividing Range, or the alluvials derived from them. Examples are discussed in McMahon, Böhlke and Lehman (2004) and Hem (1989). There are no dominant cations, although the sodium contribution increases and chloride gradually rises in place of bicarbonate in significance as salinity rises. The development of this water type sequence is consistent with chemical weathering being accelerated in the warm, often acidic soils of sub-tropical to tropical settings with summer rainfall as described in Millot (1970). The other series of water types, the sodic sequence, is associated with the more weathered and quartzitic sandstones. Sub-coastal sodic waters are associated with quartz rich terrains such as sandstones and granites which have been attributed to feldspar weathering, cation exchange on clays, and calcite precipitation (Chae et al. 2006, Eriksson 1985, Kerala et al. 2007, Pinol & Avila 1992, Shaji et al. 2007). The zonation of the sequences with their respective geological and climatic indicators held true for most areas, and was useful in justifying the classification of dominant groundwater chemistry in areas of less certainty. Further research to support these relationships would improve confidence where data are limited.

The type of spatial analysis based on self-organised mapping of multiple and sometimes three-dimensional layers of information into simpler and more accessible two-dimensional forms is becoming mainstream in many areas of research, including environmental assessment (see for example Corchado & Perez 2011, Csaky & Please 2003, Di Prinzio, Castellarin & Toth 2011, Whelan et al. 2010). These methods enable complex processes or relationships to be defined by combining large multiple datasets that already exist. This project employs such an approach, adapting and applying existing methodology and data sets to elucidate landscape processes of particular interest to the management of natural resources in Queensland, using already available data. It has enabled the production of a descriptive model of groundwater zones in the Fitzroy Basin, provided as a map with supporting explanatory and statistical tables which provide ranges of salinity and major ions in each zone. These resources have been presented in a manner which could assist with the development of salinity guidelines for the Fitzroy Basin groundwaters, and identify anomalous variations from ambient groundwater quality.

This groundwater quality assessment has been based on a large dataset taken from the available ground and surface water quality records. In terms of uncertainty, these records are taken from non-uniform locations in the landscape, and are of variable quality. However, the analytical procedures used (and more fully described in NcNeil 1983) were selected because they are suitable for this type of data. Chemical analyses were the validation of salinity and major ions, based on chemical balance. These tests enabled identification of any errors in bulk chemistry and atypical outliers. Once the unreliable data had been removed, 12,200 groundwater samples and 1,500 surface water samples remained in the file.

The groundwater systems within the Fitzroy Basin are very complex. There are several important alluvial aquifers as well as broad regions where groundwater is only found sporadically, mostly in non-alluvial aquifers such as sandstone or basalt. Because sampling has been largely unsystematic, the distribution of data is not even throughout the Fitzroy Basin, with most emphasis having been given to irrigation areas. For this reason, the degree of subdivision and levels of uncertainty will vary across the basin. However, the data were analysed at the Queensland Health Scientific Services (QHSS) laboratories, a NATA registered facility with high levels of internal quality control and a documented history of changes in analytical procedures. Analyses are now transferred electronically to DERM databases, but were historically typed in by hand, allowing the possibility of transcription errors.

Further monitoring is therefore recommended to help clarify the dominant groundwater chemistry in complex areas and in areas which have limited data. There is also the potential to further analyse the existing data, for instance by separating the data into other depth categories, and to use more computational approaches to GIS mapping, in order to help clarify these complexities. Confirmation of the existence or absence of groundwater in areas of sparse data would also help to clarify the need for characterising un-zoned areas. In areas where groundwater and surface water interaction may be associated with human activities, further study may help clarify the risks to local ecosystems.

6 Conclusions

Discrete areas of similar chemical balance in shallow and deep groundwaters of the Fitzroy River Basin have been identified and mapped into 44 individual zones. Each zone has been described in terms of: geographical extent; dominant geology; dominant land use; rainfall; dominant water chemistry; ranges of salinity; and ranges of other water quality characteristics. Statistical summaries of major ions are presented for each zone along with chemical equivalence as a descriptor of overall salinity. Deep and shallow groundwater chemistry has been presented along with surface water chemistry to help identify possible areas of groundwater and surface water interaction. The delineation and description of these zones can assist with developing regional guidelines for groundwater salinity in the Fitzroy River basin. This pilot study demonstrates the potential for existing data to support the development of appropriate management tools for groundwater, and employs a coordinated approach which can be applied to other areas. The methodology developed in this study can be usefully applied to other large or complex groundwater systems, with both spatial and vertical diversity, and with reasonably numerous but scattered data collected from existing bores.

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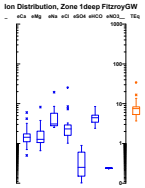
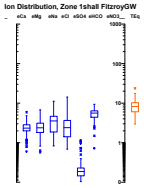
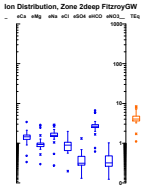
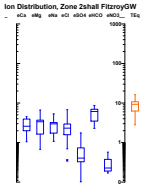
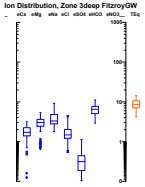
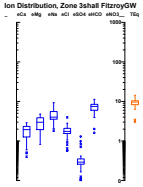
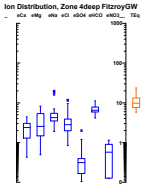
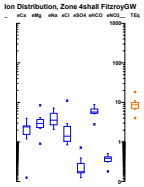
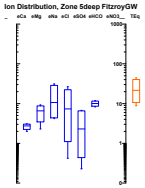
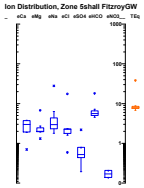
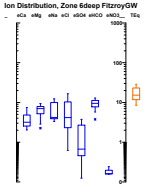
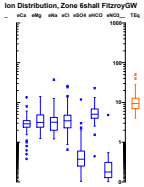
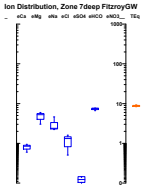
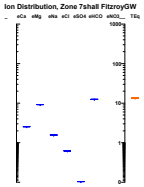
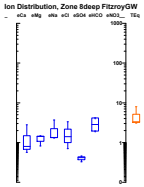
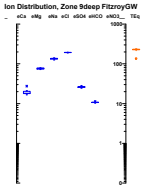
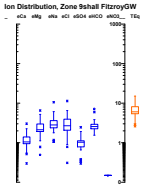
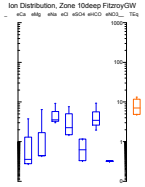
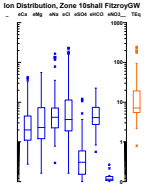
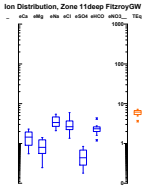
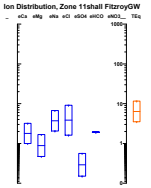
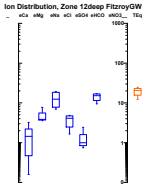
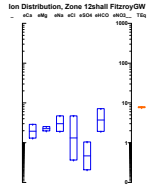
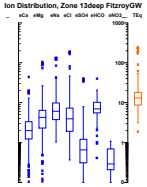
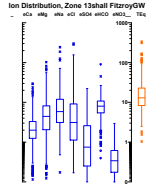
Appendix A Results tables

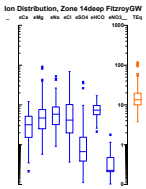
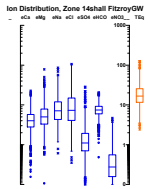
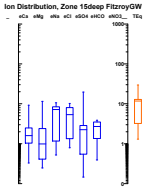
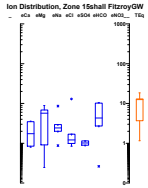
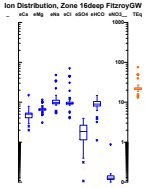
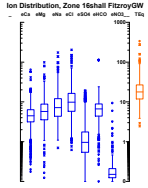
Table 3: Detailed description of groundwater chemistry zones in the Fitzroy Basin. (Chemical equivalence figs. magnified in Table 4 for easier reading)

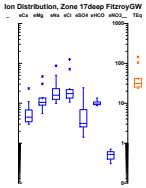
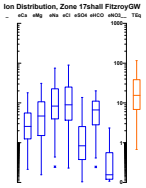
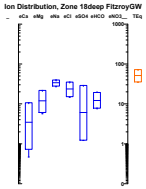
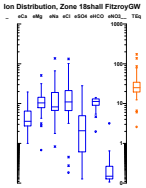
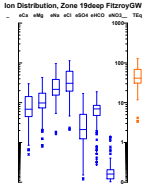
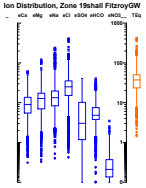
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
1 Dennison	Geology and extent in two parts, separated by undefined area. North: Granitic rocks, Palaeozoic volcanics and Cainozoic alluvium between headwaters of Dennison and Funnel Creeks; South: Alluvium and Palaeozoic volcanics east and south east of Nebo along lower Dennison Creek into Funnel Creek. Land use: Grazing, some forestry. Rainfall: North: high; South: low-moderate.	North: Nil at depth, limited in shallow South: Moderate.	Low salinity. Mostly alluvial sequence dominated by HCO_3. Shallow and deep groundwater similar, however Ca and Mg lower at depth. Relatively very low NO_3 in shallow groundwater**. Predominant water type: A.		
2 Anakie-Sapphire	Geology and extent: Alluvium, Cainozoic alluvium and granitic and metamorphic rocks along lower Retreat Creek around and including Anakie and Sapphire. Delineation of zone difficult with complex groundwater chemistry and geology. Land use: Grazing. Rainfall: Low.	Abundant in North but limited in other areas.	Low salinity, particularly at depth. Mostly alluvial sequence dominated by HCO_3, but chemistry complex and chemical balance differs across depths. Ca, Mg, Cl, HCO_3 and SO_4 lower at depth, while Na and NO_3 higher. Predominant water type: A.		
3 Mt Aldis-Concilliation	Geology and extent: Mesozoic sandstone aquifers, mixed Mesozoic sediments, basalt and alluvium between Mt Aldis and headwaters of Concilliation Creek. Delineation of zone difficult with complex groundwater data and geology. Land use: Largely grazing. Rainfall: Low.	Abundant.	Low salinity. Complex chemistry but largely alluvial sequence, dominated by HCO_3 and with Na>Cl. Chemical balance generally consistent across depths. SO_4 more variable at depth though generally low overall. Predominant water type: A.		

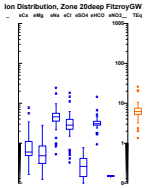
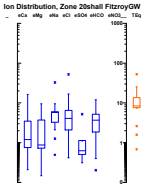
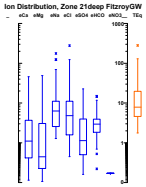
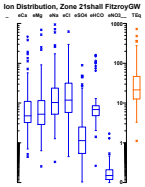
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
4 Blair Athol-Capella	Geology and extent: Cainozoic alluvium with basalt northeast of between Blair Athol and Capella. Land use: Cropping. Rainfall: Low.	Moderate.	Low salinity. Mixed chemistry but largely alluvial sequence, dominated by HCO_3 and with Na>Cl. Similar chemical balance across depths, but deep groundwater more variable, particularly NO_3 and Mg. Predominant water type: A.		
5 Lower-Stephens	Geology and extent: Alluvium and Cainozoic alluvium along lower Stephens Creek and Isaac River. Land use: Grazing and cropping. Rainfall: Low.	Limited.	Low to moderate salinity, more saline and variable at depth. Chemistry differs across depths. Largely alluvial sequence dominated by HCO_3, Na and Cl at depth and by HCO_3 with more balanced cations in shallow groundwater. Mg, Na, Cl, SO_4 and HCO_3 higher at depth. No NO_3 detected at depth. Predominant water type: A.		
6 Krombit-Kariboe	Geology and extent: Palaeozoic sediments, Tertiary sediments and basalt to east of Biloela and Thangool. Generally bordered along south of zone by North Kariboe Creek and to north by Krombit Creek. Land use: Largely grazing with cropping near Biloela and Thangool. Rainfall: Low to moderate.	Moderate to abundant in shallow, but limited at depth.	Generally low salinity, becoming more saline at depth. Mostly alluvial sequence, dominated by HCO_3 and differing in chemical balance across depths. Deep groundwater more variable, with some higher Na, Cl and Mg. Shallow groundwater contains more balanced cations but more variable NO_3. Characteristic water types occur mostly in north of zone. Predominant water type: A.		
7 Zamie-Fish	Geology and extent: Basalt south west of Fish Creek headwaters and south east of Zamie Creek headwaters. Land use: Grazing and forestry. Rainfall: Low.	Limited, mostly at depth.	Low salinity, particularly at depth. Groundwater chemistry similar across depths, dominated by HCO_3 and Mg. Relatively low SO_4. Predominant water type: A.		

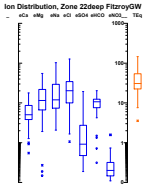
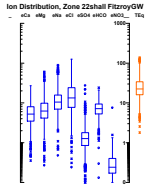
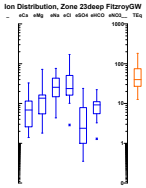
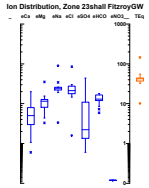
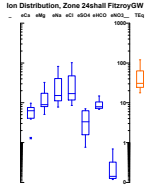
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
8 Mt Playfair	Geology and extent: Mesozoic sandstone aquifers in headwaters of Nogoa River, near Mt Playfair. Land use: Grazing. Rainfall: Low.	Limited to moderate at depth. Nil shallow.	Low salinity in deep groundwater. Alluvial chemistry at depth, dominated by HCO_3, Na and Cl. Relatively low SO_4. Predominant water type: C.		
9 Sandy	Geology and extent: Metamorphic rocks around headwaters of Sandy Creek to west of Clermont. Land use: Grazing with considerable proportion of forestry and some mining. Rainfall: Low.	Limited at depth, moderate in shallow.	High salinity at depth, low salinity in shallow groundwater. Chemistry differs strongly across depths. Deep groundwater dominated by Cl, with relatively high Na and Mg, with Mg higher than SO_4 and HCO_3 and with relatively very low NO_3**. Shallow groundwater dominated by Na, Cl and HCO_3 with low NO_3 and with SO_4 relatively low and balanced with Mg. Predominant water type: C.		
10 Bee-Cooper	Geology and extent: Alluvium, Cainozoic alluvium and basalt around and to south of Nebo, incorporating Bee Creek and Cooper Creek, bordered to east by Funnel Creek. Land use: Largely grazing with conservation and some cropping. Rainfall: Generally low.	Limited at depth but moderate to abundant in shallow.	Mostly low salinity but more variable in shallow groundwater. Mixed chemistry, differing across depths and more variable in shallow groundwater. Deep groundwater largely sodic sequence, dominated by Na and HCO_3. Shallow groundwater largely alluvial sequence, dominated by HCO_3, Na and Cl with cations more balanced. Predominant water type: C.		
11 Hutton	Geology and extent: Mesozoic sandstone aquifers along north bank of Hutton River. Land use: Grazing. Rainfall: Low.	Moderate at depth but limited in shallow.	Low salinity, less variable at depth. Mixed chemistry, largely alluvial sequence with similar chemical balance across depths. Dominated by HCO_3, Cl and Na. No NO_3 detected at any depth. Predominant water type: C.		

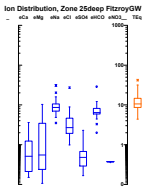
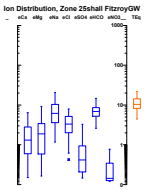
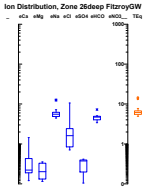
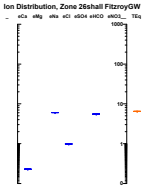
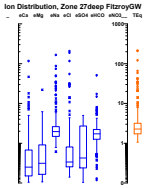
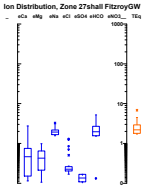
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
12 Stephens-Isaac	Geology and extent: Cainozoic alluvium, alluvium, mixed Mesozoic sediments and Tertiary sediments east of Dysart and bordered by Stephens and Isaac Rivers. Land use: Largely grazing with some cropping. Rainfall: Low.	Limited.	Low to moderate salinity, more saline and more variable at depth. Mixed chemistry, differs across depths, but largely alluvial sequence. Deep groundwater dominated by Na and HCO_3 with Na>Mg>Ca. Shallow groundwater dominated by HCO_3, Na and Cl with more balanced cations. Relatively very low NO_3 at all depths**. Predominant water type: C.		
13 Phillips-Fairbairn-Meteor	Geology and extent: Basalt, Cainozoic alluvium, mixed Mesozoic sediments, alluvium and granitic and metamorphic rocks extending from around Phillips Creek in north to headwaters of Meteor and Vandyke Creeks in south. Complexity of geology and groundwater chemistry reduces certainty in delineation of zone boundaries. Land use: Mixed land use dominated by cropping, with conservation areas in South. Rainfall: Mostly low, moderate in south.	Moderate to abundant in most parts but limited in S.	Variable though generally low to moderate salinity. Mixed chemistry, largely alluvial. Variability within depths, but generally similar chemical balance across depths. Dominated by HCO_3 and Na with Na>Mg>Ca. Possible surface water and groundwater interaction north of Cuddensen and north of Emerald. Predominant water type: C.		

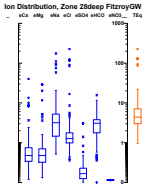
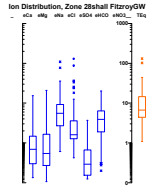
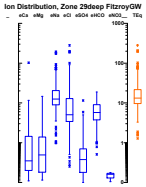
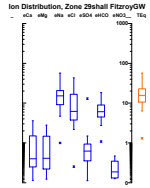
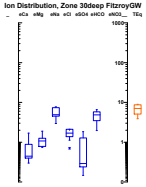
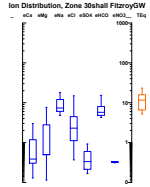
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
14 Prospect-Fitzroy	Geology and extent: In two parts: Palaeozoic volcanics and sediments, granitic rocks, Serpentinite rocks, alluvium, coal measures and Mesozoic volcanics north west and south west of Rockhampton; and between headwaters of Castle Creek and Thangool including Prospect Creek with granitic rocks, Palaeozoic volcanics and sediments, basalt, Tertiary sediments and coal measures. Land use: Largely grazing with some cropping and includes intensive land use around Rockhampton. Rainfall: Moderate to high in north; generally low in south.	Moderate to abundant at depth and abundant in shallow.	Variable though low to moderate salinity. Complex groundwater data. Variability within depths, but generally similar chemical balance across depths. Largely alluvial sequence dominated by HCO_3, Na and Cl with generally balanced cations although Na>Mg>Ca. Some relatively high SO_4 and NO_3. Surface water and groundwater interaction indicated in areas near Mt Morgan. Predominant water type: C.		
15 Upper-Nogoa	Geology and extent: Mixed Mesozoic sediments and Mesozoic sandstone aquifers in the upper Nogoa subcatchment upstream of junction with Claude River and Wharton Creek. Land use: Largely grazing. Rainfall: Low.	Limited to moderate at depth and limited in shallow.	Variable but low salinity. Mixed chemistry, differing across depths. Largely sodic sequence dominated by Na and Cl at depth and alluvial sequence dominated by HCO_3 and Mg in shallow groundwater. Some high SO_4 at depth. Predominant water type: B.		
16 Thangool-Jambin	Geology and extent: Alluvium along Callide Valley, incorporating Grevillea and Callide Creeks and extending from around Thangool to around Jambin. Land use: Cropping. Rainfall: Low.	Limited to moderate at depth but abundant in shallow.	Moderate salinity, less variable at depth. Mixed chemistry but with generally similar chemical balance across depths though more variable in shallow groundwater. Generally alluvial sequence, dominated by Na, Cl and HCO_3, with Na>Mg>Ca. Some high SO_4 in shallow groundwater. Surface water and groundwater interaction indicated in this zone. Predominant water type: B.		

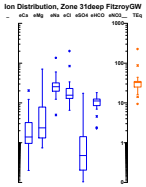
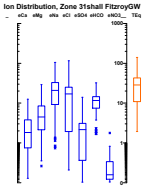
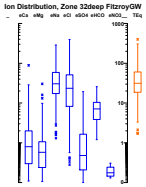
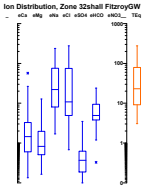
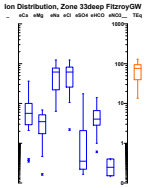
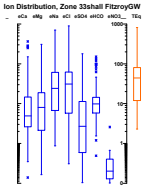
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
17 Lotus-Connors-Funnel	Geology and extent: Palaeozoic volcanics and Cainozoic alluvium from top of range to Funnel Creek and lower Isaac River channels, including Lotus Creek and Connors River. Land use: Largely grazing. Rainfall: Potentially high in parts.	Limited at depth and to moderate in shallow.	Moderate salinity at depth, low to moderate in shallow groundwater though more variable. Chemistry complex in alluvial areas and more variable in shallow groundwater. Generally alluvial sequence with similar chemical balance across depths. Dominated by Na and Cl, with Na>Mg>Ca. Some high SO_4 across depths and some high NO_3 in shallow groundwater. Some sodic sequence chemistry expressed in surface water upstream of Cardowan and north of Croydon. Predominant water type: B.		
18 Rannes	Geology and extent: Palaeozoic volcanics incorporating parts of lower Dee River around Rannes and extending from near Duaringa in north to south west of Baralaba. Land use: Grazing. Rainfall: Generally low with areas of moderate rainfall in north east.	Limited at depth and moderate in shallow.	Moderate to high salinity, more saline at depth. Variable chemistry, generally alluvial. Chemical balance differs across depths. Deep groundwater dominated by Na, Cl with some relatively high SO_4 and Na>Mg>Ca. Shallow groundwater dominated by Cl, Mg, HCO_3 and Na, with some relatively high SO_4. Surface water and groundwater interaction indicated at Rannes. Predominant water type: B.		
19 Dee-Don	Geology and extent: Alluvium with Tertiary sediments in junction of Don and Callide Rivers in lower Callide Valley, bordered by Dee and Don Rivers. Land use: Cropping. Rainfall: Low.	Moderate to abundant at depth and abundant in shallow.	Moderate to high salinity, more saline at depth. Mixed chemistry, mostly alluvial. Similar chemical balance across depths, dominated by Cl with Na>Mg>Ca. Some relatively high SO_4. Surface water and groundwater interaction indicated in this zone. Predominant water type: B.		

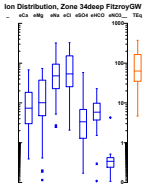
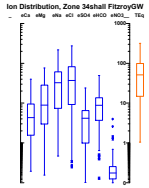
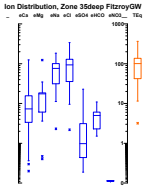
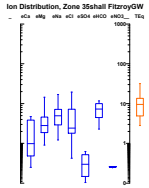
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
20 Robinson-Baffle	Geology and extent: Mesozoic sandstone aquifers including lower Injune, Baffle, upper Palm Tree and upper Robinson Creeks and headwaters of Dawson River and Zamie Creek. Land use: Much of zone under forestry or conservation. Rainfall: Generally low with areas of moderate rainfall.	Limited to moderate at depth and limited in shallow.	Low salinity, particularly at depth. Mixed and variable groundwater chemistry but generally alluvial sequence differing across depths. Dominated by Na, Cl and HCO_3, particularly at depth. SO_4, Ca and Mg higher in shallow groundwater. Predominant water type: B.		
21 Dawson	Geology and extent: south of Moura and north of Taroom, including Dawson River downstream of junction with Cockatoo Creek. Mesozoic sandstone aquifers in south, Palaeozoic volcanics and granitic rocks in east, Cainozoic alluvium and basalts in northwest, and mixed Mesozoic and Tertiary sediments, alluvium and Cainozoic alluvium in north and central parts. Zone boundaries difficult to define with complex groundwater data and geology. Land use: Grazing, forestry and conservation in S while N is cropped with some mining. Rainfall: Low.	Limited to moderate.	Variable though low to moderate salinity, becoming more saline in shallow groundwater. Complex chemistry. Chemical balance differs across depths, but generally alluvial sequence dominated by Na and Cl and with some relatively high SO_4. HCO_3, Ca and Mg higher in shallow groundwater. Some sodic sequence chemistry expressed in surface water upstream of Kaloola, west of Fairyland and N of Taroom indicating possible surface water and groundwater interaction. Predominant water type: B.		

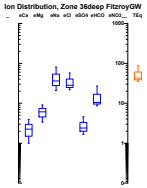
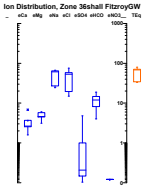
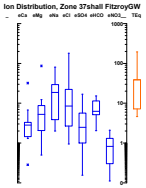
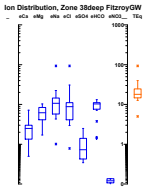
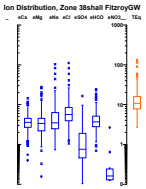
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
22 Fitzroy	Geology and extent: west from Rockhampton to lower Mackenzie and lower Fitzroy Rivers. Mesozoic volcanics, Palaeozoic volcanics and sediments, mixed Mesozoic sediments, alluvium, Cainozoic alluvium, and coal measures. Land use: Largely grazing with conservation areas. Groundwater data mostly located in E over cropping and intensive land uses. Rainfall: Low in west, moderate in east.	Abundant, mostly in east.	Moderate to high salinity, slightly more saline at depth. Complex chemistry, but generally alluvial sequence dominated by Cl with some relatively high SO_4. Overall similar chemical balance across depths, but Mg higher in deep groundwater. Surface water and groundwater interaction indicated between Stanwell and Kabra. Predominant water type: B.		
23 Dysart	Geology and extent: Around Dysart, bordered in north by Phillips Creek and including Stephens Creek and headwaters of Belcony and Roper Creeks at southern border. Mixed Mesozoic sediments and Cainozoic alluvium. Land use: Cropping in north and east. Rainfall: Low.	Limited to moderate at depth and limited in shallow.	Moderate to high salinity, more variable at depth. Similar chemical balance across depths. Mostly alluvial sequence dominated by Na and Cl, with Na>Mg>Ca and some relatively high SO_4. HCO_3 higher in shallow groundwater. Predominant water type: B.		
24 Tomahawk	Geology and extent: Granitic and metamorphic rocks south west of Clermont, including sections of Tomahawk and Retreat Creeks. Land use: Grazing. Rainfall: Low.	Nil at depth. Limited to moderate in shallow.	Moderate to high salinity in shallow groundwater. Mostly alluvial sequence dominated by Na and Cl with Na>Mg>Ca and some relatively high SO_4. Predominant water type: B.		

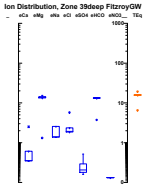
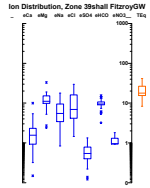
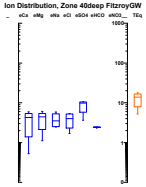
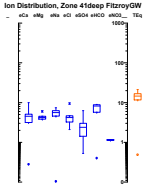
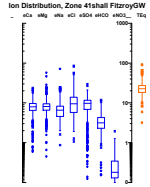
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
25 Lower-Meteor	Geology and extent: Area around junction of Meteor Creek, Comet River and Planet Creek, south east of Springsure. Basalt and alluvium. Land use: Grazing and cropping. Rainfall: Low.	Moderate to abundant.	Low salinity. Fairly consistent chemical balance across depths. Sodic sequence, dominated by Na and HCO_3 and with HCO_3>Cl. Predominant water type: D.		
26 Wharton-Claude	Geology and extent: Mixed Mesozoic sediments in upper Nogoa, including upper Claude River and bordered on east by Wharton Creek. Land use: Largely grazing. Rainfall: Low.	Moderate but only at depth.	Low salinity. Sodic sequence across depths, dominated by Na and with HCO_3>Cl. Predominant water type: D.		
27 Cockatoo	Geology and extent: Mesozoic sandstone aquifers north east of Taroom around Cockatoo Creek and partly bordered along north by Dawson River. Land use: Mostly grazing. Rainfall: Low.	Abundant at depth and moderate in shallow.	Low salinity. Sodic sequence, differing across depths. Dominated by Na with HCO_3>Cl. Chemistry more complex at depth, with higher Cl and with some relatively high SO_4 in deep groundwater. Relatively very low NO_3 at all depths**. Some surface water and groundwater interaction indicated north west of Dawson Vale. Predominant water type: D.		

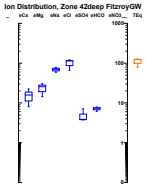
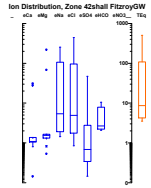
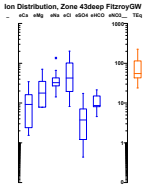
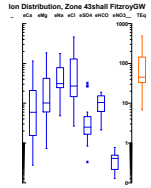
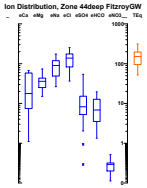
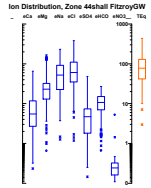
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
28 Conciliation-Mimosa	Geology and extent: Generally including Clematis Creek and Planet Creek in west, Zamie Creek in south, Mimosa Creek in north and lower Fish and Castle Creeks in east. Geology complex: largely Tertiary sediments and alluvium in east and Mesozoic sandstone aquifers, mixed Mesozoic sediments, basalt and alluvium in west. Land use: Extensive areas of forestry around Planet and Mimosa Creek sections and cropping along Zamie and Fish Creek sections. Rainfall: Generally low with moderate falls around Clematis Creek.	Limited to abundant.	Mostly low salinity with some moderate salinity in shallow groundwater. Complex chemistry but generally similar chemical balance across depths. Mostly sodic sequence dominated by Na and with HCO_3>Cl. Relatively very low NO_3 at all depths**. Surface water and groundwater interaction indicated at Planet Downs and upstream of Mimosa Vale. Predominant water type: D.		
29 Injune- PalmTree	Geology and extent: Mesozoic sandstone aquifers extending from headwaters of Injune Creek north to Palm Tree Creek and east to headwaters of Horse Creek. Part of eastern edge bordered by Eurambah Creek and part of northern edge bordered by Hutton Creek. Land use: Grazing, some cropping. Rainfall: Low.	Abundant at depth and moderate in shallow.	Low to moderate salinity. Similar chemical balance across depths. Sodic sequence dominated by Na. Cl balanced with HCO_3. NO_3 higher in shallow groundwater. Surface water and groundwater interaction indicated upstream of Hornet Bank. Predominant water type: D.		
30 Retro-Darrylar	Geology and extent: Area to north east of Clermont over basalt and Cainozoic alluvium, including headwaters of Retro Creek and Darrylar. Land use: Cropping. Rainfall: Low.	Limited to moderate.	Low to moderate salinity in shallow groundwater, and low salinity at depth. Sodic sequence with fairly consistent chemical balance across depths. Na dominant with HCO_3>Cl. Relatively very low NO_3 at depth**. Surface water and groundwater interaction indicated west of Darrylar. Predominant water type: D.		

Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
31 Sandhurst	Geology and extent: Tertiary sediments and Cainozoic alluvium between Emerald and Comet River, incorporating Sandhurst Creek. Land use: Includes considerable proportion of intensive land use east of Emerald but groundwater largely from cropping and grazing areas. Rainfall: Low.	Limited to moderate.	Moderate salinity. Complex chemistry but generally consistent chemical balance across depths. Mostly sodic sequence dominated by Na and Cl, with Cl>HCO_3. Some relatively high SO_4. Relatively low NO_3 at depth**. Predominant water type: F.		
32 Juandak-Horse	Geology and extent: Mesozoic sandstone aquifers between Taroom and around Wandoan, incorporating Juandak, Bungaban and lower Horse Creeks. Partly bordered along western edge by Eurambah Creek. Land use: Cropping. Rainfall: Low.	Abundant at depth and moderate in shallow.	Moderate to high salinity. Variable chemistry but generally consistent chemical balance across depths. Sodic sequence dominated by Na and Cl and with Cl>HCO_3. Some relatively high SO_4. Relatively very low NO_3 in shallow groundwater**. Surface water and groundwater interaction indicated downstream of Wandoan. Predominant water type: F.		
33 Zamie-Castle	Geology and extent: Around Theodore, west to lower Zamie Creek, including headwaters of Fish Creek. Mixed geology, mostly Mesozoic sediments. Land use: Extensive areas of forestry and conservation along south but most groundwater data from cropping areas in north. Rainfall: Low.	Moderate in N of zone, limited in Sth.	Moderate to high salinity, more variable in shallow groundwater. Similar chemical balance across depths but more variable in shallow groundwater. Mixed sodic sequence types, tending towards alluvial sequence in shallow groundwater. Dominated by Na and Cl and with Cl>HCO_3. Shallow groundwater contains some relatively high SO_4 and HCO_3. Predominant water type: F.		

Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
34 Isaac-Dawson	Geology and extent: Largely Tertiary sediments, Cainozoic alluvium and mixed Mesozoic sediments extending from around Moranbah in north, to Moura in south. Includes Isaac, Fitzroy, Mackenzie and lower reaches of Dawson Rivers. Land use: Largely grazing, some cropping in alluvial areas and small proportion of forestry. Includes mining areas around Tieri. Rainfall: Low.	Limited to moderate, mostly at depth.	Moderate to high salinity and more saline at depth. Similar chemical balance across depths. Generally mixed sodic sequence types, tending towards alluvial sequence in shallow groundwater. Dominated by Na and Cl and with $Cl>HCO_3$. Predominant water type: F.		
35 Brown-Humbolt	Geology and extent: Between Planet Creek and Comet River over Tertiary sediments, including mixed Mesozoic sediments, Mesozoic sandstone aquifers, basalt, tertiary sediments, alluvium and Cainozoic alluvium around Brown River. Zone difficult to define in south with complex groundwater data, geology and land use. Land use: Mining and grazing in north, cropping in central areas, and cropping and conservation in south. Rainfall: Low.	Limited, mostly at depth.	High salinity at depth, low to moderate salinity in shallow groundwater. Groundwater chemistry differs across depths. Deep groundwater reflects sodic chemistry, dominated by Cl and Na and with $Cl>HCO_3$. Some relatively high SO_4 in deep groundwater. Shallow groundwater reflects alluvial chemistry dominated by HCO_3 and with more balanced cations. Surface water and groundwater interaction indicated at Planet Downs. Predominant water type: F.		

Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
36 Blackwater	Geology and extent: Mixed Mesozoic and Tertiary sediments between lower Comet River and headwaters of Planet and Mimosa Creeks, bordering east of upper Charlevue Ck and including Blackwater. Land use: Extensive mining activity but groundwater data from cropping areas. Rainfall: Low.	Limited.	Moderate to high salinity. Generally sodic types. Na and Cl dominant, with Cl>HCO_3. Similar chemical balance across depths but less variable and higher SO_4 in deep groundwater. Surface water and groundwater interaction indicated at Curragh Mine. Predominant water type: G.		
37 Clermont-Theresa	Geology and extent: Granitic and metamorphic rocks with Cainozoic alluvium and Palaeozoic sediments south west of Clermont around lower Theresa Creek. Land use: Grazing, forestry, some intensive land use south of Clermont. Rainfall: Low.	Nil at depth. Limited to moderate in shallow.	Low to moderate salinity. Mostly sodic types in shallow groundwater, dominated by Na. Cl balanced with HCO_3 and Na>Mg>Ca. Some relatively high SO_4. Predominant water type: G.		
38 Callide	Geology and extent: Tertiary sediments and Palaeozoic volcanics along west and east of Callide Valley. Land use: Cropping and intensive land use in east, grazing in west. Rainfall: Low.	Limited at depth and limited to moderate in shallow.	Low to moderate salinity, becoming more saline at depth. Mostly sodic types differing across depths and with more variability in shallow groundwater which reflects more alluvial sequence chemistry. Deep groundwater dominated by Na and with Cl<HCO_3. Shallow groundwater dominated by Cl with Cl>HCO_3 and contains more balanced cations but higher SO_4 than deep groundwater. Predominant water type: G.		

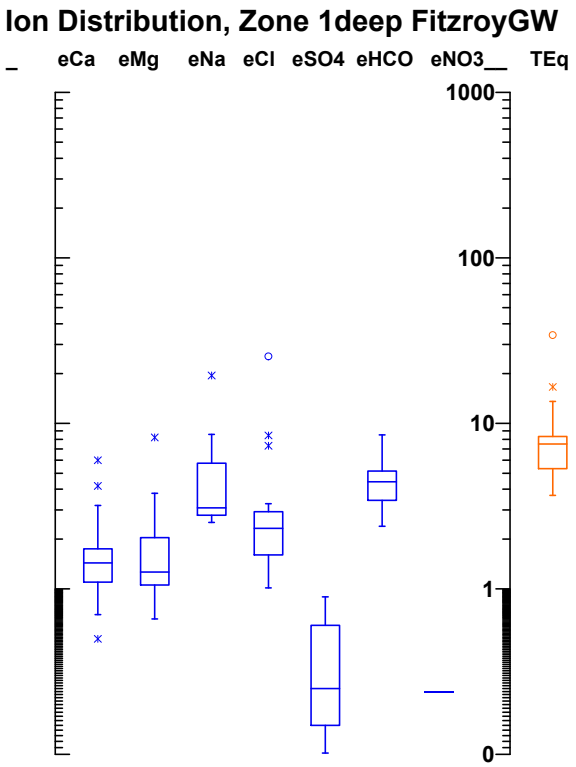
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
39 Marlborough	Geology and extent: Serpentinite and granitic rocks, Palaeozoic volcanics, and alluvium in area around Marlborough. Land use: groundwater data largely located near intensive land use around Marlborough. Rainfall: Moderate.	Limited at depth and limited to moderate in shallow.	Low salinity at depth, moderate salinity in shallow groundwater. Groundwater dominated by Mg and HCO_3 but with higher Ca, Na, Cl, SO_4 and NO_3 in shallow groundwater. Predominant water type: H.		
40 Balmy	Geology and extent: Mixed Mesozoic sediments below junction of Claude River and Wharton Creek, including lower Balmy Creek. Land use: Grazing with some forestry. Rainfall: Low.	Limited and only at depth.	Low to moderate salinity. Deep groundwater dominated by SO_4, with balanced cations. Predominant water type: E.		
41 Mt Morgan	Geology and extent: Palaeozoic sediments and alluvial area at lower Dee River downstream of Mt Morgan. Land use: Some intensive land use near Mt Morgan. Rainfall: Low.	Limited at depth although abundant in shallow.	Low to moderate salinity, becoming more saline in shallow groundwater. Chemistry differs across depths. Dominated by HCO_3 at depth while shallow groundwater dominated by Cl and SO_4. Generally balanced cations across depths but with more dominant Na at depth while less dominant Na in shallow groundwater. Considerable surface water and groundwater interaction indicated in this zone. Predominant water type: E.		

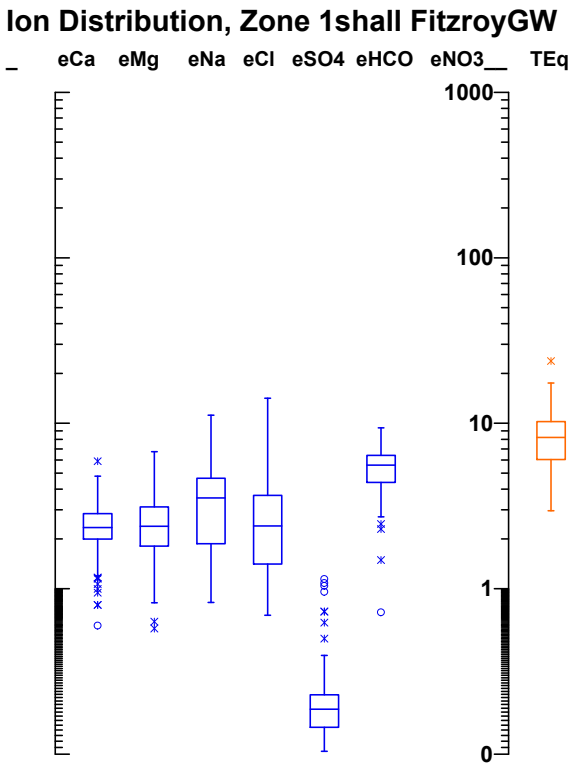
Zone and name	Geography	Groundwater data	Groundwater chemistry	Chemical equivalence *	
				Deep GW	Shallow GW
42 Black Hole	Geology and extent: Alluvial areas from junction of Stephens Creek and Phillips Creek extending downstream to junction with Isaac River. Land use: Largely grazing with cropping in junction of Rivers. Rainfall: Low.	Limited.	Low to moderate salinity in shallow groundwater but high to very high at depth. Groundwater chemistry differs strongly across depths with greater variability in shallow groundwater. Deep groundwater dominated by Cl and Na with high Ca and Mg compared to HCO_3. Shallow groundwater dominated by Na and Cl with high HCO_3 and relatively low Ca and Mg. Relatively high SO_4 in shallow groundwater. Predominant water type: I.		
43 Lower-Comet	Geology and extent: Alluvium and Cainozoic alluvium with Tertiary sediments including lower Comet River and Belcony Creek between Emerald and Blackwater, extending upstream of Comet River to near Springsure. Land use: Cropping and some intensive land use. Rainfall: Low.	Limited to moderate.	High to very high salinity. Mixed chemistry, but similar chemical balance across depths. Dominated by Na and Cl with Na>Mg>Ca. Relatively very low NO_3 at depth**. Predominant water type: I.		
44 Dee-Don-Callide	Geology and extent: Tertiary sediments and alluvium around junction of Dee and Don Rivers extending upstream along western slopes of Callide Valley to junction with Prospect Creek. Land use: Grazing and cropping. Rainfall: Low.	Limited to moderate.	Very high salinity, particularly at depth. High hardness index. Similar chemical balance across depths but HCO_3 higher in shallow groundwater. Dominated by Na and Cl with Na>Mg>Ca. Surface water and groundwater interaction indicated at Rannes. Predominant water type: I.		

