



Yangery Groundwater Management Plan Annual Report

2010-11

Foreword

This report is submitted to the Minister for Water and the Glenelg Hopkins Catchment Management Authority in accordance with s32C *Water Act 1989*. A copy of this report is available for inspection at the offices of the Authority, and notice of report availability of the report will be published as required by s32D of the *Water Act 1989*.

The purpose of this report is to detail Authority activities administering and enforcing the management plan, and provide information that is required to be reported under the Plan.

Area Summary

Area	Yangery Water Supply Protection Area
Segment	Groundwater
Area Declared	9 February 1999
Plan Approved	1 May 2002
Allocation Limit (Permissible Annual Volume)	14,103ML
Scheduled Plan Review	30 September 2012
Implementation Authority	SRW
Relevant CMA	Glenelg Hopkins Catchment Management Authority
Report Period	1 July 2010 – 30 June 2011

There were no significant issues identified in this report affecting the Plan implementation.

Monitoring and metering indicate no significant changes in the condition of the resource or water usage patterns that require review of the Plan.

Signed



Craig Parker
Acting Chief Executive Officer

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1 Introduction

This report summarises licence information, metered usage and monitoring data collected for the period between July 1st 2010 and June 30th 2011 in accordance with the requirements of the Yangery Groundwater Management Plan (GMP).

The groundwater located in the Yangery Water Supply Protection Area encompasses all aquifers to a depth of 100 meters below the natural surface. These include aquifers associated with the Newer Volcanics, the Port Campbell Limestone, the Hanson Sand plains and costal dune and alluvial deposits. Groundwater within these aquifers is used for irrigation, dairy and stock and domestic purposes.

The Yangery GMP identifies Southern Rural Water (SRW) as the authority responsible for managing and administering the plan.

The objective of this Plan is to make sure that the groundwater resources of the Protection Area are managed in an equitable manner and so as to ensure the long-term sustainability of those resources.

The plan requires SRW to:

- Coordinate and cause to be carried out groundwater level monitoring and metering programs;
- Administer groundwater licensing within the prescriptions of the plan;
- Review and report annually to the Minister administering the Water Act 1989 on the implementation of the plan;
- Seek review of the plan and if, in its opinion, amendments are necessary or desirable, make recommendations to the Minister accordingly.

The success of the Yangery GMP is measured through a number of licensing, metering and monitoring objectives and outcomes.

- All consumptive use to be metered and recorded in line with both State Government and Corporation metering policies;
- Groundwater usage is to be maintained within licence volumes;
- Water levels and water quality (salinity) is to be monitored to maintain acceptable levels and to ensure the long term sustainability of the aquifer(s);
- Trading of existing consumptive use allocations will only occur in accordance with all relevant provisions of the Water Act 1989 and/or any supplementary rules adopted for the Yangery WSPA;
- No new groundwater licences will be issued if the total of all groundwater licence entitlements exceed the PCV declared for the Yangery WSPA.

Further information can be obtained from the Yangery WSPA Groundwater Management Plan. A copy can be found on Southern Rural Water's website: www.srw.com.au.

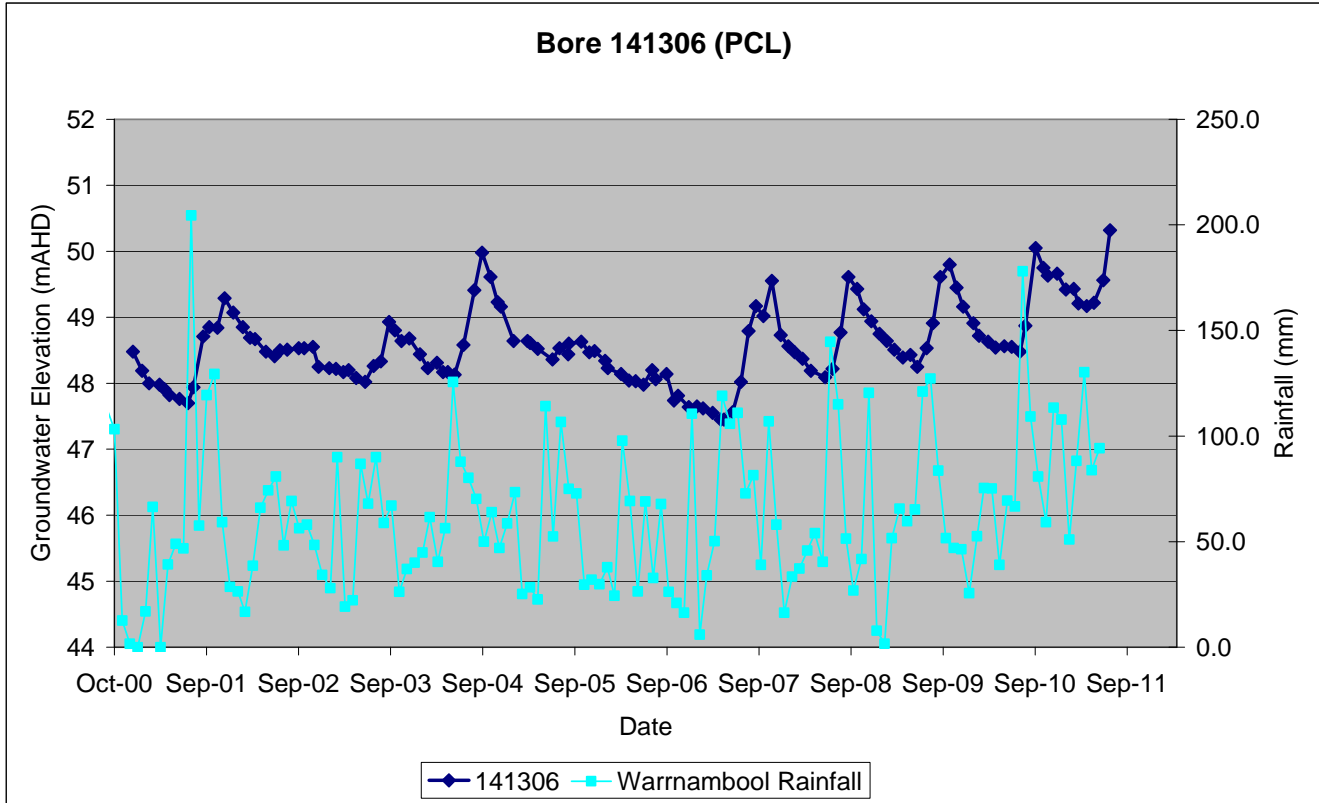


Figure 2: Example hydrograph showing groundwater levels and rainfall.

All hydrographs for observation bores within the Yangery WSPA are presented in appendix 2.

The review of the groundwater level data indicates that:

- Several bores are now showing the highest levels recorded since monitoring began in December 2000; and
- Most bores have are still showing recovery since a historic low in 2007; and
- Groundwater levels in observation bores along the coast are stable to increasing, which reduces the chance of saline intrusion occurring.

2.3 Salinity / Water Quality (If required under the plan)

Salinity is regularly measured at 17 bores within Yangery WSPA. Bores 141300, 141301, 141307, 141311 and 141315 have the highest salinity across the monitored bores, of just over 3,000EC. Seawater has a salinity of around 56,000 EC. There is no evidence of rising salinity in any of the monitored bores. The figure below shows salinity for two coastal bores. Salinity in these bores has remained fairly constant over the past 10 years.

All salinity graphs are presented in appendix 3.

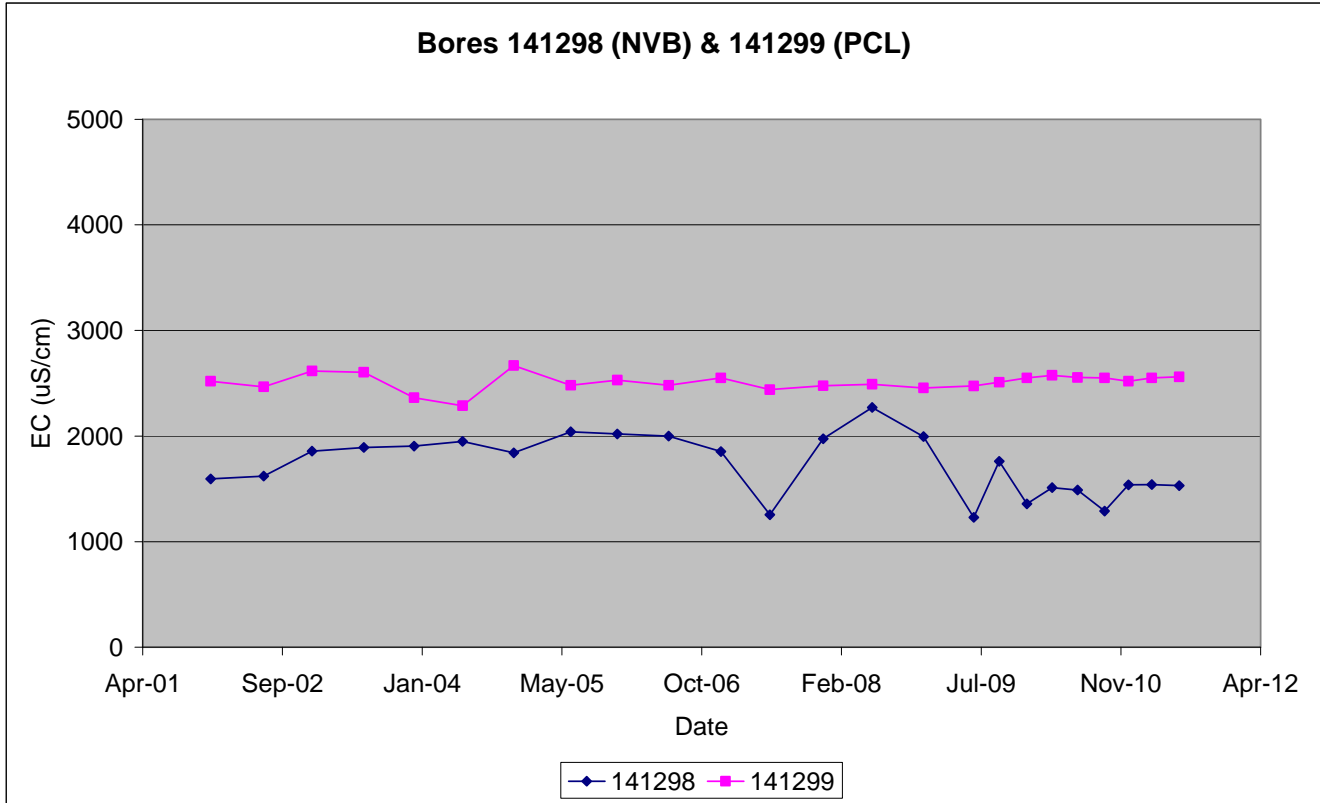


Figure 3: graph showing salinity for two coastal bores in Yangery WSPA.