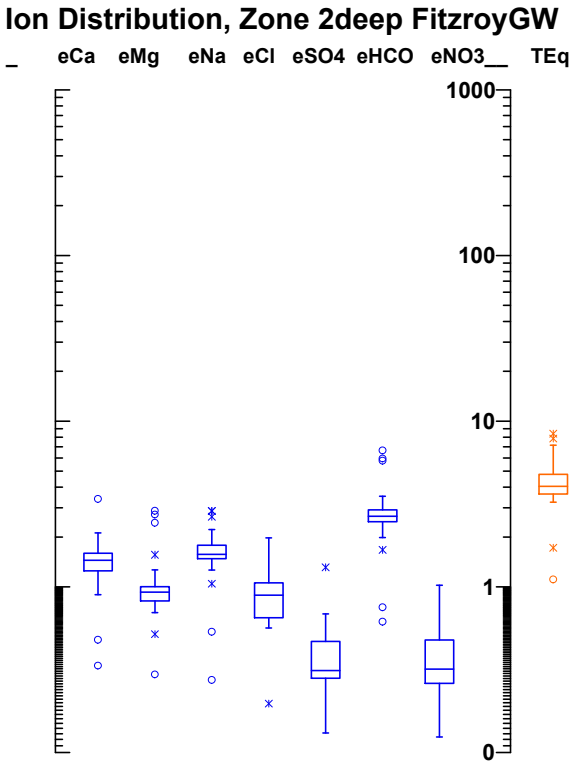
* Ions and salinity in terms of equivalent weights, for chemical comparison. Thumbnails provided for overview only. Please refer to Table 4 for detail view.
** Below graph scale.

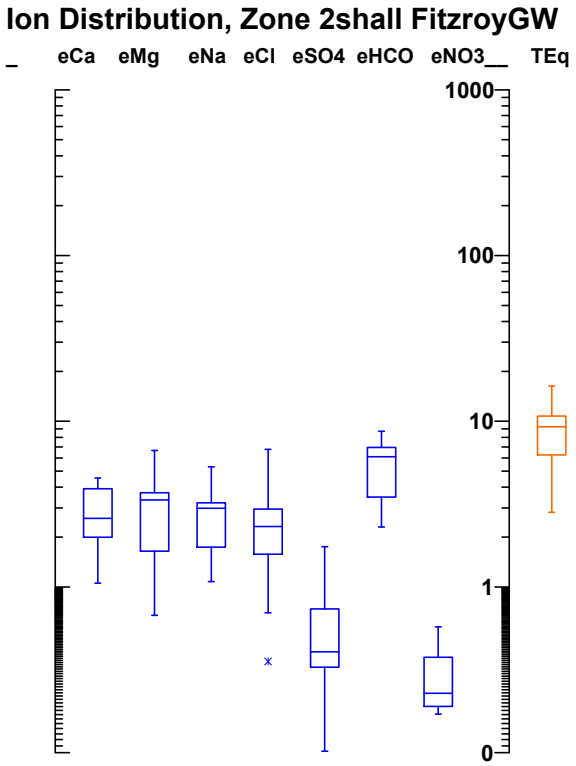
Table 4: Chemical equivalence in each zone as provided in Table 3.

Deep	Shallow

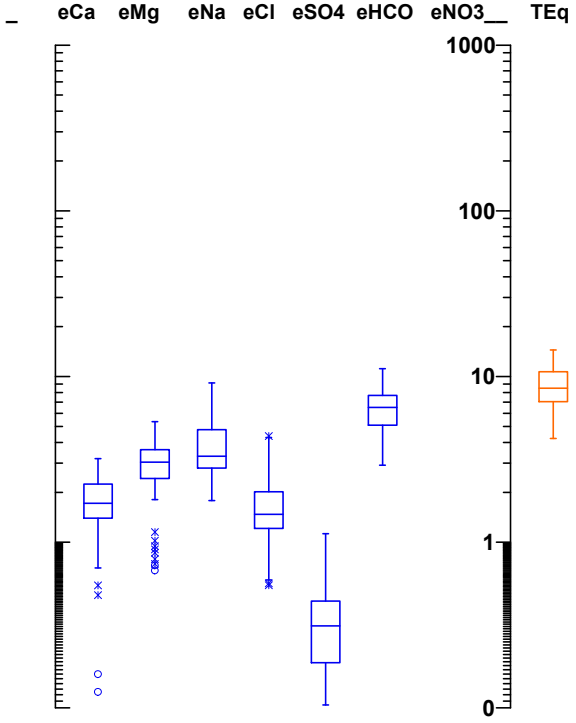




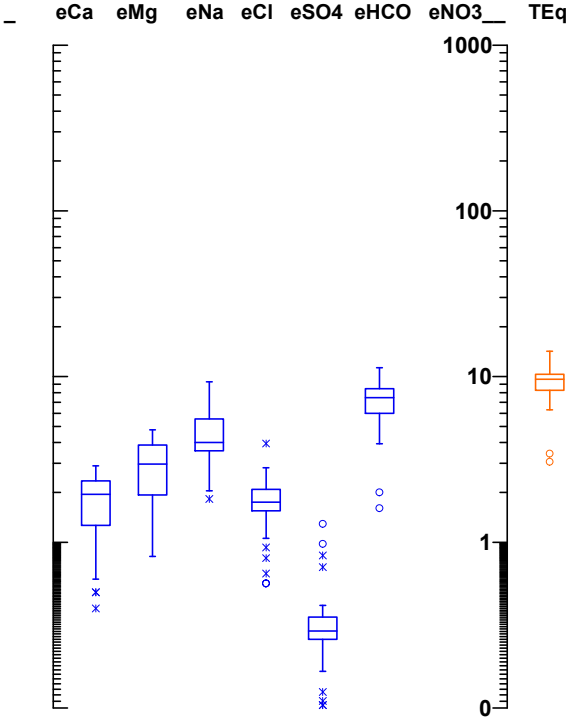




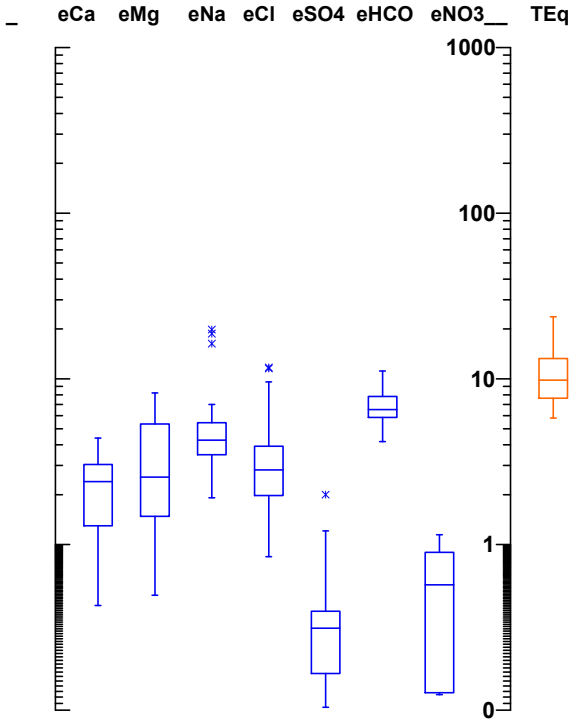
Ion Distribution, Zone 3deep FitzroyGW



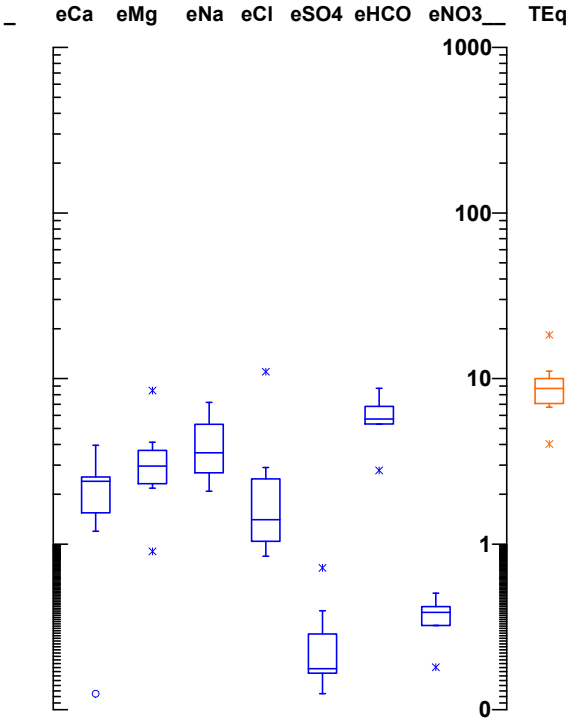
Ion Distribution, Zone 3shall FitzroyGW



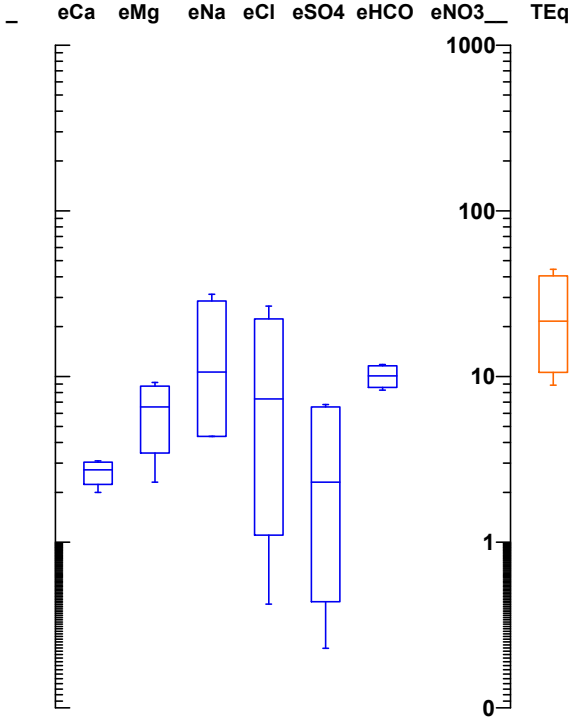
Ion Distribution, Zone 4deep FitzroyGW



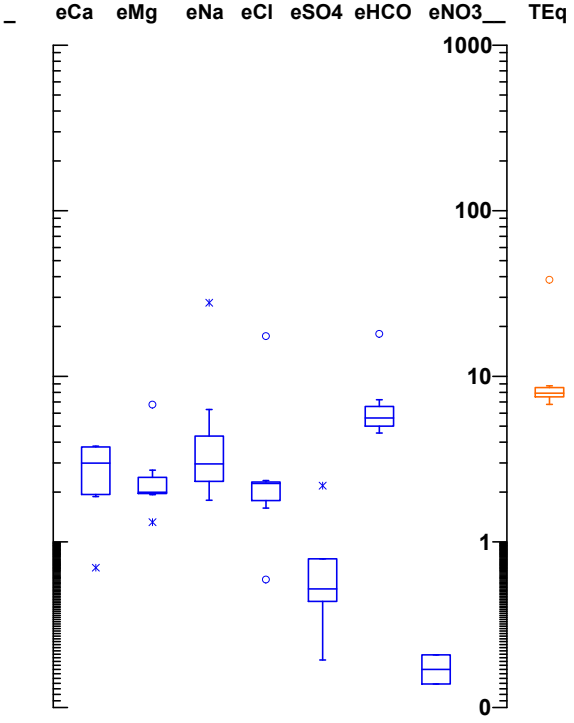
Ion Distribution, Zone 4shall FitzroyGW



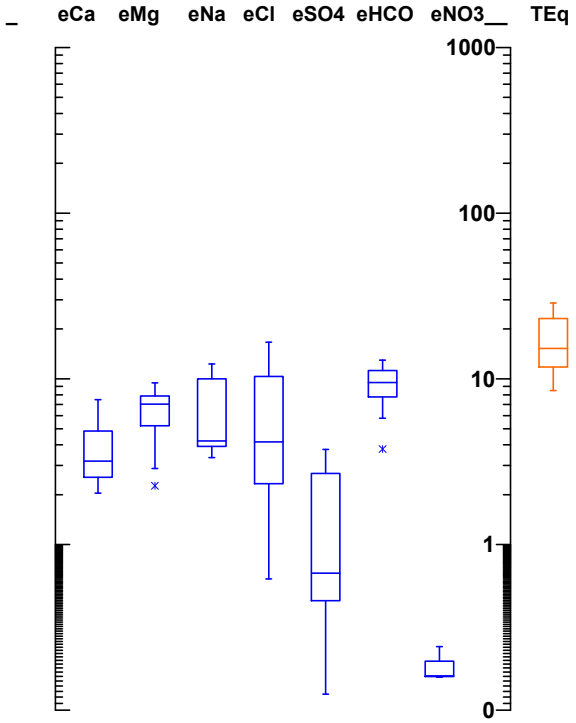
Ion Distribution, Zone 5deep FitzroyGW



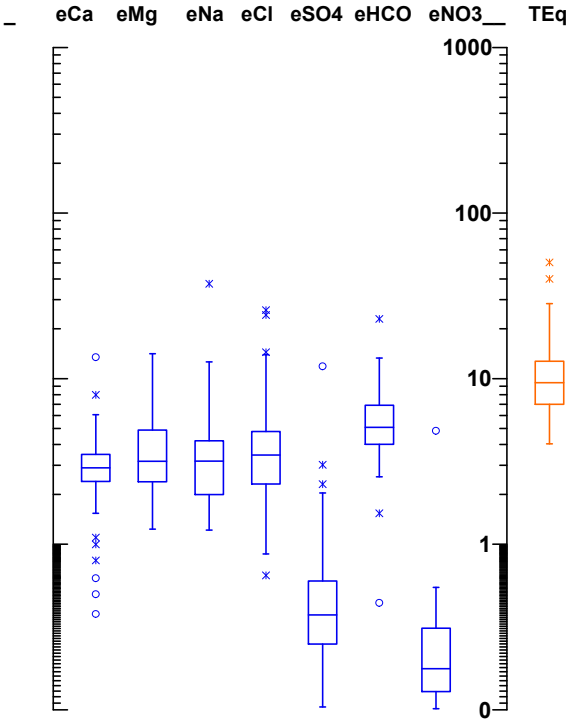
Ion Distribution, Zone 5shall FitzroyGW



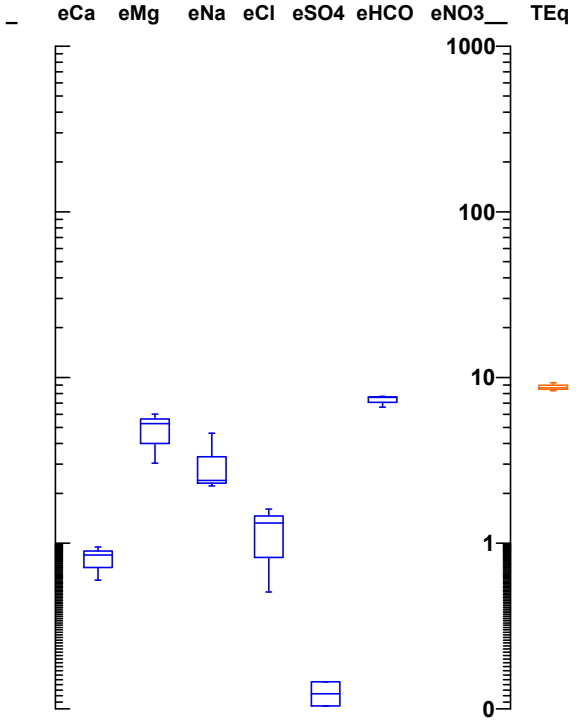
Ion Distribution, Zone 6deep FitzroyGW



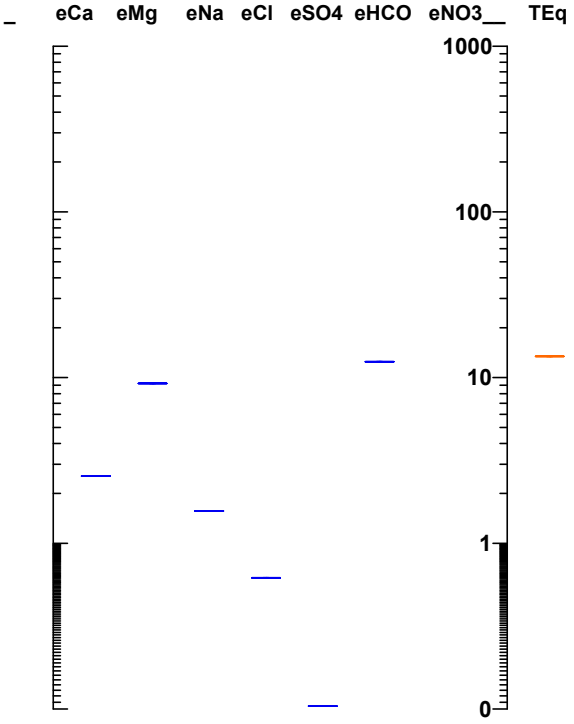
Ion Distribution, Zone 6shall FitzroyGW



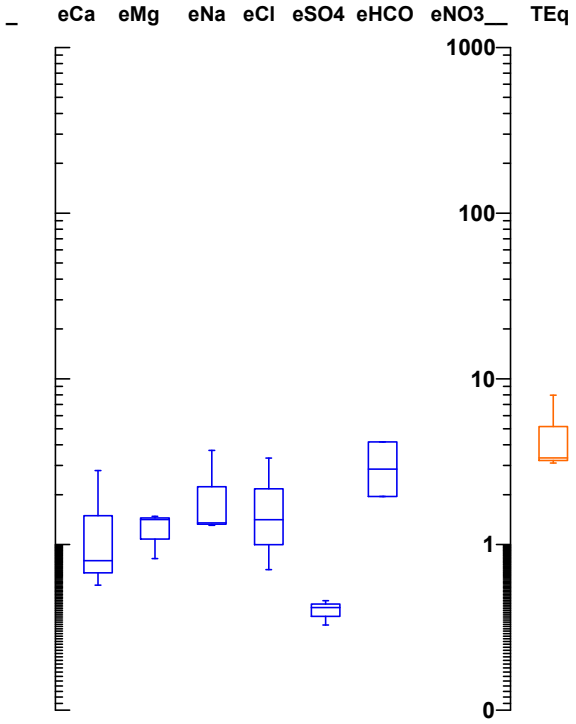
Ion Distribution, Zone 7deep FitzroyGW

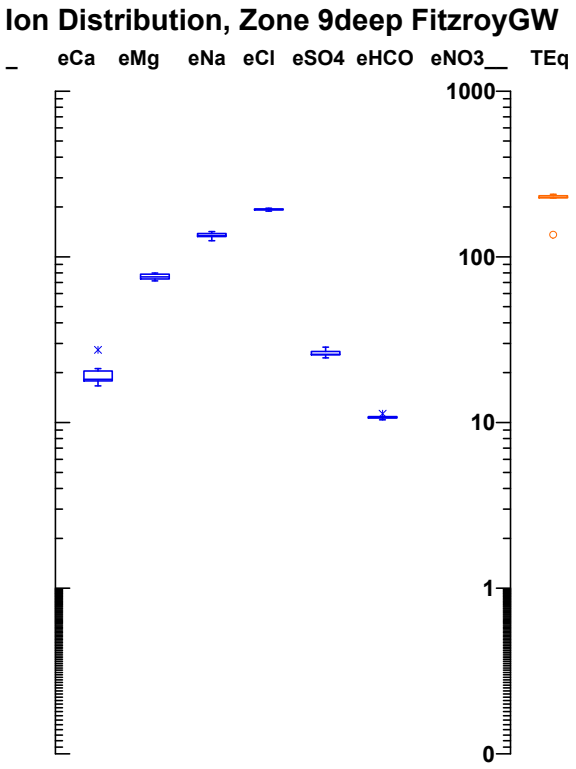


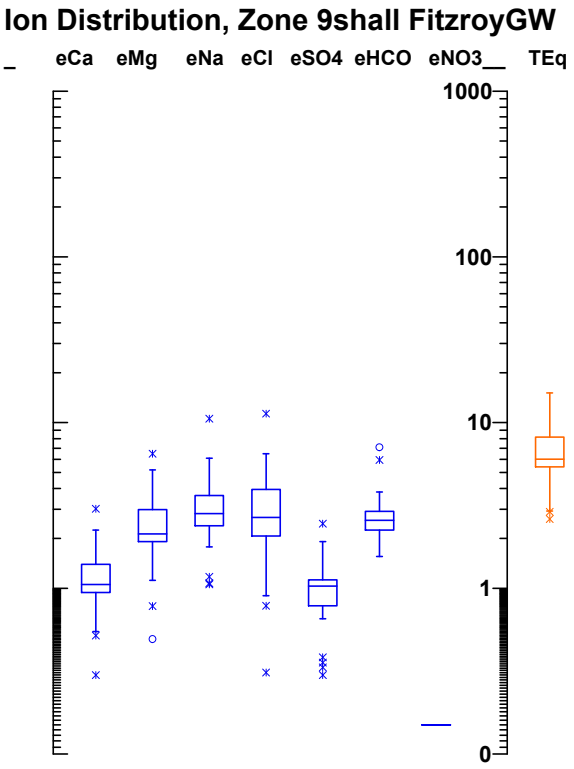
Ion Distribution, Zone 7shall FitzroyGW

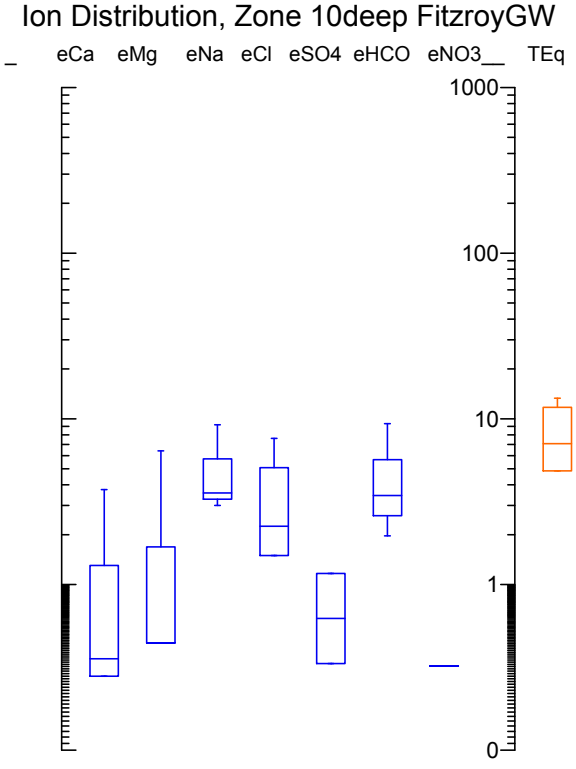


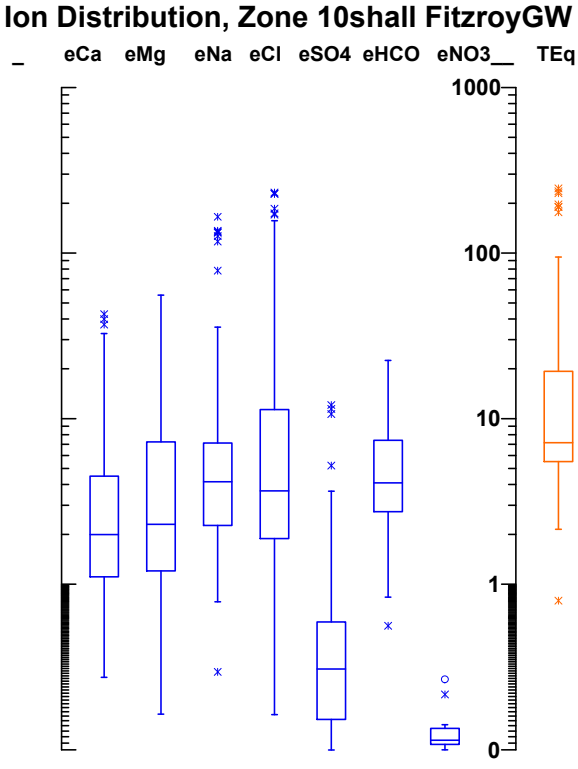
Ion Distribution, Zone 8deep FitzroyGW



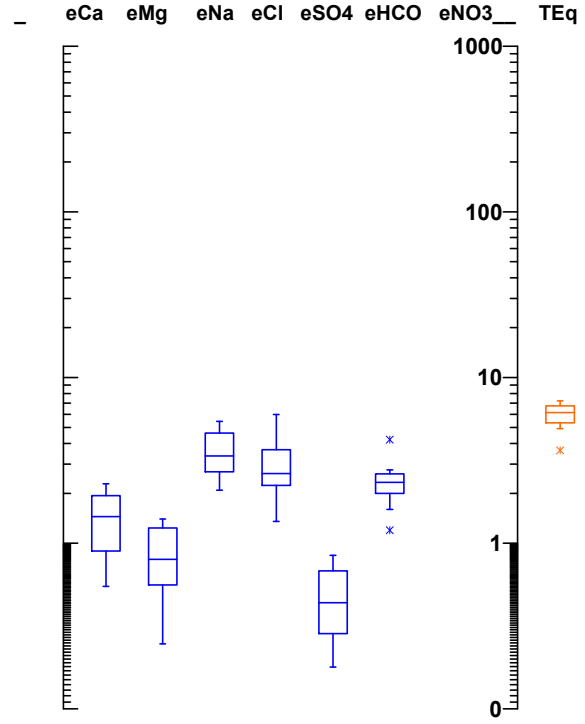

Ion Distribution, Zone 9deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 9shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

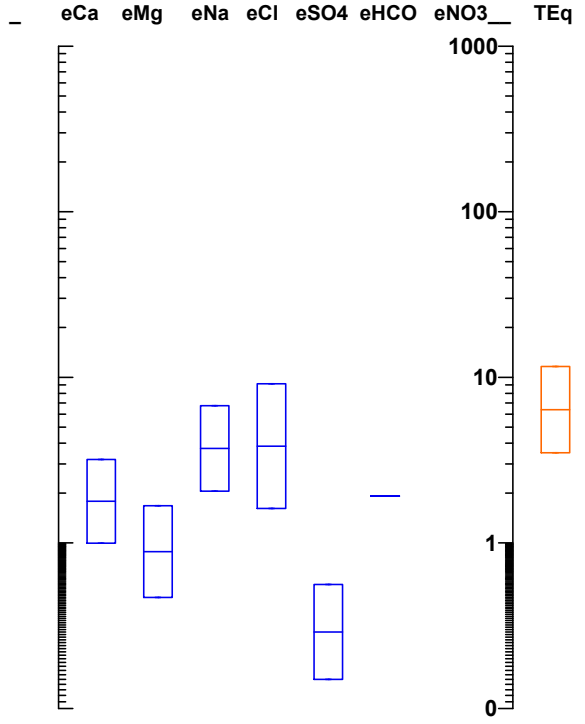

Ion Distribution, Zone 10deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 10shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

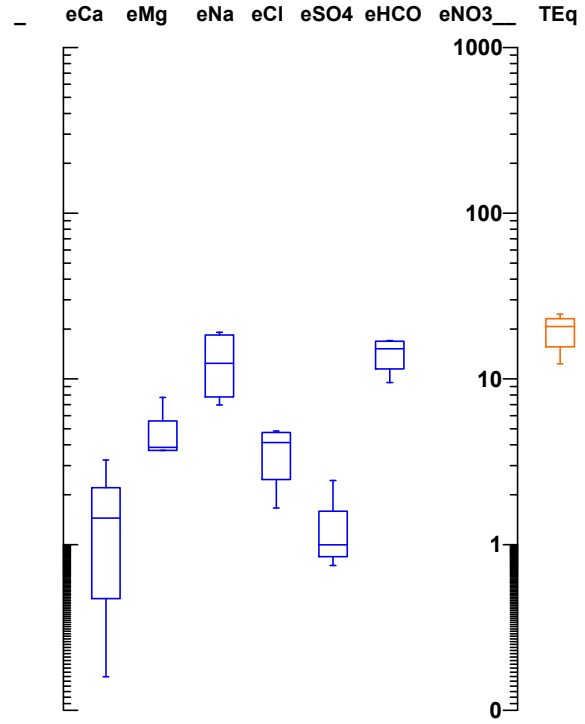
Ion Distribution, Zone 11deep FitzroyGW



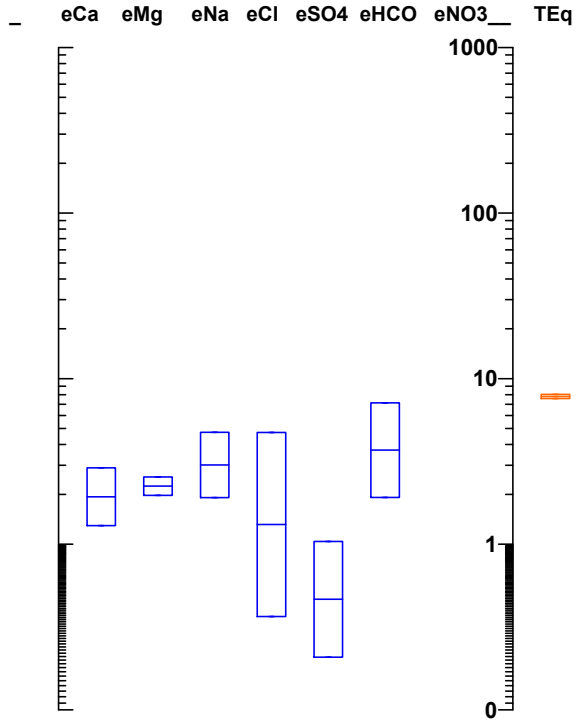
Ion Distribution, Zone 11shall FitzroyGW



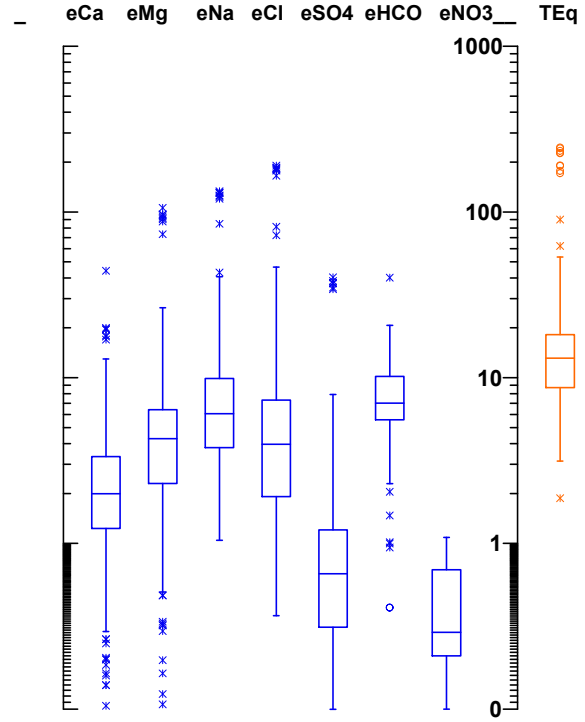
Ion Distribution, Zone 12deep FitzroyGW



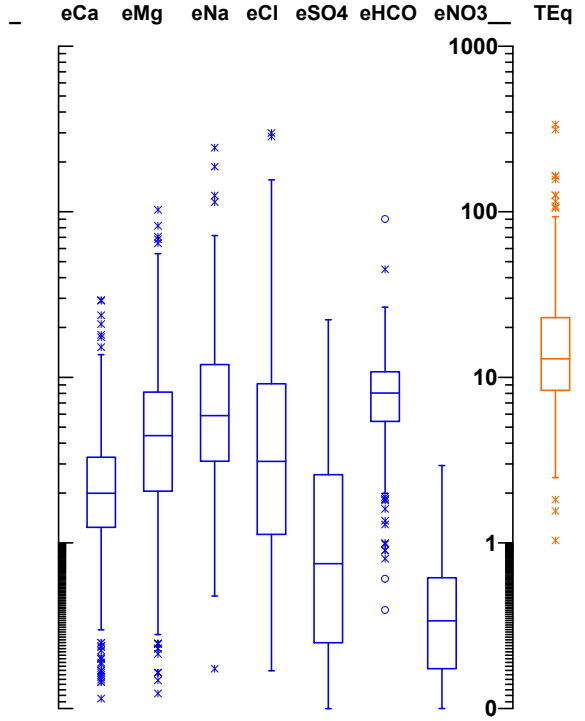
Ion Distribution, Zone 12shall FitzroyGW



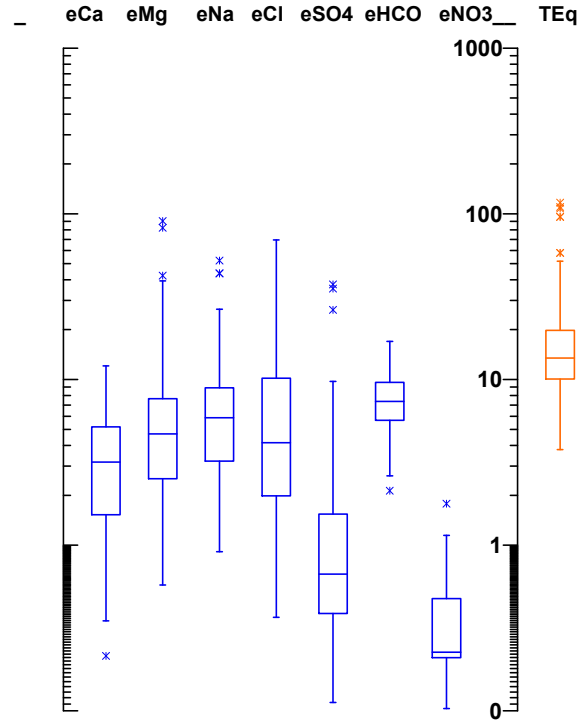
Ion Distribution, Zone 13deep FitzroyGW



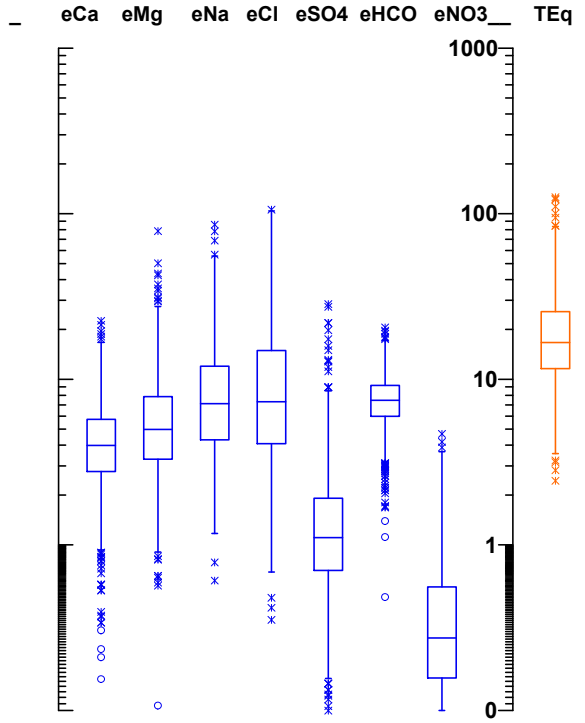
Ion Distribution, Zone 13shall FitzroyGW

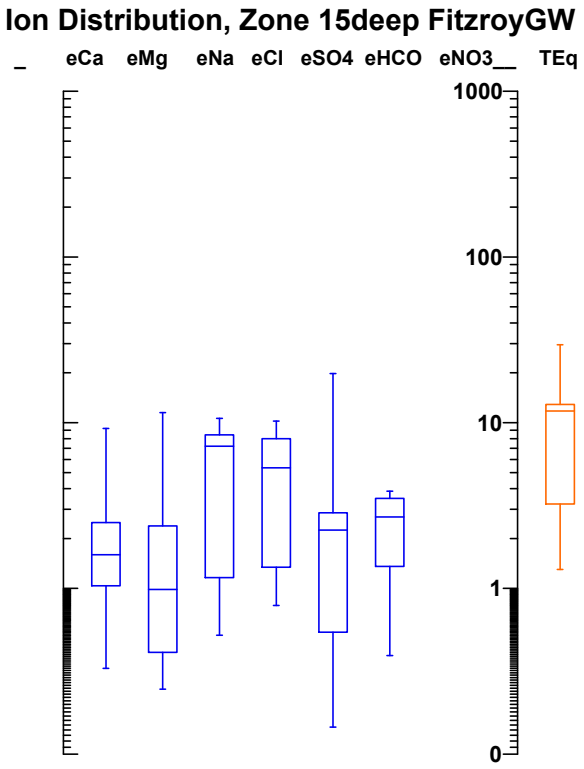


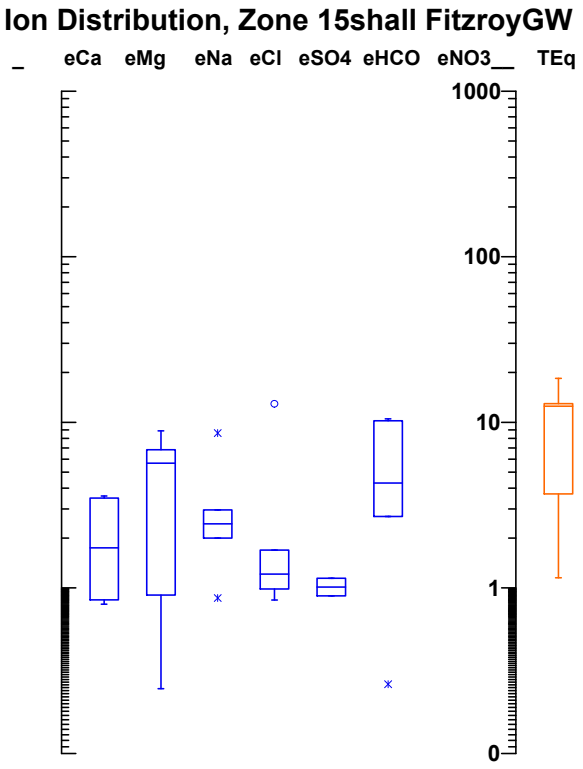
Ion Distribution, Zone 14deep FitzroyGW

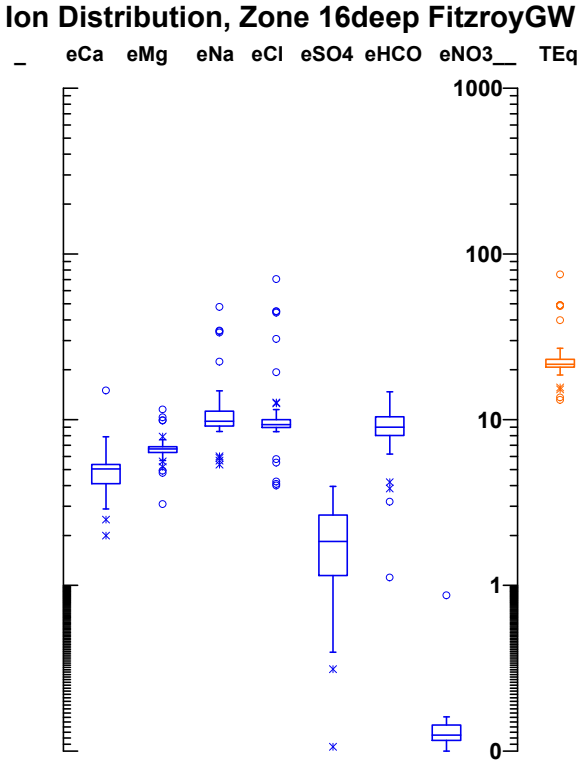


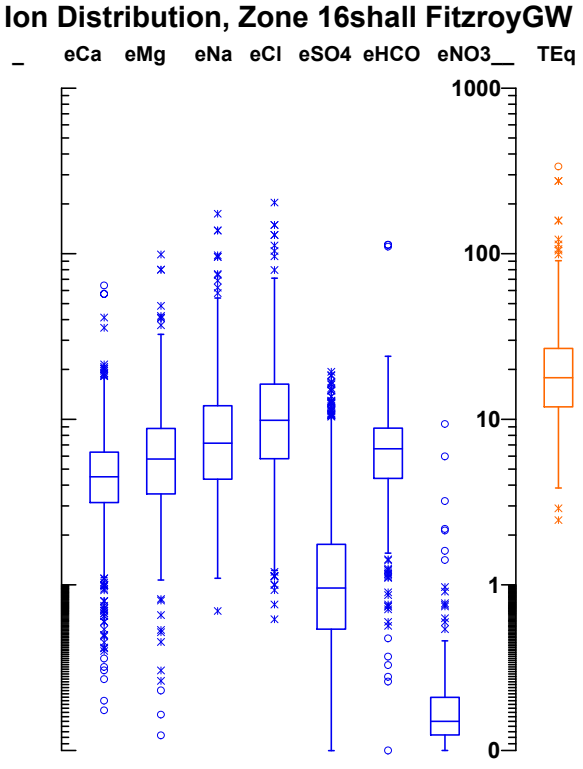
Ion Distribution, Zone 14shall FitzroyGW



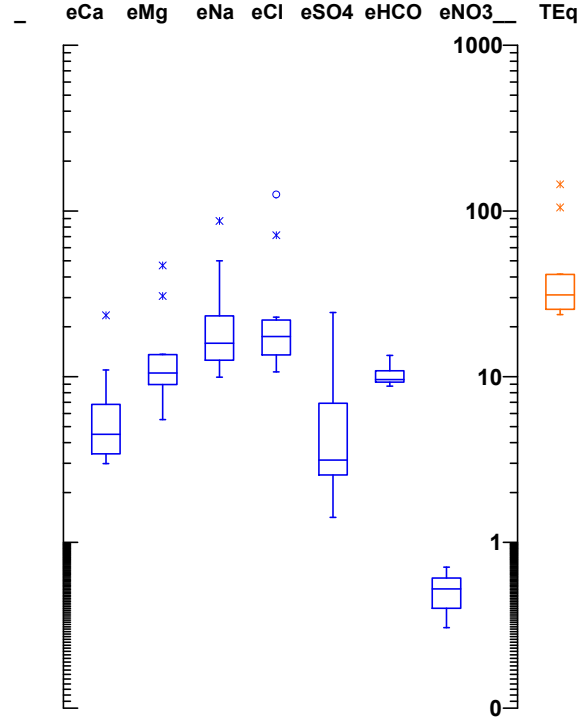

Ion Distribution, Zone 15deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 15shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

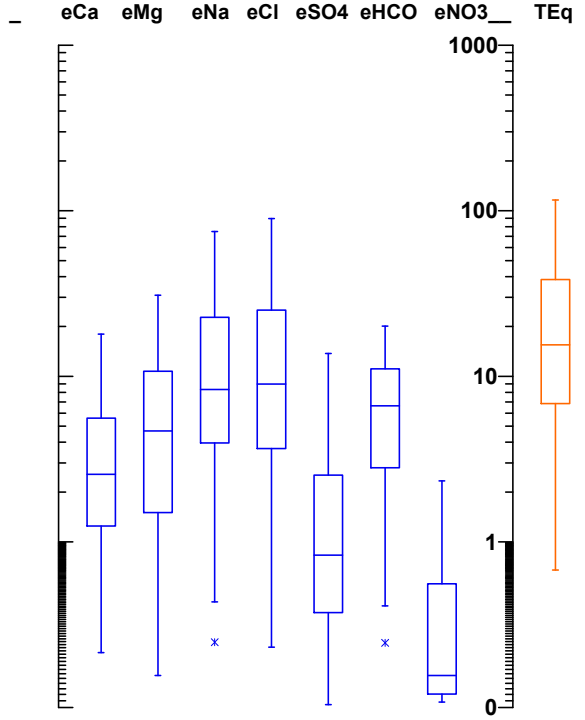

Ion Distribution, Zone 16deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 16shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

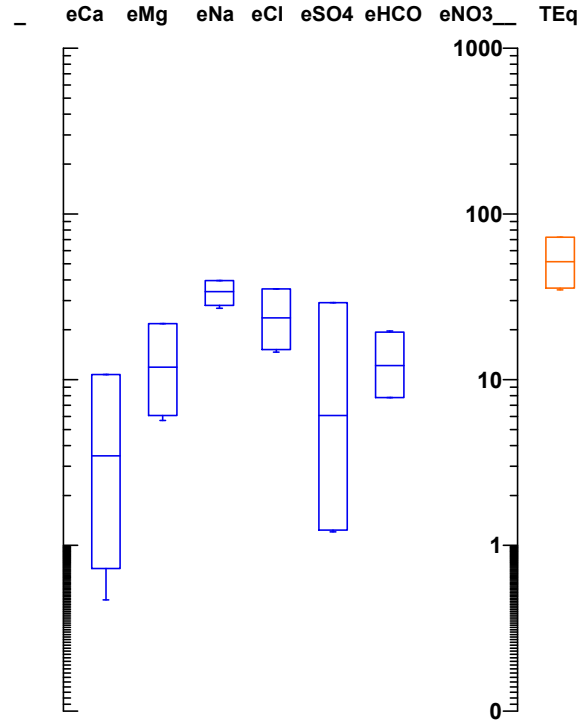
Ion Distribution, Zone 17deep FitzroyGW



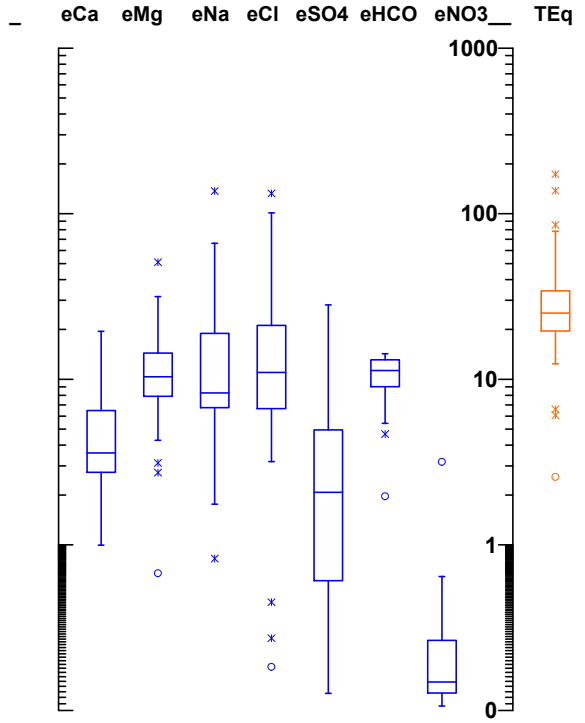
Ion Distribution, Zone 17shall FitzroyGW

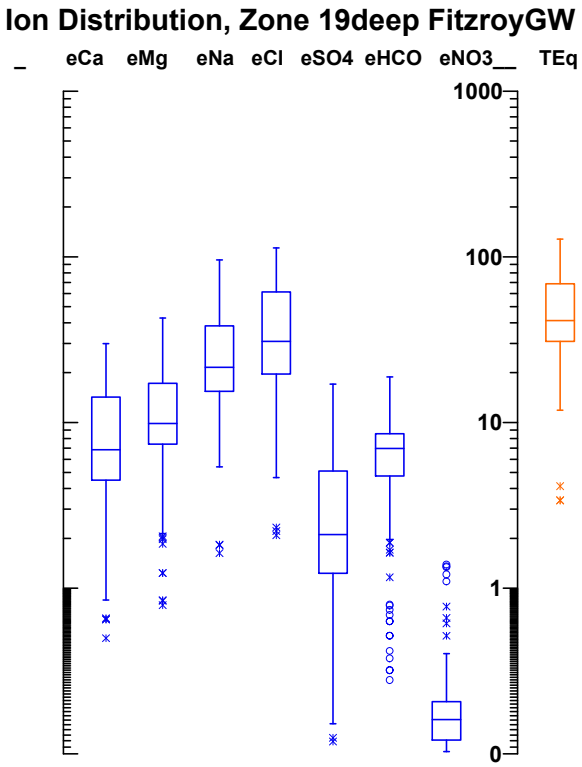


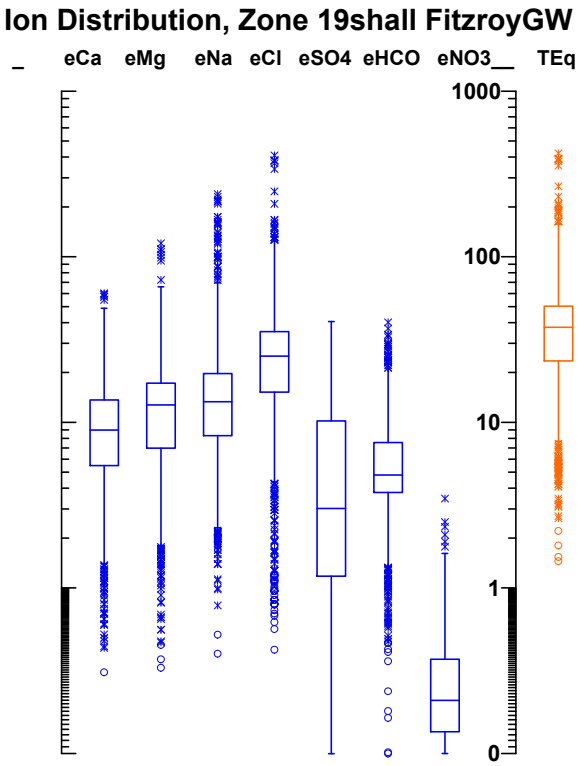
Ion Distribution, Zone 18deep FitzroyGW

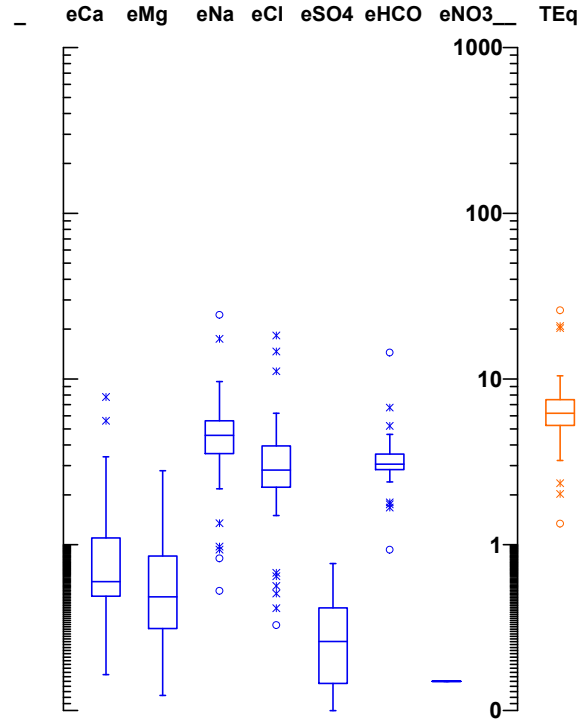


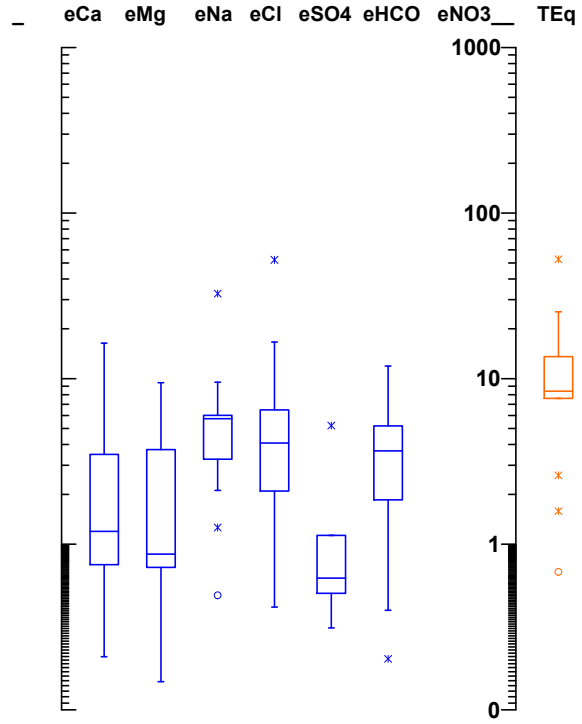
Ion Distribution, Zone 18shall FitzroyGW



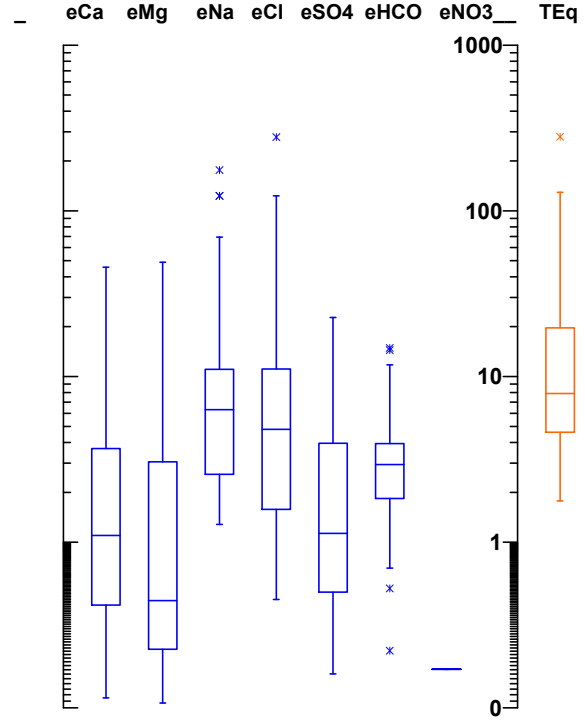

Ion Distribution, Zone 19deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 19shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

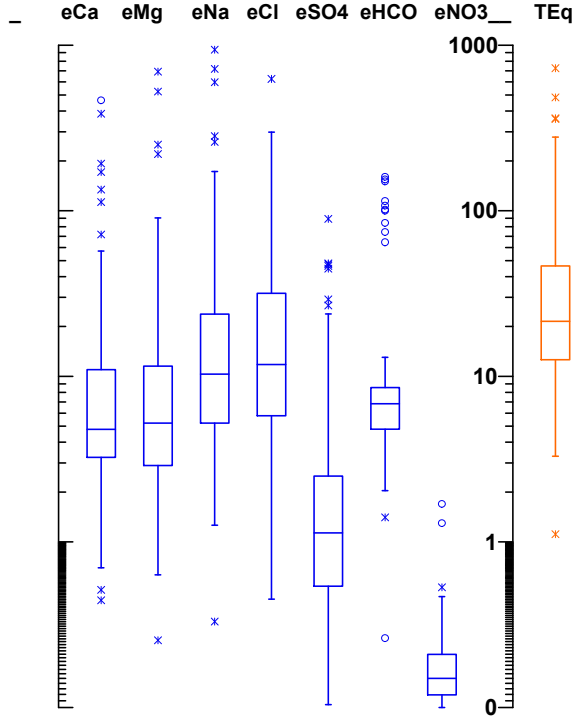

Ion Distribution, Zone 20deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 20shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

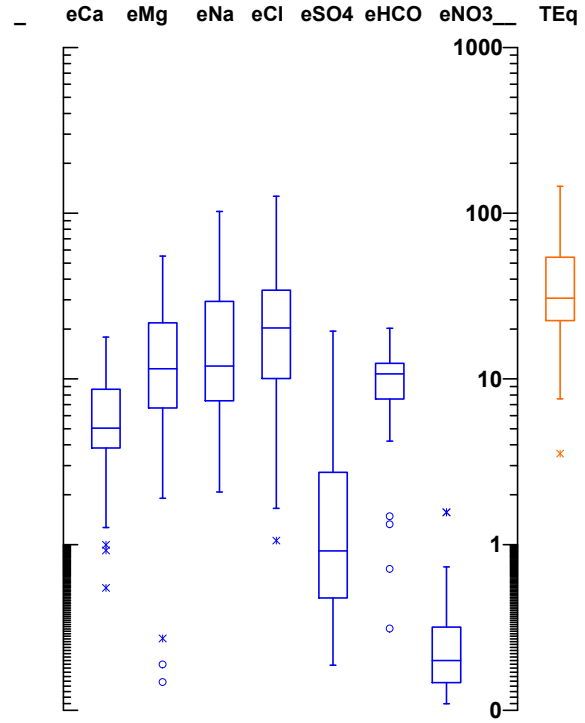
Ion Distribution, Zone 21deep FitzroyGW



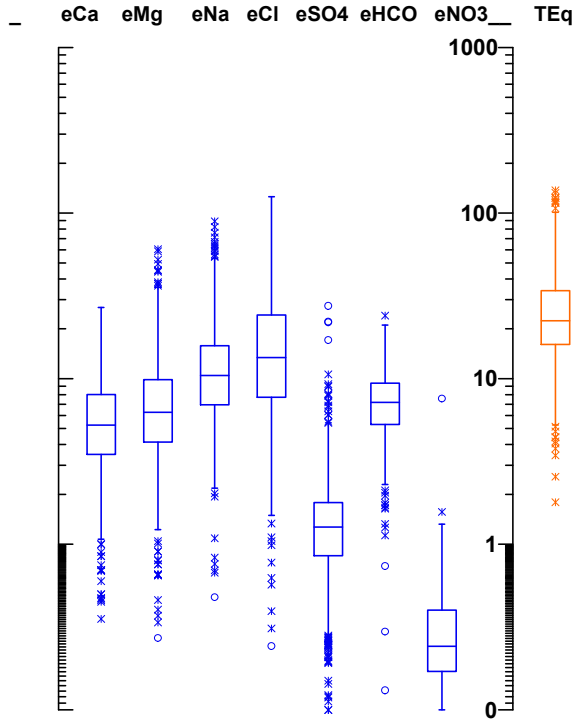
Ion Distribution, Zone 21shall FitzroyGW

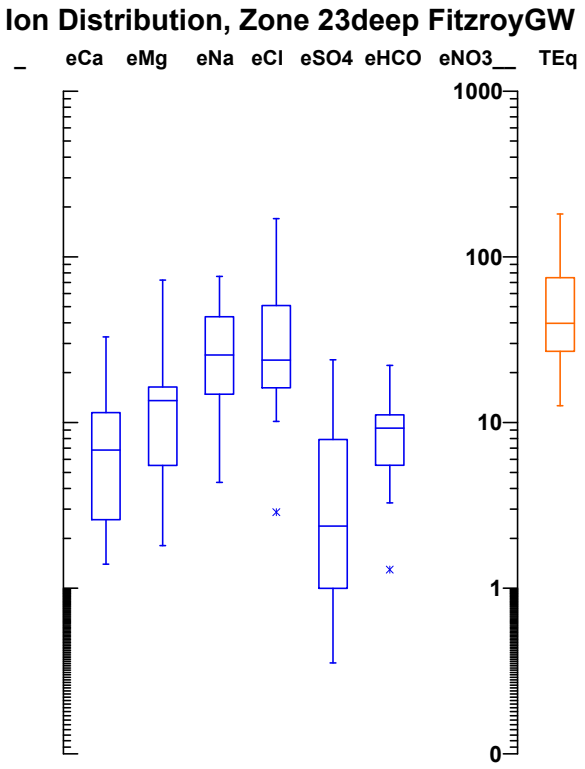


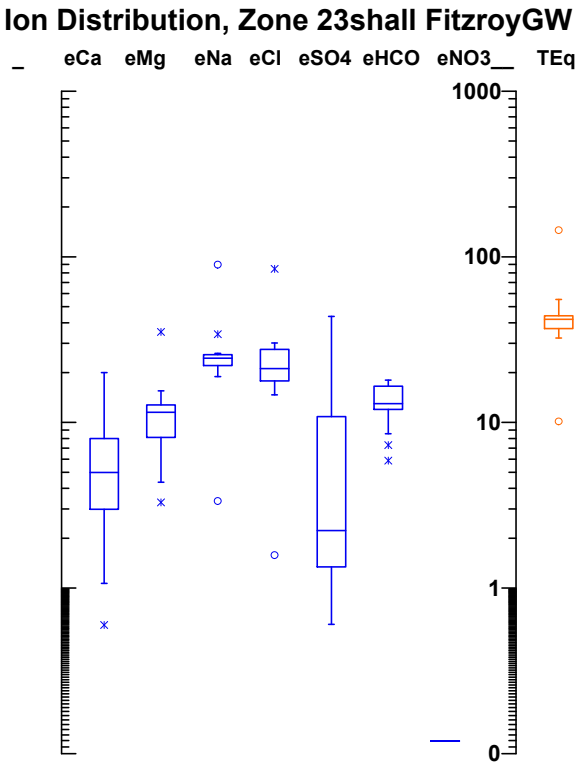
Ion Distribution, Zone 22deep FitzroyGW

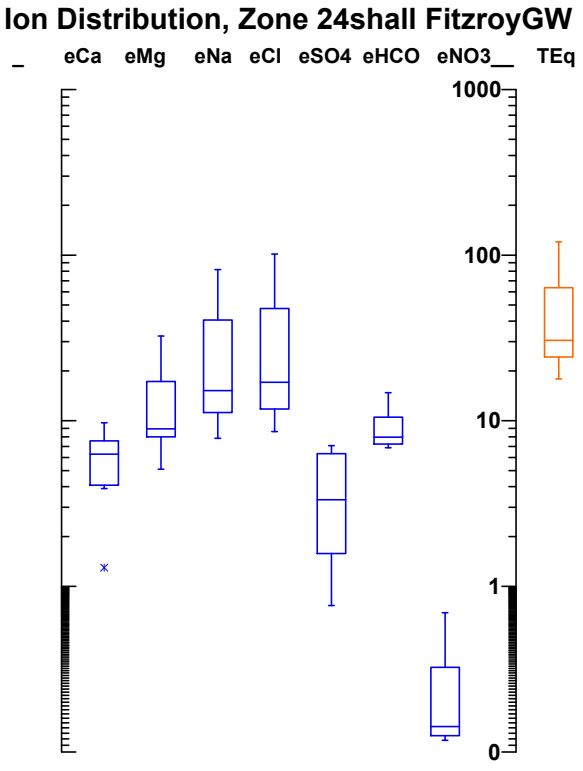


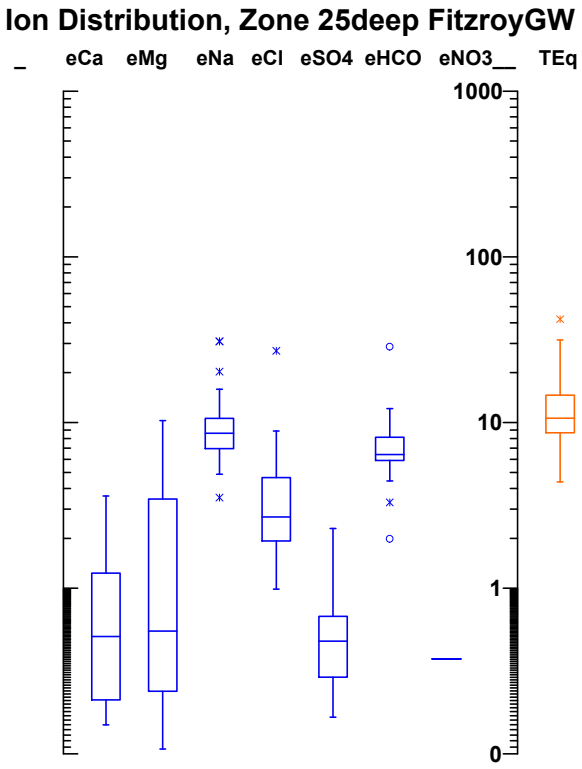
Ion Distribution, Zone 22shall FitzroyGW

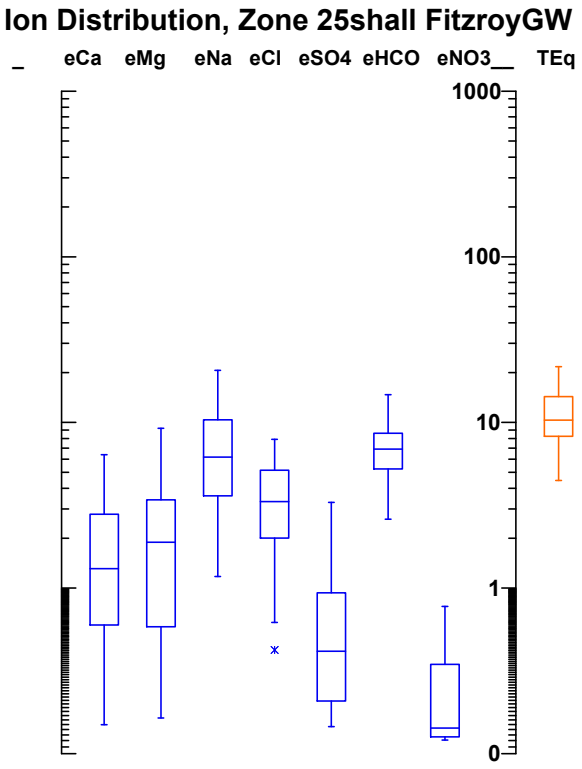


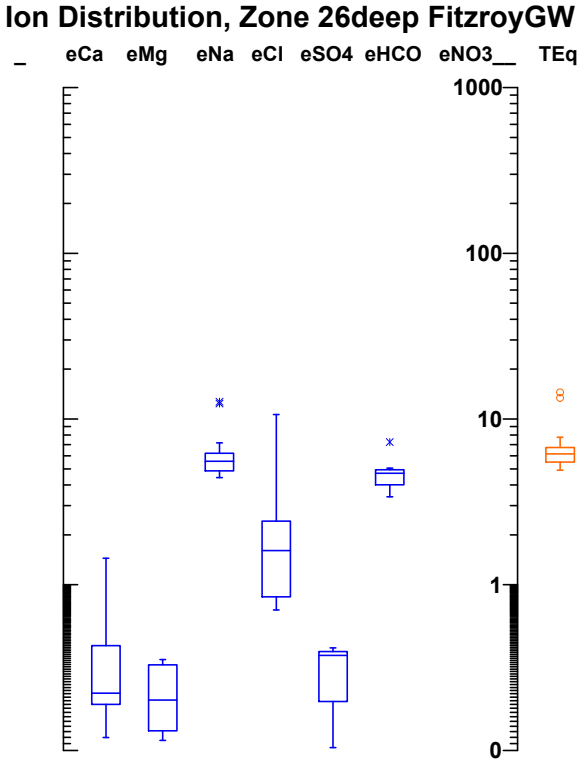

Ion Distribution, Zone 23deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

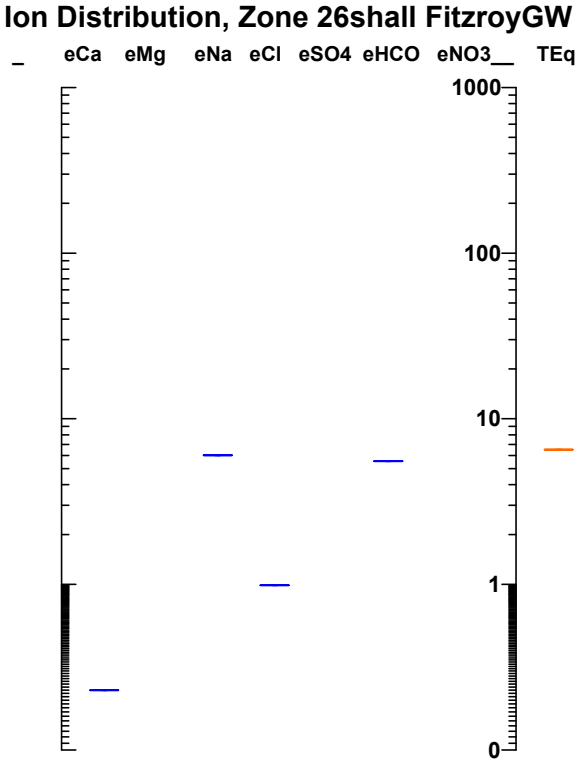

Ion Distribution, Zone 23shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

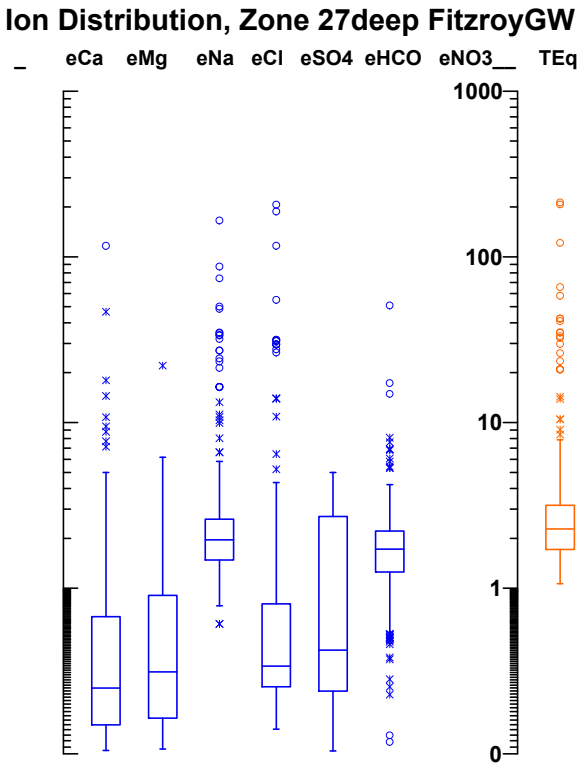

Ion Distribution, Zone 24shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

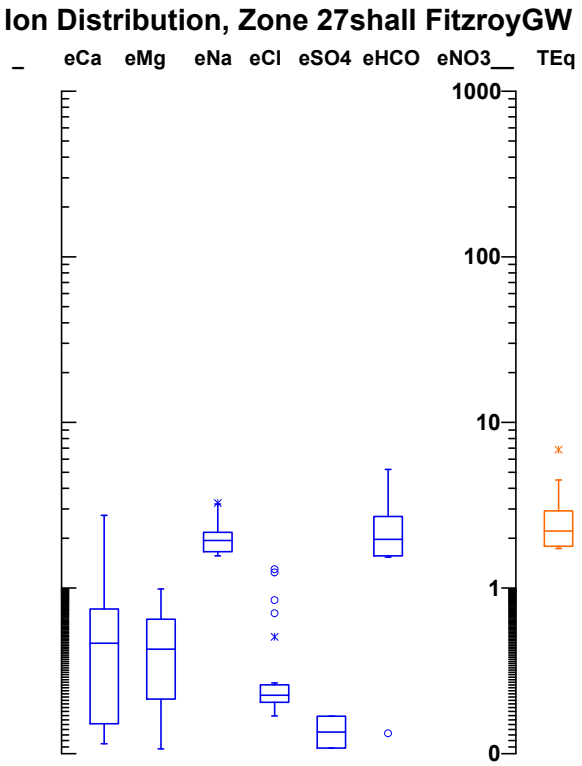

Ion Distribution, Zone 25deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

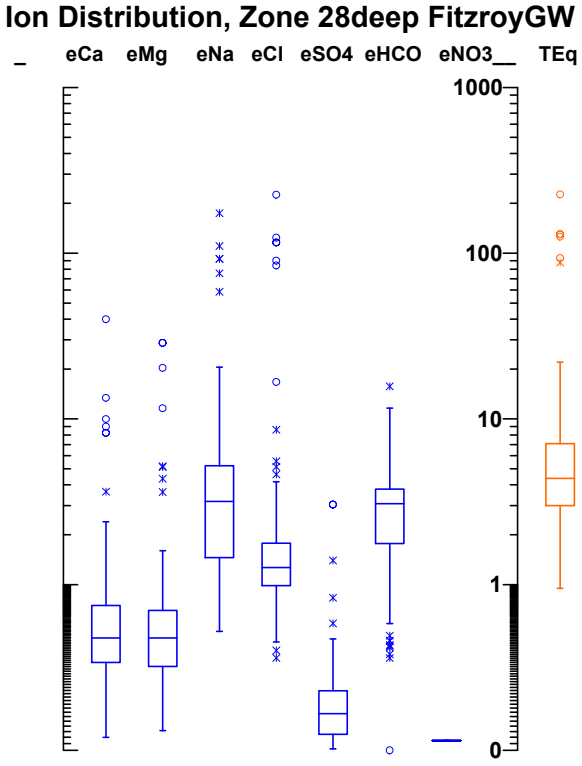

Ion Distribution, Zone 25shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

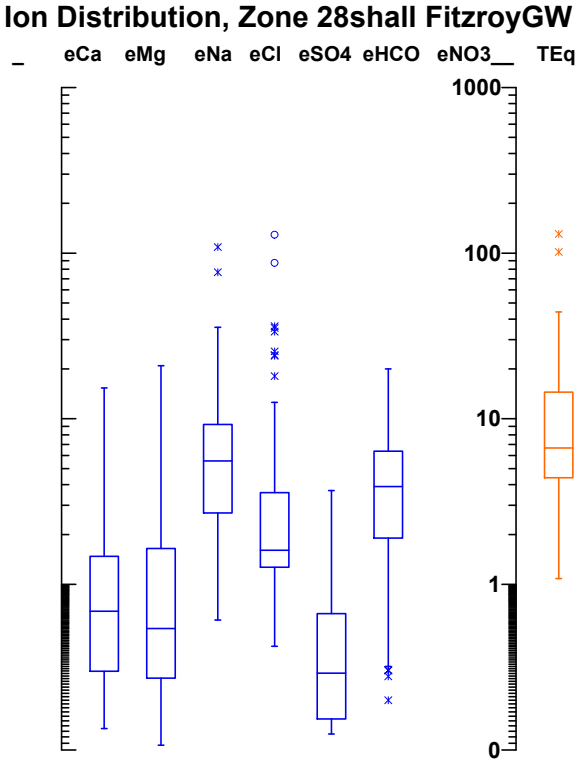

Ion Distribution, Zone 26deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 26shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

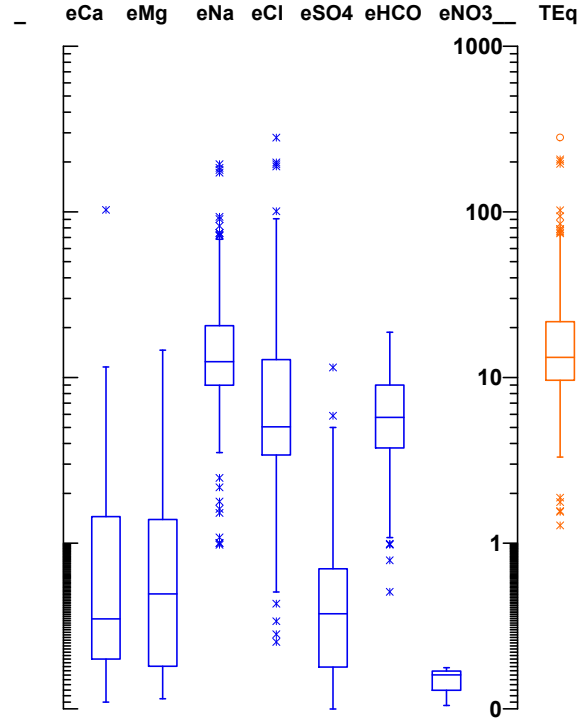

Ion Distribution, Zone 27deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 27shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

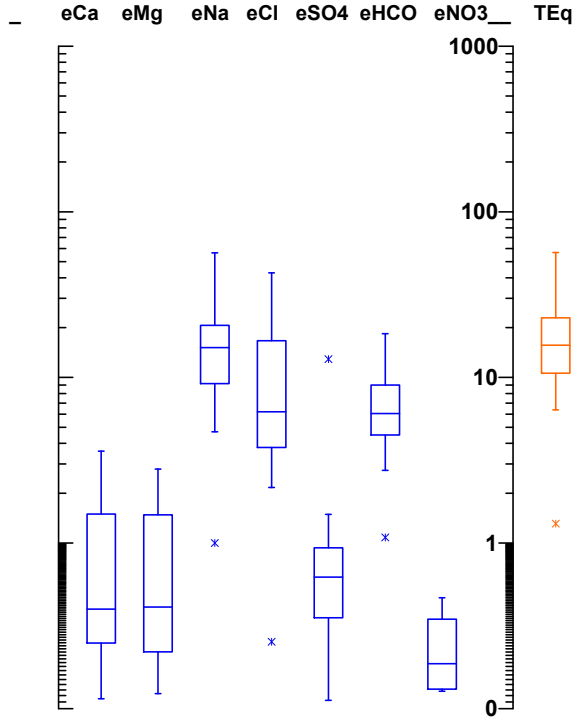

Ion Distribution, Zone 28deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 28shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

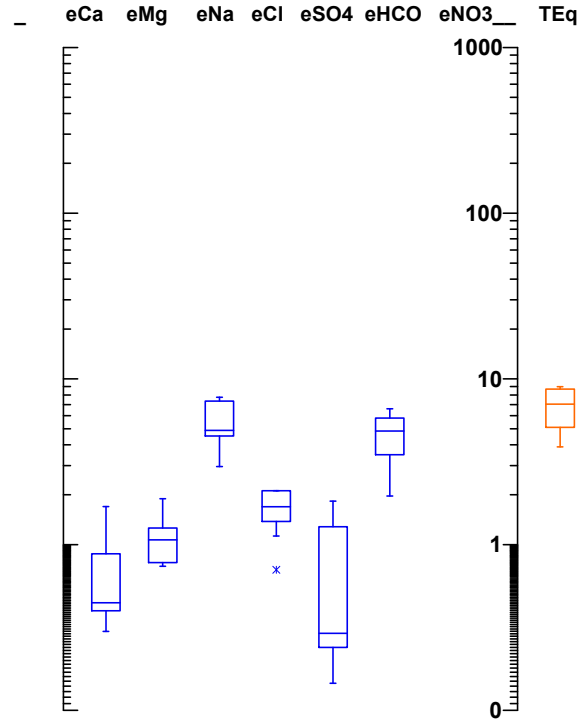
Ion Distribution, Zone 29deep FitzroyGW



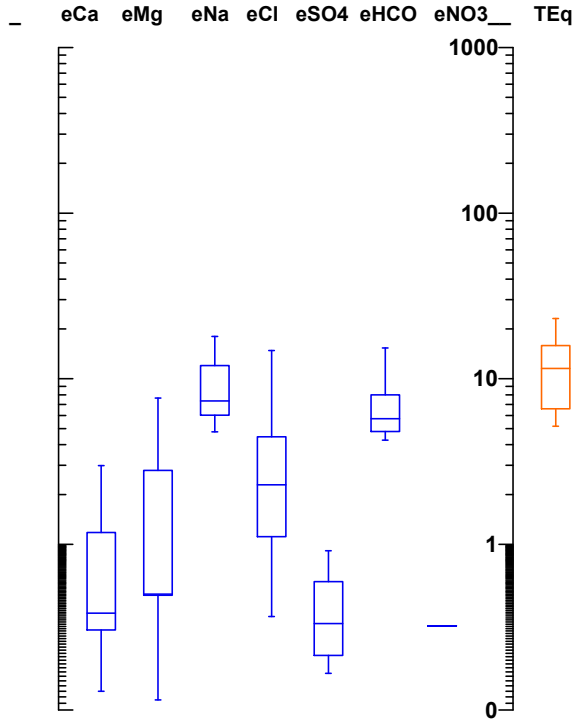
Ion Distribution, Zone 29shall FitzroyGW



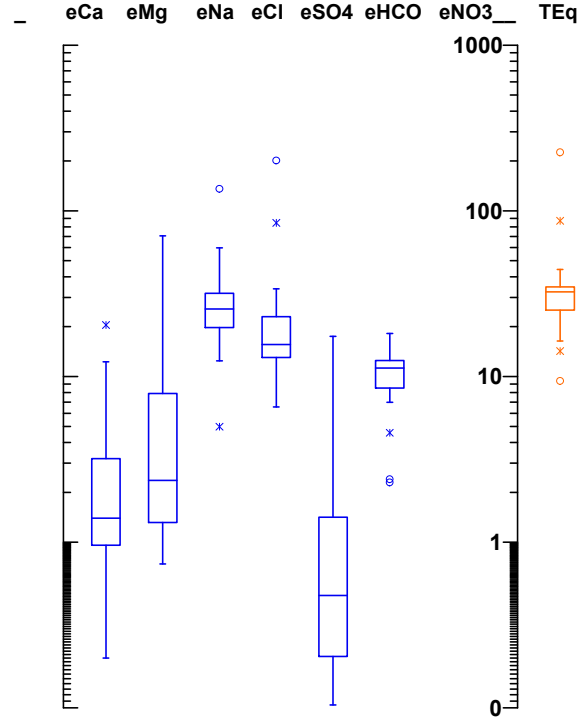
Ion Distribution, Zone 30deep FitzroyGW



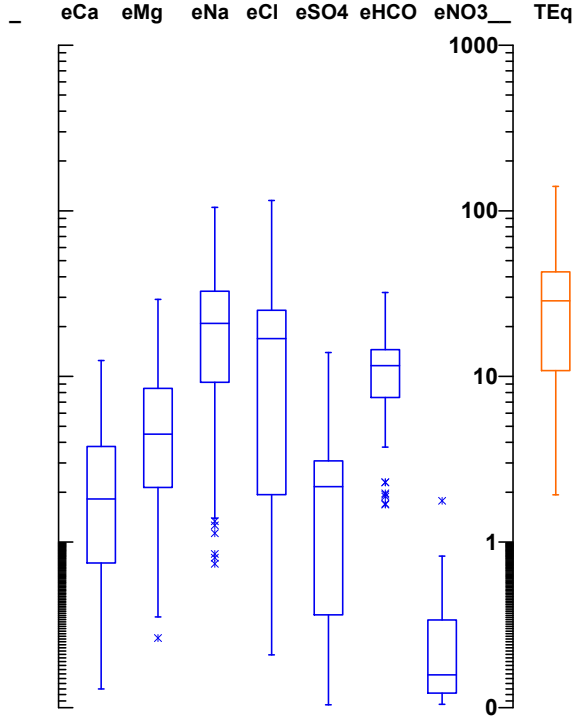
Ion Distribution, Zone 30shall FitzroyGW



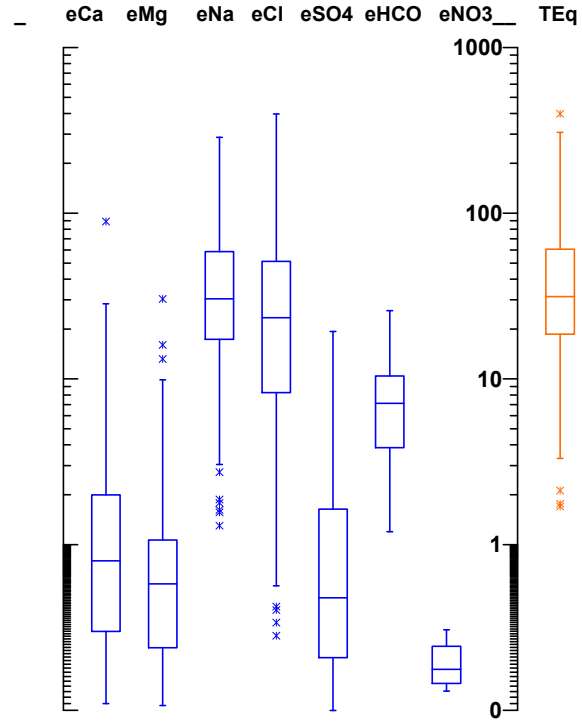
Ion Distribution, Zone 31deep FitzroyGW



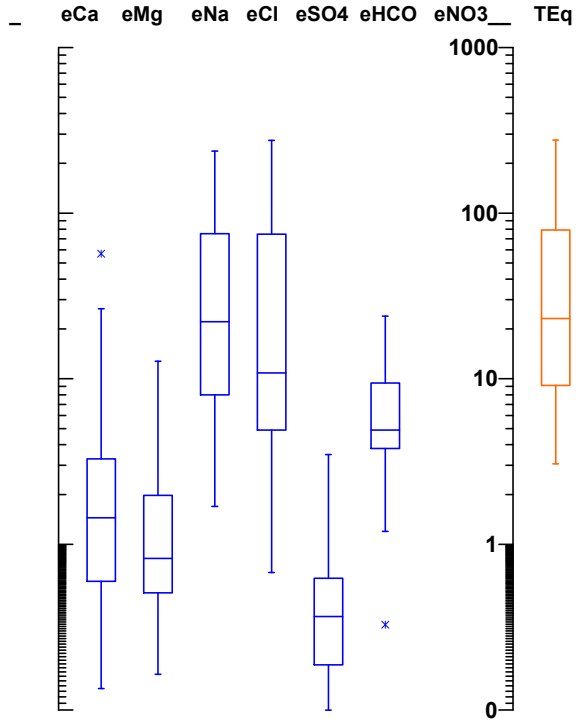
Ion Distribution, Zone 31shall FitzroyGW