EC (electrical conductivity) units are microSiemens per centimeter (uS/cm)

2.4 Water Use

The following table provides detail on allocations and water use in the 2010-11 year as compared to four previous years.

At 30 June	2007	2008	2009	2010	2011
No. of licences	164	164	164	162	158
Total allocated volume (ML)	14,457.5	14,535.9	14,103.0	14,100.7	14,099.7
No. of metered licences	104	102	101	105	106
Total volume metered (ML)	11,551.5	11,490	11,475.3	13,018.9	12,983.2
Metered volume used (ML)	7,215.4	3,985.4	4,812.2	4,026.1	1,942.8
Use of allocation (%)	50%	27%	34%	29%	14%
No. of licences with use greater than allocation	23	9	13	19	11
Permissible Consumptive Volume (PCV)	-	14,103.0	14,103.0	14,103.0	14,103.0
Use as a % of PCV	-	28%	34%	29%	14%
No. of D&S bores	-	1,470	1,470	1,470	1,091
D & S bores estimated use*	-	2,940	2,940	2,940	2,182
Estimated D & S use from licenses bores [#]	328	328	328	324	316

*Estimated 2ML per bore

[#]Estimated 2ML per licence

The usage during the reporting period was significantly less than previous years due to the above average rainfall.

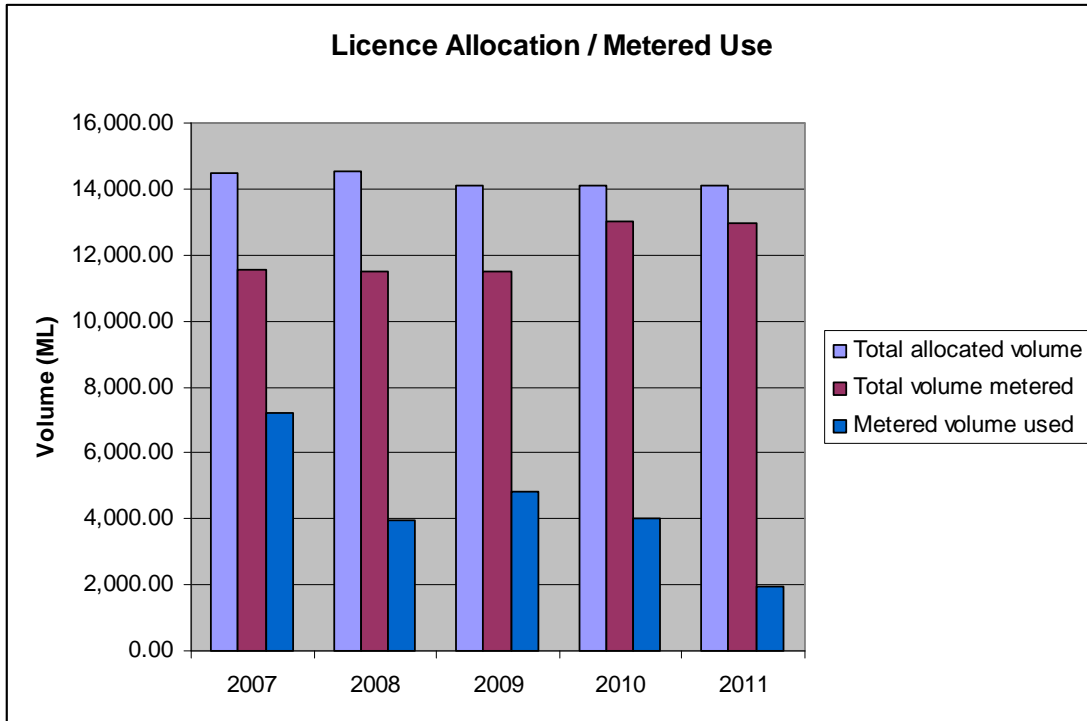


Figure 4: Licence allocation compared to metered volume and usage.

2.5 Non compliance

The following table lists the licences where water was taken in excess of licensed entitlement.

Licence Number	Licence Volume	Amount taken	Amount overused	Comments
BEE022655	1	11.1	10.1	These are all metered dairy bores. The entitlements are currently under review as part of the Dairy Shed Water Licence Transition Program.
BEE022749	1	1.6	0.6	
BEE025535	1	3.6	2.6	
BEE027374	1	2.7	1.7	
BEE027952	1	15.7	14.7	
BEE028625	1	5.1	4.1	
BEE028873	1	7.1	6.1	
BEE029218	1.2	2.6	1.4	
BEE031109	1	1.3	.3	
BEE031261	1	1.5	.5	
BEE032010	1.2	3.1	1.9	
Totals	11.4	55.4	44	

SRW investigates all compliance issues and considers several factors such as the seriousness of the breach and impact on the resource and other users, prior to deciding on the most appropriate action. The action taken by SRW can include the use of direction notices, warning letters and prosecution.

3 Plan Implementation

3.1 Monitoring

3.1.1 Prescriptions

The following table details the requirements of the management plan in relation to monitoring.

Plan Requirement:	Comments:
<p>8.1 Construction and maintenance of monitoring bores The Secretary must for each bore specified in Schedule 2</p> <p>(a) periodically inspect the condition of each bore; and</p> <p>(b) maintain each bore in good condition; and</p> <p>(c) keep a record of all inspections and work undertaken under paragraph (a) or paragraph (b).</p>	<p>The monitoring bores are owned and managed by the Department of Sustainability & Environment (DSE).</p> <p>All bores have minor maintenance carried out annually which includes site clearance, rust removal, painting, and ensuring the bore is secure and safe.</p> <p>The DSE carries out maintenance on bores that have been identified by the field service provider through the Extra Works Advice. This is bore specific.</p>
<p>8.2 Water levels</p> <p>(a) When this Plan commences SRW and the Secretary must continue to implement a water level monitoring program for each bore specified in Schedule 2.</p> <p>(b) The monitoring program requires:</p> <p>(i) the Secretary to determine the potentiometric level in each bore listed in Schedule 2 during February, May, August & November of every year; and</p> <p>(ii) SRW to determine the potentiometric level in each bore in Schedule 2 in every month of the year not mentioned in item subclause 8.2(b)(i); and</p> <p>(iii) the Secretary and SRW, respectively, must record every potentiometric level in each bore on the Groundwater Management System within 30 days after the level is determined.</p>	<p>SRW works closely with the DSE to ensure that the monitoring program meets the requirements of the Plan.</p> <p>If SRW identifies bores of greater interest, monitoring may be undertaken in addition to the DSE's monitoring program.</p> <p>SRW regularly reviews the groundwater level monitoring program and data.</p> <p>All bores in Schedule 2 are monitored. Monitoring is completed monthly in a total of 19 bores</p> <p>Data is uploaded to GMS on a monthly basis</p>
<p>8.3 Water quality</p> <p>(a) When this Plan commences SRW must implement a water quality monitoring program for each bore of Schedule 2.</p> <p>(b) When this Plan commences SRW must implement a water quality monitoring program for each bore referred to in clause 9.1(a).</p>	<p>The number of salinity monitoring points has decreased from 19 to 17. Bores 141304 and 141313 are not sampled at this stage, due to sediment covering the screen.</p> <p>Samples are taken quarterly. Salinity data is uploaded to GMS monthly</p>

<p>(c) The monitoring program requires:</p> <p>(i) SRW to collect and analyse for salinity, a sample of water from each bore of Schedule 2 at least once a year; and</p> <p>(ii) SRW to collect and analyse for salinity, a sample of water from each bore in 8.3 (b) at least once each year; and</p> <p>(iii) SRW must record the results of each sample on the Groundwater Management System within 30 days after the level is determined.</p>	<p>Sampling of licensed bores was conducted in 2009.</p> <p>Due to cost, rate of reply and uncertainties around bore construction, it is not considered viable to sample these bores annually</p>
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3.1.2 Issues Affecting Implementation

Activities under taken during the reporting period generally comply with the requirements of the Plan. The exceptions are that SRW does not take water quality samples from all licenses bores annually. Due to cost, rate of reply and uncertainties around bore construction, it is not considered viable to do so. There were no significant issues identified during the sampling that was conducted in 2009 to suggest that annual water quality sampling was necessary.

3.2 Metering

3.2.1 Prescriptions

The following table details the requirements of the management plan in relation to metering.

Prescription	Comments
<p>9.1 Installation and maintenance of bore meters</p> <p>(a) After this Plan commences SRW must ensure a flow meter is fitted to at least 50% of those licenced bores encompassing at least 75% of the volume set out in column B of schedule 3.</p> <p>(b) When this Plan commences SRW must:</p> <p>(i) periodically inspect the condition of each meter; and</p> <p>(ii) maintain each meter in good operating condition; and</p> <p>(iii) keep a record of all work done under paragraph (i) and (ii).</p>	<p>67% of licences are metered, which equates to 92% of total licenced volume.</p> <p>Meters are visually inspected when they are read each year.</p> <p>A significant meter maintenance/replacement program will commence in 2011/12 to ensure that meters are in good operating order.</p> <p>Maintenance was undertaken of 4 metres during the reporting period. A record of works was kept.</p>
<p>9.2 Meter readings</p> <p>(a) When this Plan commences SRW must implement a bore metering and monitoring program for each bore operating in the Protection Area.</p> <p>(b) The metering program requires SRW to:</p> <p>(i) read each meter to determine the volume and rate of extraction in each bore at least in December, March and June of every</p>	<p>All active licensed bores are metered in accordance with State Government policy and SRW requirements.</p> <p>Meters are read twice per year and the meter readings and usage data are recorded in SRW's metering system. The information in the metering system includes the groundwater licence number, bore number, date of reading and usage.</p>

<p>year; and</p> <p>(ii) record for every bore:</p> <ul style="list-style-type: none"> • the volume and rate of extraction in each bore; and • the Groundwater Management System identification number; and • the groundwater licence number; and • the date on which the meter is read; and • the hours of usage of the pump engine; and • any relevant information about the accuracy of the meter. <p>(c) SRW shall estimate the volume and rate of extraction for any bore where the meter has failed.</p>	
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3.2.2 Compliance and Exceptions

Activities undertaken during the reporting period generally comply with the requirements of the Plan.