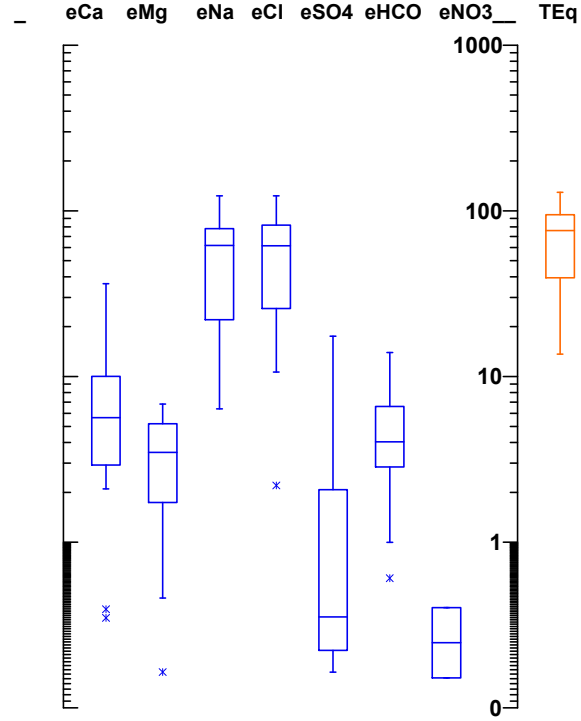
Ion Distribution, Zone 32deep FitzroyGW



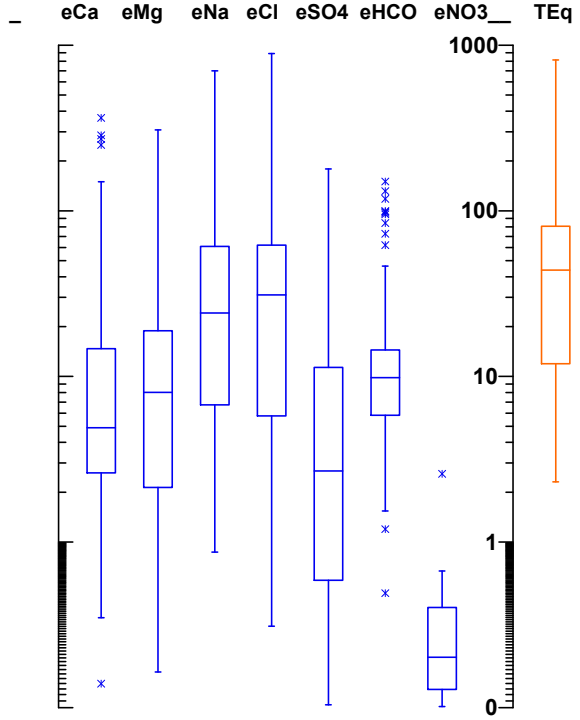
Ion Distribution, Zone 32shall FitzroyGW



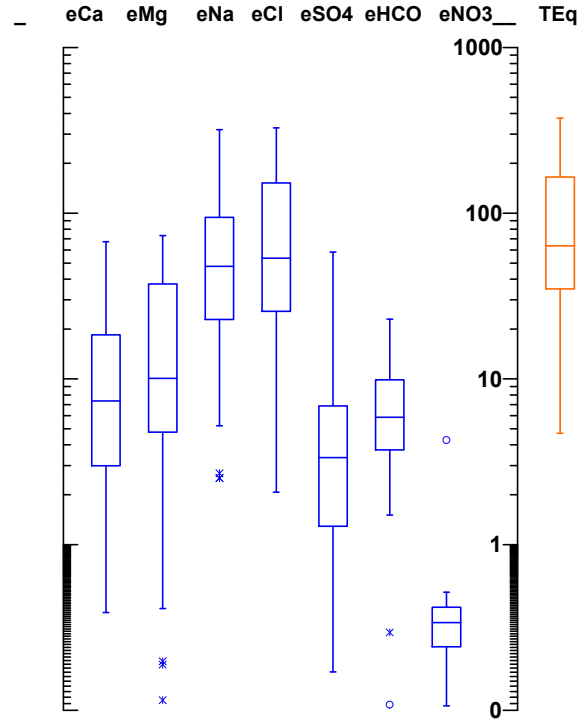
Ion Distribution, Zone 33deep FitzroyGW



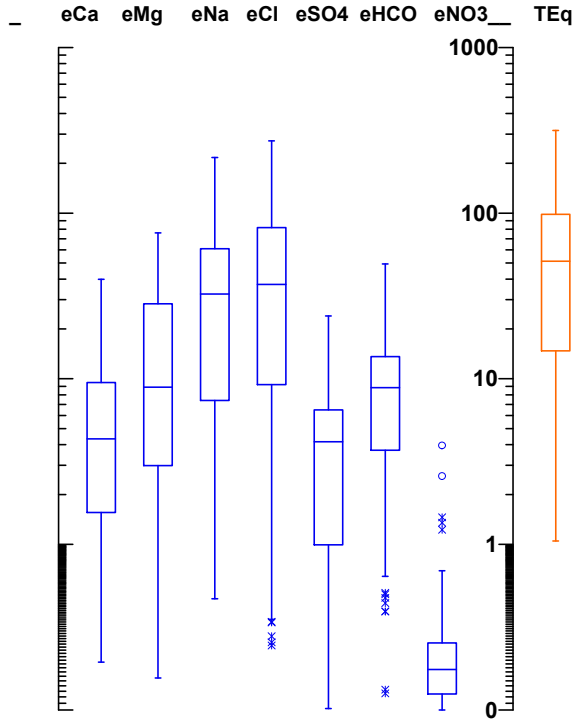
Ion Distribution, Zone 33shall FitzroyGW

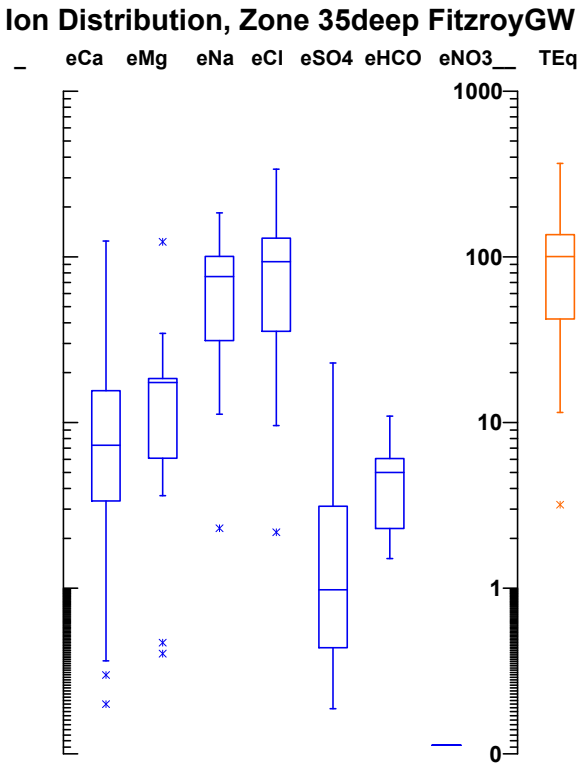


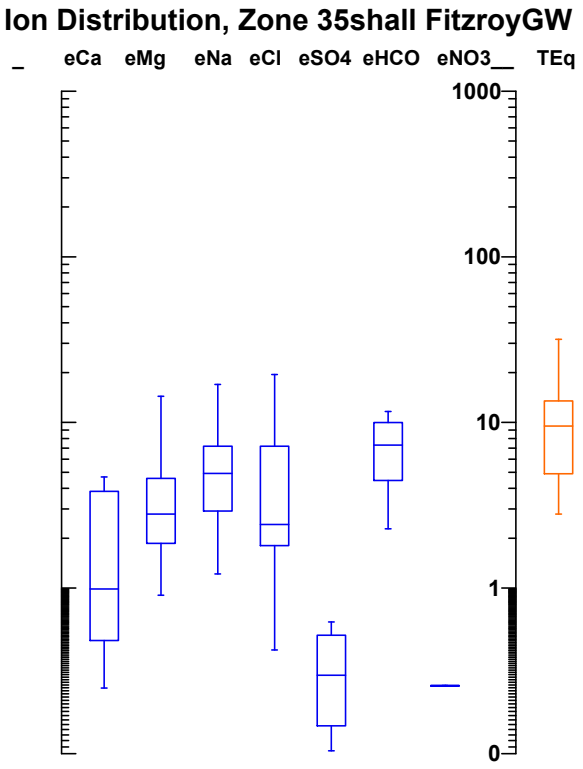
Ion Distribution, Zone 34deep FitzroyGW

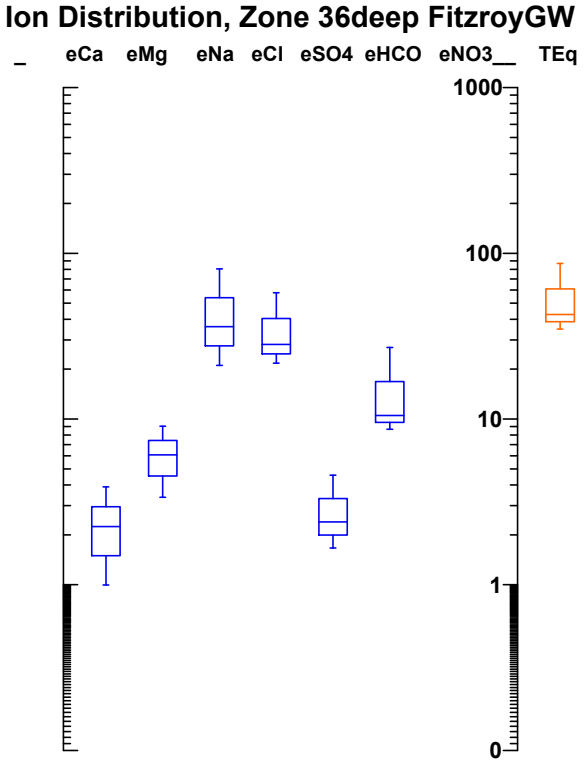


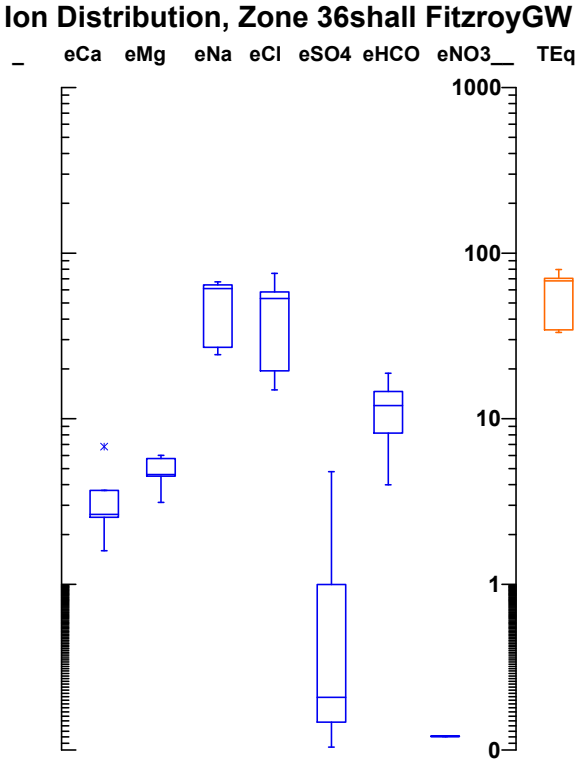
Ion Distribution, Zone 34shall FitzroyGW

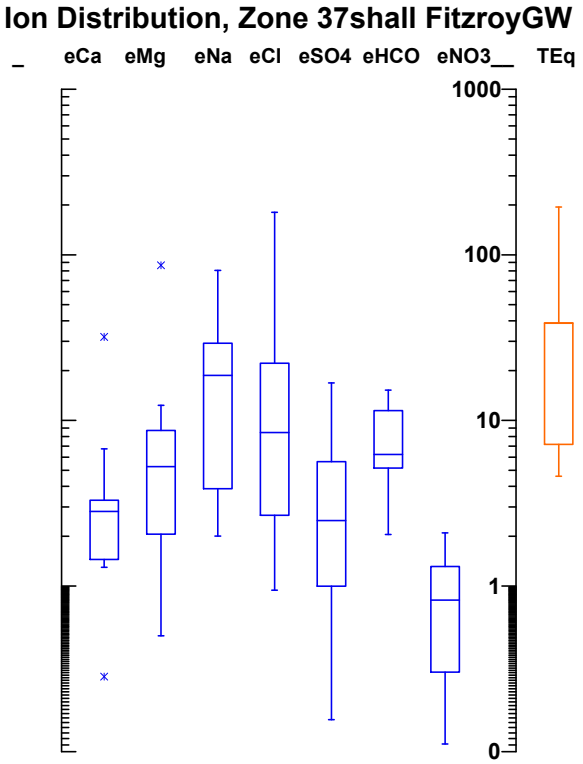


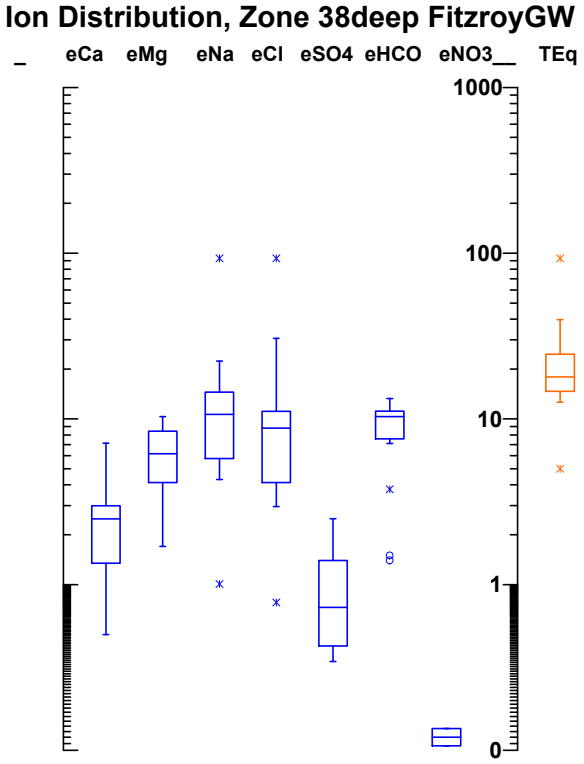

Ion Distribution, Zone 35deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

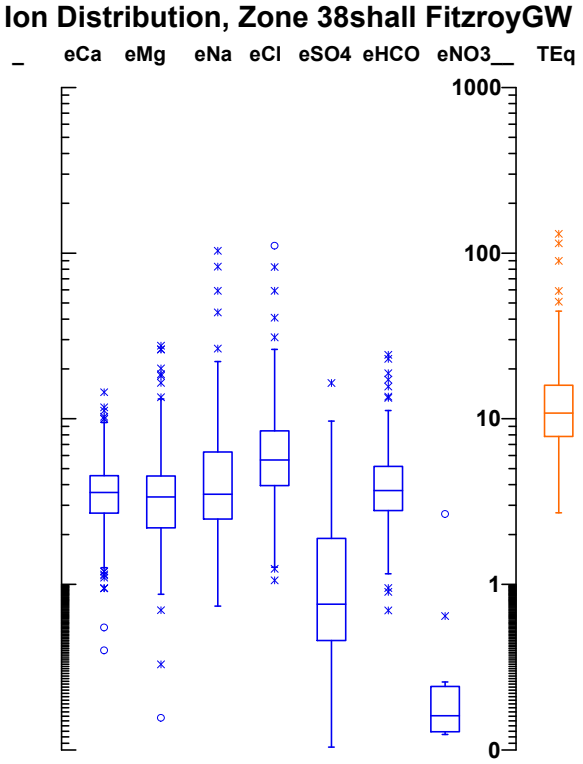

Ion Distribution, Zone 35shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 36deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

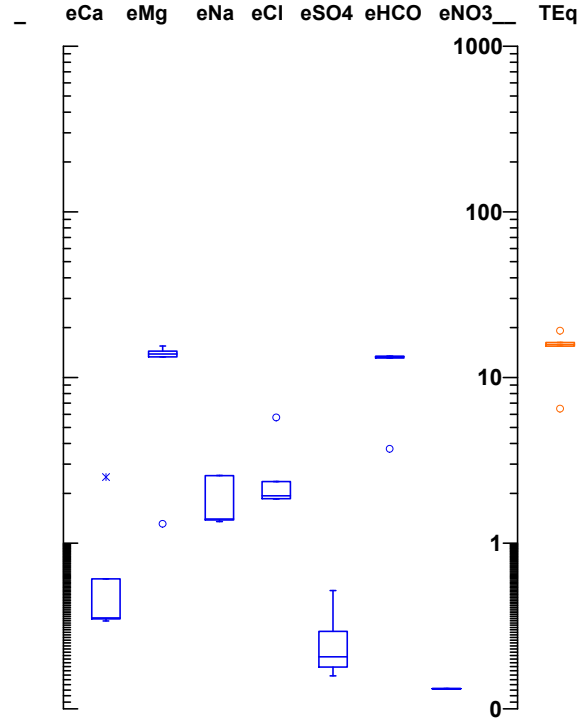

Ion Distribution, Zone 36shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 37shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

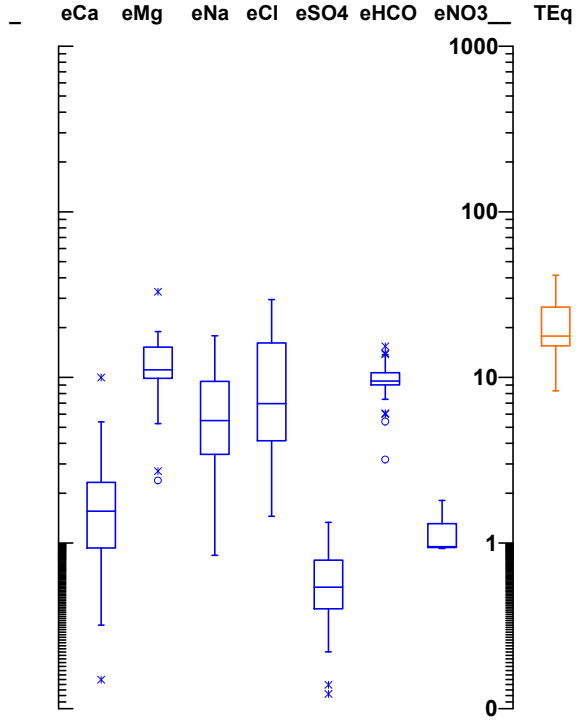

Ion Distribution, Zone 38deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 38shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

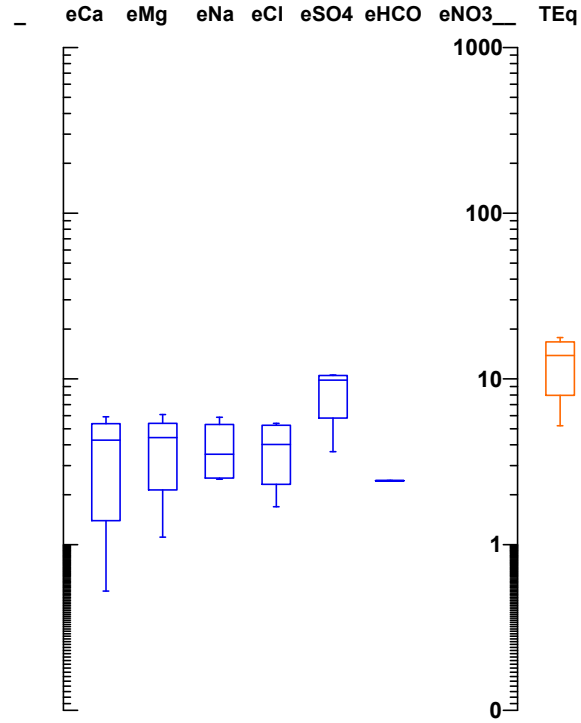
Ion Distribution, Zone 39deep FitzroyGW

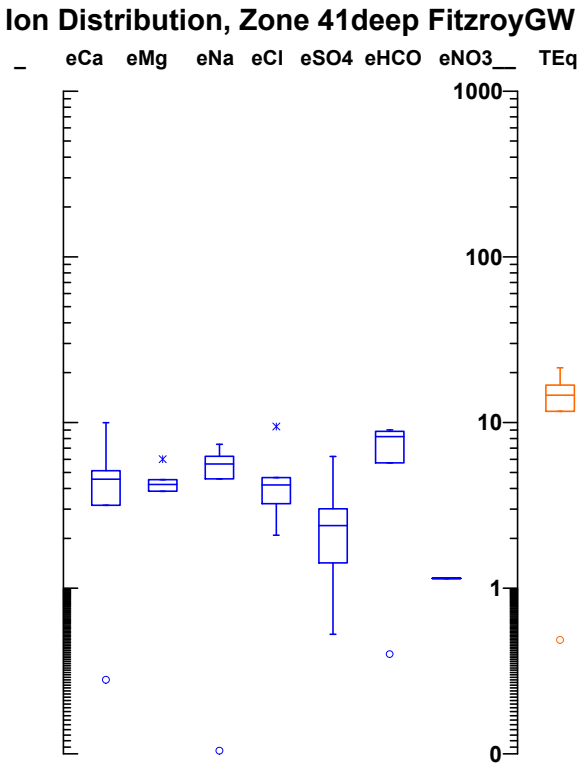


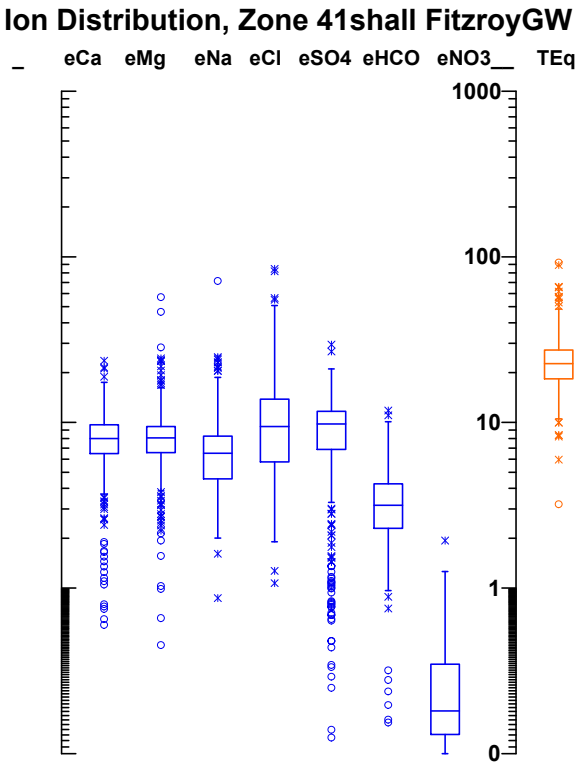
Ion Distribution, Zone 39shall FitzroyGW

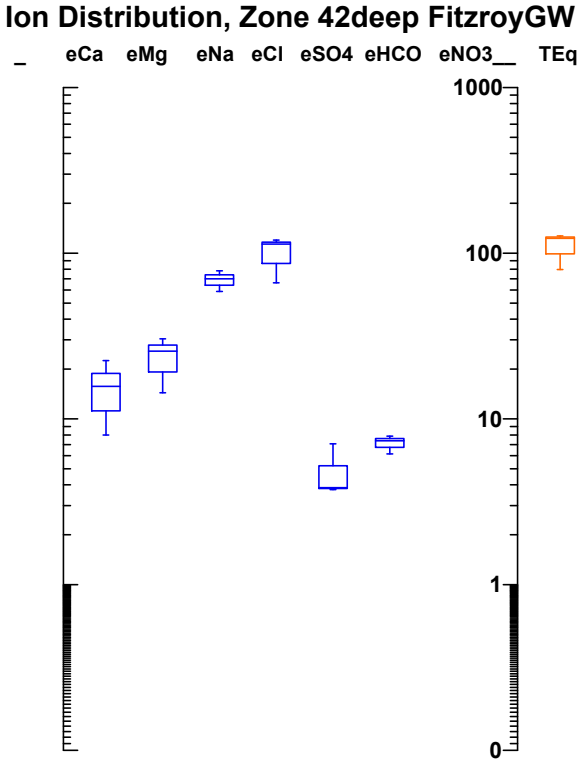


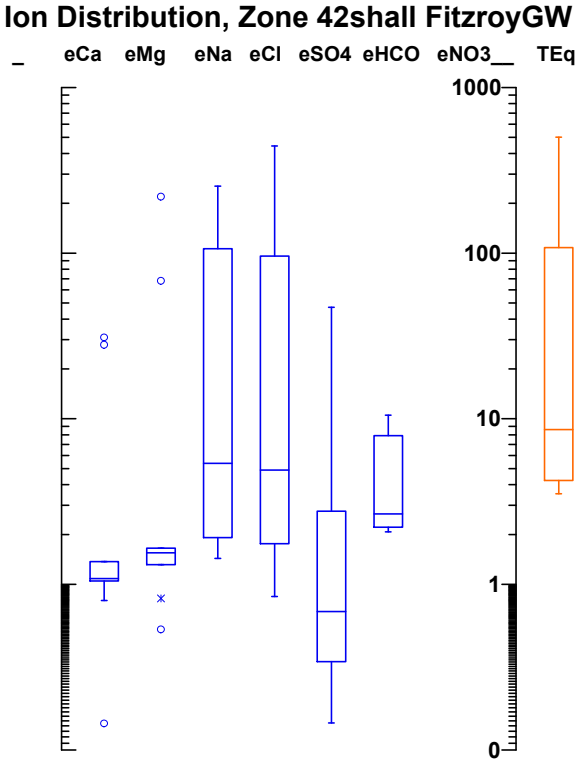
Ion Distribution, Zone 40deep FitzroyGW



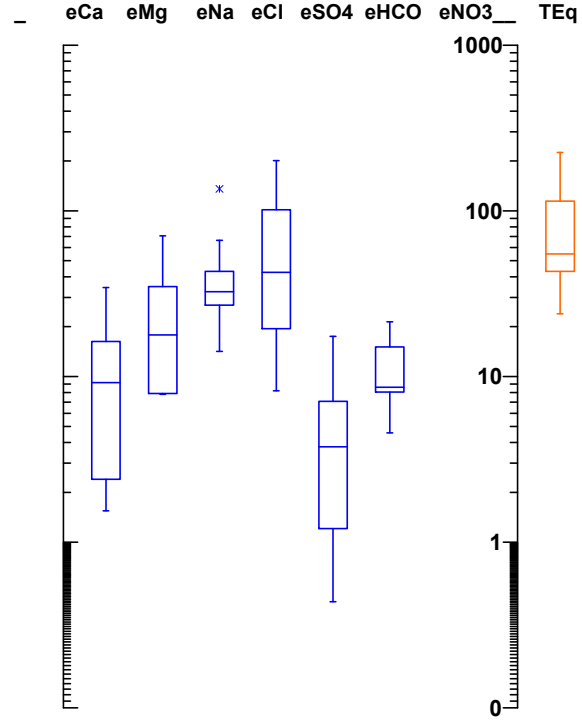

Ion Distribution, Zone 41deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 41shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

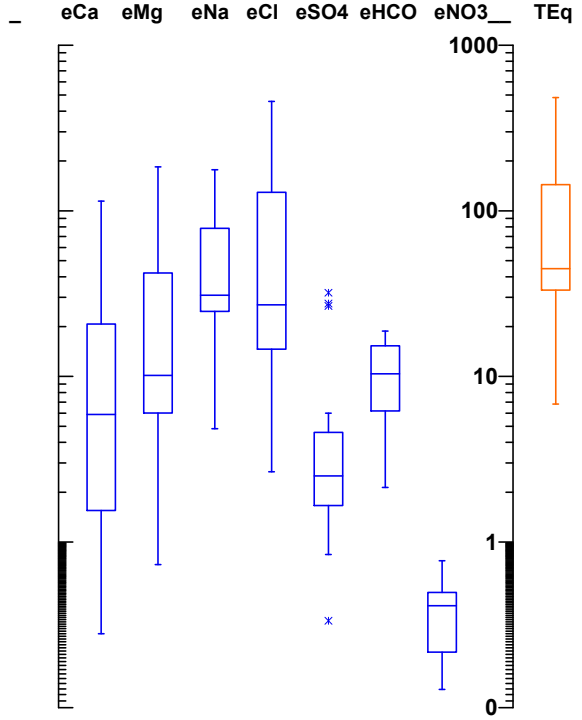

Ion Distribution, Zone 42deep FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0


Ion Distribution, Zone 42shall FitzroyGW
_ eCa eMg eNa eCl eSO4 eHCO eNO3__ TEq
1000
100
10
1
0

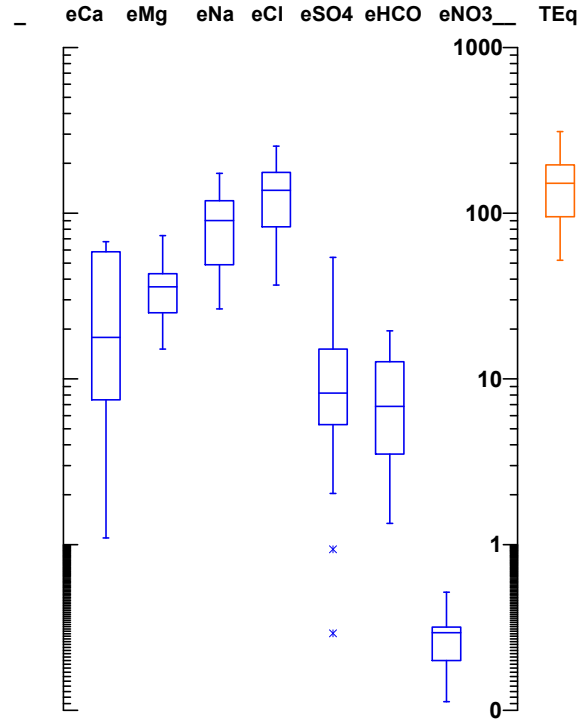
Ion Distribution, Zone 43deep FitzroyGW



Ion Distribution, Zone 43shall FitzroyGW



Ion Distribution, Zone 44deep FitzroyGW



Ion Distribution, Zone 44shall FitzroyGW

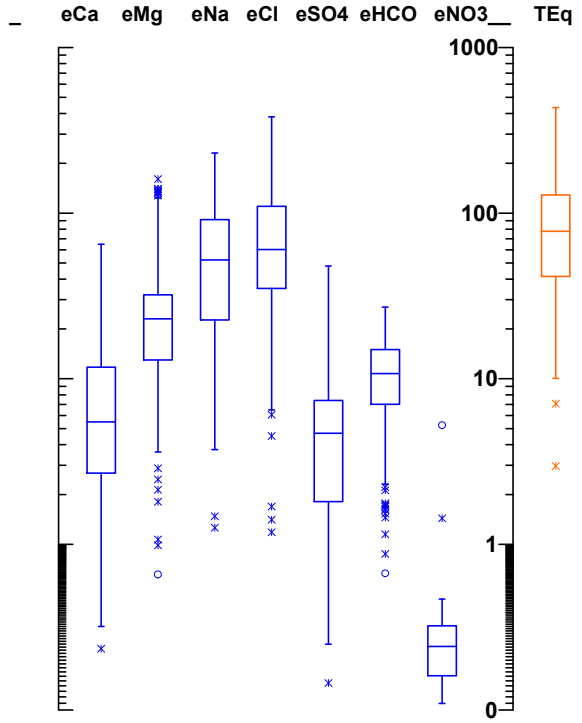


Table 5: Statistical summaries of salinity and major ions within each zone

Zone	Depth (±30m)	Percentile	EC (µScm^{-1})	Hardness (mgL^{-1} as $CaCO_3$)	pH	Alkalinity (mgL^{-1})	Ca (mgL^{-1})	Mg (mgL^{-1})	Na (mgL^{-1})	Cl (mgL^{-1})	SO_4 (mgL^{-1})	HCO_3 (mgL^{-1})	NO_3 (mgL^{-1})	SiO_2 (mgL^{-1})	F (mgL^{-1})	Fe (mgL^{-1})	Mn (mgL^{-1})	Zn (mgL^{-1})	Cu (mgL^{-1})	SAR	RAH (meqL-1)	EH (mV)
1	Deep	20th	345	109	7.05	171	22	12	63	56	5	208	0.28	45	0.203	0.001	0.010	0.005	0.005	2.55	0.38	-28.40
1	Deep	50th	565	132	7.80	228	29	15	71	82	12	271	2.00	48	0.270	0.010	0.045	0.010	0.010	3.10	1.22	20.50
1	Deep	80th	901	204	8.05	279	41	26	140	113	35	327	3.41	54	0.350	0.195	0.385	0.040	0.030	4.85	2.15	75.00
1	Shallow	20th	490	187	6.70	217	38	21	41	47	5	263	0.10	48	0.150	0.010	0.020	0.000	0.000	1.30	0.17	33.30
1	Shallow	50th	640	243	6.90	280	47	29	81	85	9	341	0.50	54	0.200	0.020	0.085	0.000	0.020	2.30	0.54	38.50
1	Shallow	80th	984	304	7.20	330	59	39	113	144	11	402	0.50	61	0.300	0.060	0.400	0.020	0.030	3.00	1.17	115.10
2	Deep	20th	332	101	6.99	115	24	10	32	22	1	140	0.40	27	0.151	0.000	0.000	0.051	0.000	1.30	0.27	
2	Deep	50th	410	121	7.40	135	29	11	36	32	15	163	4.05	32	0.200	0.020	0.010	0.080	0.010	1.50	0.55	
2	Deep	80th	493	140	7.90	160	32	14	43	38	22	193	19.75	36	0.239	0.091	0.015	0.138	0.019	1.60	0.64	
2	Shallow	20th	559	170	7.50	175	38	17	38	40	6	212	0.00	36	0.229	0.000	0.000	0.011	0.000	1.29	0.00	
2	Shallow	50th	892	305	7.70	309	52	41	69	83	19	373	1.30	42	0.270	0.010	0.000	0.085	0.015	1.60	0.10	
2	Shallow	80th	1047	375	8.00	371	80	45	75	111	38	450	7.90	48	0.310	0.020	0.039	0.129	0.020	2.00	1.02	
3	Deep	20th	660	198	7.60	251	23	28	59	37	8	305	0.00	12	0.100	0.000	0.005	0.010	0.030	1.80	1.04	
3	Deep	50th	780	244	7.90	326	34	37	76	52	13	397	0.50	14	0.170	0.010	0.010	0.010	0.030	2.10	1.82	
3	Deep	80th	1036	292	8.20	432	48	45	120	80	22	519	0.50	16	0.300	0.020	0.015	0.010	0.030	3.19	2.98	
3	Shallow	20th	746	152	7.70	299	19	22	80	53	6	349	0.00	11	0.100	0.000	0.000			2.10	1.87	
3	Shallow	50th	858	223	7.90	385	39	36	92	62	14	455	0.50	13	0.105	0.010	0.010			2.60	2.84	
3	Shallow	80th	926	316	8.23	441	48	47	132	76	17	538	0.90	15	0.215	0.015	0.010			4.70	3.53	
4	Deep	20th	765	152	7.50	250	25	16	76	65	6	325	0.50	31	0.100	0.010	0.010	0.010	0.010	1.70	0.74	
4	Deep	50th	938	219	7.70	315	48	31	98	100	13	399	1.00	34	0.105	0.135	0.020	0.010	0.010	2.50	2.09	
4	Deep	80th	1243	437	8.00	400	65	67	137	215	20	487	5.35	43	0.200	1.400	0.060	0.010	0.010	4.80	2.69	
4	Shallow	20th	625	118	7.81	266	26	13	57	35	6	324	8.14	28	0.028	0.003	0.003	0.020		1.53	0.68	
4	Shallow	50th	740	251	7.95	289	48	33	82	51	8	348	22.00	38	0.110	0.020	0.010	0.040		2.30	2.25	
4	Shallow	80th	1012	321	8.28	357	52	49	143	100	18	435	27.62	40	0.200	0.044	0.024	0.060		6.56	2.88	
5	Deep	20th	914	273	7.73	429	43	39	100	41	20	517			0.183					2.44	0.87	
5	Deep	50th	2400	475	7.90	516	55	82	350	381	173	621			0.335					7.10	1.09	

Zone	Depth (±30m)	Percentile	EC (µScm^{-1})	Hardness (mgL^{-1} as $CaCO_3$)	pH	Alkalinity (mgL^{-1})	Ca (mgL^{-1})	Mg (mgL^{-1})	Na (mgL^{-1})	Cl (mgL^{-1})	SO_4 (mgL^{-1})	HCO_3 (mgL^{-1})	NO_3 (mgL^{-1})	SiO_2 (mgL^{-1})	F (mgL^{-1})	Fe (mgL^{-1})	Mn (mgL^{-1})	Zn (mgL^{-1})	Cu (mgL^{-1})	SAR	RAH (meqL-1)	EH (mV)
5	Deep	80th	4219	594	8.00	591	61	109	684	860	319	713			0.410					12.18	3.78	
5	Shallow	20th	633	182	7.39	242	35	23	44	53	5	294	0.38	17	0.127	0.000	0.000			1.09	0.18	
5	Shallow	50th	680	286	7.70	280	60	24	68	80	21	342	3.20	23	0.200	0.010	0.070			2.00	1.06	
5	Shallow	80th	750	322	7.82	417	75	38	195	137	45	506	9.89	33	1.010	0.020	0.203			6.89	4.00	
6	Deep	20th	1100	338	7.67	380	49	53	89	80	19	455	0.09	10	0.100	0.001	0.000			1.80	0.00	
6	Deep	50th	1350	499	8.00	500	64	86	97	148	33	580	4.10	20	0.400	0.020	0.010			2.15	1.08	
6	Deep	80th	2300	698	8.50	581	108	101	246	426	136	693	9.82	34	0.600	0.058	0.010			4.03	1.80	
6	Shallow	20th	650	234	7.50	195	46	27	43	75	10	240	0.50	27	0.110	0.000	0.000	0.000	0.003	1.20		
6	Shallow	50th	910	314	7.80	255	58	39	73	123	16	310	1.80	31	0.200	0.010	0.010	0.020	0.020	1.70		
6	Shallow	80th	1293	460	8.10	370	76	69	106	181	30	445	4.37	36	0.300	0.030	0.010	0.067	0.050	2.10		
7	Deep	20th	744	205	8.30	354	13	40	51	21	5	410	0.18	47	0.110					1.22	1.04	
7	Deep	50th	780	293	8.30	390	17	64	55	47	6	463	0.90	50	0.200					1.40	1.93	
7	Deep	80th	807	343	8.57	395	19	72	101	56	7	468	2.43	55	0.290					3.11	2.98	
8	Deep	20th	31	83	8.20	83	12	11	30	28	16	12			0.100					1.32	0.00	
8	Deep	50th	310	99	8.20	99	16	17	31	50	20	119			0.100					1.50	0.00	
8	Deep	80th	641	203	8.20	197	52	18	80	111	22	241			0.370					2.40	0.33	
9	Deep	20th	18117	4491	6.90	535	353	888	3024	6030	1216	645	0.00			0.037	0.635			18.43		
9	Deep	50th	19800	4685	7.10	542	365	920	3091	6870	1240	658	0.55			0.170	1.150			19.50		
9	Deep	80th	20372	5074	7.35	618	437	963	3216	6907	1325	671	1.00			8.585	1.455			20.45		
9	Shallow	20th	526	139	6.80	106	18	22	47	70	32	126	0.00	19	0.110	0.000	0.000	0.010	0.001	1.63	0.00	
9	Shallow	50th	642	165	7.40	129	21	26	65	95	47	157	0.70	22	0.140	0.010	0.010	0.030	0.020	2.20	0.00	
9	Shallow	80th	889	243	7.90	182	30	39	91	143	55	210	3.30	30	0.224	0.065	0.010	0.060	0.030	2.48	0.05	
10	Deep	20th	475	30	7.80	123	6	2	73	53	2	147	0.22	15	0.074	0.010	0.010			2.68	0.44	
10	Deep	50th	800	36	7.80	175	7	5	82	87	9	210	0.50	15	0.200	0.010	0.010			5.90	2.13	
10	Deep	80th	1200	366	8.50	383	55	56	173	225	44	462	14.15	55	0.200	0.028	0.010			14.23	2.80	
10	Shallow	20th	485	103	6.70	128	20	13	46	64	4	155	0.00	40	0.100	0.000	0.000	0.000	0.000	1.60	0.00	78.90
10	Shallow	50th	739	221	7.30	205	40	28	96	130	8	250	0.50	46	0.200	0.010	0.010	0.010	0.000	2.90	0.00	106.00
10	Shallow	80th	2360	711	7.90	415	109	99	272	578	25	503	4.47	57	0.290	0.045	0.085	0.020	0.030	6.17	0.71	131.40

Zone	Depth (±30m)	Percentile	EC (µScm^{-1})	Hardness (mgL^{-1} as $CaCO_3$)	pH	Alkalinity (mgL^{-1})	Ca (mgL^{-1})	Mg (mgL^{-1})	Na (mgL^{-1})	Cl (mgL^{-1})	SO_4 (mgL^{-1})	HCO_3 (mgL^{-1})	NO_3 (mgL^{-1})	SiO_2 (mgL^{-1})	F (mgL^{-1})	Fe (mgL^{-1})	Mn (mgL^{-1})	Zn (mgL^{-1})	Cu (mgL^{-1})	SAR	RAH (meqL-1)	EH (mV)
11	Deep	20th	386	81	7.00	102	18	6	60	68	9	85		18	0.100		0.390			2.10	0.51	
11	Deep	50th	569	130	7.80	121	29	10	78	93	17	141		57	0.175		0.405			3.30	0.88	
11	Deep	80th	696	146	8.10	169	39	16	108	133	33	165		71	0.500		0.420			5.25	1.57	
11	Shallow	20th	0	73	7.50	86	20	6	47	57	7	0								2.40		
11	Shallow	50th	625	159	7.65	91	42	13	101	191	17	59								3.35		
11	Shallow	80th	1250	244	7.80	96	64	20	155	324	27	117								4.30		
12	Deep	20th	1298	212	7.79	552	11	45	172	80	39	660	0.00		0.232					3.91	3.49	
12	Deep	50th	1835	266	8.15	782	29	47	304	148	48	933	0.00		0.265					7.95	8.25	
12	Deep	80th	2085	467	8.37	867	55	81	430	170	97	1034	0.98		0.361					12.41	12.96	
12	Shallow	20th	690	164	7.70	113	26	24	44	13	10	117			0.190	0.000				1.20		
12	Shallow	50th	761	219	8.00	237	42	28	77	91	30	277			0.270	0.400				2.45		
12	Shallow	80th	832	273	8.30	360	58	31	109	168	50	436			0.350	0.800				3.70		
13	Deep	20th	720	136	7.50	262	21	15	75	54	8	315	0.00	18	0.157	0.000	0.000	0.010	0.000	2.00	0.51	
13	Deep	50th	1256	326	7.90	355	40	51	139	141	25	429	1.00	37	0.200	0.020	0.010	0.035	0.010	3.50	2.23	
13	Deep	80th	1950	540	8.20	560	72	88	279	327	67	673	4.93	56	0.370	0.090	0.040	0.135	0.035	8.96	3.98	
13	Shallow	20th	630	145	7.50	249	21	21	56	30	5	295	0.50	28	0.200	0.000	0.000	0.000	0.000	1.60	0.30	
13	Shallow	50th	1150	350	8.00	409	40	54	135	110	24	490	3.00	46	0.310	0.010	0.010	0.015	0.010	3.15	1.79	
13	Shallow	80th	2509	650	8.30	626	73	119	326	400	125	754	16.39	60	0.594	0.040	0.020	0.050	0.030	7.01	4.08	
14	Deep	20th	756	209	7.50	270	24	28	66	68	15	314	0.47	31	0.165	0.000	0.000	0.020	0.001	1.77	0.00	
14	Deep	50th	1420	433	7.80	380	64	57	135	147	32	450	2.50	47	0.350	0.000	0.010	0.040	0.020	2.70	0.49	
14	Deep	80th	2150	777	8.10	507	129	129	212	382	99	615	6.49	80	0.545	0.020	0.057	0.139	0.050	4.10	1.63	
14	Shallow	20th	1006	294	7.50	284	51	36	88	129	29	343	0.50	40	0.200	0.000	0.000	0.010	0.010	2.00	0.00	
14	Shallow	50th	1619	458	7.90	377	80	61	164	260	52	454	3.00	69	0.350	0.005	0.000	0.030	0.020	3.20	0.00	
14	Shallow	80th	2765	743	8.10	507	125	108	308	604	103	609	13.20	84	0.530	0.030	0.020	0.091	0.050	5.49	1.27	
15	Deep	20th	330	74	6.69	67	19	4	19	35	25	61	0.00	11	0.100	0.000	0.049	0.010		0.99	0.00	
15	Deep	50th	1200	111	7.45	135	32	12	166	190	110	142	0.35	19	0.180	0.000	0.220	0.060		3.95	0.02	
15	Deep	80th	1340	263	8.00	188	57	31	216	290	151	224	3.10	24	0.313	0.018	0.220	0.110		9.33	1.90	
15	Shallow	20th	229	50	6.61	74	8	7	33	33	0	91	0.32	15	0.065					1.25	0.24	

Zone	Depth (±30m)	Percentile	EC (µScm^{-1})	Hardness (mgL^{-1}as $CaCO_3$)	pH	Alkalinity (mgL^{-1})	Ca (mgL^{-1})	Mg (mgL^{-1})	Na (mgL^{-1})	Cl (mgL^{-1})	SO_4 (mgL^{-1})	HCO_3 (mgL^{-1})	NO_3 (mgL^{-1})	SiO_2 (mgL^{-1})	F (mgL^{-1})	Fe (mgL^{-1})	Mn (mgL^{-1})	Zn (mgL^{-1})	Cu (mgL^{-1})	SAR	RAH (meqL-1)	EH (mV)
15	Shallow	50th	1050	464	7.95	280	18	69	56	43	0	262	0.50	28	0.200					2.20	1.00	
15	Shallow	80th	1515	500	8.17	525	70	96	133	259	49	632	0.95	38	0.370					3.10	1.29	
16	Deep	20th	1859	513	7.80	385	78	76	202	311	45	459	0.58	22	0.260	0.000	0.000	0.028	0.009	3.70	0.00	
16	Deep	50th	2000	580	8.00	461	101	81	225	331	89	550	4.60	29	0.300	0.010	0.010	0.650	0.030	4.10	0.00	
16	Deep	80th	2285	634	8.30	543	114	86	294	434	130	650	7.32	35	0.489	0.049	0.078	1.183	0.052	5.38	0.79	
16	Shallow	20th	1000	310	7.40	194	58	38	86	177	22	235	0.00	28	0.140	0.000	0.000	0.010	0.000	2.00		
16	Shallow	50th	1700	527	7.80	335	90	70	165	350	45	405	1.50	35	0.210	0.020	0.010	0.020	0.010	3.10		
16	Shallow	80th	2800	810	8.10	476	136	120	310	650	97	570	5.00	41	0.300	0.040	0.040	0.174	0.030	4.90		
17	Deep	20th	2370	630	7.42	460	62	108	284	473	105	560	0.73	28	0.443	0.010	0.025	0.010	0.030	4.95		
17	Deep	50th	3000	781	7.60	481	90	128	366	620	151	586	10.25	42	0.600	0.015	0.070	0.010	0.030	5.80		
17	Deep	80th	4925	908	7.80	576	170	166	540	795	450	702	35.95	48	0.770	0.216	0.214	0.010	0.030	7.80		
17	Shallow	20th	414	128	6.55	134	23	16	63	87	5	153	0.00	27	0.101	0.000	0.000	0.010	0.000	2.42	0.00	
17	Shallow	50th	900	394	7.20	333	51	57	191	318	31	393	0.90	49	0.250	0.000	0.020	0.010	0.000	4.25	0.00	
17	Shallow	80th	2276	945	7.90	622	120	145	563	1052	124	754	3.60	56	0.500	0.056	0.283	0.019	0.009	8.99	0.58	
18	Deep	20th	3310	343	7.90	397	13	72	635	532	59	475	1.00	30	0.400					9.80	12.66	
18	Deep	50th	4675	989	8.05	690	119	172	790	905	731	818	2.05	31	0.600					12.10	13.03	
18	Deep	80th	5900	1628	8.27	1003	215	265	910	1250	1400	1188	3.80	32	0.800					15.38	13.40	
18	Shallow	20th	1532	466	7.70	413	43	82	143	191	23	501	1.00	38	0.330	0.005	0.003			2.20	0.00	
18	Shallow	50th	2400	696	7.90	582	72	126	190	390	95	690	4.75	50	0.520	0.020	0.010			3.20	0.71	
18	Shallow	80th	4440	1230	8.20	683	144	203	521	966	351	813	9.85	59	0.770	0.035	0.020			7.20	1.43	
19	Deep	20th	2721	551	7.20	206	74	64	347	690	46	243	0.50	29	0.100	0.010	0.000	0.010	0.000	5.50	0.00	
19	Deep	50th	3900	928	7.80	351	137	120	495	1095	100	425	2.50	42	0.140	0.050	0.010	0.010	0.030	7.70	0.00	
19	Deep	80th	7200	1643	8.10	449	320	230	1050	2285	296	544	7.00	64	0.210	0.140	0.109	0.020	0.030	11.60	1.85	
19	Shallow	20th	2000	577	7.30	180	99	70	170	466	40	217	0.50	32	0.100	0.010	0.000	0.010	0.000	2.90		
19	Shallow	50th	3500	1112	7.70	243	180	155	306	890	140	292	2.20	40	0.200	0.050	0.010	0.010	0.030	3.90		
19	Shallow	80th	5100	1676	8.00	421	299	225	495	1400	530	506	6.51	53	0.290	0.130	0.050	0.081	0.030	6.00		
20	Deep	20th	317	41	7.18	140	9	3	79	75	0	142	0.00	12	0.085	0.001	0.010			4.02	1.02	
20	Deep	50th	595	66	7.70	154	12	6	105	100	2	183	0.50	14	0.120	0.015	0.010			5.50	2.00	

Zone	Depth (±30m)	Percentile	EC (µScm^{-1})	Hardness (mgL^{-1} as $CaCO_3$)	pH	Alkalinity (mgL^{-1})	Ca (mgL^{-1})	Mg (mgL^{-1})	Na (mgL^{-1})	Cl (mgL^{-1})	SO_4 (mgL^{-1})	HCO_3 (mgL^{-1})	NO_3 (mgL^{-1})	SiO_2 (mgL^{-1})	F (mgL^{-1})	Fe (mgL^{-1})	Mn (mgL^{-1})	Zn (mgL^{-1})	Cu (mgL^{-1})	SAR	RAH (meqL-1)	EH (mV)
20	Deep	80th	743	114	8.01	196	24	11	143	164	6	237	1.05	17	0.200	0.030	0.015			7.56	2.58	
20	Shallow	20th	90	35	7.25	48	12	1	57	64	0	16	0.03	13	0.170	0.000	0.000			2.53	0.35	
20	Shallow	50th	785	91	7.80	186	23	10	132	145	2	218	0.50	17	0.210	0.010	0.020			4.35	1.75	
20	Shallow	80th	1195	413	8.11	337	87	46	171	305	29	355	1.93	22	0.330	0.053	0.031			6.60	2.35	
21	Deep	20th	217	21	6.60	47	6	1	42	55	0	27	0.00	11	0.100	0.000	0.000	0.100	0.030	2.80	0.10	
21	Deep	50th	585	84	7.40	143	20	3	145	170	5	168	0.00	13	0.200	0.020	0.080	0.125	0.045	5.40	2.02	
21	Deep	80th	2060	428	7.92	317	126	35	324	572	112	242	1.00	16	0.400	0.495	0.268	0.150	0.060	15.20	3.37	
21	Shallow	20th	1033	272	7.40	223	61	30	103	153	16	269	0.00	29	0.157	0.000	0.000	0.020	0.030	2.50	0.00	
21	Shallow	50th	2000	522	7.90	345	96	63	237	445	45	416	1.00	37	0.210	0.020	0.010	0.020	0.050	4.10	0.02	
21	Shallow	80th	4609	1566	8.20	478	300	200	715	1765	125	570	5.88	44	0.400	0.060	0.224	0.040	0.050	9.00	0.95	
22	Deep	20th	1507	433	7.40	365	62	47	161	253	15	438	0.79	27	0.152	0.000	0.000	0.010	0.000	2.70	0.00	
22	Deep	50th	2735	830	7.90	570	101	134	275	721	44	655	6.90	41	0.400	0.000	0.000	0.060	0.010	4.25	0.00	
22	Deep	80th	5276	1861	8.10	636	181	283	809	1973	218	775	16.29	57	0.697	0.010	0.030	0.695	0.050	12.36	2.20	
22	Shallow	20th	1403	367	7.20	245	60	41	145	218	30	295	0.00	35	0.163	0.000	0.000	0.010	0.000	3.00	0.00	
22	Shallow	50th	2220	591	7.70	360	105	76	240	475	61	439	1.30	45	0.300	0.000	0.010	0.020	0.010	4.40	0.00	
22	Shallow	80th	3722	1001	8.00	510	175	145	420	979	95	610	9.20	64	0.560	0.050	0.100	0.080	0.037	6.93	1.01	
23	Deep	20th	2496	350	7.51	233	50	55	312	553	42	282	0.00	20	0.149	0.014	0.000			5.50	0.00	
23	Deep	50th	3465	1098	7.80	463	138	165	587	851	100	565	0.00	47	0.370	0.040	0.025			10.45	0.73	
23	Deep	80th	7450	1621	7.99	618	260	244	1106	1930	520	753	2.25	54	1.020	0.382	0.340			13.00	10.83	
23	Shallow	20th	3333	461	7.60	445	51	70	501	558	50	543	0.00	13	0.680	0.006	0.020			5.71	1.83	
23	Shallow	50th	3850	793	7.75	650	100	140	561	750	95	793	0.50	21	0.800	0.035	0.035			8.40	2.85	
23	Shallow	80th	4506	1146	8.45	903	223	185	599	989	832	1091	1.65	48	1.200	0.085	0.176			14.36	9.36	
24	Shallow	20th	1790	559	7.90	360	73	88	194	328	45	433	0.09	36	0.480	0.000	0.000			3.84		
24	Shallow	50th	3140	762	8.00	402	126	109	350	605	160	485	7.30	52	0.650	0.000	0.010			5.50		
24	Shallow	80th	6908	1400	8.23	601	176	234	1151	1935	318	729	12.76	62	1.060	0.015	0.025			15.39		
25	Deep	20th	791	15	7.90	301	4	1	159	67	11	358	0.00	17	0.150	0.000	0.000	0.012	0.000	5.50	2.46	
25	Deep	50th	1037	40	8.35	332	10	3	198	96	20	391	0.00	19	0.260	0.000	0.000	0.030	0.000	14.15	5.32	
25	Deep	80th	1345	229	8.50	457	30	41	263	178	38	544	0.60	37	0.379	0.100	0.020	0.507	0.000	23.80	6.07	

Zone	Depth (±30m)	Percentile	EC (μScm^{-1})	Hardness (mgL^{-1} as $CaCO_3$)	pH	Alkalinity (mgL^{-1})	Ca (mgL^{-1})	Mg (mgL^{-1})	Na (mgL^{-1})	Cl (mgL^{-1})	SO_4 (mgL^{-1})	HCO_3 (mgL^{-1})	NO_3 (mgL^{-1})	SiO_2 (mgL^{-1})	F (mgL^{-1})	Fe (mgL^{-1})	Mn (mgL^{-1})	Zn (mgL^{-1})	Cu (mgL^{-1})	SAR	RAH (meqL-1)	EH (mV)
25	Shallow	20th	685	49	7.70	251	11	5	68	37	6	300	0.20	19	0.190	0.000	0.000			1.83	0.84	
25	Shallow	50th	1085	171	7.90	350	27	22	142	118	10	421	2.20	28	0.300	0.010	0.010			4.70	3.90	
25	Shallow	80th	1420	370	8.19	579	59	55	267	194	48	630	8.62	34	0.400	0.020	0.020			15.47	6.70	
26	Deep	20th	450	13	7.38	197	4	1	111	27	0	208	0.91	10	0.500	0.000	0.000			10.15	3.39	
26	Deep	50th	550	18	8.00	240	4	2	128	58	0	256	1.00	12	0.600	0.000	0.000			12.95	4.18	
26	Deep	80th	667	38	8.20	254	9	4	159	89	5	303	2.00	14	0.600	0.000	0.000			15.39	4.69	
27	Deep	20th	158	4	6.90	63	1	0	32	9	0	70	0.00	12	0.100	0.010	0.000	0.000	0.010	3.93	1.15	
27	Deep	50th	210	8	7.50	91	2	1	45	12	0	103	0.00	13	0.200	0.040	0.010	0.010	0.010	7.70	1.64	
27	Deep	80th	297	24	7.90	151	7	1	68	36	2	142	0.50	14	0.300	0.245	0.030	0.020	0.030	10.34	2.35	
27	Shallow	20th	177	4	7.13	79	1	0	38	7	0	94	0.00	11	0.159	0.007	0.007	0.000	0.003	4.80	1.50	
27	Shallow	50th	215	5	7.40	99	2	0	45	8	1	120	0.00	12	0.200	0.010	0.010	0.005	0.010	8.20	1.76	
27	Shallow	80th	284	24	7.97	144	9	1	66	10	2	170	0.50	14	0.238	0.023	0.013	0.010	0.024	9.25	2.00	
28	Deep	20th	308	24	7.10	74	5	3	28	32	0	85	0.00	13	0.100	0.010	0.010	0.010	0.030	1.89	0.83	
28	Deep	50th	425	45	7.80	156	9	5	73	45	2	186	0.50	15	0.200	0.010	0.010	0.020	0.030	4.60	2.25	
28	Deep	80th	723	66	8.20	219	16	9	128	74	5	257	0.50	17	0.230	0.040	0.210	0.030	0.045	9.73	3.54	
28	Shallow	20th	300	22	7.10	73	4	3	28	42	0	85	0.00	15	0.114	0.000	0.010	0.000	0.000	2.20	0.19	
28	Shallow	50th	615	51	7.70	196	9	6	128	57	2	230	0.50	17	0.200	0.020	0.010	0.010	0.005	5.50	2.80	
28	Shallow	80th	1644	261	8.20	416	30	32	252	241	11	495	0.50	25	0.400	0.093	0.096	0.019	0.019	13.50	4.91	
29	Deep	20th	689	8	7.60	187	2	0	186	115	0	136	0.00	12	0.100	0.000	0.000	0.000	0.000	13.52	2.13	
29	Deep	50th	1200	17	8.10	301	5	1	286	178	5	317	0.00	15	0.300	0.000	0.010	0.000	0.010	32.30	4.92	
29	Deep	80th	2205	108	8.60	500	29	8	568	600	23	568	1.00	18	1.000	0.068	0.030	0.010	0.030	51.49	9.36	
29	Shallow	20th	890	9	7.60	231	3	0	201	129	0	252	0.00	12	0.100	0.000	0.000			15.60	2.62	
29	Shallow	50th	1565	25	8.30	358	8	2	348	220	16	347	0.60	14	0.400	0.000	0.010			30.40	5.82	
29	Shallow	80th	2515	138	8.50	517	35	11	530	653	38	586	7.28	18	0.917	0.040	0.040			48.21	9.58	
30	Deep	20th	530	15	7.85	164	4	1	95	45	2	179	0.00		0.079					5.05	2.74	
30	Deep	50th	665	65	8.15	243	8	10	113	60	12	296	0.00		0.200					9.30	3.16	
30	Deep	80th	960	106	8.70	290	19	16	173	75	66	354	0.09		0.300					12.15	4.17	
30	Shallow	20th	536	17	7.56	232	5	1	119	25	9	269	0.00	21	0.009					5.37	3.99	

Zone	Depth (±30m)	Percentile	EC (µScm^{-1})	Hardness (mgL^{-1} as $CaCO_3$)	pH	Alkalinity (mgL^{-1})	Ca (mgL^{-1})	Mg (mgL^{-1})	Na (mgL^{-1})	Cl (mgL^{-1})	SO_4 (mgL^{-1})	HCO_3 (mgL^{-1})	NO_3 (mgL^{-1})	SiO_2 (mgL^{-1})	F (mgL^{-1})	Fe (mgL^{-1})	Mn (mgL^{-1})	Zn (mgL^{-1})	Cu (mgL^{-1})	SAR	RAH (meqL-1)	EH (mV)
30	Shallow	50th	1030	45	8.30	309	8	6	169	81	16	350	0.80	26	0.100					11.30	4.25	
30	Shallow	80th	1689	242	8.71	454	31	40	298	278	41	549	6.70	46	0.264					18.83	8.25	
31	Deep	20th	2151	79	7.70	357	9	14	375	414	0	412	0.00	15	0.100		0.000	0.000	0.000	9.10	2.86	
31	Deep	50th	3150	198	7.95	575	27	28	589	554	10	683	0.50	17	0.105		0.005	0.015	0.015	20.10	5.85	
31	Deep	80th	3540	610	8.20	632	70	106	734	954	64	763	2.44	47	0.380		0.010	0.382	0.103	25.59	9.87	
31	Shallow	20th	874	107	7.51	342	13	18	200	34	12	406	0.50	54	0.187	0.000	0.000	0.000	0.000	5.23	0.72	
31	Shallow	50th	2450	296	8.00	594	37	55	481	565	72	710	2.50	71	0.450	0.010	0.010	0.010	0.010	11.55	4.67	
31	Shallow	80th	4200	649	8.30	805	80	107	805	951	152	956	8.19	90	0.715	0.050	0.030	0.033	0.030	17.20	9.90	
32	Deep	20th	0	14	7.60	165	3	1	360	185	0	0	0.00	13	0.200	0.000	0.000	0.007	0.000	32.07	2.43	
32	Deep	50th	2050	49	8.10	351	11	4	700	830	4	284	0.10	16	0.600	0.035	0.010	0.010	0.010	51.90	6.48	
32	Deep	80th	5165	156	8.60	605	46	12	1802	2476	34	628	2.64	19	1.195	0.200	0.033	0.230	0.033	77.96	11.56	
32	Shallow	20th	371	26	7.40	172	7	2	144	130	0	100	0.00	10	0.165	0.000	0.000		0.000	5.67	1.17	
32	Shallow	50th	1440	105	7.95	237	28	8	508	385	6	275	0.00	15	0.400	0.060	0.000		0.005	40.55	3.90	
32	Shallow	80th	6040	277	8.40	493	74	30	1868	2780	21	590	1.00	20	0.769	2.350	0.020		0.010	61.89	9.14	
33	Deep	20th	0	247	7.27	144	53	0	401	405	2	0	0.11	9	0.100	0.007	0.000			8.27	0.00	
33	Deep	50th	6310	469	7.60	233	114	30	1420	2181	11	174	1.05	13	0.300	0.055	0.010			27.50	0.02	
33	Deep	80th	8712	734	8.22	574	263	62	2095	3286	96	391	8.70	33	0.601	0.292	0.050			38.70	4.12	
33	Shallow	20th	878	221	7.30	256	46	22	126	135	2	307	0.00	23	0.100	0.010	0.000	0.010	0.030	3.60	0.00	
33	Shallow	50th	3700	645	7.80	499	97	94	610	1169	62	600	2.00	29	0.200	0.030	0.045	0.020	0.050	8.70	0.93	
33	Shallow	80th	12158	1964	8.20	785	345	293	2944	4061	416	933	5.25	40	0.395	0.200	0.970	0.035	0.090	25.22	3.64	
34	Deep	20th	3419	359	7.40	156	46	35	480	753	25	188	0.01	16	0.020	0.000	0.000	0.010	0.017	10.50	0.00	
34	Deep	50th	6100	919	7.80	275	145	115	1100	1900	138	330	2.15	25	0.155	0.050	0.050	0.025	0.030	15.60	0.24	
34	Deep	80th	16000	3208	8.03	536	442	491	2565	5905	398	650	14.92	36	0.400	0.246	0.291	0.317	0.030	24.65	6.25	
34	Shallow	20th	498	163	7.10	154	18	27	135	171	12	187	0.00	21	0.100	0.000	0.000	0.000	0.000	4.37	0.00	
34	Shallow	50th	2150	674	7.75	435	84	108	747	1309	140	536	0.95	36	0.280	0.030	0.010	0.015	0.010	10.85	0.00	
34	Shallow	80th	8910	2228	8.10	752	215	389	1500	3185	318	878	5.30	52	0.500	0.140	0.160	0.060	0.030	18.21	2.30	
35	Deep	20th	4103	401	7.37	92	33	45	465	1079	0	126	0.00	9	0.060	0.000	0.010	0.010	0.000	16.51	0.00	
35	Deep	50th	9375	1216	7.60	189	146	204	1750	3316	20	268	0.10	18	0.300	0.010	0.040	0.140	0.005	21.20	0.05	

Zone	Depth (±30m)	Percentile	EC (µScm^{-1})	Hardness (mgL^{-1} as $CaCO_3$)	pH	Alkalinity (mgL^{-1})	Ca (mgL^{-1})	Mg (mgL^{-1})	Na (mgL^{-1})	Cl (mgL^{-1})	SO_4 (mgL^{-1})	HCO_3 (mgL^{-1})	NO_3 (mgL^{-1})	SiO_2 (mgL^{-1})	F (mgL^{-1})	Fe (mgL^{-1})	Mn (mgL^{-1})	Zn (mgL^{-1})	Cu (mgL^{-1})	SAR	RAH (meqL-1)	EH (mV)
35	Deep	80th	13604	1905	8.01	311	366	226	2555	5368	122	376	0.50	76	0.500	0.047	2.495	0.270	0.010	28.31	1.91	
35	Shallow	20th	84	37	7.59	122	6	3	59	54	5	42	0.15	43	0.100					1.99	0.48	
35	Shallow	50th	870	124	7.60	320	14	27	113	86	11	333	1.40	68	0.200					4.15	2.40	
35	Shallow	80th	1983	430	7.93	556	81	58	256	392	25	646	9.60	72	0.500					9.72	4.92	
36	Deep	20th	3475	288	8.21	460	23	44	520	793	84	541	0.65	32	0.310	0.020	0.020			9.39	4.34	
36	Deep	50th	4150	354	8.30	572	45	74	830	1000	115	640	2.00	43	0.400	0.020	0.020			19.20	13.40	
36	Deep	80th	7255	619	8.66	1322	75	106	1748	1945	210	1549	2.90	81	1.120	0.047	0.047			45.12	22.45	
36	Shallow	20th	3100	323	7.70	316	42	46	590	610	2	372	1.00	25	0.285	0.020	0.020			13.00	1.83	
36	Shallow	50th	6300	363	7.80	600	53	56	1404	1885	5	732	4.25	43	0.300	0.020	0.045			26.80	6.84	
36	Shallow	80th	7410	528	8.35	843	105	72	1511	2373	120	1021	7.50	60	0.390	0.020	0.070			34.95	10.60	
37	Shallow	20th	544	169	7.53	154	27	22	82	83	15	186	0.15	41	0.219	0.000	0.007			3.53	0.00	
37	Shallow	50th	3400	428	8.00	318	57	64	430	300	92	380	0.80	59	0.600	0.020	0.010			6.20	1.35	
37	Shallow	80th	4418	841	8.10	680	114	137	807	1110	293	811	37.77	79	1.547	0.335	0.029			13.95	3.32	
38	Deep	20th	1333	217	7.66	273	21	38	125	133	17	332	0.00	19	0.200	0.005	0.000	0.010	0.010	2.60	0.00	
38	Deep	50th	1675	430	8.10	540	50	74	246	314	31	630	0.50	27	0.400	0.020	0.010	0.015	0.020	4.95	0.95	
38	Deep	80th	2450	561	8.57	580	61	105	355	423	70	695	3.23	39	0.710	0.035	0.015	0.020	0.030	9.55	2.94	
38	Shallow	20th	693	230	7.30	135	48	24	53	130	20	165	0.23	18	0.100	0.000	0.000	0.000	0.000	1.40		
38	Shallow	50th	1050	357	7.70	187	72	41	81	200	36	225	0.80	26	0.160	0.015	0.010	0.030	0.010	1.95		
38	Shallow	80th	1610	491	8.10	295	97	58	156	320	106	352	1.97	33	0.250	0.030	0.020	0.314	0.050	3.30		
39	Deep	20th	665	437	7.85	427	7	89	31	66	8	513	1.20	79	0.045	0.000		0.000	0.000	0.50	0.00	
39	Deep	50th	1270	710	8.30	693	7	169	32	69	10	817	1.40	80	0.080	0.000		0.060	0.030	0.50	0.00	
39	Deep	80th	1422	773	8.55	705	31	182	59	143	20	819	5.30	87	0.285	0.030		0.120	0.060	1.40	0.14	
39	Shallow	20th	1314	515	7.45	456	14	114	63	129	16	540	0.50	61	0.100	0.000	0.000	0.000	0.010	1.10	0.00	
39	Shallow	50th	1646	679	7.90	493	31	135	126	247	26	581	2.10	71	0.155	0.005	0.000	0.030	0.020	2.25	0.00	
39	Shallow	80th	2725	889	8.40	579	61	190	255	653	41	701	3.61	86	0.300	0.010	0.020	0.088	0.020	3.85	0.02	
40	Deep	20th	805	185	4.05	0	30	24	58	76	256	0	0.00	15	0.139	0.000	0.462			1.51		
40	Deep	50th	1363	438	4.45	62	86	54	85	147	473	0	0.25	16	0.265	0.000	1.200			2.35		
40	Deep	80th	1616	556	6.81	123	112	69	128	188	505	104	1.27	27	0.398	0.018	1.209			2.77		

Zone	Depth (±30m)	Percentile	EC (µScm^{-1})	Hardness (mgL^{-1} as $CaCO_3$)	pH	Alkalinity (mgL^{-1})	Ca (mgL^{-1})	Mg (mgL^{-1})	Na (mgL^{-1})	Cl (mgL^{-1})	SO_4 (mgL^{-1})	HCO_3 (mgL^{-1})	NO_3 (mgL^{-1})	SiO_2 (mgL^{-1})	F (mgL^{-1})	Fe (mgL^{-1})	Mn (mgL^{-1})	Zn (mgL^{-1})	Cu (mgL^{-1})	SAR	RAH (meqL-1)	EH (mV)
41	Deep	20th	974	251	7.15	206	46	33	74	53	18	251	0.85	12	0.160	0.000	0.000	0.010	0.000	1.42	0.02	
41	Deep	50th	1356	434	7.50	417	92	49	129	132	91	502	1.45	40	0.330	0.000	0.010	0.030	0.015	2.55	0.22	
41	Deep	80th	1656	574	8.13	451	132	60	152	216	192	543	24.06	45	0.403	0.000	0.041	0.491	0.058	3.19	1.55	
41	Shallow	20th	1611	611	7.30	111	116	74	100	193	252	132	0.50	30	0.100	0.010	0.000	0.010	0.000	1.70		
41	Shallow	50th	2020	797	7.70	159	160	98	150	335	465	190	1.60	34	0.100	0.040	0.010	0.010	0.010	2.30		
41	Shallow	80th	2600	979	7.90	246	205	120	205	520	580	293	5.23	43	0.200	0.070	0.010	0.045	0.030	3.10		
42	Deep	20th	8080	1239	7.01	320	176	189	1376	2517	181	383	2.50	40	0.100	0.037	0.100			14.50		
42	Deep	50th	11500	2310	8.00	369	315	312	1610	4020	185	450	3.75	43	0.200	0.190	0.105			16.30		
42	Deep	80th	12220	2401	8.18	403	437	364	1781	4227	325	477	5.00	45	0.300	0.208	0.110			17.47		
42	Shallow	20th	465	101	6.66	108	19	13	40	57	15	132	0.00	30	0.100	0.000	0.007			1.50	0.01	
42	Shallow	50th	560	133	7.00	134	22	19	157	219	34	162	0.20	33	0.130	0.000	0.120			6.00	0.16	
42	Shallow	80th	1738	2552	7.61	400	294	424	2473	5005	332	485	0.71	37	0.195	0.029	0.260			18.95	2.82	
43	Deep	20th	3460	511	7.70	393	48	96	617	690	58	474	0.00	14	0.047	0.019	0.000			7.30	0.00	
43	Deep	50th	5500	1360	8.20	442	184	217	748	1510	181	527	0.00	16	0.100	0.190	0.000			9.65	3.04	
43	Deep	80th	7720	3050	8.40	954	368	436	1259	3616	362	1113	0.94	46	0.310	0.856	0.054			14.40	12.38	
43	Shallow	20th	2725	307	7.09	291	29	56	537	446	60	351	0.00	23	0.194	0.000	0.000	0.010	0.000	9.77	0.00	
43	Shallow	50th	6300	978	7.80	544	118	123	712	960	121	633	3.00	56	0.350	0.010	0.010	0.030	0.010	14.40	0.00	
43	Shallow	80th	15495	5051	8.20	841	480	856	2628	6492	387	989	25.89	94	0.910	0.115	3.755	0.115	0.090	18.73	10.37	
44	Deep	20th	7380	1706	7.50	146	114	268	962	2385	207	176	4.61	17	0.056	0.100	0.000			9.64		
44	Deep	50th	13500	2505	7.70	345	358	438	2075	4875	395	418	12.40	27	0.100	0.155	0.100			14.40		
44	Deep	80th	17350	5443	7.90	663	1250	567	3450	6430	833	792	18.50	44	0.200	0.240	0.815			21.10		
44	Shallow	20th	3900	736	7.47	270	37	142	438	996	67	322	0.00	10	0.100	0.000	0.000	0.020	0.000	6.80		
44	Shallow	50th	7235	1287	7.80	540	110	280	1200	2140	223	645	1.30	35	0.200	0.050	0.060	0.340	0.015	14.30		
44	Shallow	80th	12175	2558	8.30	813	288	435	2250	4000	478	960	10.00	45	0.400	0.260	0.413	2.688	0.063	20.35		