The exceptions are that SRW does not record the hours of usage of the pump engine or the rate of extraction from bores. It is not reasonably practical to undertake either of these activities.

Due to the large number of meters and resources, meters are not read three times per year. Meters are read at least twice per year, but a number of larger users may be read more frequently and spot checks occur during the irrigations season. This approach ensures the most appropriate use of SRW's resources.

Since the development of the Plan, metering has advanced significantly in all areas as a result of State Government Policy and SRW requirements. All active bores with a licence volume of 10ML or greater are metered. These metering requirements exceed the intent of the prescriptions in the Plan.

3.2.3 Issues Affecting Implementation

The occurrence of iron bacteria continues to be an issue for meters in the Yangery WSPA. This issue is being addressed by a meter maintenance/replacement program commencing in 2011/12. Electromagnetic meters are also being trialled to determine whether they are more effective in areas that suffer from iron bacteria.

3.2.4 Metering activities

	Year to 30 June 2011	Total for WSPA at 30 June 2011
Number of licences issued	0	158
Number of meters installed	2	179
Meters requiring maintenance	4	
Meters replaced	0	

Meters read (1 – date)	Jan/Feb 2011	
Meters read (2 – date)	May/Jun 2011	
Number of estimated readings	0	

3.3 Restrictions on Licensing and Licence Transfers

3.3.1 Prescriptions

The following table details the requirements of the management plan in relation to licensing

Plan Requirement:	Comments:
10. Restrictions and prohibitions on issuing groundwater licences (a) SRW must not grant a groundwater licence entitlement for any volume of groundwater while the Permissible Annual Volume for the Protection Area is exceeded. (b) The Permissible Annual Volume referred to in 10(a) is detailed in Schedule 3.	No new licences were issued during the reporting period.
11. Extent to which a licence may be transferred Transfer of Water Entitlements to be administered in accordance with the Water Act 1989	Two transfers were processed.
12. Notification of domestic and stock uses The occupier of any bore from which groundwater is taken solely for domestic and stock use must after this Plan commences register their bore(s) with SRW.	No action – this is the responsibility of landowners

3.3.2 Compliance and Exceptions

Activities under taken during the reporting period generally comply with the requirements of the Plan.

3.3.3 Issues Affecting Implementation

No issues to report.

3.4 Licensing Activities

The following table provides details of licensing activities.

Year to 30 June 2011	No.	Volume ML
New licences issued	0	0
Additional volumes on existing licences	0	0
Licences revoked	0	0
Permanent transfers	2	76.0
Temporary transfers	3	70.3

D&S Bores notifying use	0	0
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3.4.1 Issues Affecting Implementation

No issues to report.

4 Conclusions

The objective of this Plan is to make sure that the groundwater resources of the Protection Area are managed in an equitable manner and so as to ensure the long-term sustainability of those resources.

Review of the groundwater level data indicates that:

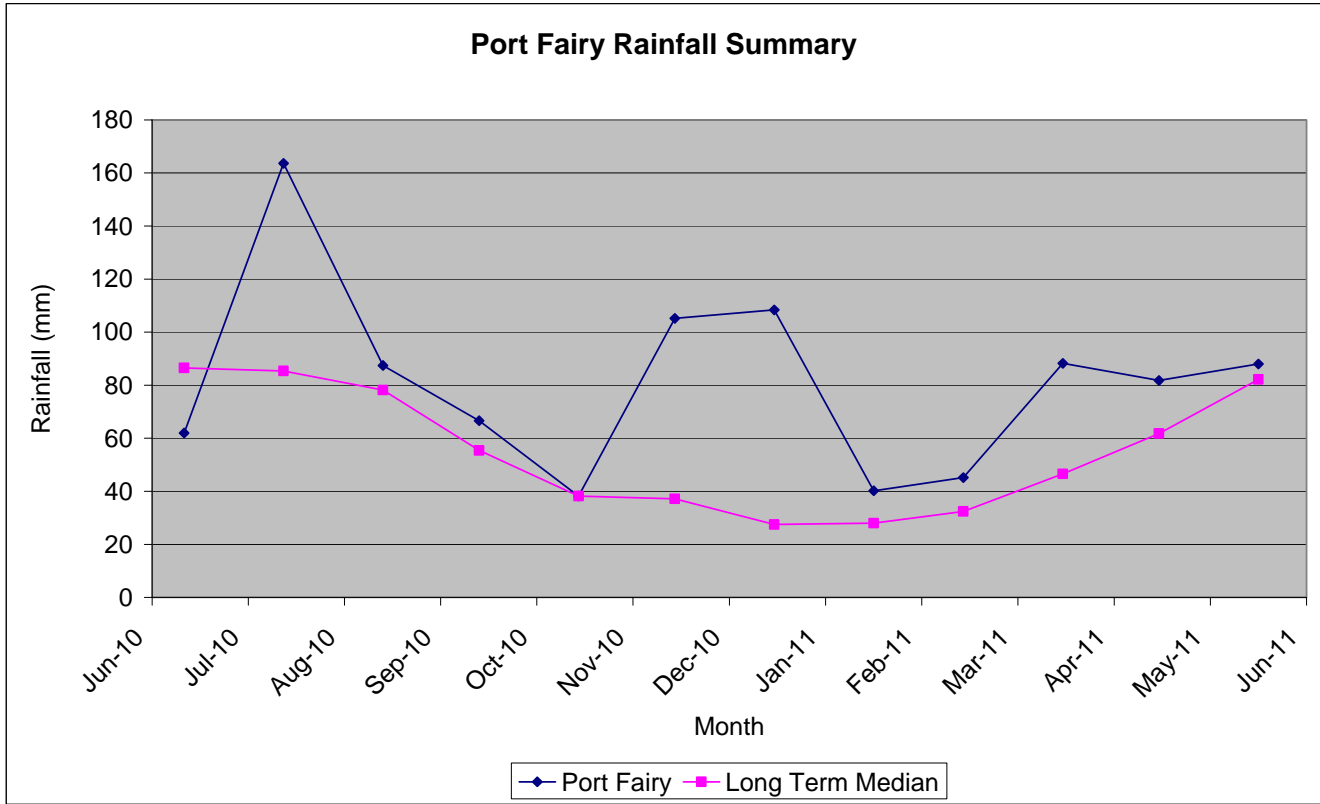
- Several bores are now showing highest levels recorded since monitoring began in December 2000; and
- Most bores are still showing recovery since a historic low in 2007; and
- Groundwater levels in observation bores along the coast are stable to increasing, which reduces the chance of saline intrusion occurring

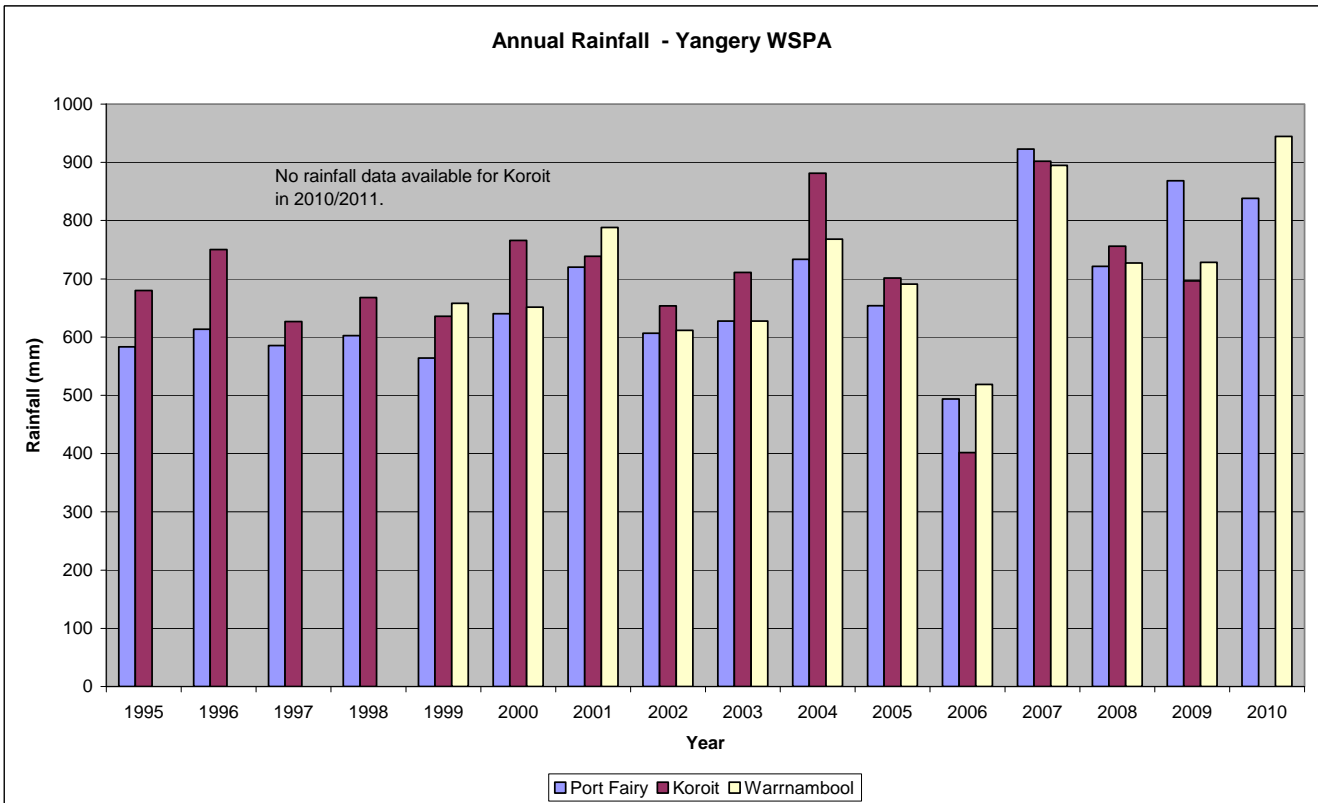
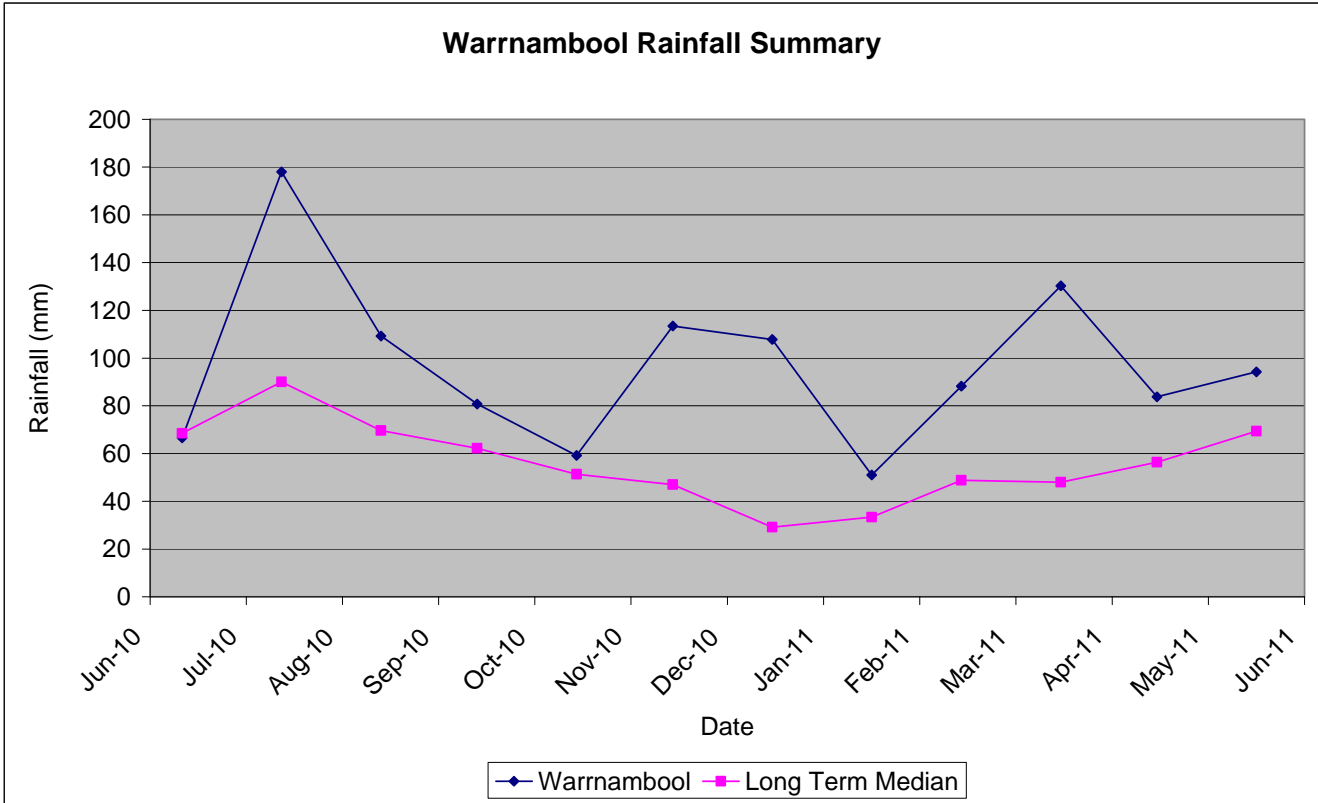
Therefore, it is considered that the groundwater resources of the WSPA are being managed sustainably. A review of the Plan is not proposed at this time.