Appendix B Sampled bores

Table 6: Groundwater bores in the Fitzroy Basin with sampling history details

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13000151	A	Lower Fitzroy	-23.19	150.39	subartesian	unused	24.40	3	16	0.6	21	v poor	inadequate	v poor
13000152	A	Lower Fitzroy	-23.18	150.39	subartesian	unused	30.50	3	16	0.6	21	v poor	inadequate	v poor
13000153	A	Lower Fitzroy	-23.18	150.38	subartesian	unused	27.40	3	16	0.6	21	moderate	inadequate	v poor
13000154	A	Lower Fitzroy	-23.19	150.38	subartesian	unused	24.40	3	16	0.6	21	v poor	inadequate	v poor
13000155	A	Lower Fitzroy	-23.19	150.38	subartesian	unused	26.80	2	16	0.4	21	v poor	inadequate	v poor
13000156	A	Lower Fitzroy	-23.19	150.38	subartesian	unused	27.40	2	1		36	v poor	inadequate	v poor
13000157	A	Lower Fitzroy	-23.19	150.37	subartesian	unused	30.50	3	16	0.6	21	v poor	inadequate	v poor
13000158	A	Lower Fitzroy	-23.19	150.36	subartesian	existing	23.80	1	1		36	inadequate	inadequate	inadequate
13000159	A	Lower Fitzroy	-23.19	150.37	subartesian	unused	27.40	3	16	0.6	21	v poor	inadequate	v poor
13000160	A	Lower Fitzroy	-23.19	150.36	subartesian	unused	33.50	3	16	0.6	21	v poor	inadequate	v poor
13000161	A	Lower Fitzroy	-23.49	150.28	subartesian	existing	11.00	16	21	1.2	7	moderate	poor	moderate
13000162	A	Lower Fitzroy	-23.49	150.29	subartesian	existing	16.40	18	29	0.5	0	moderate	moderate	good
13000163	A	Lower Fitzroy	-23.50	150.29	subartesian	existing	17.00	18	29	0.5	0	moderate	moderate	good
13000164	A	Lower Fitzroy	-23.50	150.29	subartesian	existing	13.00	11	16	1.6	10	moderate	poor	moderate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13000165	A	Lower Fitzroy	-23.50	150.29	subartesian	existing	13.00	14	20	1.3	6	moderate	poor	moderate
13000166	A	Lower Fitzroy	-23.51	150.29	subartesian	existing	19.00	17	28	0.7	0	moderate	moderate	good
13000167	A	Lower Fitzroy	-23.51	150.30	subartesian	existing	15.00	2	1		18	moderate	inadequate	v poor
13000168	A	Lower Fitzroy	-23.50	150.30	subartesian	existing	10.30	8	15	2.1	7	moderate	poor	moderate
13000169	A	Lower Fitzroy	-23.49	150.30	subartesian	existing	17.00	18	22	1.1	6	moderate	poor	moderate
13000170	A	Lower Fitzroy	-23.49	150.30	subartesian	existing	17.00	17	22	1.1	6	moderate	poor	moderate
13000172	A	Lower Fitzroy	-23.49	150.30	subartesian	gone	15.25	2	1		27	inadequate	inadequate	inadequate
13000173	A	Lower Fitzroy	-23.49	150.31	subartesian	existing	14.50	16	22	1.1	6	moderate	poor	moderate
13000174	A	Lower Fitzroy	-23.49	150.31	subartesian	existing	15.00	17	22	1.1	6	moderate	poor	moderate
13000175	A	Lower Fitzroy	-23.49	150.30	subartesian	existing	13.00	17	22	1.1	6	moderate	poor	moderate
13000176	A	Lower Fitzroy	-23.49	150.30	subartesian	existing	15.00	17	22	1.1	6	moderate	poor	moderate
13000178	A	Lower Fitzroy	-23.49	150.30	subartesian	existing	16.00	18	22	1.1	6	moderate	poor	moderate
13000179	A	Lower Fitzroy	-23.49	150.30	subartesian	existing	12.40	2	1	36315.1	27	inadequate	inadequate	inadequate
13000183	A	Lower Fitzroy	-23.49	150.30	subartesian	existing	12.50	17	22	1.1	6	moderate	poor	moderate
13000185	A	Lower Fitzroy	-23.49	150.30	subartesian	gone	14.90	4	1		27	inadequate	inadequate	inadequate
13000188	A	Lower Fitzroy	-23.49	150.30	subartesian	existing	11.00	18	22	1.1	6	moderate	poor	moderate
13000189	A	Lower Fitzroy	-23.49	150.30	subartesian	unused	13.10	6	2	56.4	26	inadequate	inadequate	inadequate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13000191	A	Lower Fitzroy	-23.49	150.30	subartesian	unused	17.50	4	2	71.8	26	inadequate	inadequate	inadequate
13000193	A	Lower Fitzroy	-23.49	150.30	subartesian	existing	12.70	12	15	2.7	7	moderate	poor	moderate
13000197	A	Lower Fitzroy	-23.49	150.30	subartesian	unused	9.80	2	1		26	inadequate	inadequate	inadequate
13000230	A	Lower Fitzroy	-23.69	150.73	subartesian	existing	14.90	3	4	9.0	3	v poor	inadequate	v poor
13000231	A	Lower Fitzroy	-23.69	150.72	subartesian	existing	4.90	3	4	9.0	3	v poor	inadequate	v poor
13000232	A	Lower Fitzroy	-23.76	150.83	subartesian	existing	28.90	3	4	9.0	3	v poor	inadequate	v poor
13000234	A	Lower Fitzroy	-23.79	150.87	subartesian	existing	12.40	2	1		6	v poor	inadequate	v poor
13000235	A	Lower Fitzroy	-23.04	150.47	subartesian	existing	44.20	3	4	8.7	3	v poor	inadequate	v poor
13000236	A	Lower Fitzroy	-23.05	150.46	subartesian	existing	52.11	3	4	8.8	3	v poor	inadequate	v poor
13000237	A	Lower Fitzroy	-23.05	150.46	subartesian	existing	25.11	3	4	8.5	3	v poor	inadequate	v poor
13000238	A	Lower Fitzroy	-23.05	150.46	subartesian	existing	14.12	3	4	8.5	3	v poor	inadequate	v poor
13000239	A	Lower Fitzroy	-23.05	150.46	subartesian	existing	48.16	3	4	8.6	3	v poor	inadequate	v poor
13000240	A	Lower Fitzroy	-23.05	150.46	subartesian	existing	14.26	2	4	8.6	3	v poor	inadequate	v poor
13000241	A	Lower Fitzroy	-23.04	150.46	subartesian	existing	10.00	2	4	8.6	3	v poor	inadequate	v poor
13000242	A	Lower Fitzroy	-23.05	150.47	subartesian	existing	5.47	2	4	8.6	3	v poor	inadequate	v poor
13000243	A	Lower Fitzroy	-23.05	150.47	subartesian	existing	13.08	2	4	8.6	3	v poor	inadequate	v poor
13000245	A	Lower Fitzroy	-23.04	150.46	subartesian	existing	19.00	3	4	8.6	3	v poor	inadequate	v poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13000246	A	Lower Fitzroy	-23.05	150.47	subartesian	existing	33.17	3	4	8.7	3	v poor	inadequate	v poor
13000247	A	Lower Fitzroy	-23.03	150.50	subartesian	existing	27.50	3	4	8.7	3	v poor	inadequate	v poor
13000248	A	Lower Fitzroy	-23.06	150.47	subartesian	existing	14.00	2	4	8.7	3	v poor	inadequate	v poor
13000249	A	Lower Fitzroy	-23.06	150.47	subartesian	existing	33.40	2	4	8.7	3	v poor	inadequate	v poor
13000250	A	Lower Fitzroy	-23.12	150.48	subartesian	existing	24.65	3	4	8.7	3	v poor	inadequate	v poor
13000251	A	Lower Fitzroy	-23.21	150.41	subartesian	existing	16.20	3	4	8.8	3	v poor	inadequate	v poor
13000252	A	Lower Fitzroy	-23.13	150.54	subartesian	existing	24.20	3	4	8.7	3	v poor	inadequate	v poor
13000253	A	Lower Fitzroy	-23.25	150.63	subartesian	existing	15.30	1	1		3	v poor	inadequate	v poor
13000254	A	Lower Fitzroy	-23.22	150.62	subartesian	existing	16.40	2	4	8.8	3	v poor	inadequate	v poor
13000255	A	Lower Fitzroy	-23.20	150.61	subartesian	existing	5.30	2	4	8.8	3	v poor	inadequate	v poor
13000256	A	Lower Fitzroy	-23.21	150.54	subartesian	existing	15.40	3	4	8.8	3	v poor	inadequate	v poor
13000257	A	Lower Fitzroy	-23.10	150.55	subartesian	existing	23.37	3	4	8.8	3	inadequate	inadequate	inadequate
13000258	A	Lower Fitzroy	-23.15	150.53	subartesian	existing	46.31	4	4	9.0	3	v poor	v poor	poor
13000259	A	Lower Fitzroy	-23.15	150.53	subartesian	existing	27.38	3	4	9.0	3	v poor	inadequate	v poor
13000260	A	Lower Fitzroy	-23.17	150.55	subartesian	existing	26.45	3	4	9.0	3	v poor	inadequate	v poor
13000261	A	Lower Fitzroy	-23.19	150.55	subartesian	existing	14.71	3	4	9.0	3	v poor	inadequate	v poor
13000262	A	Lower Fitzroy	-23.27	150.59	subartesian	existing	18.34	2	4	9.0	3	v poor	inadequate	v poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13000263	A	Lower Fitzroy	-23.23	150.58	subartesian	existing	8.53	3	4	9.0	3	v poor	inadequate	v poor
13000264	A	Lower Fitzroy	-23.15	150.55	subartesian	existing	24.19	3	4	9.0	3	v poor	inadequate	v poor
13000265	A	Lower Fitzroy	-22.81	149.88	subartesian	existing	14.04	2	4	9.0	3	v poor	inadequate	v poor
13000266	A	Lower Fitzroy	-22.86	149.89	subartesian	existing	20.71	2	4	9.1	3	v poor	inadequate	v poor
13000267	A	Lower Fitzroy	-22.84	149.96	subartesian	existing	27.28	2	4	9.1	3	v poor	inadequate	v poor
13000268	A	Lower Fitzroy	-23.19	150.15	subartesian	existing	10.12	2	4	9.0	3	v poor	inadequate	v poor
13000269	A	Lower Fitzroy	-23.21	150.18	subartesian	existing	8.01	2	4	9.0	3	v poor	inadequate	v poor
13000270	A	Lower Fitzroy	-23.22	150.22	subartesian	existing	17.04	2	4	9.0	3	v poor	inadequate	v poor
13000271	A	Lower Fitzroy	-23.23	150.25	subartesian	existing	18.36	2	4	9.0	3	v poor	inadequate	v poor
13000272	A	Lower Fitzroy	-23.27	150.30	subartesian	existing	12.87	2	4	9.0	3	v poor	inadequate	v poor
13000273	A	Lower Fitzroy	-23.72	150.00	subartesian	existing	58.80	1	1		3	v poor	inadequate	v poor
13000274	A	Lower Fitzroy	-23.49	150.43	subartesian	existing	15.44	2	4	9.1	3	v poor	inadequate	v poor
13000275	A	Lower Fitzroy	-23.48	150.45	subartesian	existing	5.42	2	4	9.1	3	v poor	inadequate	v poor
13000276	A	Lower Fitzroy	-23.52	150.39	subartesian	existing	14.21	2	4	9.1	3	v poor	inadequate	v poor
13000278	A	Lower Fitzroy	-23.87	150.09	subartesian	existing	74.70	2	1		0	inadequate	inadequate	inadequate
13000279	A	Lower Fitzroy	-23.82	150.07	subartesian	existing	54.65	3	1		0	inadequate	inadequate	inadequate
13000281	A	Lower Fitzroy	-23.14	150.40	subartesian	existing	15.53	1	1		0	inadequate	inadequate	inadequate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13000282	A	Lower Fitzroy	-23.14	150.40	subartesian	existing	11.50	1	1		0	inadequate	inadequate	inadequate
13000283	A	Lower Fitzroy	-23.13	150.36	subartesian	existing	27.58	1	1		0	inadequate	inadequate	inadequate
13010001	A	Mackenzie	-23.06	148.45	subartesian	unused	52.23	2	6	3.2	0	v poor	inadequate	v poor
13010002	A	Mackenzie	-23.20	148.75	subartesian	existing	71.62	2	3	20.2	3	v poor	inadequate	v poor
13010003	A	Mackenzie	-23.04	149.37	subartesian	existing	70.25	2	3	20.8	3	v poor	inadequate	v poor
13010004	A	Mackenzie	-23.24	149.46	subartesian	existing	84.26	2	3	20.8	3	v poor	inadequate	v poor
13010005	A	Mackenzie	-22.95	148.93	subartesian	existing	58.18	1	1		3	v poor	inadequate	v poor
13010006	A	Mackenzie	-23.28	149.18	subartesian	existing	48.68	3	3	21.0	3	v poor	inadequate	v poor
13010007	A	Mackenzie	-23.53	149.31	subartesian	existing	16.80	2	3	21.0	3	v poor	inadequate	v poor
13010008	A	Mackenzie	-23.62	149.19	subartesian	existing	68.30	1	1		3	v poor	inadequate	v poor
13010009	A	Mackenzie	-23.66	149.36	subartesian	unused	23.30	2	3	21.1	3	v poor	inadequate	v poor
13010010	A	Mackenzie	-23.58	148.76	subartesian	existing	57.33	2	3	21.2	3	v poor	inadequate	v poor
13020001	A	Nogoa	-23.45	147.63	subartesian	unused	13.40	6	28	0.2	8	moderate	v poor	poor
13020002	A	Nogoa	-23.45	147.63	subartesian	unused	11.70	2	12	0.8	25	good	inadequate	poor
13020003	A	Nogoa	-23.46	147.63	subartesian	unused	15.60	7	30	0.2	7	moderate	v poor	poor
13020004	A	Nogoa	-23.47	147.69	subartesian	unused	18.20	3	12	1.3	25	moderate	inadequate	v poor
13020005	A	Nogoa	-23.47	147.69	subartesian	unused	22.50	9	30	0.2	7	moderate	poor	moderate
13020006	A	Nogoa	-23.47	147.69	subartesian	unused	18.20	8	30	0.2	7	good	poor	moderate
13020007	A	Nogoa	-23.46	147.73	subartesian	unused	36.00	4	12	1.3	25	v poor	v poor	poor
13020008	A	Nogoa	-23.46	147.73	subartesian	unused	31.00	6	11	1.4	25	good	v poor	poor
13020009	A	Nogoa	-23.46	147.73	subartesian	unused	37.60	6	28	0.2	9	moderate	v poor	poor
13020010	A	Nogoa	-23.47	147.73	subartesian	unused	37.70	8	30	0.2	7	good	poor	moderate
13020011	A	Nogoa	-23.47	147.73	subartesian	unused	36.60	6	28	0.2	9	moderate	v poor	poor
13020012	A	Nogoa	-23.48	147.72	subartesian	unused	24.50	6	27	0.2	9	moderate	v poor	poor
13020013	A	Nogoa	-23.49	147.72	subartesian	unused	29.50	5	27	0.2	9	moderate	v poor	poor
13020014	A	Nogoa	-23.49	147.72	subartesian	gone		1	1		35	inadequate	inadequate	inadequate
13020015	A	Nogoa	-23.49	147.72	subartesian	unused	32.00	6	29	0.2	7	good	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13020016	A	Nogoa	-23.46	147.72	subartesian	unused	28.00	4	26	0.2	10	moderate	v poor	poor
13020018	A	Nogoa	-23.41	147.69	subartesian	unused	18.30	6	24	0.3	9	moderate	v poor	poor
13020019	A	Nogoa	-23.41	147.69	subartesian	unused	36.60	2	5	4.5	32	v poor	inadequate	v poor
13020020	A	Nogoa	-23.42	147.71	subartesian	unused	29.50	3	5	4.5	32	v poor	inadequate	v poor
13020020	B	Nogoa	-23.42	147.71	subartesian	unused	6.60					v poor	inadequate	v poor
13020021	A	Nogoa	-23.40	147.71	subartesian	unused	23.60	2	5	4.5	32	v poor	inadequate	v poor
13020022	A	Nogoa	-23.37	147.69	subartesian	gone	12.00	7	30	0.2	7	moderate	v poor	poor
13020025	A	Nogoa	-23.55	148.12	subartesian	existing	19.70	21	33	0.3	7	excellent	poor	moderate
13020026	A	Nogoa	-23.53	148.13	subartesian	existing	15.90	8	26	0.3	10	good	poor	moderate
13020027	A	Nogoa	-23.53	148.05	subartesian	unused	24.40					good	inadequate	poor
13020028	A	Nogoa	-23.53	148.08	subartesian	existing	15.20	12	30	0.3	7	good	poor	moderate
13020029	A	Nogoa	-23.52	148.11	subartesian	existing	9.70	8	16	1.1	7	good	poor	moderate
13020030	A	Nogoa	-23.52	148.14	subartesian	existing	16.40	7	16	0.8	7	good	v poor	poor
13020031	A	Nogoa	-23.50	148.15	subartesian	unused	14.40	1	1		33	v poor	inadequate	v poor
13020032	A	Nogoa	-23.48	148.15	subartesian	existing	24.00	15	33	0.3	7	excellent	poor	moderate
13020033	A	Nogoa	-23.46	148.14	subartesian	gone	15.30	7	23	0.4	11	good	v poor	poor
13020034	A	Nogoa	-23.45	148.14	subartesian	unused	14.30					v poor	inadequate	v poor
13020035	A	Nogoa	-23.44	148.14	subartesian	existing	15.20	4	5	9.2	7	excellent	v poor	poor
13020037	A	Nogoa	-23.47	147.69	subartesian	gone		1	1		35	inadequate	inadequate	inadequate
13020039	A	Nogoa	-23.53	148.08	subartesian	existing	6.80	10	27	0.3	7	good	poor	moderate
13020040	A	Nogoa	-23.53	148.08	subartesian	existing	6.80	6	27	0.3	7	good	v poor	poor
13020041	A	Nogoa	-23.53	148.08	subartesian	existing	6.90	18	35	0.3	0	good	moderate	good
13020042	A	Nogoa	-23.53	148.07	subartesian	unused	6.70	5	17	0.5	17	v poor	v poor	poor
13020043	A	Nogoa	-23.52	148.08	subartesian	existing	6.70	8	27	0.3	7	good	poor	moderate
13020044	A	Nogoa	-23.52	148.08	subartesian	unused	4.60	5	25	0.4	9	poor	v poor	poor
13020062	A	Nogoa	-23.55	148.08	subartesian	existing	6.86	7	16	0.7	7	good	v poor	poor
13020063	A	Nogoa	-23.55	148.08	subartesian	existing	6.86	6	16	0.7	7	good	v poor	poor
13020064	A	Nogoa	-23.55	148.08	subartesian	existing	6.89	9	16	2.0	7	good	poor	moderate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13020067	A	Nogoa	-23.57	148.08	subartesian	existing	12.10	1	1		11	good	inadequate	poor
13020068	A	Nogoa	-23.53	148.08	subartesian	unused	10.10					poor	inadequate	v poor
13020069	A	Nogoa	-23.51	148.10	subartesian	existing	12.70	7	16	1.1	7	good	v poor	poor
13020070	A	Nogoa	-23.51	148.08	subartesian	unused	12.70					v poor	inadequate	v poor
13020071	A	Nogoa	-23.51	148.07	subartesian	existing	12.70	5	15	0.6	8	good	v poor	poor
13020072	A	Nogoa	-23.49	148.08	subartesian	unused	12.70	8	16	1.1	7	good	poor	moderate
13020073	A	Nogoa	-23.47	148.07	subartesian	existing	12.90	7	14	1.3	9	poor	v poor	poor
13020074	A	Nogoa	-23.46	148.09	subartesian	unused	12.70					moderate	inadequate	v poor
13020075	A	Nogoa	-23.49	148.12	subartesian	existing	12.80	10	16	2.0	7	good	poor	moderate
13020076	A	Nogoa	-23.46	148.11	subartesian	unused	12.80					v poor	inadequate	v poor
13020077	A	Nogoa	-23.44	148.11	subartesian	unused	12.80					v poor	inadequate	v poor
13020078	A	Nogoa	-23.47	148.05	subartesian	unused	12.80					poor	inadequate	v poor
13020079	A	Nogoa	-23.44	148.08	subartesian	unused	12.80					v poor	inadequate	v poor
13020080	A	Nogoa	-23.49	148.05	subartesian	unused	12.80	1	1		8	good	inadequate	poor
13020081	A	Nogoa	-23.49	148.02	subartesian	unused	12.80					good	inadequate	poor
13020082	A	Nogoa	-23.48	148.00	subartesian	unused	12.10					v poor	inadequate	v poor
13020083	A	Nogoa	-23.51	148.14	subartesian	unused	12.60					good	inadequate	poor
13020084	A	Nogoa	-23.50	148.15	subartesian	gone		2	3	16.1	20	v poor	inadequate	v poor
13020085	A	Nogoa	-23.49	148.17	subartesian	unused	12.50					moderate	inadequate	v poor
13020086	A	Nogoa	-23.50	148.07	subartesian	existing	30.10	5	14	0.9	9	good	v poor	poor
13020087	A	Nogoa	-23.51	148.11	subartesian	existing	20.50	9	24	0.5	7	good	poor	moderate
13020088	A	Nogoa	-23.51	148.11	subartesian	gone	17.40	9	24	0.5	7	poor	poor	poor
13020089	A	Nogoa	-23.52	148.13	subartesian	existing	18.00	5	14	0.9	17	good	v poor	poor
13020090	A	Nogoa	-23.49	148.05	subartesian	existing	17.50	17	23	1.4	0	good	moderate	good
13020091	A	Nogoa	-23.47	148.07	subartesian	unused	9.20	4	6	5.3	17	v poor	v poor	poor
13020092	A	Nogoa	-23.46	148.08	subartesian	existing	30.10	8	16	1.1	7	good	poor	moderate
13020093	A	Nogoa	-23.47	148.13	subartesian	unused	18.80	4	6	5.3	17	v poor	v poor	poor
13020094	A	Nogoa	-23.47	148.07	subartesian	unused	9.70	5	11	1.1	20	v poor	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13020095	A	Nogoa	-23.47	148.07	subartesian	existing	9.60	7	16	1.1	7	good	v poor	poor
13020096	A	Nogoa	-23.47	148.07	subartesian	unused	9.60	3	3	31.6	20	moderate	inadequate	v poor
13020097	A	Nogoa	-23.49	148.04	subartesian	existing	9.80	4	5	10.8	7	good	v poor	poor
13020098	A	Nogoa	-23.52	148.13	subartesian	existing	18.60	9	16	1.1	7	v poor	poor	poor
13020099	A	Nogoa	-23.52	148.13	subartesian	unused	17.60	4	6	5.3	17	v poor	v poor	poor
13020100	A	Nogoa	-23.52	148.13	subartesian	unused	19.30	5	11	1.1	20	v poor	v poor	poor
13020101	A	Nogoa	-23.53	148.11	subartesian	existing	18.60	11	16	1.9	7	good	poor	moderate
13020102	A	Nogoa	-23.47	148.13	subartesian	existing	9.60	8	16	1.0	7	good	poor	moderate
13020103	A	Nogoa	-23.47	148.13	subartesian	unused	8.20	3	3	31.7	20	v poor	inadequate	v poor
13020104	A	Nogoa	-23.47	148.13	subartesian	unused	15.50	4	11	1.0	20	v poor	v poor	poor
13020105	A	Nogoa	-23.50	148.08	subartesian	existing	29.40	7	23	0.5	8	good	v poor	poor
13020106	A	Nogoa	-23.51	148.09	subartesian	existing	23.30	8	16	1.1	7	good	poor	moderate
13020107	A	Nogoa	-23.49	148.07	subartesian	existing	9.80	9	24	0.5	7	good	poor	moderate
13020108	A	Nogoa	-23.46	148.11	subartesian	existing	15.50	15	22	0.9	0	good	moderate	good
13020109	A	Nogoa	-23.48	148.10	subartesian	existing	19.40	5	14	0.8	17	poor	v poor	poor
13020110	A	Nogoa	-23.49	148.11	subartesian	existing	32.80	10	24	0.5	7	good	poor	moderate
13020111	A	Nogoa	-23.46	148.15	subartesian	existing	29.60	8	16	1.1	7	good	poor	moderate
13020112	A	Nogoa	-23.47	148.15	subartesian	existing	27.70	6	12	1.4	11	good	v poor	poor
13020113	A	Nogoa	-23.56	148.15	subartesian	existing	5.70	5	11	1.7	15	moderate	v poor	poor
13020114	A	Nogoa	-23.57	148.21	subartesian	existing	29.40	19	27	1.1	0	moderate	moderate	good
13020114	B	Nogoa	-23.57	148.21	subartesian	existing	18.60	15	24	0.7	0	moderate	moderate	good
13020115	A	Nogoa	-23.57	148.21	subartesian	existing	29.90	8	16	1.1	7	moderate	poor	moderate
13020115	B	Nogoa	-23.57	148.21	subartesian	existing	11.60	8	16	1.1	7	moderate	poor	moderate
13020116	A	Nogoa	-23.56	148.21	subartesian	existing	15.40	6	16	0.6	7	moderate	v poor	poor
13020117	A	Nogoa	-23.50	148.26	subartesian	existing	17.00	5	16	0.6	7	moderate	v poor	poor
13020117	B	Nogoa	-23.50	148.26	subartesian	existing	6.60					excellent	inadequate	poor
13020118	A	Nogoa	-23.50	148.25	subartesian	unused	8.50					good	inadequate	poor
13020119	A	Nogoa	-23.44	148.30	subartesian	unused	17.80					good	inadequate	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13020120	A	Nogoa	-23.47	148.33	subartesian	unused	18.40					v poor	inadequate	v poor
13020121	A	Nogoa	-23.46	148.31	subartesian	unused	15.30					good	inadequate	poor
13020122	A	Nogoa	-23.49	148.25	subartesian	unused	14.80					good	inadequate	poor
13020123	A	Nogoa	-23.49	148.24	subartesian	existing	14.80	8	19	0.7	7	moderate	poor	moderate
13020124	A	Nogoa	-23.53	148.22	subartesian	unused	10.00					moderate	inadequate	v poor
13020125	A	Nogoa	-23.51	148.20	subartesian	existing	9.80					good	inadequate	poor
13020126	A	Nogoa	-23.51	148.21	subartesian	unused	16.20					moderate	inadequate	v poor
13020127	A	Nogoa	-23.54	148.17	subartesian	existing	9.00					good	inadequate	poor
13020128	A	Nogoa	-23.56	148.16	subartesian	unused	13.20					good	inadequate	poor
13020129	A	Nogoa	-23.56	148.13	subartesian	unused	10.40					moderate	inadequate	v poor
13020130	A	Nogoa	-23.51	148.19	subartesian	unused	12.70					poor	inadequate	v poor
13020131	A	Nogoa	-23.53	148.18	subartesian	existing	15.70	10	19	0.7	7	moderate	poor	moderate
13020132	A	Nogoa	-23.52	148.19	subartesian	existing	18.00	4	5	10.2	20	moderate	v poor	poor
13020133	A	Nogoa	-22.67	147.63	subartesian	existing	84.70	7	4	32.4	23	moderate	v poor	poor
13020134	A	Nogoa	-22.68	147.63	subartesian	existing	30.70	7	4	32.4	23	moderate	v poor	poor
13020135	A	Nogoa	-22.68	147.67	subartesian	existing	83.20	7	4	32.4	23	moderate	v poor	poor
13020136	A	Nogoa	-22.70	147.65	subartesian	existing	47.70	7	4	32.4	23	moderate	v poor	poor
13020137	A	Nogoa	-22.72	147.65	subartesian	gone	54.70	7	4	32.4	23	moderate	v poor	poor
13020138	A	Nogoa	-22.72	147.68	subartesian	gone	42.70	6	3	50.5	24	moderate	inadequate	v poor
13020139	A	Nogoa	-22.75	147.65	subartesian	existing	78.80	6	4	23.5	23	moderate	v poor	poor
13020140	A	Nogoa	-22.76	147.67	subartesian	gone	78.70	7	4	32.4	23	poor	v poor	poor
13020141	A	Nogoa	-22.70	147.60	subartesian	gone	96.70	7	4	32.4	23	moderate	v poor	poor
13020142	A	Nogoa	-22.72	147.60	subartesian	existing	60.70	7	4	32.4	23	moderate	v poor	poor
13020143	A	Nogoa	-22.75	147.61	subartesian	existing	48.70	7	4	32.4	23	moderate	v poor	poor
13020144	A	Nogoa	-22.76	147.62	subartesian	gone	11.70	1	1		26	poor	inadequate	v poor
13020145	A	Nogoa	-22.78	147.63	subartesian	gone	11.70					poor	inadequate	v poor
13020146	A	Nogoa	-22.80	147.63	subartesian	gone	12.70					poor	inadequate	v poor
13020147	A	Nogoa	-22.80	147.63	subartesian	existing	96.70	7	4	32.4	23	moderate	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13020148	A	Nogoa	-22.78	147.62	subartesian	gone	42.70	7	4	32.4	23	v poor	v poor	poor
13020149	A	Nogoa	-22.75	147.63	subartesian	gone	60.70	7	4	32.4	23	v poor	v poor	poor
13020150	A	Nogoa	-22.75	147.64	subartesian	gone	48.70	4	2	125.2	25	v poor	inadequate	v poor
13020151	A	Nogoa	-22.74	147.66	subartesian	gone	90.70	7	4	32.4	23	moderate	v poor	poor
13020152	A	Nogoa	-22.70	147.68	subartesian	existing	48.70	7	4	32.4	23	moderate	v poor	poor
13020153	A	Nogoa	-22.78	147.57	subartesian	unused	18.60	7	16	0.8	7	moderate	v poor	poor
13020154	A	Nogoa	-22.79	147.57	subartesian	existing	22.90	3	12	1.1	11	moderate	inadequate	v poor
13020155	A	Nogoa	-22.78	147.56	subartesian	gone	18.60	3	12	1.1	11	moderate	inadequate	v poor
13020156	A	Nogoa	-22.78	147.57	subartesian	existing	23.00	4	21	0.5	0	moderate	v poor	poor
13020157	A	Nogoa	-22.78	147.57	subartesian	existing	23.00	6	21	0.5	0	moderate	v poor	poor
13020158	A	Nogoa	-22.78	147.57	subartesian	unused	18.00	3	10	1.3	10	poor	inadequate	v poor
13020159	A	Nogoa	-23.50	148.20	subartesian	existing	14.30					excellent	inadequate	poor
13020160	A	Nogoa	-23.50	148.20	subartesian	gone	11.10					moderate	inadequate	v poor
13020161	A	Nogoa	-23.49	148.20	subartesian	existing	11.70					excellent	inadequate	poor
13020162	A	Nogoa	-23.49	148.19	subartesian	existing	17.70	6	8	3.9	7	poor	v poor	poor
13020163	A	Nogoa	-23.43	148.33	subartesian	unused	11.50					good	inadequate	poor
13020164	A	Nogoa	-23.43	148.33	subartesian	existing	17.20	5	5	14.6	7	poor	v poor	poor
13020165	A	Nogoa	-23.43	148.32	subartesian	unused	15.00					moderate	inadequate	v poor
13020166	A	Nogoa	-23.44	148.32	subartesian	unused	17.00					good	inadequate	poor
13020167	A	Nogoa	-23.44	148.32	subartesian	unused	16.80					moderate	inadequate	v poor
13020168	A	Nogoa	-23.44	148.32	subartesian	unused	5.50					moderate	inadequate	v poor
13020169	A	Nogoa	-23.44	148.45	subartesian	existing	15.80					good	inadequate	poor
13020170	A	Nogoa	-23.44	148.44	subartesian	unused	13.00	1	1		9	poor	inadequate	v poor
13020171	A	Nogoa	-23.45	148.43	subartesian	unused	11.60					moderate	inadequate	v poor
13020172	A	Nogoa	-23.46	148.43	subartesian	existing	11.40	5	5	14.7	7	poor	v poor	poor
13020173	A	Nogoa	-23.46	148.42	subartesian	unused	11.20	2	2	76.5	9	poor	inadequate	v poor
13020174	A	Nogoa	-23.47	148.42	subartesian	existing	11.60	3	3	24.5	9	poor	inadequate	v poor
13020175	A	Nogoa	-23.47	148.42	subartesian	existing	16.60	5	5	14.7	7	poor	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13020176	A	Nogoa	-23.47	148.47	subartesian	existing	23.30	1	1		14	poor	inadequate	v poor
13020177	A	Nogoa	-23.47	148.47	subartesian	existing	16.50	3	5	6.2	10	poor	inadequate	v poor
13020178	A	Nogoa	-23.48	148.47	subartesian	existing	18.00	3	5	7.5	7	poor	inadequate	v poor
13020179	A	Nogoa	-23.49	148.47	subartesian	existing	11.99					good	inadequate	poor
13020180	A	Nogoa	-23.50	148.46	subartesian	existing	11.90					good	inadequate	poor
13020181	A	Nogoa	-23.50	148.46	subartesian	unused	10.50					moderate	inadequate	v poor
13020184	A	Nogoa	-23.22	147.57	subartesian	existing	14.80	1	1		5	inadequate	inadequate	inadequate
13020186	A	Nogoa	-23.02	147.60	subartesian	existing	17.91	2	1		5	inadequate	inadequate	inadequate
13020187	A	Nogoa	-22.73	147.88	subartesian	existing	43.80	2	3	22.1	3	v poor	inadequate	v poor
13020188	A	Nogoa	-22.71	147.68	subartesian	existing	12.92	1	1		5	v poor	inadequate	v poor
13020189	A	Nogoa	-22.89	148.16	subartesian	existing	57.91	2	1		5	inadequate	inadequate	inadequate
13020190	A	Nogoa	-22.88	148.16	subartesian	existing	21.42	1	1		5	inadequate	inadequate	inadequate
13020191	A	Nogoa	-22.88	148.16	subartesian	existing	25.43	2	1		5	inadequate	inadequate	inadequate
13020192	A	Nogoa	-22.89	148.15	subartesian	existing	47.74	2	1		5	inadequate	inadequate	inadequate
13020193	A	Nogoa	-23.07	148.17	subartesian	existing	56.23	3	6	3.3	0	v poor	inadequate	v poor
13020194	A	Nogoa	-23.19	148.06	subartesian	existing	58.80	2	1		5	v poor	inadequate	v poor
13020195	A	Nogoa	-23.36	148.32	subartesian	existing	53.60	1	1		3	v poor	inadequate	v poor
13020196	A	Nogoa	-23.68	147.33	subartesian	existing	77.40	2	3	22.6	3	v poor	inadequate	v poor
13020197	A	Nogoa	-23.56	148.28	subartesian	existing	20.90					good	inadequate	poor
13020198	A	Nogoa	-23.56	148.45	subartesian	existing	66.40					good	inadequate	poor
13020199	A	Nogoa	-23.74	148.20	subartesian	existing	27.80	2	2	36.7	3	v poor	inadequate	v poor
13020200	A	Nogoa	-24.44	147.96	subartesian	existing	26.40	2	2	36.6	3	v poor	inadequate	v poor
13020201	A	Nogoa	-24.17	147.79	subartesian	existing	62.37	2	2	36.9	3	v poor	inadequate	v poor
13020203	A	Nogoa	-24.46	147.16	subartesian	existing	34.50					good	inadequate	poor
13020204	A	Nogoa	-24.47	147.87	subartesian	existing	51.00					inadequate	inadequate	inadequate
13020205	A	Nogoa	-24.13	147.81	subartesian	existing	105.00	1	1		0	inadequate	inadequate	inadequate
13020206	A	Nogoa	-23.90	147.99	subartesian	existing	61.00					inadequate	inadequate	inadequate
13020207	A	Nogoa	-23.57	148.08	subartesian	existing	34.05	1	1		2	inadequate	inadequate	inadequate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13020208	A	Nogoa	-23.38	148.18	subartesian	existing	96.95	1	1		2	inadequate	inadequate	inadequate
13020209	A	Nogoa	-22.87	147.90	subartesian	existing	76.65	1	1		2	v poor	inadequate	v poor
13020210	A	Nogoa	-22.79	147.77	subartesian	existing	43.65	1	1		2	v poor	inadequate	v poor
13020222	A	Nogoa	-23.75	147.53	subartesian	existing	125.50	2	1		0	inadequate	inadequate	inadequate
13020224	A	Nogoa	-23.73	147.52	subartesian	existing	138.47	2	1		0	inadequate	inadequate	inadequate
13030001	A	Dawson	-24.61	150.45	subartesian	unused	10.20	7	41	0.1	5	excellent	poor	moderate
13030002	A	Dawson	-24.61	150.45	subartesian	gone	5.40	5	35	0.1	11	poor	v poor	poor
13030003	A	Dawson	-24.39	150.42	subartesian	unused	12.40	1	1		33	excellent	inadequate	poor
13030004	A	Dawson	-24.40	150.42	subartesian	unused	7.00	1	1		46	excellent	inadequate	poor
13030006	A	Dawson	-24.41	150.43	subartesian	gone	11.58	1	1		45	inadequate	inadequate	inadequate
13030007	A	Dawson	-24.41	150.43	subartesian	gone	12.60	4	28	0.3	19	poor	v poor	poor
13030010	A	Dawson	-24.41	150.43	subartesian	unused	14.50	4	39	0.2	8	excellent	v poor	poor
13030011	A	Dawson	-24.55	150.57	subartesian	unused	15.90	2	24	0.2	23	excellent	v poor	poor
13030013	A	Dawson	-24.53	150.61	subartesian	unused	15.80	1	1		46	v poor	inadequate	v poor
13030014	A	Dawson	-24.51	150.63	subartesian	unused	17.00	2	24	0.2	23	excellent	v poor	poor
13030015	A	Dawson	-24.51	150.63	subartesian	existing	18.00	8	22	0.5	2	good	poor	moderate
13030019	A	Dawson	-24.50	150.63	subartesian	gone	15.85	1	1		45	inadequate	inadequate	inadequate
13030020	A	Dawson	-24.50	150.63	subartesian	unused	18.20	6	41	0.1	6	excellent	poor	moderate
13030021	A	Dawson	-24.50	150.63	subartesian	existing	18.50	10	40	0.1	6	excellent	poor	moderate
13030023	A	Dawson	-24.52	150.57	subartesian	unused	17.70					excellent	inadequate	poor
13030024	A	Dawson	-24.51	150.57	subartesian	unused	14.10	1	1		46	excellent	inadequate	poor
13030026	A	Dawson	-24.51	150.58	subartesian	gone	17.68	1	1		45	inadequate	inadequate	inadequate
13030028	A	Dawson	-24.51	150.58	subartesian	unused	19.60	10	39	0.1	8	excellent	poor	moderate
13030031	A	Dawson	-24.51	150.58	subartesian	existing	37.03	37	40	0.3	0	excellent	moderate	excellent
13030032	A	Dawson	-24.51	150.58	subartesian	existing	20.40	4	16	0.6	8	good	v poor	poor
13030033	A	Dawson	-24.50	150.59	subartesian	unused	15.70	7	35	0.1	12	excellent	v poor	poor
13030035	A	Dawson	-24.50	150.59	subartesian	unused	18.90	1	1		46	excellent	inadequate	poor
13030040	A	Dawson	-24.49	150.59	subartesian	existing	18.10	1	1		23	good	inadequate	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030041	A	Dawson	-24.49	150.59	subartesian	unused	19.40	8	41	0.1	6	excellent	poor	moderate
13030044	A	Dawson	-24.50	150.54	subartesian	unused	19.10	8	35	0.1	12	excellent	v poor	poor
13030045	A	Dawson	-24.50	150.55	subartesian	existing	18.00	7	16	0.9	8	excellent	v poor	poor
13030046	A	Dawson	-24.50	150.55	subartesian	unused	22.60	5	12	0.9	12	excellent	v poor	poor
13030047	A	Dawson	-24.50	150.55	subartesian	existing	19.30	7	16	0.7	8	excellent	v poor	poor
13030048	A	Dawson	-24.49	150.56	subartesian	unused	18.50	6	35	0.1	12	excellent	v poor	poor
13030049	A	Dawson	-24.49	150.57	subartesian	existing	19.10	1	1		13	excellent	inadequate	poor
13030051	A	Dawson	-24.49	150.57	subartesian	unused	19.50	2	1		23	excellent	inadequate	poor
13030052	A	Dawson	-24.49	150.55	subartesian	unused	18.90	7	16	0.7	8	excellent	v poor	poor
13030054	A	Dawson	-24.49	150.57	subartesian	existing	18.20	6	18	0.6	6	excellent	v poor	poor
13030057	A	Dawson	-24.48	150.52	subartesian	unused	20.50	9	40	0.2	6	excellent	poor	moderate
13030058	A	Dawson	-24.48	150.53	subartesian	unused	18.50	10	41	0.2	6	excellent	poor	moderate
13030062	A	Dawson	-24.47	150.53	subartesian	gone	18.70	6	35	0.1	12	poor	v poor	poor
13030063	A	Dawson	-24.47	150.53	subartesian	gone	15.24	1	1		45	inadequate	inadequate	inadequate
13030065	A	Dawson	-24.46	150.54	subartesian	unused	14.00	3	24	0.3	23	v poor	v poor	poor
13030066	A	Dawson	-24.46	150.55	subartesian	gone	13.70	8	36	0.2	11	poor	v poor	poor
13030069	A	Dawson	-24.41	150.63	subartesian	unused	14.30	5	18	0.6	6	excellent	v poor	poor
13030070	A	Dawson	-24.41	150.63	subartesian	gone	16.40	7	39	0.1	8	poor	v poor	poor
13030072	A	Dawson	-24.41	150.58	subartesian	unused	13.40	6	33	0.3	6	excellent	v poor	poor
13030074	A	Dawson	-24.43	150.58	subartesian	unused	17.60	8	39	0.2	6	excellent	poor	moderate
13030075	A	Dawson	-24.42	150.58	subartesian	gone	11.50	2	2		44	inadequate	inadequate	inadequate
13030079	A	Dawson	-24.42	150.58	subartesian	existing	13.40	9	40	0.2	6	excellent	poor	moderate
13030080	A	Dawson	-24.41	150.58	subartesian	unused	12.60	8	39	0.2	6	excellent	poor	moderate
13030081	A	Dawson	-24.41	150.57	subartesian	unused	13.70	6	39	0.2	6	excellent	v poor	poor
13030082	A	Dawson	-24.41	150.57	subartesian	unused	13.50	5	18	0.6	6	excellent	v poor	poor
13030084	A	Dawson	-24.45	150.51	subartesian	unused	15.10	3	24	0.2	23	excellent	v poor	poor
13030086	A	Dawson	-24.44	150.52	subartesian	unused	14.90	2	16	0.4	31	excellent	inadequate	poor
13030088	A	Dawson	-24.43	150.53	subartesian	gone	11.00	5	35	0.1	12	poor	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030089	A	Dawson	-24.42	150.54	subartesian	unused	13.10	7	39	0.2	8	excellent	v poor	poor
13030090	A	Dawson	-24.41	150.55	subartesian	unused	14.10	3	23	0.3	23	v poor	v poor	poor
13030091	A	Dawson	-24.41	150.55	subartesian	existing	15.90	7	26	0.4	6	excellent	v poor	poor
13030093	A	Dawson	-24.41	150.46	subartesian	unused	12.70	1	1		46	excellent	inadequate	poor
13030095	A	Dawson	-24.41	150.47	subartesian	gone	16.30	7	39	0.1	8	poor	v poor	poor
13030096	A	Dawson	-24.40	150.49	subartesian	existing	16.70	6	39	0.1	8	excellent	v poor	poor
13030098	A	Dawson	-24.38	150.43	subartesian	unused	13.40	5	23	0.5	23	excellent	v poor	poor
13030099	A	Dawson	-24.38	150.44	subartesian	gone	14.50	6	35	0.2	12	moderate	v poor	poor
13030100	A	Dawson	-24.38	150.45	subartesian	unused	16.00	8	41	0.2	6	excellent	poor	moderate
13030104	A	Dawson	-24.38	150.46	subartesian	unused	14.50	4	16	0.8	31	v poor	v poor	poor
13030105	A	Dawson	-24.38	150.46	subartesian	gone	12.77	2	1		45	inadequate	inadequate	inadequate
13030107	A	Dawson	-24.37	150.46	subartesian	unused	14.20	10	41	0.3	6	excellent	poor	moderate
13030108	A	Dawson	-24.37	150.48	subartesian	gone	18.90	2	48	0.0	0	inadequate	poor	v poor
13030109	A	Dawson	-24.37	150.48	subartesian	gone	19.20	1	1		46	inadequate	inadequate	inadequate
13030110	A	Dawson	-24.37	150.48	subartesian	unused	18.10	9	39	0.3	8	excellent	poor	moderate
13030112	A	Dawson	-24.38	150.49	subartesian	unused	15.30	10	41	0.2	6	excellent	poor	moderate
13030116	A	Dawson	-24.37	150.56	subartesian	unused	14.20	1	1		23	excellent	inadequate	poor
13030117	A	Dawson	-24.36	150.56	subartesian	gone	12.60	3	12	0.8	12	poor	inadequate	v poor
13030118	A	Dawson	-24.38	150.55	subartesian	existing	16.50	7	20	0.5	6	good	v poor	poor
13030119	A	Dawson	-24.37	150.55	subartesian	unused	15.61	5	18	0.6	6	excellent	v poor	poor
13030120	A	Dawson	-24.37	150.55	subartesian	gone	16.61					v poor	inadequate	v poor
13030121	A	Dawson	-24.37	150.55	subartesian	existing	17.30	7	25	0.4	6	excellent	v poor	poor
13030122	A	Dawson	-24.36	150.55	subartesian	gone	16.70					v poor	inadequate	v poor
13030123	A	Dawson	-24.36	150.56	subartesian	unused	15.30	6	18	0.6	6	excellent	v poor	poor
13030124	A	Dawson	-24.36	150.56	subartesian	gone	13.69	1	1		18	v poor	inadequate	v poor
13030126	A	Dawson	-24.37	150.53	subartesian	existing	19.65	8	25	0.4	6	excellent	poor	moderate
13030127	A	Dawson	-24.37	150.53	subartesian	unused	15.30	9	41	0.2	6	excellent	poor	moderate
13030129	A	Dawson	-24.36	150.53	subartesian	gone	13.40	47	39	0.2	8	poor	poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030132	A	Dawson	-24.36	150.49	subartesian	gone	16.50	7	26	0.4	8	poor	v poor	poor
13030135	A	Dawson	-24.35	150.43	subartesian	gone	15.10	11	39	0.2	8	poor	poor	poor
13030137	A	Dawson	-24.34	150.44	subartesian	existing	10.40	11	42	0.1	5	excellent	poor	moderate
13030138	A	Dawson	-24.34	150.45	subartesian	unused	17.50	9	35	0.2	12	v poor	v poor	poor
13030140	A	Dawson	-24.32	150.46	subartesian	unused	18.00	12	42	0.1	5	excellent	poor	moderate
13030141	A	Dawson	-24.32	150.47	subartesian	gone	15.10	1	1		46	v poor	inadequate	v poor
13030143	A	Dawson	-24.32	150.41	subartesian	unused	10.10	1	1		46	poor	inadequate	v poor
13030144	A	Dawson	-24.31	150.41	subartesian	gone	19.17	1	1		44	inadequate	inadequate	inadequate
13030146	A	Dawson	-24.31	150.42	subartesian	unused	16.30	50	39	0.3	8	excellent	poor	moderate
13030147	A	Dawson	-24.31	150.42	subartesian	gone	13.50	3	1		46	inadequate	inadequate	inadequate
13030150	A	Dawson	-24.30	150.43	subartesian	unused	14.40	9	36	0.2	11	excellent	v poor	poor
13030153	A	Dawson	-24.30	150.44	subartesian	existing	15.70	2	1		24	excellent	inadequate	poor
13030154	A	Dawson	-24.30	150.44	subartesian	gone	14.63	1	1		46	inadequate	inadequate	inadequate
13030157	A	Dawson	-24.27	150.39	subartesian	existing	13.40	3	12	0.8	13	excellent	inadequate	poor
13030159	A	Dawson	-24.26	150.40	subartesian	gone	16.40	11	39	0.2	8	poor	poor	poor
13030160	A	Dawson	-24.26	150.41	subartesian	existing	15.20	12	42	0.1	5	excellent	poor	moderate
13030161	A	Dawson	-24.25	150.42	subartesian	existing	10.70	2	5	4.3	20	excellent	inadequate	poor
13030163	A	Dawson	-24.24	150.37	subartesian	gone	13.70	5	36	0.1	11	poor	v poor	poor
13030164	A	Dawson	-24.24	150.37	subartesian	gone	15.00	40	39	0.2	8	poor	poor	poor
13030165	A	Dawson	-24.23	150.38	subartesian	gone	14.80	2	9	1.3	38	v poor	inadequate	v poor
13030168	A	Dawson	-24.23	150.39	subartesian	gone	14.40	4	36	0.1	11	poor	v poor	poor
13030171	A	Dawson	-24.23	150.40	subartesian	gone	18.10	2	9	1.4	38	v poor	inadequate	v poor
13030173	A	Dawson	-24.22	150.40	subartesian	unused	14.40	1	1		46	poor	inadequate	v poor
13030174	A	Dawson	-24.22	150.41	subartesian	unused	18.50	4	36	0.1	11	poor	v poor	poor
13030175	A	Dawson	-24.20	150.35	subartesian	gone	14.10	6	14	0.6	11	poor	v poor	poor
13030176	A	Dawson	-24.20	150.35	subartesian	gone	13.30	6	14	0.6	11	poor	v poor	poor
13030179	A	Dawson	-24.19	150.37	subartesian	gone	12.40					poor	inadequate	v poor
13030180	A	Dawson	-24.18	150.36	subartesian	gone	12.90	6	13	0.7	12	v poor	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030181	A	Dawson	-24.18	150.37	subartesian	gone	11.70	4	35	0.1	12	poor	v poor	poor
13030183	A	Dawson	-24.14	150.40	subartesian	gone	19.90	4	35	0.1	12	poor	v poor	poor
13030184	A	Dawson	-24.14	150.41	subartesian	unused	15.90	6	42	0.1	5	excellent	poor	moderate
13030185	A	Dawson	-24.13	150.41	subartesian	gone	19.80	4	35	0.1	12	poor	v poor	poor
13030186	A	Dawson	-24.18	150.33	subartesian	gone	15.70	7	36	0.2	11	poor	v poor	poor
13030187	A	Dawson	-24.17	150.34	subartesian	gone	14.70	8	48	0.2	0	poor	poor	poor
13030189	A	Dawson	-24.16	150.35	subartesian	gone	12.70	8	36	0.2	11	poor	v poor	poor
13030190	A	Dawson	-24.15	150.36	subartesian	gone	11.70	4	36	0.1	11	poor	v poor	poor
13030191	A	Dawson	-24.14	150.37	subartesian	gone	17.40	8	36	0.2	11	poor	v poor	poor
13030192	A	Dawson	-24.13	150.37	subartesian	unused	8.30	1	1		46	excellent	inadequate	poor
13030193	A	Dawson	-24.13	150.29	subartesian	gone	13.10	42	28	0.7	11	poor	v poor	poor
13030198	A	Dawson	-24.12	150.30	subartesian	gone	13.20	5	13	1.3	12	poor	v poor	poor
13030199	A	Dawson	-24.11	150.32	subartesian	gone	17.60	4	23	0.2	24	poor	v poor	poor
13030200	A	Dawson	-24.10	150.33	subartesian	gone	12.70	5	39	0.1	8	poor	v poor	poor
13030202	A	Dawson	-24.09	150.27	subartesian	gone	9.50	16	36	0.1	11	poor	v poor	poor
13030204	A	Dawson	-24.08	150.29	subartesian	gone	13.30	18	36	0.2	11	poor	v poor	poor
13030205	A	Dawson	-24.06	150.31	subartesian	existing	13.10	7	42	0.1	5	excellent	poor	moderate
13030206	A	Dawson	-24.02	150.27	subartesian	unused	16.30	16	42	0.1	5	excellent	poor	moderate
13030210	A	Dawson	-24.01	150.27	subartesian	gone	12.41	1	1		45	inadequate	inadequate	inadequate
13030211	A	Dawson	-24.01	150.28	subartesian	gone	13.20	14	36	0.2	11	poor	v poor	poor
13030212	A	Dawson	-24.01	150.28	subartesian	unused	18.10	14	42	0.2	5	excellent	poor	moderate
13030214	A	Dawson	-24.66	150.47	subartesian	gone	13.80	6	36	0.2	11	poor	v poor	poor
13030215	A	Dawson	-24.49	150.42	subartesian	existing	11.40	9	42	0.2	5	excellent	poor	moderate
13030216	A	Dawson	-24.53	150.42	subartesian	unused	16.00	8	42	0.1	5	excellent	poor	moderate
13030218	A	Dawson	-24.54	150.42	subartesian	existing	7.80	8	32	0.2	2	good	poor	moderate
13030219	A	Dawson	-24.52	150.66	subartesian	gone	10.10	1	1		46	v poor	inadequate	v poor
13030220	A	Dawson	-24.53	150.69	subartesian	gone	18.10	8	36	0.2	11	poor	v poor	poor
13030221	A	Dawson	-24.54	150.68	subartesian	unused	13.00	4	32	0.1	15	excellent	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030222	A	Dawson	-24.55	150.71	subartesian	gone	12.90	3	24	0.3	23	poor	v poor	poor
13030224	A	Dawson	-24.53	150.67	subartesian	existing	16.80	10	32	0.3	2	good	poor	moderate
13030226	A	Dawson	-24.52	150.59	subartesian	gone	19.90	2	24	0.2	23	v poor	v poor	poor
13030232	A	Dawson	-24.37	150.55	subartesian	gone	15.20	4	6	6.1	8	moderate	v poor	poor
13030233	A	Dawson	-24.36	150.47	subartesian	unused	16.70	5	19	0.6	13	v poor	v poor	poor
13030234	A	Dawson	-24.35	150.46	subartesian	existing	15.50	5	41	0.2	6	excellent	poor	moderate
13030237	A	Dawson	-24.39	150.47	subartesian	unused	13.10	6	41	0.1	6	excellent	poor	moderate
13030238	A	Dawson	-24.36	150.44	subartesian	existing	12.00	2	14	0.5	33	excellent	inadequate	poor
13030239	A	Dawson	-24.50	150.61	subartesian	unused	16.40	2	28	0.1	19	excellent	v poor	poor
13030258	A	Dawson	-24.44	150.52	subartesian	unused	69.50	7	26	0.4	6	excellent	v poor	poor
13030258	B	Dawson	-24.44	150.52	subartesian	unused	16.00	1	1		13	poor	inadequate	v poor
13030259	A	Dawson	-24.41	150.50	subartesian	existing	18.80	7	26	0.4	6	good	v poor	poor
13030261	A	Dawson	-24.33	150.44	subartesian	existing	14.60	9	34	0.1	5	excellent	poor	moderate
13030262	A	Dawson	-24.33	150.44	subartesian	unused	16.80	9	34	0.1	5	excellent	poor	moderate
13030263	A	Dawson	-24.33	150.44	subartesian	existing	16.50	8	34	0.1	5	excellent	poor	moderate
13030264	A	Dawson	-24.33	150.44	subartesian	unused	16.20	1	1		38	v poor	inadequate	v poor
13030265	A	Dawson	-24.33	150.44	subartesian	unused	16.10	8	34	0.1	5	excellent	poor	moderate
13030266	A	Dawson	-24.27	150.41	subartesian	unused	14.30	1	1		46	excellent	inadequate	poor
13030267	A	Dawson	-24.29	150.42	subartesian	unused	17.90	10	42	0.1	5	excellent	poor	moderate
13030268	A	Dawson	-24.32	150.43	subartesian	existing	15.90	9	42	0.1	5	excellent	poor	moderate
13030269	A	Dawson	-24.31	150.41	subartesian	gone	15.30	1	1		40	inadequate	inadequate	inadequate
13030271	A	Dawson	-24.13	150.36	subartesian	gone	16.90	3	3	22.5	11	poor	inadequate	v poor
13030272	A	Dawson	-24.13	150.35	subartesian	gone	18.50					v poor	inadequate	v poor
13030273	A	Dawson	-24.13	150.35	subartesian	unused	18.30	4	8	4.3	5	excellent	v poor	poor
13030274	A	Dawson	-24.25	150.39	subartesian	gone	14.60	2	1		46	v poor	inadequate	v poor
13030276	A	Dawson	-24.13	150.34	subartesian	unused	16.40	1	1		46	v poor	inadequate	v poor
13030278	A	Dawson	-24.20	150.37	subartesian	existing	12.40					excellent	inadequate	poor
13030279	A	Dawson	-24.05	150.28	subartesian	gone	13.30	14	36	0.1	11	poor	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030280	A	Dawson	-24.10	150.31	subartesian	gone	13.10	3	23	0.2	24	v poor	v poor	poor
13030282	A	Dawson	-24.10	150.30	subartesian	unused	16.46	19	20	1.1	5	excellent	moderate	excellent
13030283	A	Dawson	-24.36	150.60	subartesian	existing	14.80	8	18	0.6	6	excellent	poor	moderate
13030284	A	Dawson	-24.36	150.58	subartesian	existing	12.80	7	8	4.6	6	excellent	v poor	poor
13030289	A	Dawson	-23.86	150.27	subartesian	unused	9.30					v poor	inadequate	v poor
13030290	A	Dawson	-23.85	150.26	subartesian	existing	17.40	17	37	0.2	0	good	poor	moderate
13030291	A	Dawson	-23.84	150.26	subartesian	gone	17.70	8	18	0.4	19	v poor	v poor	poor
13030293	A	Dawson	-23.88	150.25	subartesian	gone	14.90	12	35	0.2	10	poor	poor	poor
13030295	A	Dawson	-23.88	150.25	subartesian	gone	16.20	13	24	0.4	13	v poor	v poor	poor
13030296	A	Dawson	-23.88	150.24	subartesian	gone		1	1		19	inadequate	inadequate	inadequate
13030297	A	Dawson	-23.88	150.24	subartesian	gone	16.00	1	1		44	inadequate	inadequate	inadequate
13030301	A	Dawson	-23.88	150.24	subartesian	gone	14.90	20	38	0.1	7	poor	poor	poor
13030302	A	Dawson	-23.87	150.23	subartesian	gone	13.20	16	37	0.2	8	poor	poor	poor
13030303	A	Dawson	-23.87	150.22	subartesian	gone	17.40	12	35	0.1	10	poor	poor	poor
13030304	A	Dawson	-23.89	150.23	subartesian	unused	17.70	15	38	0.2	0	good	poor	moderate
13030305	A	Dawson	-23.90	150.22	subartesian	unused	17.70	20	38	0.3	0	good	moderate	good
13030306	A	Dawson	-23.90	150.21	subartesian	gone	11.00					poor	inadequate	v poor
13030307	A	Dawson	-23.89	150.19	subartesian	existing	13.40	31	37	0.3	0	good	moderate	good
13030308	A	Dawson	-23.93	150.22	subartesian	gone		1	1		44	inadequate	inadequate	inadequate
13030310	A	Dawson	-23.93	150.22	subartesian	gone		1	1		44	inadequate	inadequate	inadequate
13030311	A	Dawson	-23.93	150.22	subartesian	gone	19.00	25	33	0.5	13	v poor	v poor	poor
13030312	A	Dawson	-23.93	150.22	subartesian	gone		1	1		44	inadequate	inadequate	inadequate
13030314	A	Dawson	-23.93	150.21	subartesian	gone	14.90	22	38	0.2	7	poor	poor	poor
13030315	A	Dawson	-23.92	150.20	subartesian	gone	14.10	29	38	0.4	7	poor	poor	poor
13030318	A	Dawson	-23.90	150.28	subartesian	gone	14.90	14	35	0.1	10	poor	poor	poor
13030319	A	Dawson	-23.90	150.28	subartesian	existing	15.20	20	46	0.1	0	excellent	poor	moderate
13030320	A	Dawson	-23.93	150.26	subartesian	gone	13.40	34	24	0.6	21	v poor	v poor	poor
13030321	A	Dawson	-23.93	150.25	subartesian	gone		1	1		44	inadequate	inadequate	inadequate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030322	A	Dawson	-23.93	150.25	subartesian	gone		2	1		44	inadequate	inadequate	inadequate
13030323	A	Dawson	-23.93	150.25	subartesian	gone		1	1		44	inadequate	inadequate	inadequate
13030324	A	Dawson	-23.93	150.25	subartesian	gone	13.10	2	1		44	inadequate	inadequate	inadequate
13030325	A	Dawson	-23.93	150.25	subartesian	gone		2	36	0.1	9	inadequate	v poor	v poor
13030326	A	Dawson	-23.93	150.25	subartesian	gone	12.30	43	36	0.2	9	poor	poor	poor
13030328	A	Dawson	-23.98	150.33	subartesian	existing	13.10	18	46	0.1	0	excellent	poor	moderate
13030330	A	Dawson	-23.98	150.33	subartesian	existing	12.70	11	46	0.1	0	excellent	poor	moderate
13030331	A	Dawson	-23.98	150.33	subartesian	existing	14.90	25	46	0.3	0	excellent	moderate	excellent
13030332	A	Dawson	-23.97	150.34	subartesian	existing	16.30	24	46	0.3	0	excellent	moderate	excellent
13030333	A	Dawson	-23.97	150.33	subartesian	existing	18.10	20	43	0.3	2	excellent	poor	moderate
13030334	A	Dawson	-23.99	150.30	subartesian	existing	15.50	24	37	0.4	0	good	moderate	good
13030335	A	Dawson	-23.98	150.30	subartesian	existing	12.10	20	37	0.4	0	good	moderate	good
13030336	A	Dawson	-23.97	150.30	subartesian	gone	15.40	15	29	0.5	10	poor	poor	poor
13030337	A	Dawson	-23.99	150.28	subartesian	gone	13.90	9	31	0.2	14	v poor	v poor	poor
13030339	A	Dawson	-23.98	150.27	subartesian	gone	14.30	45	37	0.5	8	poor	poor	poor
13030340	A	Dawson	-23.98	150.27	subartesian	gone	14.60	1	1		44	inadequate	inadequate	inadequate
13030341	A	Dawson	-23.98	150.27	subartesian	gone		1	1		44	inadequate	inadequate	inadequate
13030342	A	Dawson	-23.98	150.27	subartesian	gone		1	1		44	inadequate	inadequate	inadequate
13030344	A	Dawson	-23.97	150.27	subartesian	existing	13.00	31	35	0.5	0	good	moderate	good
13030345	A	Dawson	-23.97	150.27	subartesian	gone	15.00	17	37	0.2	8	poor	poor	poor
13030347	A	Dawson	-23.98	150.21	subartesian	existing	14.80	52	37	0.8	0	good	good	excellent
13030348	A	Dawson	-23.96	150.21	subartesian	existing	18.00	52	38	0.8	0	good	good	excellent
13030349	A	Dawson	-23.95	150.21	subartesian	existing	14.90	54	38	0.8	0	good	good	excellent
13030361	A	Dawson	-24.02	150.18	subartesian	unused	11.60	1	1		58	v poor	inadequate	v poor
13030369	A	Dawson	-24.36	150.58	subartesian	existing	18.20	10	33	0.3	6	excellent	poor	moderate
13030371	A	Dawson	-25.48	148.83	subartesian	unused	16.50					v poor	inadequate	v poor
13030372	A	Dawson	-25.48	148.83	subartesian	unused	15.60					v poor	inadequate	v poor
13030373	A	Dawson	-25.50	148.85	subartesian	unused	19.20					v poor	inadequate	v poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030374	A	Dawson	-25.49	148.85	subartesian	unused	15.90					v poor	inadequate	v poor
13030376	A	Dawson	-25.49	148.85	subartesian	unused	16.20					v poor	inadequate	v poor
13030377	A	Dawson			subartesian	gone		1	1		21	inadequate	inadequate	inadequate
13030380	A	Dawson	-25.64	149.78	subartesian	unused	22.00	1	1		41	v poor	inadequate	v poor
13030381	A	Dawson	-25.64	149.78	subartesian	unused	22.60	1	1		41	v poor	inadequate	v poor
13030383	A	Dawson			subartesian	gone		1	1		41	inadequate	inadequate	inadequate
13030385	A	Dawson	-24.92	149.97	subartesian	existing	21.10	13	28	0.2	13	excellent	v poor	poor
13030387	A	Dawson	-24.94	150.05	subartesian	unused	19.70	15	20	0.6	13	poor	v poor	poor
13030389	A	Dawson	-24.90	150.07	subartesian	existing	19.60	17	29	0.4	11	excellent	v poor	poor
13030390	A	Dawson	-24.89	150.08	subartesian	existing	19.80	17	29	0.4	11	excellent	v poor	poor
13030391	A	Dawson	-24.89	150.09	subartesian	existing	21.00	18	28	0.4	11	poor	v poor	poor
13030392	A	Dawson	-24.90	150.10	subartesian	existing	14.60	11	7	7.0	18	excellent	v poor	poor
13030393	A	Dawson	-24.92	150.09	subartesian	existing	18.60	24	40	0.3	0	excellent	moderate	excellent
13030394	A	Dawson	-24.91	150.09	subartesian	existing	20.10	17	28	0.4	11	excellent	v poor	poor
13030395	A	Dawson	-24.90	150.08	subartesian	existing	18.80	19	29	0.4	11	excellent	v poor	poor
13030396	A	Dawson	-24.91	150.07	subartesian	gone	19.50	16	29	0.4	11	good	v poor	poor
13030397	A	Dawson	-24.91	150.07	subartesian	existing	21.00	19	28	0.6	11	excellent	v poor	poor
13030398	A	Dawson	-24.92	150.07	subartesian	unused	20.10	3	9	1.8	30	v poor	inadequate	v poor
13030399	A	Dawson	-24.92	150.07	subartesian	existing	24.40	17	29	0.5	11	excellent	v poor	poor
13030400	A	Dawson	-24.92	150.08	subartesian	unused	21.40	11	16	1.1	23	v poor	v poor	poor
13030401	A	Dawson	-24.92	150.08	subartesian	existing	23.20	16	28	0.4	11	excellent	v poor	poor
13030402	A	Dawson	-24.93	150.08	subartesian	existing	22.00	23	40	0.4	0	excellent	moderate	excellent
13030403	A	Dawson	-24.93	150.08	subartesian	gone	22.30	11	17	1.0	22	v poor	v poor	poor
13030404	A	Dawson	-24.93	150.08	subartesian	existing	22.00	26	40	0.4	0	excellent	moderate	excellent
13030405	A	Dawson	-24.93	150.07	subartesian	unused	21.80	7	17	0.7	23	v poor	v poor	poor
13030406	A	Dawson	-24.93	150.07	subartesian	existing	20.40	22	41	0.3	0	excellent	moderate	excellent
13030407	A	Dawson	-24.93	150.07	subartesian	existing	14.90	15	21	1.0	18	good	v poor	poor
13030410	A	Dawson	-24.93	150.06	subartesian	unused	20.10	3	10	1.5	30	v poor	inadequate	v poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030412	A	Dawson	-24.93	150.06	subartesian	existing	17.50	24	34	0.5	0	good	moderate	good
13030413	A	Dawson	-24.92	150.06	subartesian	existing	20.10	19	28	0.6	11	poor	v poor	poor
13030414	A	Dawson	-24.93	150.07	subartesian	unused	21.40	8	18	0.6	16	v poor	v poor	poor
13030415	A	Dawson	-24.94	150.07	subartesian	unused	18.30	9	22	0.5	16	v poor	v poor	poor
13030416	A	Dawson	-24.94	150.07	subartesian	unused	20.40	9	22	0.5	16	v poor	v poor	poor
13030417	A	Dawson	-24.94	150.07	subartesian	gone		1	1		37	inadequate	inadequate	inadequate
13030418	A	Dawson	-24.94	150.07	subartesian	gone	20.30	19	28	0.6	13	v poor	v poor	poor
13030419	A	Dawson	-24.94	150.07	subartesian	gone	18.30	2	1		37	inadequate	inadequate	inadequate
13030420	A	Dawson	-24.93	150.07	subartesian	existing	17.40	18	28	0.6	11	excellent	v poor	poor
13030421	A	Dawson	-24.93	150.07	subartesian	gone		47	15	4.6	25	inadequate	v poor	v poor
13030422	A	Dawson	-24.93	150.08	subartesian	gone	21.40	15	24	0.5	15	v poor	v poor	poor
13030423	A	Dawson	-24.94	150.09	subartesian	existing	20.10	16	28	0.4	11	excellent	v poor	poor
13030424	A	Dawson	-24.94	150.09	subartesian	gone	21.00	13	24	0.3	16	v poor	v poor	poor
13030425	A	Dawson	-24.95	150.09	subartesian	gone	21.90	17	27	0.4	13	v poor	v poor	poor
13030426	A	Dawson	-24.95	150.08	subartesian	existing	13.70	15	29	0.2	11	excellent	v poor	poor
13030427	A	Dawson	-24.94	150.08	subartesian	existing	16.20	17	29	0.2	11	excellent	v poor	poor
13030428	A	Dawson	-24.94	150.07	subartesian	existing	24.70	17	30	0.2	11	excellent	v poor	poor
13030429	A	Dawson	-24.94	150.07	subartesian	unused	18.30	3	7	2.7	33	v poor	inadequate	v poor
13030430	A	Dawson	-24.95	150.07	subartesian	existing	23.20	12	19	0.6	19	good	v poor	poor
13030432	A	Dawson	-24.95	150.07	subartesian	existing	21.40	14	27	0.3	13	v poor	v poor	poor
13030433	A	Dawson	-24.95	150.08	subartesian	gone	21.40	16	27	0.3	13	v poor	v poor	poor
13030434	A	Dawson	-24.99	150.07	subartesian	existing	17.10	15	30	0.2	11	excellent	v poor	poor
13030439	A	Dawson	-24.03	150.28	subartesian	existing	16.00	16	26	0.5	8	good	poor	moderate
13030440	A	Dawson	-24.03	150.28	subartesian	existing	16.30	8	29	0.3	5	good	poor	moderate
13030441	A	Dawson	-24.02	150.16	subartesian	unused	15.40	13	18	0.8	18	v poor	v poor	poor
13030445	A	Dawson	-23.99	150.30	subartesian	gone		1	1		35	inadequate	inadequate	inadequate
13030448	A	Dawson	-23.90	150.22	subartesian	gone		2	1		35	inadequate	inadequate	inadequate
13030451	A	Dawson	-24.51	150.61	subartesian	existing	20.10	4	18	0.6	6	good	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030454	A	Dawson	-24.42	150.54	subartesian	existing	13.20	7	26	0.4	6	good	v poor	poor
13030455	A	Dawson	-24.43	150.54	subartesian	existing	13.00	6	26	0.4	6	good	v poor	poor
13030456	A	Dawson	-24.42	150.55	subartesian	existing	11.00					excellent	inadequate	poor
13030457	A	Dawson	-24.41	150.59	subartesian	existing	17.00	11	34	0.3	0	good	poor	moderate
13030458	A	Dawson	-24.45	150.52	subartesian	existing	14.30					excellent	inadequate	poor
13030459	A	Dawson	-24.45	150.53	subartesian	existing	19.80	13	31	0.4	1	good	poor	moderate
13030460	A	Dawson	-24.47	150.53	subartesian	existing	14.90	9	26	0.4	6	good	poor	moderate
13030461	A	Dawson	-24.46	150.54	subartesian	existing	19.40	9	30	0.4	2	good	poor	moderate
13030462	A	Dawson	-24.46	150.54	subartesian	existing	21.10	10	26	0.4	6	good	poor	moderate
13030463	A	Dawson	-24.46	150.54	subartesian	existing	15.60	5	26	0.4	6	good	v poor	poor
13030464	A	Dawson	-24.48	150.54	subartesian	existing	17.90	8	30	0.4	2	good	poor	moderate
13030465	A	Dawson	-24.48	150.55	subartesian	existing	16.70	9	30	0.4	2	good	poor	moderate
13030466	A	Dawson	-24.48	150.56	subartesian	existing	17.90	4	11	0.9	13	good	v poor	poor
13030467	A	Dawson	-24.50	150.59	subartesian	existing	20.60					excellent	inadequate	poor
13030468	A	Dawson	-24.50	150.59	subartesian	existing	16.20	2	1		6	good	inadequate	poor
13030469	A	Dawson	-24.50	150.60	subartesian	existing	16.90	2	18	0.3	6	good	inadequate	poor
13030470	A	Dawson	-24.50	150.60	subartesian	existing	16.90	2	18	0.3	6	good	inadequate	poor
13030471	A	Dawson	-24.50	150.60	subartesian	existing	17.90	5	18	0.8	6	good	v poor	poor
13030472	A	Dawson	-24.51	150.61	subartesian	existing	19.40	3	8	2.2	6	good	inadequate	poor
13030473	A	Dawson	-24.50	150.60	subartesian	existing	21.00	3	18	0.4	6	good	inadequate	poor
13030474	A	Dawson	-24.51	150.60	subartesian	gone	18.90	2	2	33.4	12	poor	inadequate	v poor
13030475	A	Dawson	-24.51	150.60	subartesian	unused	18.00					excellent	inadequate	poor
13030476	A	Dawson	-24.51	150.60	subartesian	unused	16.10					excellent	inadequate	poor
13030477	A	Dawson	-24.42	150.51	subartesian	existing	20.80	2	1		8	good	inadequate	poor
13030478	A	Dawson	-24.41	150.52	subartesian	gone	14.00					v poor	inadequate	v poor
13030479	A	Dawson	-24.41	150.53	subartesian	existing	14.40					excellent	inadequate	poor
13030480	A	Dawson	-24.40	150.55	subartesian	unused	13.40					excellent	inadequate	poor
13030481	A	Dawson	-24.50	150.56	subartesian	unused	16.80	1	1		23	good	inadequate	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030482	A	Dawson			subartesian	gone						inadequate	inadequate	inadequate
13030483	A	Dawson	-23.89	150.13	subartesian	unused	125.00	11	7	8.3	20	moderate	v poor	poor
13030483	B	Dawson	-23.89	150.13	subartesian	unused	10.90	22	28	0.2	0	moderate	moderate	good
13030484	A	Dawson	-23.89	150.13	subartesian	unused	19.20	1	1		26	moderate	inadequate	v poor
13030485	A	Dawson	-23.91	150.19	subartesian	existing	60.00	42	28	1.0	0	moderate	good	good
13030485	B	Dawson	-23.91	150.19	subartesian	existing	38.00	41	28	1.0	0	moderate	good	good
13030486	A	Dawson	-23.91	150.19	subartesian	existing	14.30	33	25	1.1	2	moderate	good	good
13030487	A	Dawson	-23.92	150.22	subartesian	existing	88.60	34	28	1.0	0	moderate	good	good
13030487	B	Dawson	-23.92	150.22	subartesian	existing	32.00	33	28	1.0	0	moderate	good	good
13030488	A	Dawson	-23.90	150.22	subartesian	existing	13.40	29	25	1.2	2	moderate	good	good
13030488	B	Dawson	-23.90	150.22	subartesian	existing	10.50	16	10	5.5	17	moderate	v poor	poor
13030489	A	Dawson	-23.91	150.21	subartesian	existing	10.00	30	25	1.1	2	moderate	good	good
13030490	A	Dawson	-23.90	150.22	subartesian	existing	17.80	31	25	1.2	2	moderate	good	good
13030490	B	Dawson	-23.90	150.22	subartesian	existing	14.40	14	9	4.6	18	moderate	v poor	poor
13030491	A	Dawson	-23.91	150.22	subartesian	unused	17.80	20	9	9.3	18	v poor	v poor	poor
13030491	B	Dawson	-23.91	150.22	subartesian	unused	14.00	18	9	9.3	18	v poor	v poor	poor
13030492	A	Dawson	-23.94	150.20	subartesian	existing	15.50	28	25	1.2	2	moderate	good	good
13030492	B	Dawson	-23.94	150.20	subartesian	existing	11.00	26	25	1.2	2	moderate	good	good
13030493	A	Dawson	-23.93	150.22	subartesian	existing	30.00	38	28	1.0	0	moderate	good	good
13030493	B	Dawson	-23.93	150.22	subartesian	existing	16.00	35	28	1.0	0	moderate	good	good
13030502	A	Dawson	-23.89	150.16	subartesian	unused	12.00	11	27	0.2	0	moderate	poor	moderate
13030503	A	Dawson	-23.90	150.18	subartesian	unused	14.00	9	8	10.7	18	moderate	v poor	poor
13030504	A	Dawson	-23.90	150.19	subartesian	existing	15.00	23	27	1.1	0	moderate	moderate	good
13030505	A	Dawson	-23.90	150.19	subartesian	unused	16.00	8	8	6.6	18	v poor	v poor	poor
13030506	A	Dawson	-23.90	150.19	subartesian	unused	14.00	9	8	10.7	18	v poor	v poor	poor
13030507	A	Dawson	-23.90	150.19	subartesian	existing	13.50	14	16	1.5	10	moderate	poor	moderate
13030508	A	Dawson	-23.91	150.19	subartesian	existing	12.52	12	11	6.4	15	moderate	v poor	poor
13030509	A	Dawson	-23.91	150.19	subartesian	existing	14.00	23	28	0.9	2	moderate	moderate	good

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030510	A	Dawson	-23.94	150.20	subartesian	existing	13.80	22	24	1.2	2	moderate	moderate	good
13030511	A	Dawson	-23.94	150.19	subartesian	existing	11.60	22	24	1.2	2	moderate	moderate	good
13030512	A	Dawson	-23.90	150.22	subartesian	existing	40.00	22	24	1.2	2	moderate	moderate	good
13030513	A	Dawson	-23.86	150.18	subartesian	unused	99.10	7	6	16.4	20	v poor	v poor	poor
13030514	A	Dawson	-23.91	150.17	subartesian	unused	100.00	7	6	16.7	20	moderate	v poor	poor
13030515	A	Dawson	-23.95	150.15	subartesian	unused	100.00	6	5	25.2	21	poor	v poor	poor
13030516	A	Dawson	-23.87	150.23	subartesian	existing	110.20	25	27	1.1	0	moderate	moderate	good
13030516	B	Dawson	-23.87	150.23	subartesian	existing	27.00	21	24	1.2	2	moderate	moderate	good
13030517	A	Dawson	-23.98	150.21	subartesian	unused	102.00	11	20	0.4	6	moderate	poor	moderate
13030517	B	Dawson	-23.98	150.21	subartesian	unused	40.00	11	20	0.4	6	moderate	poor	moderate
13030517	C	Dawson	-23.98	150.21	subartesian	unused	17.00	10	20	0.4	6	moderate	poor	moderate
13030518	A	Dawson	-24.06	150.14	subartesian	unused	97.60	10	8	5.7	18	v poor	v poor	poor
13030518	B	Dawson	-24.06	150.14	subartesian	unused	37.00	8	8	5.7	18	v poor	v poor	poor
13030518	C	Dawson	-24.06	150.14	subartesian	unused	14.00	9	8	5.7	18	v poor	v poor	poor
13030519	A	Dawson	-24.04	150.16	subartesian	unused	15.00	9	8	5.7	18	v poor	v poor	poor
13030520	A	Dawson	-24.00	150.16	subartesian	unused	14.80	9	8	10.5	18	v poor	v poor	poor
13030521	A	Dawson	-23.96	150.18	subartesian	unused	19.20	9	8	10.7	18	v poor	v poor	poor
13030522	A	Dawson	-23.97	150.20	subartesian	unused	15.00	9	8	10.7	18	v poor	v poor	poor
13030523	A	Dawson	-23.99	150.24	subartesian	existing	15.00	23	26	1.0	0	moderate	moderate	good
13030524	A	Dawson	-23.97	150.25	subartesian	existing	18.00	22	24	1.1	2	moderate	moderate	good
13030525	A	Dawson	-23.96	150.24	subartesian	existing	18.50	22	27	1.0	0	moderate	moderate	good
13030526	A	Dawson	-23.84	150.21	subartesian	existing	95.00	7	6	16.0	20	moderate	v poor	poor
13030527	A	Dawson	-23.94	150.24	subartesian	unused	60.00	9	20	0.4	6	moderate	poor	moderate
13030528	A	Dawson	-23.93	150.26	subartesian	unused	19.40	9	8	10.6	18	moderate	v poor	poor
13030529	A	Dawson	-23.90	150.26	subartesian	existing	52.80	23	27	1.0	0	moderate	moderate	good
13030529	B	Dawson	-23.90	150.26	subartesian	existing	12.60	20	20	2.4	6	moderate	poor	moderate
13030530	A	Dawson	-23.86	150.26	subartesian	existing	14.20	23	27	1.0	0	moderate	moderate	good
13030531	A	Dawson	-23.90	150.19	subartesian	existing	15.60	23	27	1.1	0	moderate	moderate	good