The DSE is conducting a strategic review of groundwater boundaries across the state to align management units with aquifer boundaries. This review has the support of SRW and endorsement of the Western Sustainable Water Strategy has been sought. SRW believe that the existing Yangery WSPA boundary does not fully encompass the aquifer system. As such it is likely that changes to the boundary and management units could occur in future. SRW will keep the community informed before any changes are made.

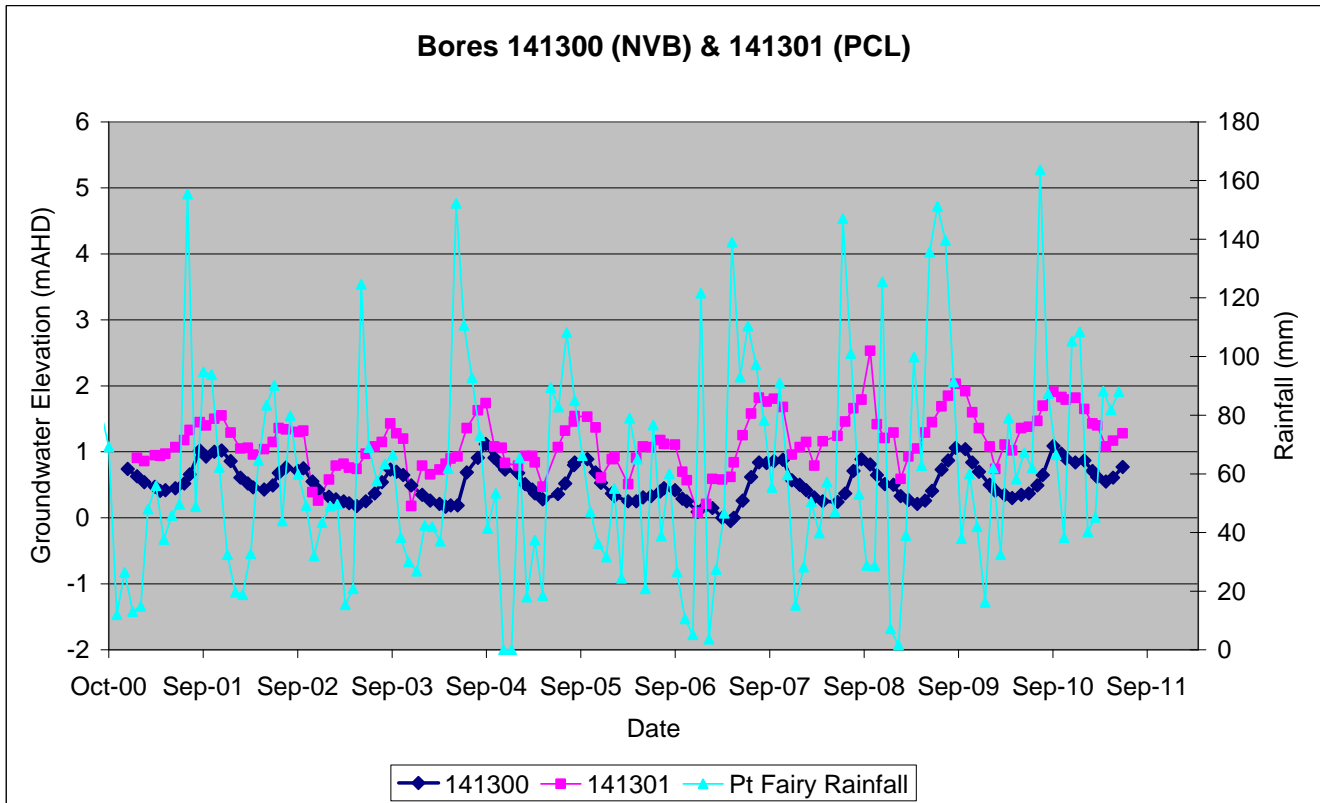
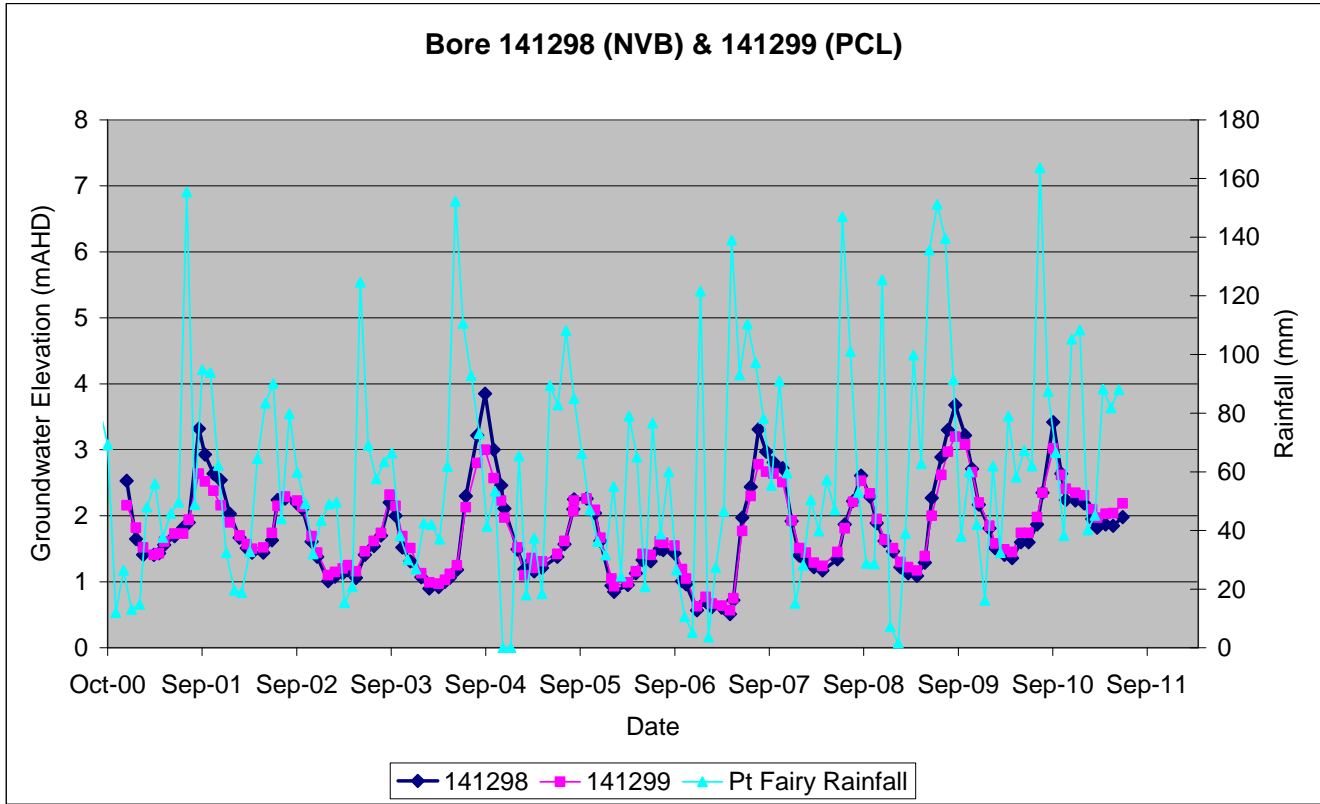
5 Appendices