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030532	A	Dawson	-24.37	150.55	subartesian	existing	14.00	7	19	0.6	6	moderate	v poor	poor
13030533	A	Dawson	-24.51	150.62	subartesian	existing	20.60	9	23	0.4	2	moderate	poor	moderate
13030534	A	Dawson	-24.36	150.49	subartesian	existing	15.00	8	19	0.6	6	moderate	poor	moderate
13030535	A	Dawson	-24.52	150.57	subartesian	unused	16.30					excellent	inadequate	poor
13030536	A	Dawson	-24.51	150.57	subartesian	existing	21.40	2	17	0.4	8	moderate	inadequate	v poor
13030537	A	Dawson	-24.53	150.60	subartesian	existing	18.70	2	2	49.1	23	moderate	inadequate	v poor
13030538	A	Dawson	-24.53	150.70	subartesian	gone	17.00	3	2	54.7	23	inadequate	inadequate	inadequate
13030539	A	Dawson	-24.38	150.54	subartesian	existing	17.00	9	19	0.6	6	moderate	poor	moderate
13030540	A	Dawson	-24.41	150.52	subartesian	existing	15.80	7	19	0.6	6	moderate	v poor	poor
13030541	A	Dawson	-24.36	150.51	subartesian	existing	18.30	6	19	0.6	6	moderate	v poor	poor
13030542	A	Dawson	-24.41	150.61	subartesian	existing	15.00	5	19	0.6	6	moderate	v poor	poor
13030543	A	Dawson	-24.42	150.57	subartesian	existing	14.00	7	19	0.6	6	moderate	v poor	poor
13030544	A	Dawson	-24.43	150.49	subartesian	existing	19.80	9	19	0.5	6	moderate	poor	moderate
13030545	A	Dawson	-24.42	150.48	subartesian	existing	21.20	10	19	0.8	6	moderate	poor	moderate
13030546	A	Dawson	-24.51	150.63	subartesian	existing	20.40	6	19	0.5	6	moderate	v poor	poor
13030547	A	Dawson	-24.51	150.60	subartesian	existing	21.50	4	19	0.4	6	moderate	v poor	poor
13030548	A	Dawson	-24.31	150.42	subartesian	existing	17.20	11	20	0.5	5	moderate	poor	moderate
13030549	A	Dawson	-24.24	150.38	subartesian	existing	15.70	7	23	0.4	2	moderate	v poor	poor
13030550	A	Dawson	-24.16	150.33	subartesian	existing	14.50	13	20	0.8	5	moderate	poor	moderate
13030551	A	Dawson	-24.28	150.44	subartesian	existing	20.70	11	27	0.4	2	moderate	poor	moderate
13030552	A	Dawson	-24.33	150.46	subartesian	existing	21.30	10	19	0.6	5	moderate	poor	moderate
13030553	A	Dawson	-24.32	150.46	subartesian	existing	20.80	11	22	0.5	2	moderate	poor	moderate
13030554	A	Dawson	-24.33	150.45	subartesian	existing	15.40	3	19	0.3	5	moderate	inadequate	v poor
13030555	A	Dawson	-24.32	150.45	subartesian	existing	18.60	10	19	0.6	5	moderate	poor	moderate
13030556	A	Dawson	-24.32	150.44	subartesian	unused	15.20	2	1		23	moderate	inadequate	v poor
13030557	A	Dawson	-24.31	150.44	subartesian	existing	19.30	10	19	0.6	5	moderate	poor	moderate
13030558	A	Dawson	-24.30	150.44	subartesian	existing	17.40	2	1		23	moderate	inadequate	v poor
13030559	A	Dawson	-24.31	150.45	subartesian	existing	19.50	9	19	0.6	5	moderate	poor	moderate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030560	A	Dawson	-24.34	150.47	subartesian	existing	19.30	10	18	0.6	6	moderate	poor	moderate
13030561	A	Dawson	-24.34	150.47	subartesian	existing	20.50	7	17	0.7	6	moderate	v poor	poor
13030562	A	Dawson	-23.97	150.21	subartesian	unused	8.70	5	7	6.6	18	v poor	v poor	poor
13030563	A	Dawson	-23.97	150.21	subartesian	gone	7.00	1	1		24	inadequate	inadequate	inadequate
13030564	A	Dawson	-23.97	150.22	subartesian	unused	8.40	5	7	6.6	18	v poor	v poor	poor
13030565	A	Dawson	-23.97	150.21	subartesian	gone	6.50	1	1		24	inadequate	inadequate	inadequate
13030566	A	Dawson	-23.97	150.21	subartesian	gone	7.40	1	1		24	inadequate	inadequate	inadequate
13030567	A	Dawson	-24.05	150.14	subartesian	gone	8.50	1	1		24	inadequate	inadequate	inadequate
13030568	A	Dawson	-24.05	150.14	subartesian	unused	10.60	5	6	7.6	19	v poor	v poor	poor
13030569	A	Dawson	-24.05	150.14	subartesian	unused	10.60	5	6	7.6	19	v poor	v poor	poor
13030570	A	Dawson	-24.05	150.14	subartesian	unused	6.40	5	6	7.6	19	v poor	v poor	poor
13030571	A	Dawson	-24.05	150.13	subartesian	unused	10.20	5	6	7.6	19	v poor	v poor	poor
13030572	A	Dawson	-24.04	150.14	subartesian	unused	8.70	5	6	7.6	19	v poor	v poor	poor
13030573	A	Dawson	-24.90	150.11	subartesian	existing	14.10	12	20	0.8	4	moderate	poor	moderate
13030574	A	Dawson	-24.91	150.06	subartesian	gone	21.80	12	11	4.3	13	v poor	v poor	poor
13030575	A	Dawson	-24.92	150.07	subartesian	gone	19.90	12	14	1.4	15	v poor	v poor	poor
13030576	A	Dawson	-24.94	150.07	subartesian	existing	18.40	13	13	2.1	11	moderate	v poor	poor
13030579	A	Dawson	-24.35	150.48	subartesian	existing	20.20	9	17	0.6	6	moderate	poor	moderate
13030580	A	Dawson	-24.36	150.48	subartesian	existing	18.30	7	17	0.6	6	moderate	v poor	poor
13030581	A	Dawson	-24.34	150.47	subartesian	existing	19.60	7	17	0.6	6	moderate	v poor	poor
13030582	A	Dawson	-24.93	150.07	subartesian	existing	21.70	9	12	2.1	11	moderate	v poor	poor
13030583	A	Dawson	-24.92	150.08	subartesian	existing	23.50	8	12	2.6	11	moderate	v poor	poor
13030584	A	Dawson	-24.94	150.08	subartesian	unused	17.20	6	7	6.5	16	poor	v poor	poor
13030586	A	Dawson	-24.94	150.04	subartesian	unused	20.50	7	10	1.8	13	poor	v poor	poor
13030590	A	Dawson	-24.94	150.08	subartesian	existing	13.80	7	10	4.6	13	moderate	v poor	poor
13030591	A	Dawson	-24.30	150.43	subartesian	gone	14.60	9	18	0.9	5	moderate	poor	moderate
13030592	A	Dawson	-24.30	150.44	subartesian	gone	15.00	10	18	0.9	5	moderate	poor	moderate
13030593	A	Dawson	-24.30	150.44	subartesian	existing	16.40	10	18	0.9	5	moderate	poor	moderate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030594	A	Dawson	-24.31	150.44	subartesian	existing	18.40	9	18	0.7	5	moderate	poor	moderate
13030604	A	Dawson	-24.31	150.45	subartesian	existing	21.10	9	16	1.0	5	moderate	poor	moderate
13030605	A	Dawson	-24.31	150.45	subartesian	existing	17.60	9	16	1.0	5	moderate	poor	moderate
13030606	A	Dawson	-24.31	150.45	subartesian	existing	20.50	9	16	1.0	5	moderate	poor	moderate
13030608	A	Dawson	-24.42	150.56	subartesian	existing	13.30	10	21	0.8	0	moderate	poor	moderate
13030609	A	Dawson	-24.41	150.53	subartesian	existing	12.50	3	3	22.3	11	moderate	inadequate	v poor
13030610	A	Dawson	-24.42	150.53	subartesian	existing	11.80	4	8	2.7	6	moderate	v poor	poor
13030611	A	Dawson	-24.43	150.53	subartesian	existing	15.10	5	14	1.2	6	moderate	v poor	poor
13030613	A	Dawson	-25.67	148.52	subartesian	existing	123.00	1	1		19	moderate	inadequate	v poor
13030615	A	Dawson	-24.44	150.51	subartesian	unused	20.20	4	8	3.4	6	moderate	v poor	poor
13030616	A	Dawson	-24.41	150.52	subartesian	existing	17.60	4	6	6.1	8	moderate	v poor	poor
13030617	A	Dawson	-24.40	150.70	subartesian	existing	15.20	5	8	4.6	6	good	v poor	poor
13030631	A	Dawson	-24.28	150.41	subartesian	existing	15.00	8	10	3.4	5	poor	poor	poor
13030632	A	Dawson	-24.26	150.41	subartesian	existing	16.10	6	13	1.9	5	poor	v poor	poor
13030633	A	Dawson	-24.25	150.40	subartesian	existing	15.30	6	12	2.7	2	poor	v poor	poor
13030635	A	Dawson	-24.39	150.49	subartesian	existing	13.90	6	12	2.1	6	poor	v poor	poor
13030637	A	Dawson	-24.59	149.94	subartesian	unused	13.50	2	3	15.1	16	v poor	inadequate	v poor
13030638	A	Dawson	-24.59	149.94	subartesian	unused	17.50	2	3	15.1	16	v poor	inadequate	v poor
13030639	A	Dawson	-24.59	149.92	subartesian	unused	14.00	2	3	15.1	16	poor	inadequate	v poor
13030640	A	Dawson	-24.59	149.92	subartesian	unused	17.00	1	1		18	poor	inadequate	v poor
13030641	A	Dawson	-24.59	149.91	subartesian	unused	17.00	1	1		18	poor	inadequate	v poor
13030642	A	Dawson	-24.60	149.89	subartesian	unused	12.50					poor	inadequate	v poor
13030643	A	Dawson	-24.59	149.88	subartesian	unused	15.00					poor	inadequate	v poor
13030644	A	Dawson	-24.60	149.87	subartesian	unused	12.00					poor	inadequate	v poor
13030647	A	Dawson	-24.79	149.97	subartesian	unused	17.50	1	1		18	inadequate	inadequate	inadequate
13030669	A	Dawson	-24.43	150.51	subartesian	existing	17.40					excellent	inadequate	poor
13030670	A	Dawson	-24.32	150.43	subartesian	existing	16.20	8	10	3.4	5	poor	poor	poor
13030671	A	Dawson	-24.30	150.45	subartesian	existing	20.90	8	10	3.4	5	poor	poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030679	A	Dawson	-24.31	150.42	subartesian	existing	18.00	9	12	3.2	5	poor	poor	poor
13030680	A	Dawson	-24.31	150.42	subartesian	existing	18.00	9	12	2.8	5	poor	poor	poor
13030682	A	Dawson			subartesian	gone	18.90	1	1		11	inadequate	inadequate	inadequate
13030683	A	Dawson	-25.15	150.17	subartesian	existing	25.00	3	5	9.8	11	poor	inadequate	v poor
13030684	A	Dawson	-25.06	150.13	subartesian	existing	19.50	3	5	9.8	11	poor	inadequate	v poor
13030685	A	Dawson	-25.03	150.15	subartesian	existing	15.00	3	5	9.8	11	poor	inadequate	v poor
13030688	A	Dawson	-24.88	150.14	subartesian	existing	16.80					good	inadequate	poor
13030689	A	Dawson	-24.84	150.23	subartesian	existing	19.00	3	5	9.9	11	poor	inadequate	v poor
13030690	A	Dawson	-24.41	150.63	subartesian	existing	16.20	6	8	3.1	0	v poor	v poor	poor
13030691	A	Dawson	-24.36	150.56	subartesian	existing	15.70	2	1		6	v poor	inadequate	v poor
13030692	A	Dawson	-24.37	150.55	subartesian	existing	16.70	7	8	3.1	0	v poor	v poor	poor
13030693	A	Dawson	-24.41	150.49	subartesian	existing	16.10	3	3	22.3	11	poor	inadequate	v poor
13030694	A	Dawson	-24.43	150.50	subartesian	existing	18.80	5	8	4.6	6	poor	v poor	poor
13030695	A	Dawson	-24.46	150.54	subartesian	existing	18.10	5	8	4.6	6	poor	v poor	poor
13030696	A	Dawson	-24.33	150.42	subartesian	existing	16.00	8	10	3.4	5	poor	poor	poor
13030697	A	Dawson	-24.36	150.53	subartesian	existing	13.70	3	5	5.0	2	v poor	inadequate	v poor
13030698	A	Dawson	-24.36	150.49	subartesian	existing	18.20	3	5	5.0	2	v poor	inadequate	v poor
13030699	A	Dawson	-24.46	150.54	subartesian	existing	14.80	4	7	5.2	6	poor	v poor	poor
13030700	A	Dawson	-24.37	150.42	subartesian	unused	42.00	1	1		8	moderate	inadequate	v poor
13030701	A	Dawson	-24.37	150.42	subartesian	existing	10.00					excellent	inadequate	poor
13030702	A	Dawson	-24.32	150.39	subartesian	existing	41.00	1	1		8	poor	inadequate	v poor
13030703	A	Dawson	-24.26	150.35	subartesian	existing	42.00	5	11	2.9	2	poor	v poor	poor
13030704	A	Dawson	-24.26	150.35	subartesian	existing	10.00					excellent	inadequate	poor
13030705	A	Dawson	-24.11	150.28	subartesian	existing	42.00	4	8	4.3	5	poor	v poor	poor
13030706	A	Dawson	-24.11	150.28	subartesian	existing	9.00	2	5	5.4	8	poor	inadequate	v poor
13030707	A	Dawson	-24.17	150.37	subartesian	existing	33.00	5	11	2.9	2	poor	v poor	poor
13030708	A	Dawson	-24.17	150.37	subartesian	existing	10.00	3	5	7.4	8	poor	inadequate	v poor
13030709	A	Dawson	-24.23	150.40	subartesian	existing	18.00	5	11	2.9	2	poor	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030710	A	Dawson	-24.24	150.40	subartesian	existing	16.00	1	1		12	poor	inadequate	v poor
13030711	A	Dawson	-24.25	150.42	subartesian	existing	20.00	4	8	4.2	5	poor	v poor	poor
13030712	A	Dawson	-24.25	150.44	subartesian	existing	41.00	4	8	4.2	5	poor	v poor	poor
13030713	A	Dawson	-24.31	150.48	subartesian	existing	42.00	5	11	2.9	2	poor	v poor	poor
13030714	A	Dawson	-24.31	150.48	subartesian	existing	10.00	4	8	4.3	5	poor	v poor	poor
13030715	A	Dawson	-24.35	150.49	subartesian	existing	14.00	5	11	2.3	2	poor	v poor	poor
13030716	A	Dawson	-24.38	150.46	subartesian	existing	17.00	4	11	2.3	2	poor	v poor	poor
13030717	A	Dawson	-24.36	150.47	subartesian	existing	17.20	4	10	2.5	2	poor	v poor	poor
13030718	A	Dawson	-24.13	150.34	subartesian	existing	16.80	3	7	4.9	5	poor	inadequate	v poor
13030719	A	Dawson	-24.53	150.70	subartesian	existing	16.50					excellent	inadequate	poor
13030720	A	Dawson	-24.52	150.66	subartesian	existing	15.00	5	11	2.2	1	poor	v poor	poor
13030721	A	Dawson	-24.53	150.61	subartesian	existing	14.50					excellent	inadequate	poor
13030722	A	Dawson	-24.52	150.59	subartesian	existing	21.80	2	7	2.4	2	poor	inadequate	v poor
13030723	A	Dawson	-24.34	150.45	subartesian	existing	18.60	4	10	2.5	2	poor	v poor	poor
13030724	A	Dawson	-24.33	150.44	subartesian	existing	16.00	3	7	4.8	5	poor	inadequate	v poor
13030725	A	Dawson	-24.18	150.36	subartesian	existing	13.20	3	7	4.9	5	poor	inadequate	v poor
13030726	A	Dawson	-24.10	150.31	subartesian	existing	13.50	3	7	4.9	5	poor	inadequate	v poor
13030727	A	Dawson	-24.13	150.32	subartesian	existing	15.50	3	7	4.9	5	poor	inadequate	v poor
13030728	A	Dawson	-23.84	150.26	subartesian	existing	17.00	7	13	1.1	0	poor	v poor	poor
13030729	A	Dawson	-23.88	150.25	subartesian	existing	17.20	9	13	2.2	0	poor	poor	poor
13030730	A	Dawson	-23.99	150.28	subartesian	existing	14.20	11	13	3.3	0	poor	poor	poor
13030731	A	Dawson	-23.93	150.25	subartesian	existing	14.00	8	13	2.2	0	poor	poor	poor
13030732	A	Dawson	-23.81	150.30	subartesian	existing	16.80	11	13	2.2	0	poor	poor	poor
13030733	A	Dawson	-23.83	150.27	subartesian	existing	18.70	10	13	2.2	0	poor	poor	poor
13030734	A	Dawson	-23.93	150.22	subartesian	existing	20.00	9	13	2.2	0	poor	poor	poor
13030735	A	Dawson	-24.95	150.08	subartesian	existing	22.00	1	1		11	poor	inadequate	v poor
13030736	A	Dawson	-24.95	150.09	subartesian	existing	22.00	1	1		11	poor	inadequate	v poor
13030737	A	Dawson	-24.94	150.09	subartesian	existing	22.00	1	1		11	poor	inadequate	v poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030738	A	Dawson	-24.94	150.07	subartesian	existing	21.60	1	1		11	poor	inadequate	v poor
13030739	A	Dawson	-24.92	150.06	subartesian	existing	20.90	1	1		11	poor	inadequate	v poor
13030740	A	Dawson	-24.93	150.08	subartesian	existing	21.60	1	1		11	poor	inadequate	v poor
13030741	A	Dawson	-24.53	150.69	subartesian	existing	18.10	1	1		8	poor	inadequate	v poor
13030742	A	Dawson	-24.46	150.55	subartesian	existing	13.70	1	1		6	poor	inadequate	v poor
13030743	A	Dawson	-24.47	150.53	subartesian	existing	16.20	2	3	17.0	6	poor	inadequate	v poor
13030744	A	Dawson	-24.55	150.70	subartesian	existing	15.00					excellent	inadequate	poor
13030745	A	Dawson	-24.51	150.60	subartesian	existing	20.10	1	1		6	poor	inadequate	v poor
13030746	A	Dawson	-24.44	150.52	subartesian	existing	16.70	2	3	17.0	6	poor	inadequate	v poor
13030747	A	Dawson	-24.43	150.53	subartesian	existing	11.20	2	3	17.0	6	poor	inadequate	v poor
13030748	A	Dawson	-24.41	150.43	subartesian	existing	14.50	2	3	16.2	6	poor	inadequate	v poor
13030749	A	Dawson	-24.66	150.47	subartesian	existing	14.50	2	4	8.6	5	poor	inadequate	v poor
13030750	A	Dawson	-24.61	150.45	subartesian	existing	8.40	2	4	8.6	5	poor	inadequate	v poor
13030751	A	Dawson	-24.23	150.39	subartesian	existing	16.00	5	9	2.8	0	poor	v poor	poor
13030752	A	Dawson	-24.24	150.37	subartesian	existing	13.70	2	4	8.6	5	poor	inadequate	v poor
13030753	A	Dawson	-24.22	150.41	subartesian	existing	17.90	2	4	8.6	5	poor	inadequate	v poor
13030754	A	Dawson	-24.19	150.37	subartesian	existing	15.00	1	1		8	poor	inadequate	v poor
13030755	A	Dawson	-24.18	150.34	subartesian	existing	13.50	2	4	8.6	5	poor	inadequate	v poor
13030756	A	Dawson	-24.20	150.35	subartesian	existing	12.30					excellent	inadequate	poor
13030757	A	Dawson	-24.20	150.34	subartesian	existing	13.70	2	4	8.6	5	poor	inadequate	v poor
13030758	A	Dawson	-24.18	150.37	subartesian	existing	13.30	2	4	8.6	5	poor	inadequate	v poor
13030759	A	Dawson	-24.13	150.41	subartesian	existing	20.00	2	4	8.6	5	poor	inadequate	v poor
13030760	A	Dawson	-24.15	150.40	subartesian	existing	18.20	2	4	8.6	5	poor	inadequate	v poor
13030761	A	Dawson	-24.16	150.35	subartesian	existing	13.00	2	4	8.6	5	poor	inadequate	v poor
13030762	A	Dawson	-24.15	150.36	subartesian	existing	12.20	2	4	8.6	5	poor	inadequate	v poor
13030763	A	Dawson	-24.14	150.37	subartesian	existing	17.80	2	4	8.6	5	poor	inadequate	v poor
13030764	A	Dawson	-24.13	150.36	subartesian	existing	17.40	2	4	8.6	5	poor	inadequate	v poor
13030765	A	Dawson	-24.09	150.27	subartesian	existing	10.40	3	3	32.7	8	poor	inadequate	v poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030766	A	Dawson	-24.13	150.29	subartesian	existing	14.40	6	11	2.3	0	poor	v poor	poor
13030767	A	Dawson	-24.01	150.28	subartesian	existing	13.80	2	4	8.6	5	v poor	inadequate	v poor
13030768	A	Dawson	-24.05	150.28	subartesian	existing	14.00	3	6	5.7	5	poor	inadequate	v poor
13030769	A	Dawson	-24.08	150.29	subartesian	existing	13.70	3	5	6.9	5	poor	inadequate	v poor
13030770	A	Dawson	-24.41	150.47	subartesian	existing	15.20	4	6	4.2	1	v poor	v poor	poor
13030771	A	Dawson	-24.38	150.44	subartesian	existing	16.00	3	5	5.0	2	v poor	inadequate	v poor
13030772	A	Dawson	-24.35	150.43	subartesian	existing	16.10	6	8	4.0	0	v poor	v poor	poor
13030773	A	Dawson	-24.27	150.40	subartesian	existing	16.50	3	5	6.3	2	v poor	inadequate	v poor
13030774	A	Dawson	-24.22	150.40	subartesian	existing	15.20	2	2	46.7	5	v poor	inadequate	v poor
13030775	A	Dawson	-24.24	150.37	subartesian	existing	16.20	6	8	4.0	0	v poor	v poor	poor
13030776	A	Dawson	-24.17	150.34	subartesian	existing	15.40	2	2	46.6	5	v poor	inadequate	v poor
13030777	A	Dawson	-24.12	150.30	subartesian	existing	14.00	5	7	4.6	0	v poor	v poor	poor
13030778	A	Dawson	-24.11	150.32	subartesian	existing	18.10	4	7	4.6	0	v poor	v poor	poor
13030779	A	Dawson	-24.10	150.33	subartesian	existing	13.30	3	5	6.4	2	v poor	inadequate	v poor
13030780	A	Dawson	-23.97	150.30	subartesian	existing	14.20					poor	inadequate	v poor
13030781	A	Dawson	-23.98	150.27	subartesian	existing	14.60	3	8	3.5	0	v poor	inadequate	v poor
13030782	A	Dawson	-23.97	150.27	subartesian	existing	15.70	5	8	3.5	0	v poor	v poor	poor
13030783	A	Dawson	-23.91	150.28	subartesian	existing	12.93					moderate	inadequate	v poor
13030784	A	Dawson	-23.93	150.25	subartesian	existing	13.40	3	8	3.5	0	v poor	inadequate	v poor
13030785	A	Dawson	-23.88	150.25	subartesian	existing	19.00	3	8	3.6	0	v poor	inadequate	v poor
13030786	A	Dawson	-23.88	150.24	subartesian	existing	15.40	3	8	3.5	0	v poor	inadequate	v poor
13030787	A	Dawson	-23.87	150.23	subartesian	existing	13.80	1	1		6	v poor	inadequate	v poor
13030788	A	Dawson	-23.87	150.22	subartesian	existing	16.85					excellent	inadequate	poor
13030789	A	Dawson	-23.90	150.21	subartesian	existing	11.60	3	6	4.6	1	v poor	inadequate	v poor
13030790	A	Dawson	-23.92	150.19	subartesian	existing	14.30	2	5	5.6	2	v poor	inadequate	v poor
13030791	A	Dawson	-23.93	150.21	subartesian	existing	15.60	4	8	3.5	0	v poor	v poor	poor
13030792	A	Dawson	-24.31	150.41	subartesian	existing	11.40					excellent	inadequate	poor
13030796	A	Dawson	-25.47	150.13	subartesian	existing	83.50					poor	inadequate	v poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030797	A	Dawson	-25.46	150.12	subartesian	existing	109.00					poor	inadequate	v poor
13030798	A	Dawson	-25.45	150.12	subartesian	existing	106.80					v poor	inadequate	v poor
13030799	A	Dawson	-25.44	150.11	subartesian	existing	91.00					poor	inadequate	v poor
13030800	A	Dawson	-25.43	150.09	subartesian	existing	89.00					v poor	inadequate	v poor
13030806	A	Dawson	-26.35	150.06	subartesian	existing	12.09	2	1		6	inadequate	inadequate	inadequate
13030807	A	Dawson	-26.35	150.06	subartesian	existing	4.29					good	inadequate	poor
13030808	A	Dawson	-26.27	149.84	subartesian	existing	10.24	2	1		6	inadequate	inadequate	inadequate
13030809	A	Dawson	-26.23	149.83	subartesian	existing	38.37	2	1		6	inadequate	inadequate	inadequate
13030810	A	Dawson	-26.23	149.83	subartesian	existing	9.37					good	inadequate	poor
13030811	A	Dawson	-25.94	149.82	subartesian	existing	18.90	2	1		6	inadequate	inadequate	inadequate
13030812	A	Dawson	-25.97	149.40	subartesian	existing	42.79	2	1		6	inadequate	inadequate	inadequate
13030813	A	Dawson	-25.87	149.53	subartesian	existing	19.84	2	1		6	inadequate	inadequate	inadequate
13030814	A	Dawson	-25.74	149.73	subartesian	existing	52.37	2	1		6	inadequate	inadequate	inadequate
13030815	A	Dawson	-25.50	149.59	subartesian	existing	16.40	2	1		6	inadequate	inadequate	inadequate
13030816	A	Dawson	-25.50	149.59	subartesian	existing	46.40	2	1		6	inadequate	inadequate	inadequate
13030817	A	Dawson	-25.54	149.71	subartesian	existing	13.90	2	1		6	inadequate	inadequate	inadequate
13030818	A	Dawson	-24.97	150.14	subartesian	existing	13.74	2	4	8.1	3	v poor	inadequate	v poor
13030819	A	Dawson	-24.97	150.14	subartesian	existing	6.73	2	4	8.1	3	v poor	inadequate	v poor
13030820	A	Dawson	-24.97	150.14	subartesian	existing	10.26	4	4	8.1	3	v poor	v poor	poor
13030821	A	Dawson	-24.97	150.13	subartesian	existing	33.90	3	4	8.1	3	v poor	inadequate	v poor
13030822	A	Dawson	-24.75	150.15	subartesian	existing	15.40	2	4	8.4	3	v poor	inadequate	v poor
13030823	A	Dawson	-25.12	150.06	subartesian	existing	58.40	2	4	8.4	3	v poor	inadequate	v poor
13030824	A	Dawson	-25.12	150.06	subartesian	unused	14.40					good	inadequate	poor
13030825	A	Dawson	-24.81	149.80	subartesian	existing	39.30	2	4	8.4	3	v poor	inadequate	v poor
13030826	A	Dawson	-24.90	150.45	subartesian	existing	33.40	1	1		3	v poor	inadequate	v poor
13030827	A	Dawson	-24.42	150.15	subartesian	existing	17.40	2	4	8.4	3	v poor	inadequate	v poor
13030837	A	Dawson	-24.35	149.41	subartesian	existing	42.50	2	1		6	v poor	inadequate	v poor
13030841	A	Dawson	-23.74	149.89	subartesian	existing	20.50	3	4	8.2	3	v poor	inadequate	v poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13030842	A	Dawson	-23.88	149.84	subartesian	existing	19.50					good	inadequate	poor
13030846	A	Dawson	-23.91	150.18	subartesian	unused	44.42	3	7	4.8	0	v poor	inadequate	v poor
13030847	A	Dawson	-24.03	150.36	subartesian	existing	70.40	2	1		6	v poor	inadequate	v poor
13030848	A	Dawson	-24.08	150.23	subartesian	unused	59.40					good	inadequate	poor
13030849	A	Dawson	-24.27	150.33	subartesian	unused	33.40	1	1		3	v poor	inadequate	v poor
13030850	A	Dawson	-24.27	150.33	subartesian	unused	10.90					good	inadequate	poor
13030851	A	Dawson	-24.33	150.51	subartesian	existing	22.40	2	4	8.4	3	v poor	inadequate	v poor
13030853	A	Dawson	-24.51	150.51	subartesian	existing	15.90	2	1		6	v poor	inadequate	v poor
13030854	A	Dawson	-24.33	150.51	subartesian	existing	89.40	1	1		6	inadequate	inadequate	inadequate
13030856	A	Dawson	-24.35	150.68	subartesian	existing	27.85	2	1		1	inadequate	inadequate	inadequate
13030859	A	Dawson	-24.40	150.70	subartesian	existing	27.55	3	2		0	inadequate	inadequate	inadequate
13030862	A	Dawson	-24.55	150.70	subartesian	existing	60.57	1	1		0	inadequate	inadequate	inadequate
13030863	A	Dawson	-24.55	150.70	subartesian	existing	34.50	1	1		0	inadequate	inadequate	inadequate
13030865	A	Dawson			subartesian	existing	36.53	1	1		0	inadequate	inadequate	inadequate
13030866	A	Dawson			subartesian	existing	23.52	1	1		0	inadequate	inadequate	inadequate
13030867	A	Dawson	-24.47	150.64	subartesian	existing	43.57	2	1		0	inadequate	inadequate	inadequate
13030870	A	Dawson	-24.16	150.24	subartesian	existing	66.05	1	1		0	inadequate	inadequate	inadequate
13030880	A	Dawson	-23.95	150.24	subartesian	existing	14.00	1	1		0	inadequate	inadequate	inadequate
13030881	A	Dawson	-23.97	150.25	subartesian	existing	13.90	1	1		0	inadequate	inadequate	inadequate
13040001	A	Isaac	-21.75	148.68	subartesian	existing	14.90	2	2	99.0	21	good	inadequate	poor
13040002	A	Isaac	-21.78	148.68	subartesian	existing	25.30	14	24	0.5	12	good	v poor	poor
13040003	A	Isaac	-21.79	148.77	subartesian	gone	28.10	9	24	0.4	12	v poor	v poor	poor
13040004	A	Isaac	-21.81	148.76	subartesian	unused	20.40	8	15	0.8	21	v poor	v poor	poor
13040005	A	Isaac	-21.81	148.77	subartesian	unused	27.10	11	24	0.5	12	v poor	v poor	poor
13040006	A	Isaac	-21.81	148.78	subartesian	gone	24.20	13	24	0.5	12	v poor	v poor	poor
13040007	A	Isaac	-21.82	148.74	subartesian	unused	25.00	4	15	0.5	21	moderate	v poor	poor
13040008	A	Isaac	-21.82	148.75	subartesian	unused	30.80	12	15	0.8	21	good	v poor	poor
13040009	A	Isaac	-21.82	148.75	subartesian	unused	24.10	12	15	0.8	21	good	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13040010	A	Isaac	-21.82	148.77	subartesian	unused	24.40	12	15	0.8	21	good	v poor	poor
13040011	A	Isaac	-21.82	148.78	subartesian	gone	20.30	6	15	0.6	21	v poor	v poor	poor
13040012	A	Isaac	-21.83	148.74	subartesian	existing	24.70	12	28	0.3	8	good	poor	moderate
13040013	A	Isaac	-21.84	148.73	subartesian	unused	24.10	11	15	0.8	21	good	v poor	poor
13040014	A	Isaac	-21.84	148.74	subartesian	existing	25.00	11	15	0.8	21	good	v poor	poor
13040015	A	Isaac	-21.84	148.76	subartesian	existing	23.80	7	15	0.8	21	good	v poor	poor
13040016	A	Isaac	-21.84	148.77	subartesian	existing	18.30	4	3	32.8	21	good	v poor	poor
13040017	A	Isaac	-21.88	148.77	subartesian	existing	27.80	9	15	0.8	21	good	v poor	poor
13040021	A	Isaac	-21.56	149.01	subartesian	gone		1	1		42	inadequate	inadequate	inadequate
13040023	A	Isaac	-21.62	149.02	subartesian	gone	19.20	2	1		42	v poor	inadequate	v poor
13040025	A	Isaac	-21.47	148.81	subartesian	gone	13.10	6	21	0.2	22	v poor	v poor	poor
13040026	A	Isaac	-21.47	148.81	subartesian	gone	19.00	19	31	0.3	12	moderate	v poor	poor
13040028	A	Isaac	-21.68	148.69	subartesian	existing	16.80	8	44	0.1	0	excellent	poor	moderate
13040029	A	Isaac	-21.68	148.68	subartesian	existing	18.00	16	44	0.2	0	excellent	poor	moderate
13040032	A	Isaac	-21.68	148.68	subartesian	gone	18.30	1	1		40	inadequate	inadequate	inadequate
13040033	A	Isaac	-21.68	148.68	subartesian	gone		1	1		42	inadequate	inadequate	inadequate
13040034	A	Isaac	-21.69	148.68	subartesian	existing	18.50	7	16	0.7	8	good	v poor	poor
13040036	A	Isaac	-21.70	148.69	subartesian	gone	18.90	16	31	0.4	7	poor	poor	poor
13040037	A	Isaac	-21.70	148.69	subartesian	unused	18.30	12	26	0.4	12	v poor	v poor	poor
13040038	A	Isaac	-21.70	148.69	subartesian	gone		2	1		37	inadequate	inadequate	inadequate
13040039	A	Isaac	-21.70	148.69	subartesian	existing	19.20	7	26	0.4	12	good	v poor	poor
13040040	A	Isaac	-21.70	148.68	subartesian	gone	15.90					inadequate	inadequate	inadequate
13040042	A	Isaac	-21.72	148.69	subartesian	gone	21.40	4	7	2.6	17	v poor	v poor	poor
13040045	A	Isaac	-21.72	148.68	subartesian	gone	21.20	5	16	0.4	22	v poor	v poor	poor
13040046	A	Isaac	-21.73	148.67	subartesian	gone	22.00	5	16	0.5	22	v poor	v poor	poor
13040050	A	Isaac	-21.77	148.76	subartesian	existing	38.40	18	35	0.3	8	good	poor	moderate
13040053	A	Isaac	-21.78	148.75	subartesian	existing	27.50	19	31	0.4	12	good	v poor	poor
13040054	A	Isaac	-21.78	148.75	subartesian	gone		1	1		40	inadequate	inadequate	inadequate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13040055	A	Isaac	-21.78	148.74	subartesian	existing	29.00	33	44	0.3	0	good	moderate	good
13040056	A	Isaac	-21.80	148.70	subartesian	unused	23.20	13	31	0.2	12	poor	v poor	poor
13040059	A	Isaac	-21.80	148.70	subartesian	gone		1	1		40	inadequate	inadequate	inadequate
13040064	A	Isaac	-21.80	148.70	subartesian	gone	23.20	5	3	63.8	21	poor	inadequate	v poor
13040065	A	Isaac	-21.80	148.69	subartesian	existing	27.50	31	44	0.2	0	good	moderate	good
13040066	A	Isaac	-21.81	148.68	subartesian	gone		1	1		42	inadequate	inadequate	inadequate
13040068	A	Isaac	-21.83	148.77	subartesian	existing	17.70	6	18	0.4	21	good	v poor	poor
13040069	A	Isaac	-21.83	148.76	subartesian	existing	30.50	30	40	0.2	0	excellent	moderate	excellent
13040070	A	Isaac	-21.83	148.76	subartesian	unused	29.00	17	19	0.6	21	v poor	v poor	poor
13040071	A	Isaac	-21.83	148.76	subartesian	unused	22.30	18	18	0.7	21	v poor	v poor	poor
13040073	A	Isaac	-21.82	148.76	subartesian	existing	21.30	7	18	0.7	21	good	v poor	poor
13040078	A	Isaac	-21.84	148.75	subartesian	unused	23.40	7	17	0.4	21	v poor	v poor	poor
13040079	A	Isaac	-21.83	148.75	subartesian	unused	24.70	17	16	0.7	22	good	v poor	poor
13040080	A	Isaac	-21.83	148.75	subartesian	gone	27.50	1	1		37	inadequate	inadequate	inadequate
13040081	A	Isaac	-21.83	148.75	subartesian	existing	22.30	14	18	0.7	21	good	v poor	poor
13040082	A	Isaac	-21.82	148.76	subartesian	existing	24.40	8	18	0.7	21	good	v poor	poor
13040085	A	Isaac	-21.92	148.84	subartesian	existing	16.50	24	38	0.3	2	good	moderate	good
13040086	A	Isaac	-21.92	148.83	subartesian	existing	19.80	23	38	0.1	2	good	moderate	good
13040087	A	Isaac	-21.92	148.82	subartesian	existing	17.70	21	19	0.7	21	good	v poor	poor
13040088	A	Isaac	-21.92	148.81	subartesian	existing	21.70	9	38	0.1	2	moderate	poor	moderate
13040089	A	Isaac	-21.92	148.80	subartesian	existing	43.30	19	22	0.6	21	good	v poor	poor
13040090	A	Isaac	-21.92	148.80	subartesian	existing	18.00	25	22	0.6	21	good	v poor	poor
13040091	A	Isaac	-21.92	148.80	subartesian	existing	33.20	24	22	0.6	21	good	v poor	poor
13040092	A	Isaac	-21.92	148.79	subartesian	unused	22.00	11	31	0.3	12	good	v poor	poor
13040093	A	Isaac	-21.92	148.79	subartesian	existing	32.60	24	31	0.4	12	good	v poor	poor
13040094	A	Isaac	-21.92	148.79	subartesian	gone		14	10	3.1	33	inadequate	v poor	v poor
13040098	A	Isaac	-21.96	148.86	subartesian	existing	18.60	7	11	1.1	22	moderate	v poor	poor
13040099	A	Isaac	-21.96	148.86	subartesian	gone		3	1		40	inadequate	inadequate	inadequate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13040100	A	Isaac	-21.96	148.84	subartesian	existing	19.80	12	27	0.4	12	good	v poor	poor
13040101	A	Isaac	-21.95	148.83	subartesian	existing	19.20	5	10	1.2	22	moderate	v poor	poor
13040102	A	Isaac	-21.96	148.82	subartesian	unused	33.20	9	31	0.2	12	v poor	v poor	poor
13040105	A	Isaac	-21.95	148.82	subartesian	gone		1	1		41	inadequate	inadequate	inadequate
13040107	A	Isaac	-21.95	148.82	subartesian	gone	21.90	15	18	0.7	22	v poor	v poor	poor
13040109	A	Isaac	-21.61	148.50	subartesian	gone		1	1		40	inadequate	inadequate	inadequate
13040112	A	Isaac	-21.87	148.58	subartesian	existing	25.50	17	31	0.4	12	good	v poor	poor
13040116	A	Isaac			subartesian	unused	13.70	1	1		40	inadequate	inadequate	inadequate
13040117	A	Isaac	-22.01	148.90	subartesian	existing	18.90	22	40	0.3	2	good	moderate	good
13040118	A	Isaac	-22.01	148.89	subartesian	gone	22.90					inadequate	inadequate	inadequate
13040119	A	Isaac	-22.00	148.88	subartesian	unused	26.80	11	34	0.3	8	moderate	poor	moderate
13040120	A	Isaac	-22.00	148.87	subartesian	existing	16.20	18	31	0.4	2	good	moderate	good
13040121	A	Isaac	-22.00	148.86	subartesian	existing	29.00	28	38	0.3	2	good	moderate	good
13040123	A	Isaac	-22.00	148.85	subartesian	existing	16.20	20	31	0.4	2	good	moderate	good
13040124	A	Isaac	-22.00	148.85	subartesian	existing	29.90	20	40	0.3	2	good	moderate	good
13040125	A	Isaac	-22.00	148.84	subartesian	existing	16.80	17	18	2.1	7	moderate	poor	moderate
13040126	A	Isaac	-22.00	148.84	subartesian	existing	29.30	15	40	0.1	2	good	poor	moderate
13040127	A	Isaac	-22.00	148.83	subartesian	existing	29.60	23	30	0.3	12	excellent	v poor	poor
13040128	A	Isaac	-22.00	148.83	subartesian	gone		2	1		40	inadequate	inadequate	inadequate
13040129	A	Isaac	-22.00	148.82	subartesian	unused	19.80	20	17	0.7	22	v poor	v poor	poor
13040130	A	Isaac	-22.00	148.82	subartesian	unused	34.75	21	20	0.6	22	v poor	v poor	poor
13040131	A	Isaac	-21.99	148.81	subartesian	existing	31.40	9	18	0.6	22	good	v poor	poor
13040132	A	Isaac	-22.00	148.80	subartesian	existing	30.50	20	30	0.3	12	good	v poor	poor
13040133	A	Isaac	-22.01	148.80	subartesian	existing	24.50	16	30	0.3	12	good	v poor	poor
13040134	A	Isaac	-22.01	148.80	subartesian	gone	17.70	9	20	0.3	22	poor	v poor	poor
13040135	A	Isaac	-22.03	148.79	subartesian	existing	17.70	11	20	0.4	22	moderate	v poor	poor
13040137	A	Isaac	-22.13	148.90	subartesian	existing	14.90	24	40	0.3	2	good	moderate	good
13040138	A	Isaac	-22.14	148.90	subartesian	existing	23.50	31	36	0.3	6	good	poor	moderate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13040140	A	Isaac	-22.14	148.89	subartesian	existing	18.00	20	40	0.3	2	good	moderate	good
13040141	A	Isaac	-22.15	148.89	subartesian	existing	18.00	23	40	0.3	2	good	moderate	good
13040144	A	Isaac	-22.15	148.89	subartesian	existing	20.70	18	27	0.5	6	moderate	poor	moderate
13040145	A	Isaac	-22.16	148.89	subartesian	existing	17.40	30	38	0.3	2	good	moderate	good
13040146	A	Isaac	-22.16	148.89	subartesian	existing	16.80	15	39	0.2	2	moderate	poor	moderate
13040147	A	Isaac	-22.16	148.89	subartesian	existing	15.90	14	39	0.1	2	moderate	poor	moderate
13040148	A	Isaac	-22.18	149.06	subartesian	existing	18.30	17	31	0.4	2	moderate	moderate	good
13040150	A	Isaac	-22.18	149.05	subartesian	existing	20.10	24	33	0.4	0	moderate	moderate	good
13040154	A	Isaac	-22.30	148.95	subartesian	existing	15.60	21	40	0.3	1	moderate	moderate	good
13040155	A	Isaac	-22.29	148.95	subartesian	existing	14.90	17	24	0.5	8	moderate	poor	moderate
13040156	A	Isaac	-22.29	148.94	subartesian	existing	16.50	18	40	0.3	1	moderate	poor	moderate
13040157	A	Isaac	-22.29	148.94	subartesian	existing	16.80	19	40	0.3	1	moderate	poor	moderate
13040160	A	Isaac	-22.38	149.08	subartesian	existing	11.40					good	inadequate	poor
13040161	A	Isaac	-22.38	149.07	subartesian	existing	14.60	10	18	0.9	6	good	poor	moderate
13040162	A	Isaac	-22.41	148.99	subartesian	existing	29.30	23	20	2.2	7	good	poor	moderate
13040164	A	Isaac	-22.41	148.98	subartesian	existing	16.20	22	36	0.3	6	good	poor	moderate
13040165	A	Isaac	-22.41	148.97	subartesian	existing	16.50	25	36	0.4	6	good	poor	moderate
13040166	A	Isaac	-22.41	148.97	subartesian	gone	15.94	1	1		40	inadequate	inadequate	inadequate
13040167	A	Isaac	-22.41	148.97	subartesian	existing	19.20	34	35	0.4	7	good	poor	moderate
13040168	A	Isaac	-22.41	148.96	subartesian	gone	15.90	10	21	0.6	21	v poor	v poor	poor
13040169	A	Isaac	-22.41	148.96	subartesian	existing	22.30	26	40	0.3	2	good	moderate	good
13040170	A	Isaac	-22.41	148.95	subartesian	gone	14.00	1	1		41	v poor	inadequate	v poor
13040180	A	Isaac	-22.44	148.63	subartesian	existing	28.50	14	33	0.2	6	good	poor	moderate
13040181	A	Isaac	-22.45	148.63	subartesian	gone	18.60	10	23	0.3	16	moderate	v poor	poor
13040183	A	Isaac	-22.46	148.64	subartesian	gone	16.80					v poor	inadequate	v poor
13040184	A	Isaac	-22.46	148.64	subartesian	gone	18.60	1	1		38	v poor	inadequate	v poor
13040185	A	Isaac	-22.41	148.89	subartesian	gone	14.00	1	1		40	v poor	inadequate	v poor
13040186	A	Isaac	-22.41	148.88	subartesian	existing	20.10	27	39	0.3	2	good	moderate	good

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13040187	A	Isaac	-22.54	149.01	subartesian	gone	13.90	2	11	1.0	31	v poor	inadequate	v poor
13040188	A	Isaac	-22.54	149.00	subartesian	gone	15.70	3	39	0.1	3	v poor	v poor	poor
13040189	A	Isaac	-22.54	148.96	subartesian	gone	17.10	1	1		41	inadequate	inadequate	inadequate
13040191	A	Isaac	-22.70	149.19	subartesian	existing	14.30	21	30	0.4	2	good	moderate	good
13040192	A	Isaac	-22.71	149.19	subartesian	existing	15.90	33	33	0.4	0	excellent	good	excellent
13040193	A	Isaac	-22.71	149.19	subartesian	gone	18.30	9	15	0.9	18	moderate	v poor	poor
13040195	A	Isaac	-22.71	149.18	subartesian	existing	11.90	25	36	0.4	6	excellent	poor	moderate
13040196	A	Isaac	-22.71	149.18	subartesian	existing	16.50	16	39	0.3	3	good	poor	moderate
13040197	A	Isaac	-22.72	149.17	subartesian	unused	14.60	6	20	0.5	22	moderate	v poor	poor
13040198	A	Isaac	-22.72	149.17	subartesian	gone	13.00	1	1		40	inadequate	inadequate	inadequate
13040202	A	Isaac	-21.81	148.77	subartesian	gone	24.70	1	1		35	inadequate	inadequate	inadequate
13040203	A	Isaac	-21.82	148.76	subartesian	gone	24.40	1	1		35	v poor	inadequate	v poor
13040205	A	Isaac	-21.84	148.73	subartesian	gone		1	1		35	inadequate	inadequate	inadequate
13040207	A	Isaac	-21.83	148.74	subartesian	gone	31.10					excellent	inadequate	poor
13040208	A	Isaac	-21.84	148.76	subartesian	gone						inadequate	inadequate	inadequate
13040209	A	Isaac	-21.84	148.76	subartesian	unused	16.80	6	11	1.1	21	v poor	v poor	poor
13040210	A	Isaac	-21.84	148.76	subartesian	existing	15.20	8	12	1.0	21	good	v poor	poor
13040211	A	Isaac	-21.84	148.75	subartesian	unused	21.60	9	13	0.9	21	good	v poor	poor
13040212	A	Isaac	-21.85	148.75	subartesian	unused	21.50	7	12	1.0	21	v poor	v poor	poor
13040213	A	Isaac	-21.85	148.74	subartesian	existing	22.60	11	14	0.9	21	good	v poor	poor
13040214	A	Isaac	-21.85	148.74	subartesian	unused	29.70	8	13	0.9	21	v poor	v poor	poor
13040215	A	Isaac	-21.85	148.76	subartesian	unused	12.50					excellent	inadequate	poor
13040216	A	Isaac	-21.85	148.76	subartesian	existing	25.00	5	4	22.6	31	good	v poor	poor
13040217	A	Isaac	-21.85	148.75	subartesian	unused	25.00	11	14	0.9	21	good	v poor	poor
13040218	A	Isaac	-21.86	148.75	subartesian	existing	27.70	23	35	0.2	0	good	moderate	good
13040219	A	Isaac	-21.85	148.73	subartesian	unused	31.40	6	14	0.8	21	v poor	v poor	poor
13040221	A	Isaac	-21.86	148.76	subartesian	existing	18.00	6	11	1.1	21	good	v poor	poor
13040222	A	Isaac	-21.86	148.76	subartesian	existing	24.70	9	14	0.9	21	good	v poor	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13040223	A	Isaac	-21.86	148.75	subartesian	unused	23.20	8	13	0.9	22	poor	v poor	poor
13040224	A	Isaac	-21.87	148.75	subartesian	unused	28.30	9	14	0.9	21	good	v poor	poor
13040226	A	Isaac	-21.86	148.77	subartesian	unused	12.80	4	3	33.2	21	v poor	v poor	poor
13040227	A	Isaac	-21.86	148.77	subartesian	existing	18.90	8	23	0.5	12	good	v poor	poor
13040228	A	Isaac	-21.87	148.76	subartesian	existing	26.80	7	35	0.1	0	good	v poor	poor
13040229	A	Isaac	-21.87	148.76	subartesian	existing	23.80	9	13	0.9	21	good	v poor	poor
13040230	A	Isaac	-21.87	148.75	subartesian	unused	23.20	10	14	0.9	21	v poor	v poor	poor
13040231	A	Isaac	-21.86	148.74	subartesian	unused	28.00	10	14	0.9	21	good	v poor	poor
13040233	A	Isaac	-21.87	148.77	subartesian	existing	20.10	5	3	63.8	21	good	inadequate	poor
13040234	A	Isaac	-21.87	148.77	subartesian	existing	21.60	6	11	1.1	21	good	v poor	poor
13040235	A	Isaac	-21.88	148.76	subartesian	existing	28.00	9	13	0.9	21	good	v poor	poor
13040236	A	Isaac	-21.88	148.76	subartesian	unused	28.30	8	13	0.9	21	v poor	v poor	poor
13040237	A	Isaac	-21.86	148.74	subartesian	existing	20.70					excellent	inadequate	poor
13040238	A	Isaac	-21.88	148.75	subartesian	existing	23.80	9	14	0.9	21	good	v poor	poor
13040241	A	Isaac	-21.84	148.73	subartesian	existing	3.20					excellent	inadequate	poor
13040242	A	Isaac	-21.85	148.74	subartesian	existing	32.00					moderate	inadequate	v poor
13040244	A	Isaac	-21.86	148.75	subartesian	existing	23.50					excellent	inadequate	poor
13040250	A	Isaac	-21.88	148.76	subartesian	existing	20.20	1	1		9	moderate	inadequate	v poor
13040251	A	Isaac	-21.87	148.75	subartesian	existing	23.70					excellent	inadequate	poor
13040254	A	Isaac	-21.86	148.75	subartesian	existing	27.00	8	8	2.8	1	moderate	poor	moderate
13040261	A	Isaac	-21.85	148.75	subartesian	existing	3.00					moderate	inadequate	v poor
13040262	A	Isaac	-21.85	148.75	subartesian	existing	3.00					moderate	inadequate	v poor
13040263	A	Isaac	-21.83	148.76	subartesian	existing	3.00					moderate	inadequate	v poor
13040264	A	Isaac	-21.87	148.76	subartesian	existing	19.00					excellent	inadequate	poor
13040265	A	Isaac	-21.88	148.77	subartesian	existing	21.00					excellent	inadequate	poor
13040275	A	Isaac	-21.73	148.68	subartesian	existing	23.00					excellent	inadequate	poor
13040276	A	Isaac	-21.73	148.67	subartesian	existing	16.00					excellent	inadequate	poor
13040277	A	Isaac	-21.76	148.68	subartesian	existing	31.39					excellent	inadequate	poor

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13040278	A	Isaac	-21.77	148.68	subartesian	existing	16.76	1	1		2	poor	inadequate	v poor
13040279	A	Isaac	-21.78	148.68	subartesian	existing	16.76					excellent	inadequate	poor
13040280	A	Isaac	-21.76	148.68	subartesian	existing	24.38					good	inadequate	poor
13040281	A	Isaac	-21.85	147.95	subartesian	existing	56.60	1	1		5	v poor	inadequate	v poor
13040282	A	Isaac	-22.19	148.02	subartesian	existing	27.36	1	1		3	v poor	inadequate	v poor
13040283	A	Isaac	-22.35	148.24	subartesian	existing	49.57	1	1		3	v poor	inadequate	v poor
13040284	A	Isaac	-22.00	148.16	subartesian	existing	18.30	1	1		5	v poor	inadequate	v poor
13040285	A	Isaac	-22.27	148.84	subartesian	existing	78.30	2	3	18.3	3	v poor	inadequate	v poor
13040286	A	Isaac	-22.26	148.55	subartesian	existing	106.30	2	3	19.5	3	v poor	inadequate	v poor
13040287	A	Isaac	-22.06	148.58	subartesian	existing	60.30	2	3	19.4	3	v poor	inadequate	v poor
13040288	A	Isaac	-21.81	148.66	subartesian	existing	97.30	2	3	18.8	3	v poor	inadequate	v poor
13040289	A	Isaac	-21.81	148.66	subartesian	existing	52.90	2	3	18.8	3	v poor	inadequate	v poor
13040290	A	Isaac	-22.62	148.22	subartesian	existing	67.80	1	1		3	v poor	inadequate	v poor
13040291	A	Isaac	-22.60	148.66	artesian	existing	22.25	2	3	20.0	3	v poor	inadequate	v poor
13040292	A	Isaac	-22.73	149.14	subartesian	existing	81.26	3	3	20.1	3	v poor	inadequate	v poor
13040293	A	Isaac	-22.70	149.07	subartesian	existing	41.25	2	3	19.2	3	v poor	inadequate	v poor
13040294	A	Isaac	-22.70	149.07	subartesian	existing	66.30	2	3	20.2	3	v poor	inadequate	v poor
13040296	A	Isaac	-22.60	149.09	subartesian	existing	75.83	2	4	9.5	2	v poor	inadequate	v poor
13040297	A	Isaac	-22.68	148.87	subartesian	existing	55.23	2	3	20.4	3	v poor	inadequate	v poor
13040298	A	Isaac	-22.85	149.34	subartesian	existing	6.65					inadequate	inadequate	inadequate
13040299	A	Isaac	-22.84	149.32	subartesian	existing	14.65					inadequate	inadequate	inadequate
13040300	A	Isaac	-22.85	149.30	subartesian	existing	11.65					inadequate	inadequate	inadequate
13040301	A	Isaac	-22.85	149.29	subartesian	existing	11.65					inadequate	inadequate	inadequate
13040302	A	Isaac	-22.71	149.19	subartesian	existing	16.65	1	1		0	inadequate	inadequate	inadequate
13040303	A	Isaac	-22.60	149.05	subartesian	existing	15.65					inadequate	inadequate	inadequate
13040304	A	Isaac	-22.61	149.03	subartesian	existing	13.65					inadequate	inadequate	inadequate
13040305	A	Isaac	-22.61	149.03	subartesian	existing	12.15					inadequate	inadequate	inadequate
13040306	A	Isaac	-22.62	149.02	subartesian	existing	14.65					inadequate	inadequate	inadequate

Registered bore number	Pipe	Catchment	Latitude	Longitude	Type of source	Status	Depth of bore (m)	No WQ samples	WQ Range (yrs)	WQ Gap as % of record	Currency (yrs since last WQ)	Rating of WL record	Rating of WQ record	Overall quality of bore record
13040308	A	Isaac	-21.72	148.60	subartesian	existing	23.10	1	1		0	inadequate	inadequate	inadequate
13040311	A	Isaac	-21.72	148.56	subartesian	existing	12.20	1	1		0	inadequate	inadequate	inadequate
13040312	A	Isaac	-21.72	148.53	subartesian	existing	21.00	1	1		0	inadequate	inadequate	inadequate
13040313	A	Isaac	-21.72	148.54	subartesian	existing	40.26	1	1		0	inadequate	inadequate	inadequate
13040314	A	Isaac	-21.72	148.58	subartesian	existing	122.13	1	1		0	inadequate	inadequate	inadequate
13050011	A	Comet	-23.86	148.18	subartesian	existing	26.60	2	2	36.6	3	v poor	inadequate	v poor
13050014	A	Comet	-24.68	148.86	subartesian	existing	27.90	2	2	37.2	3	v poor	inadequate	v poor
13050015	A	Comet	-24.35	148.81	subartesian	existing	73.60	2	1		4	v poor	inadequate	v poor
13050016	A	Comet	-25.02	148.55	subartesian	existing	52.37	2	2	38.5	3	v poor	inadequate	v poor
13050018	A	Comet	-24.11	148.91	subartesian	existing	59.55					good	inadequate	poor
13050019	A	Comet	-23.82	148.58	subartesian	existing	51.35	2	2	39.8	3	v poor	inadequate	v poor
13050020	A	Comet	-23.77	148.43	subartesian	existing	40.05	3	2	40.0	3	v poor	inadequate	v poor
13050021	A	Comet	-24.17	148.45	subartesian	existing	57.00					inadequate	inadequate	inadequate
13050022	A	Comet	-23.97	148.35	subartesian	existing	71.00					inadequate	inadequate	inadequate
13050023	A	Comet	-23.71	148.26	subartesian	existing	63.00					inadequate	inadequate	inadequate
13050024	A	Comet	-23.71	148.26	subartesian	existing	24.00					inadequate	inadequate	inadequate