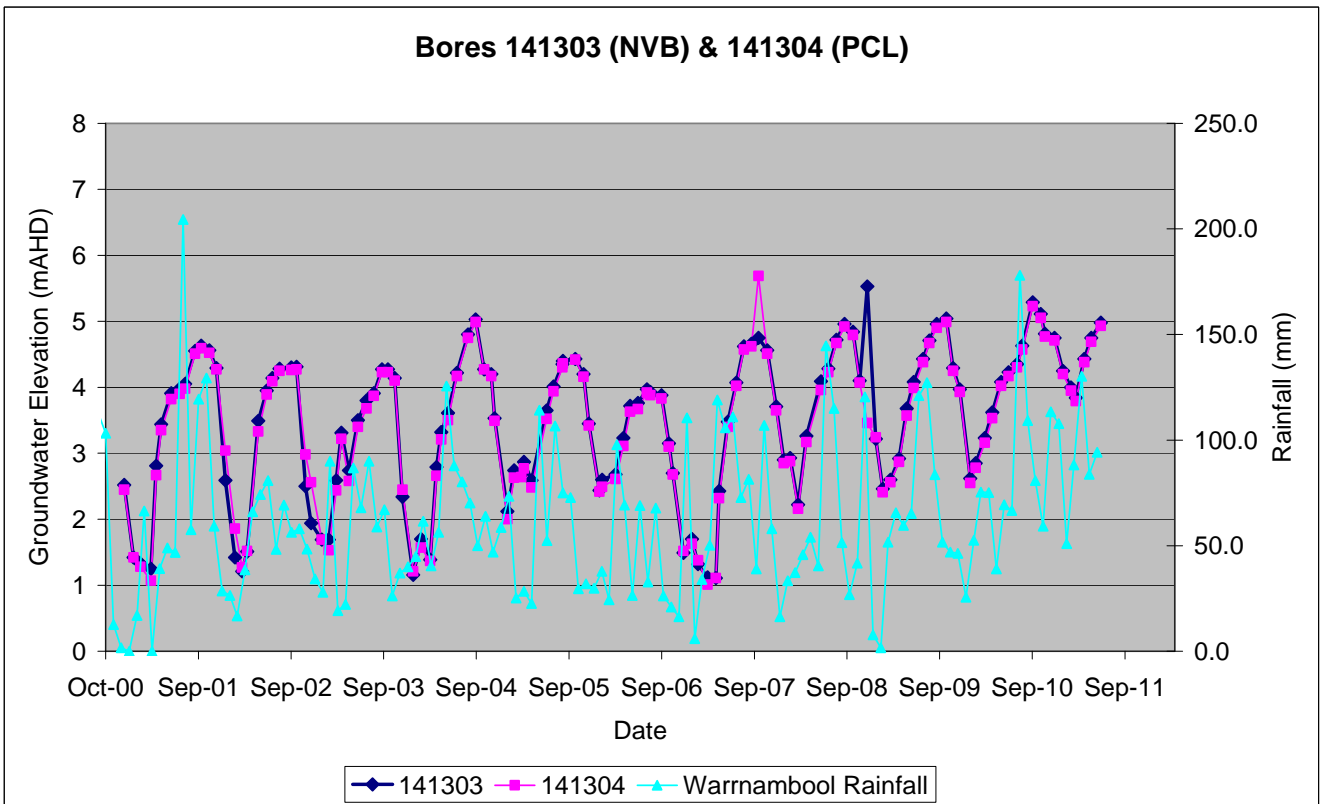
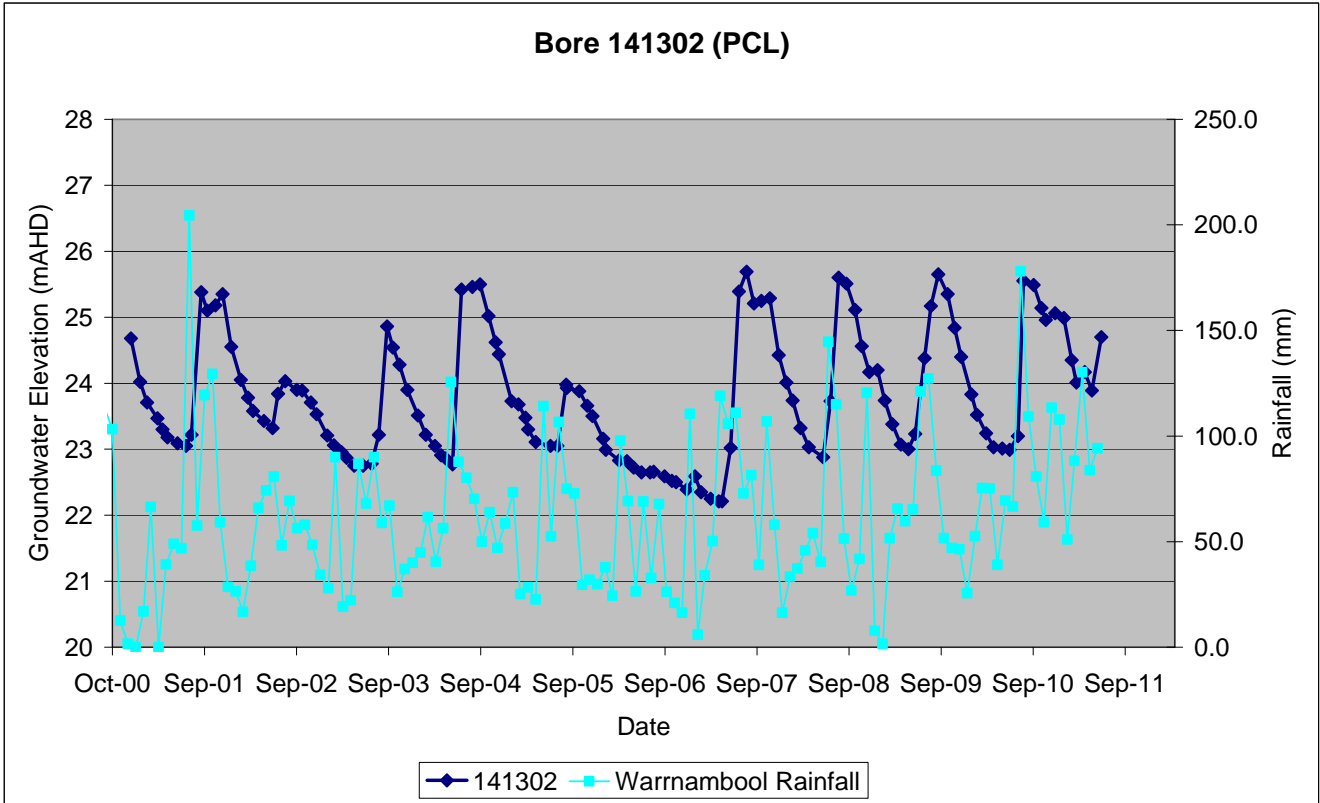
5.1.1 Appendix 1 - Rainfall summary

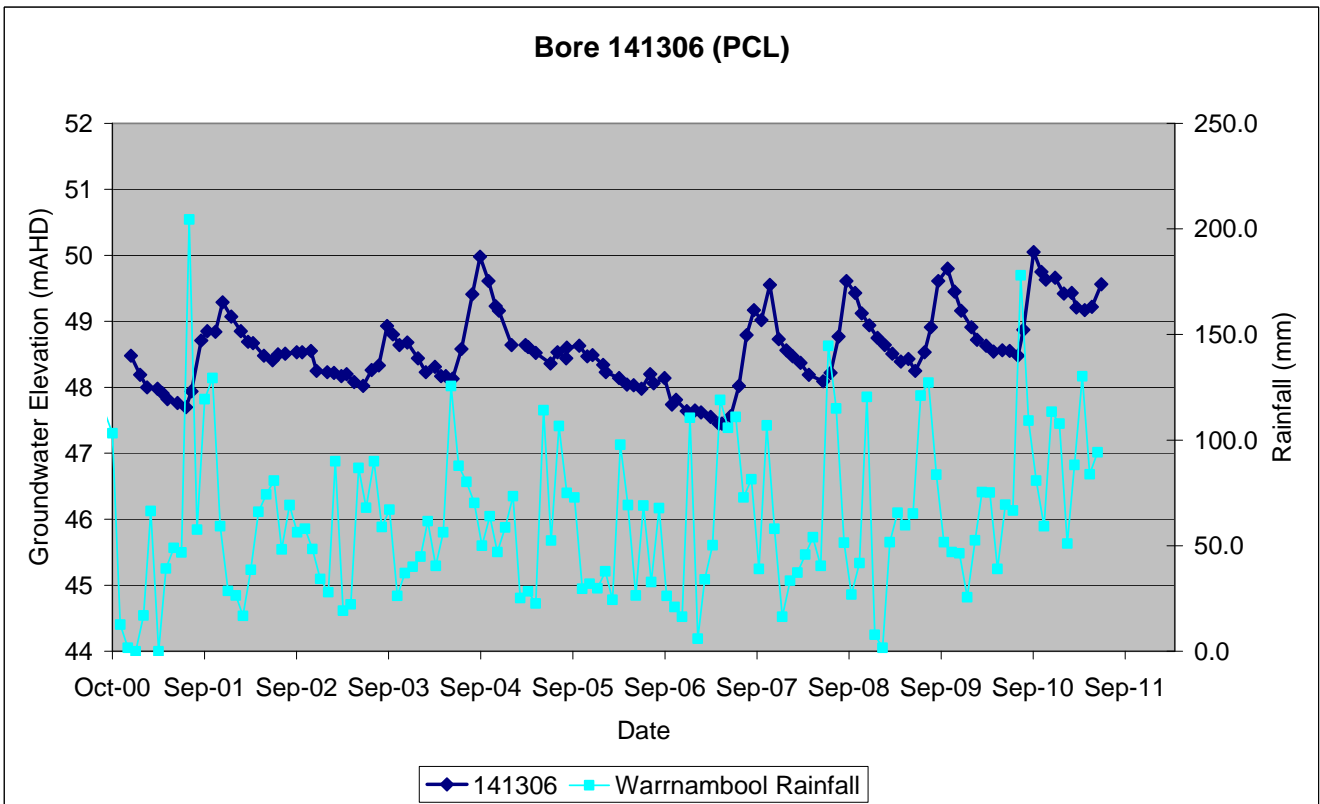
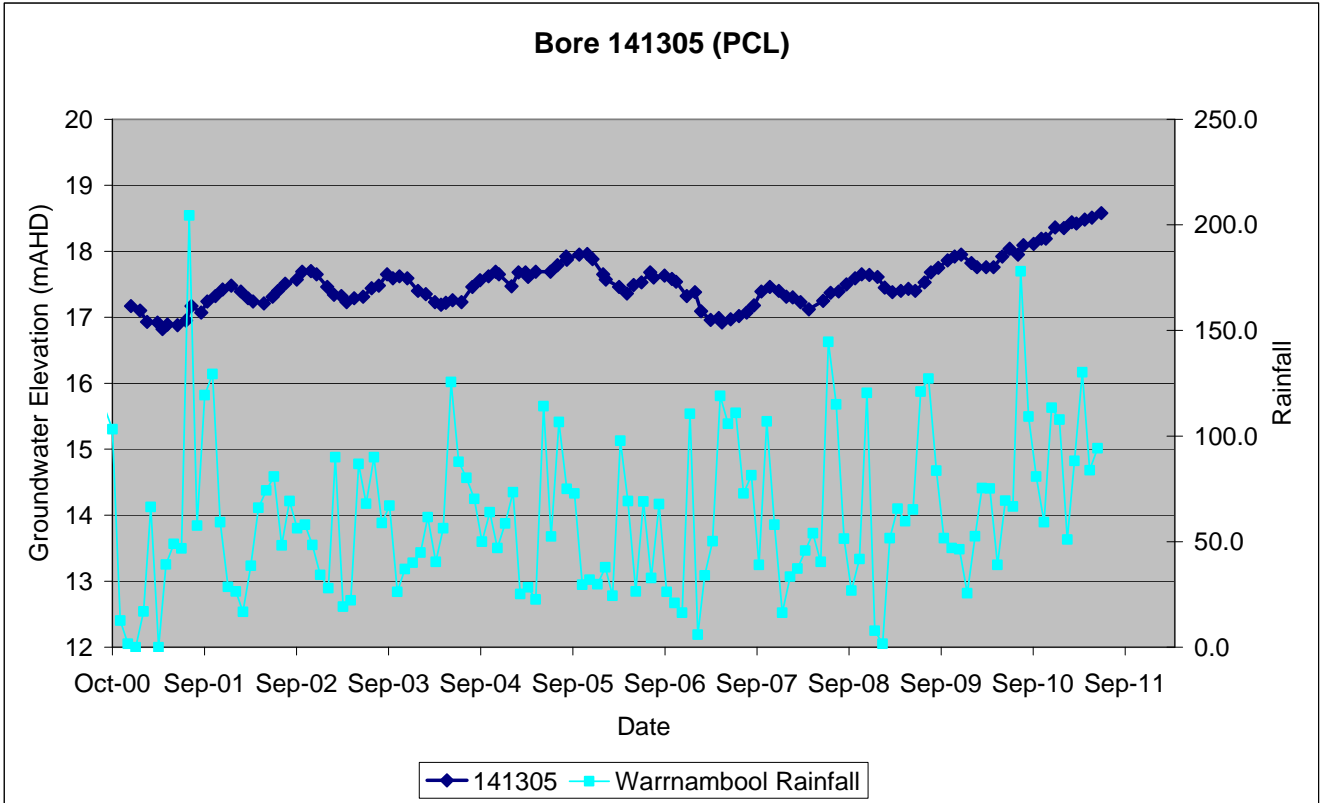


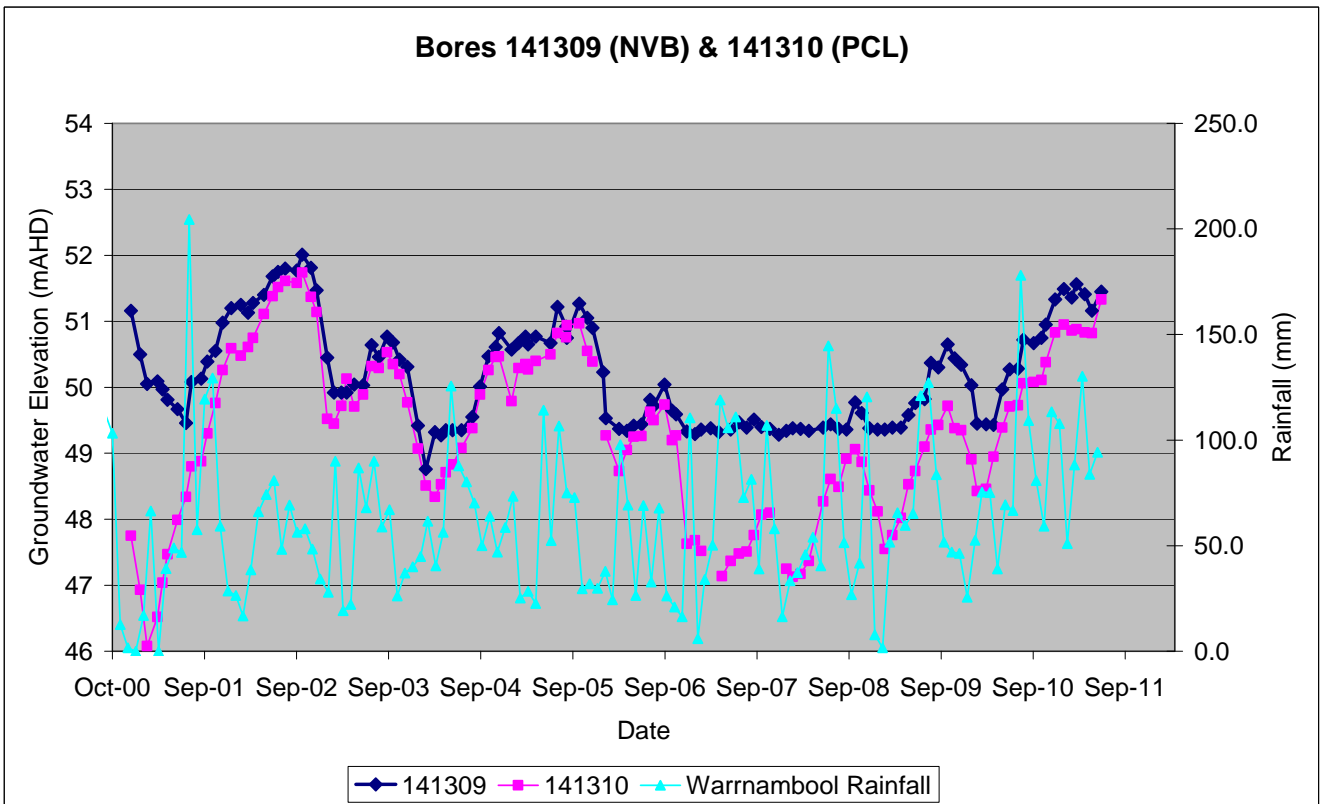
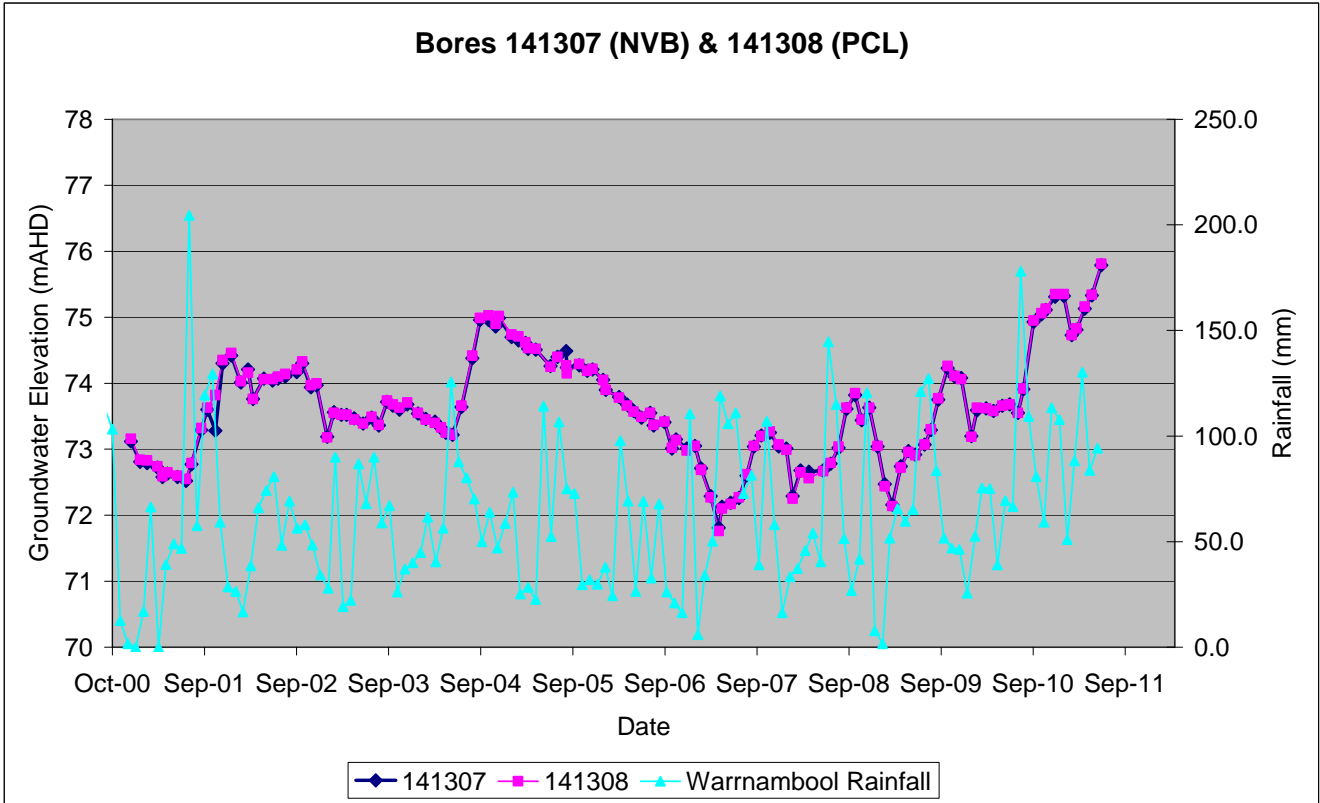


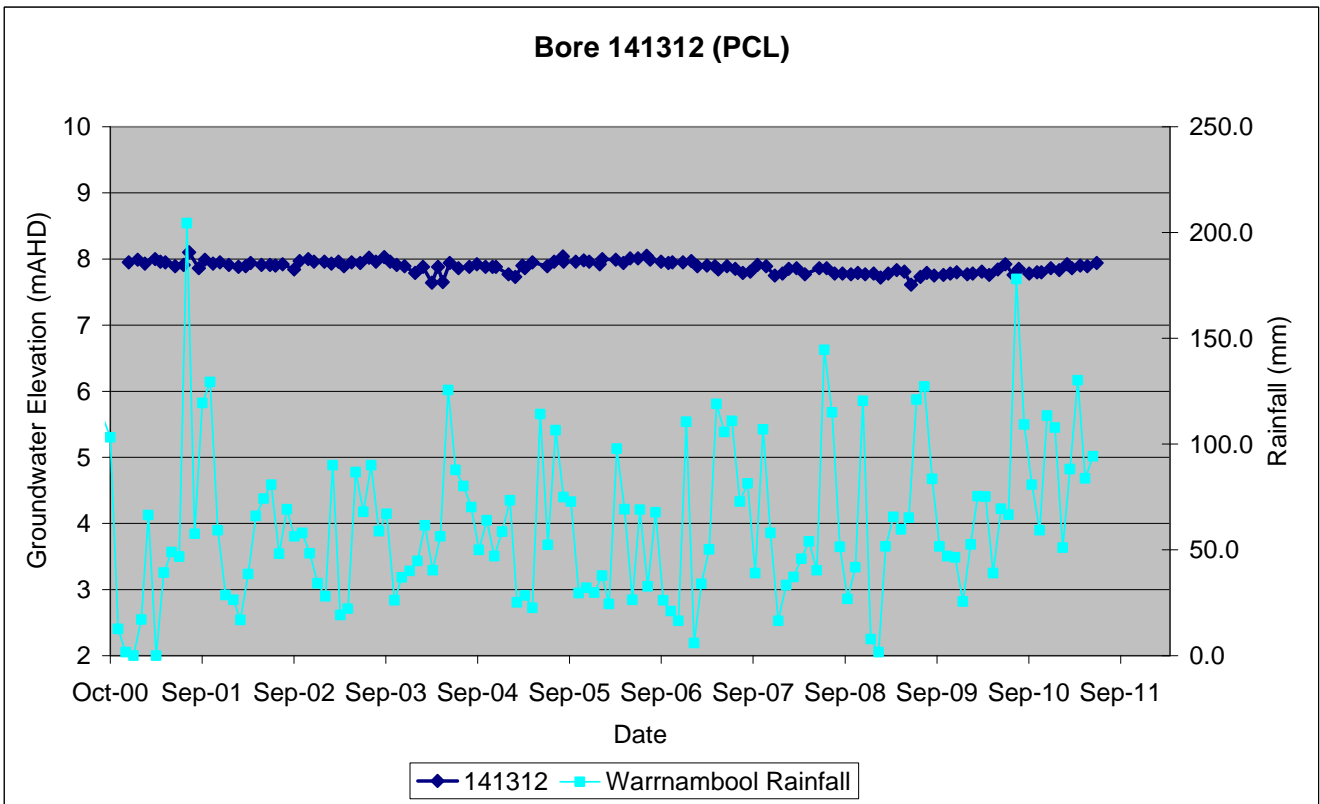
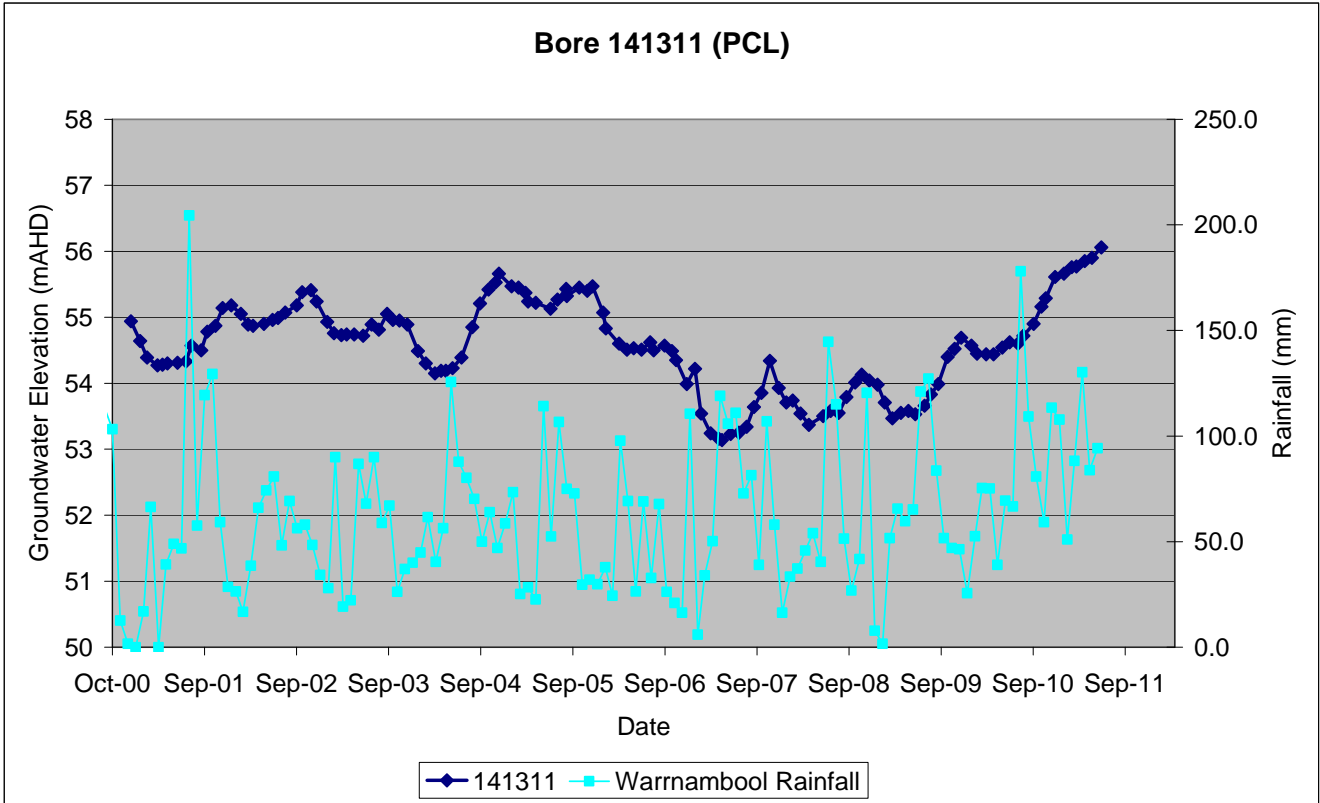
5.1.2 Appendix 2 - Hydrographs

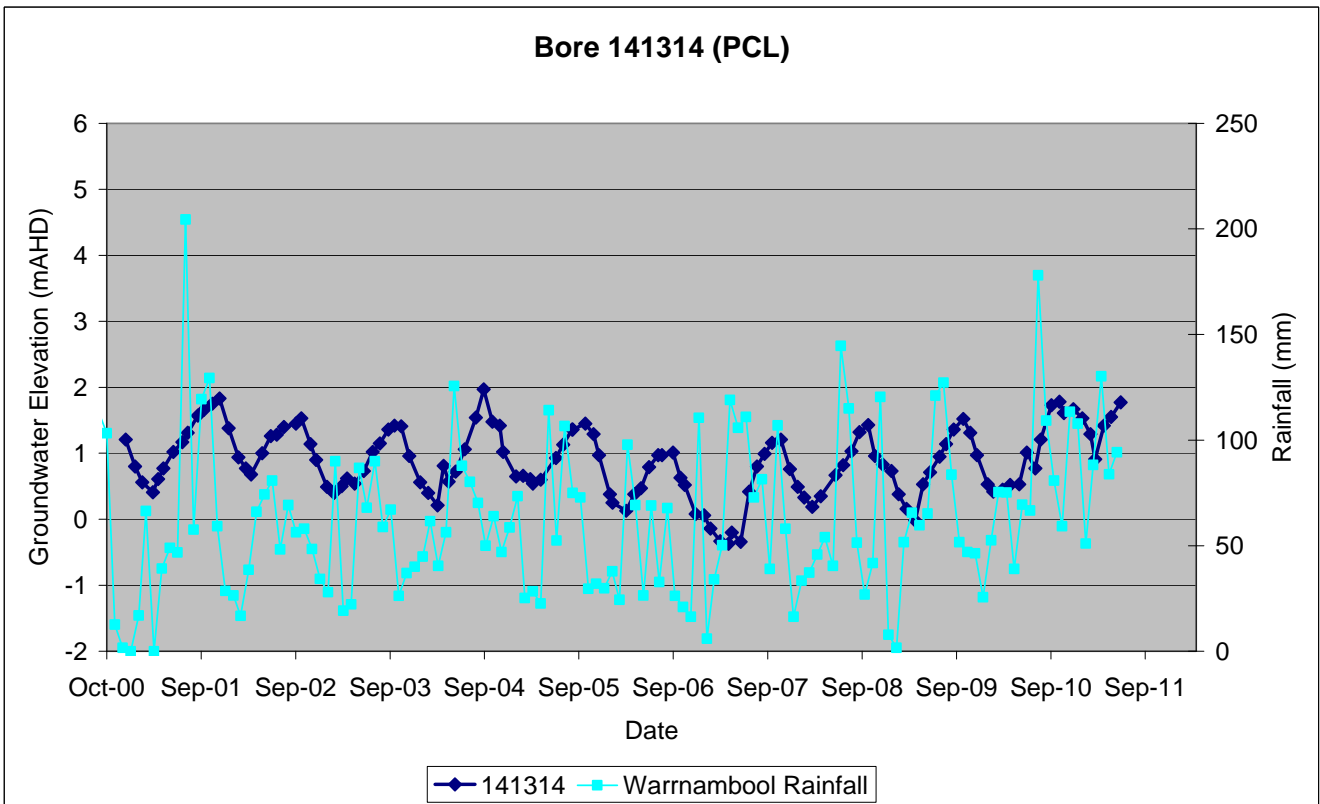
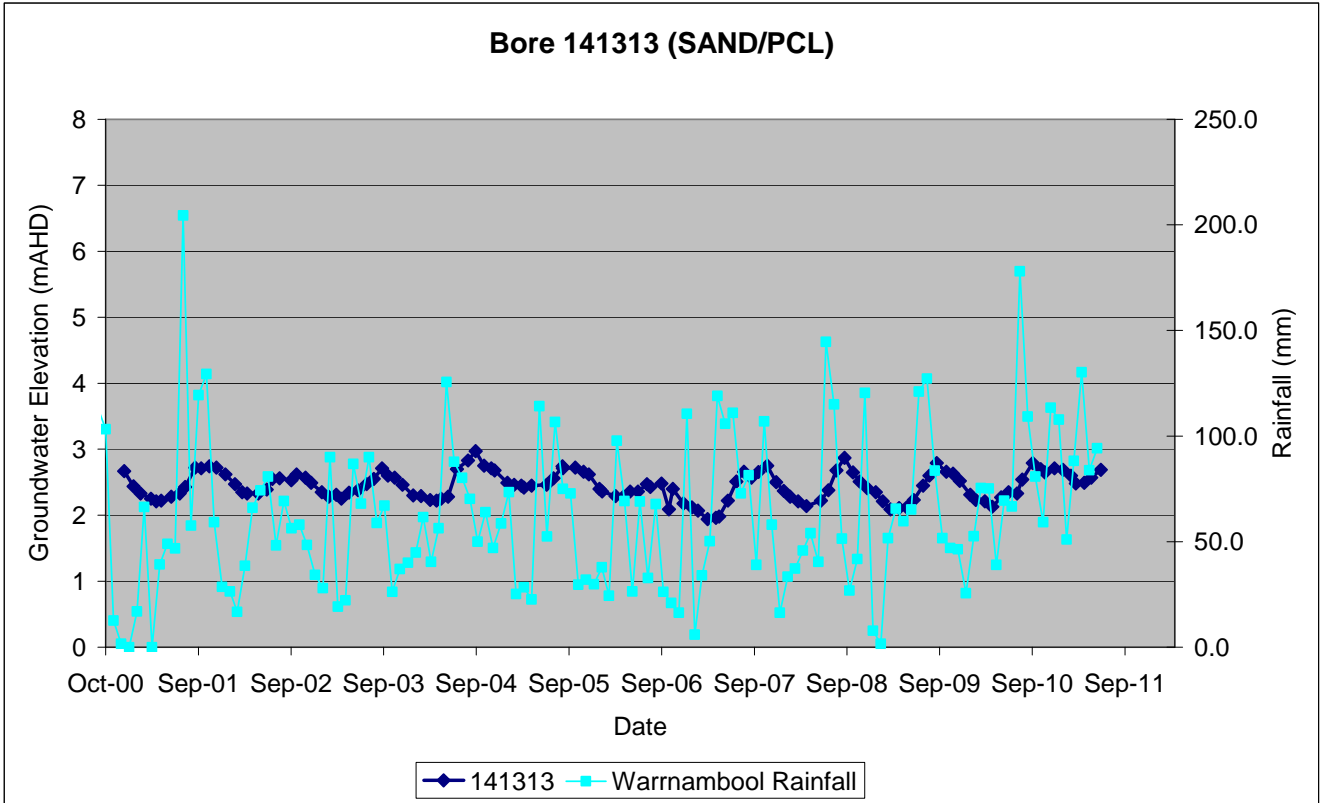


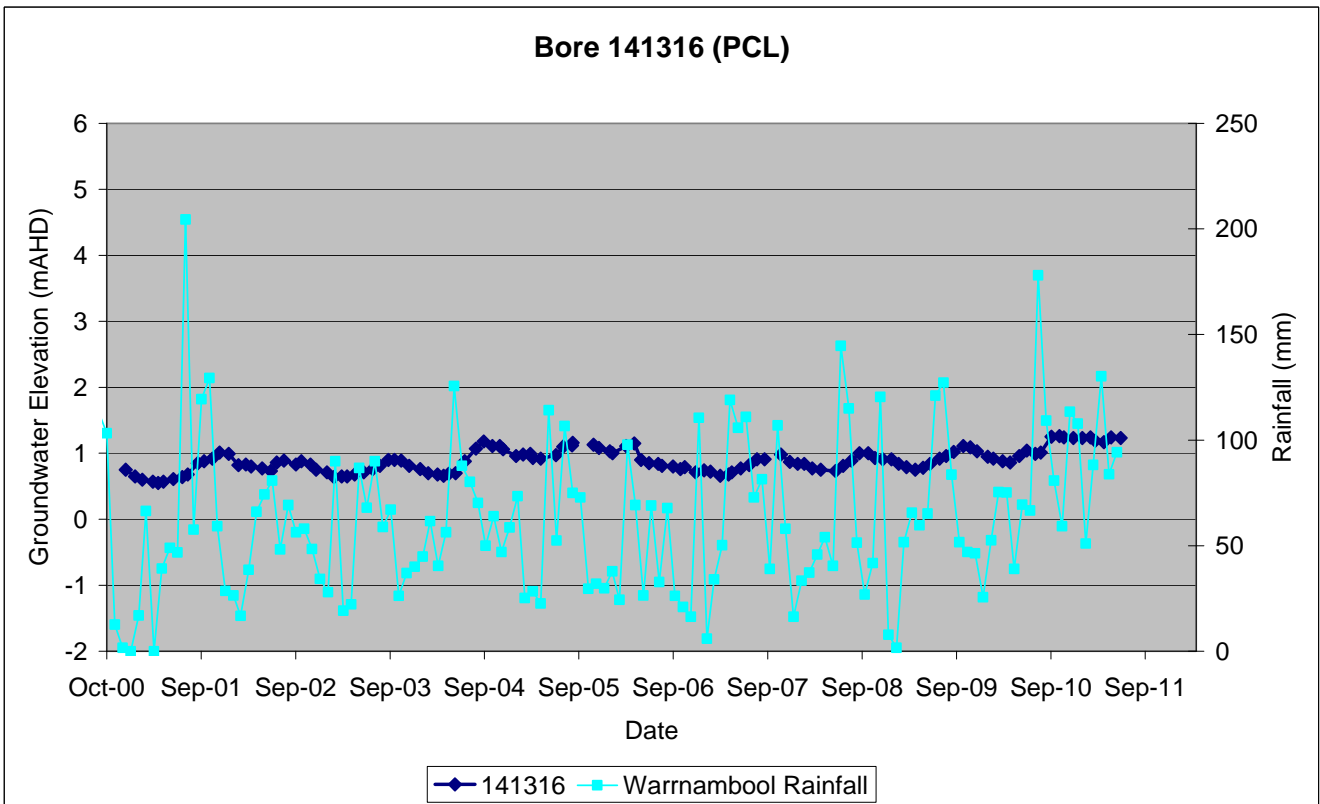
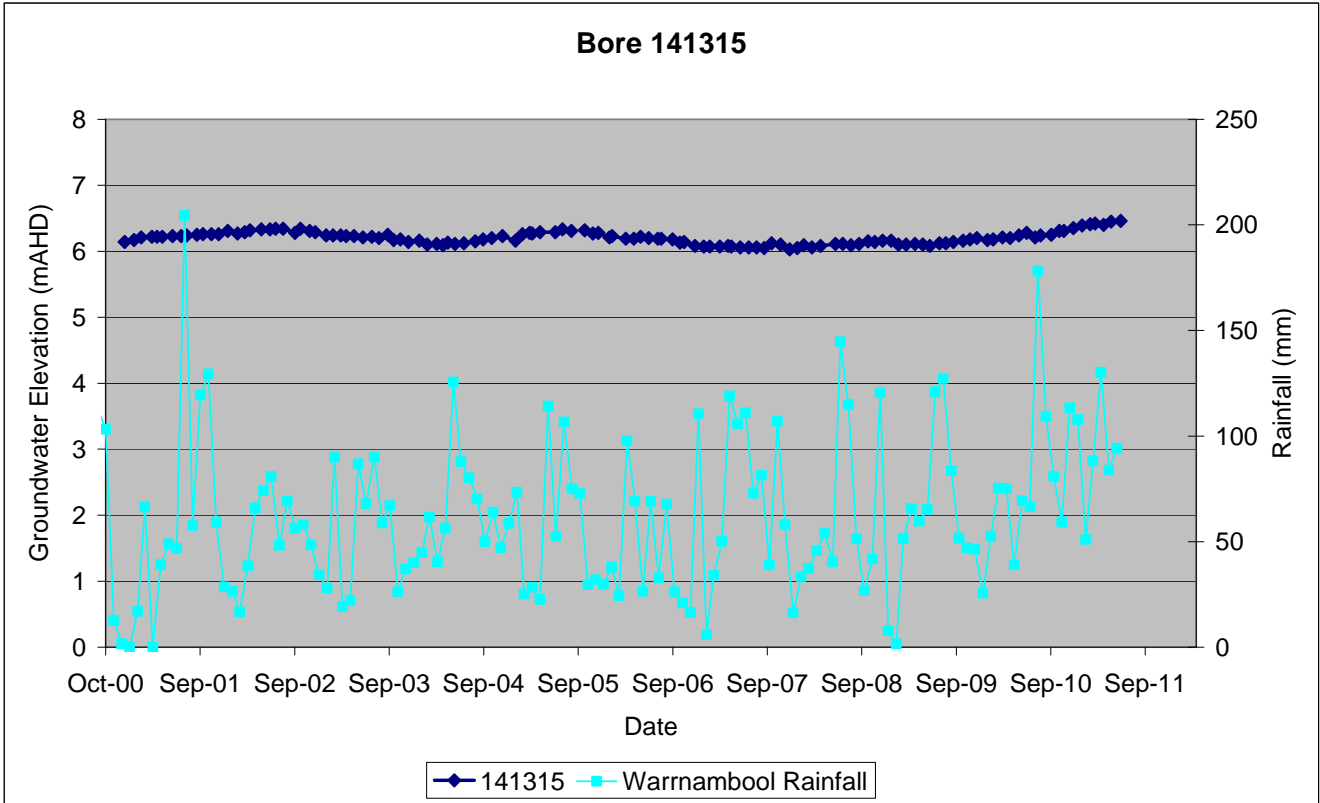












5.1.3 Appendix 3 - Salinity

