



## STAFF REPORT

**TO:** Environment & Planning Committee

**FROM:** Daryl Page, Compliance Officer

**REFERENCE:** C653

**SUBJECT:** **END OF SEASON WATER METERING REPORT 2007 / 2008 - REPORT EP08/07/03** - Report prepared for meeting of 17 July

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### 1. ACKNOWLEDGEMENTS

Thanks to Council staff and contractors Bettina Koessler, Barbara Jardine, Colin Michie, Dave Shaw, Mandy Tomlinson, Neil Tyson, and Joseph Thomas, for their input into the 2007 / 2008 water metering project.

### 2. INTRODUCTION

The purpose of this report is to present an overview of the water metering project administration and compliance for the 2007 / 2008 irrigation season

### 3. SUMMARY

- The primary aim of this project is the collection of accurate and timely water use data – an essential tool in managing the District's valuable and limited water resource.
- The 12 month accumulated rainfall to June 2008 was well below average.
- Water Rationing in the Waimea Plains was introduced on 3 December 2007 and again 11 February 2008 – each time for a two week period.
- The number of consents administered under the water metering project in the 2007 / 2008 season increased to 720 (from 686 for the previous season).
- Project administration and monitoring functions now extend over a full twelve month period. With additional demands for new metering we will be looking at resourcing levels to achieve an effective administration and monitoring system.
- The majority of project costs are met by an appropriation of an annual (administration) charge and an appropriation from the general rate. Changes in the 2008 / 2009 season which sees the imposition of a water meter levy will allow the general rate appropriation to be reduced and this has been budgeted.

- Return rates (albeit retrospective in some cases) met the objective for 'reliable' data on water usage and water use data for the season is complete. There continues to be an issue with a decline in return rates during late March and April and it is unclear if irrigation has ceased or not.
- Very little formal enforcement action was required in the 2007 – 2008 season.
- 72% of meters were audited over two summer seasons.
- Water use data (by zone) shows that water consumption increased in comparison to last season as 15 zones (11 last season) registered a water use greater than 40% of the zone allocation at some point. The demand for water was highest late Nov/mid December and late January/early February.

### **3. THE RMA AND TRMP FRAMEWORK**

The TRMP divides the Tasman district into water management zones. Some zones have been identified as traditional water short catchments and it is a requirement in these areas for consent holders to install a water meter and supply meter readings to Council. Appendix 1 lists the TRMP Water Management Zones that are subject to either full or partial water metering.

The policy for the use of water meters is set out in 30.2.11 of the TRMP and states:

- a) to ensure compliance with permit allocations or allocation limits; or
- b) when there is full allocation of water in a zone; or
- c) when there is a need for water use data to assess effects of abstraction on a water resource or in relation to an allocation limit; or
- d) in any zone where there is a rationing trigger

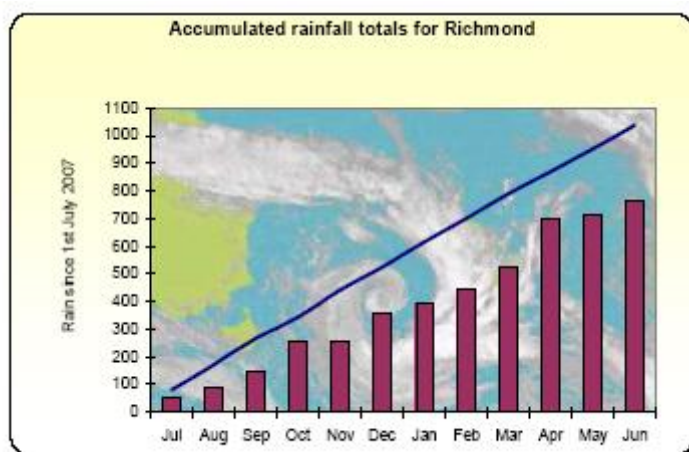
Accurate and timely water meter data is an essential tool in managing the District's valuable and limited water resource. The information is used for:

- Management of the districts water resources and improving/enhancing future understanding of the system;
- Monitor the effectiveness and suitability of the policy provisions within the TRMP and the exercise of resource consents;
- Bona fide review/renewal of existing consents; and
- Compliance with drought restrictions

### **4. WEATHER PATTERNS**

While low pre-season river and groundwater levels were buoyed by a wet October, levels dropped quickly during November as irrigation demand increased and remained below average during the summer season. Rainfall towards the end of December and February was sufficient to lift stage one water rationing. The Moutere Hills and Waimea Basin were the driest places.

Accumulated rainfall totals since July 2007, compared to the average line



As can be seen from the accumulated rainfall data, very little rain fell in November and May which resulted in river and groundwater levels being well below average for that time of year. In May, levels were at recognised rationing triggered points. While rainfall toward the end of June this year appeared significant (all in one week) the month was drier than normal. As such the rainfall had only a minor effect. Let us hope for the necessary recharge during winter!

## 5. WATER RATIONING

Stage one rationing was introduced for six water management zones in the Waimea Plains was introduced on 3 December 2007 and again 11 February 2008 – each time for a two week period.

Concurrent with the introduction of water rationing, communication of the water rationing was through media statements and Water Shortage Direction notices in the Nelson Mail along with individual letters or email to affected consent holders.

## 6. PROJECT ADMINISTRATION

### 6.1 Water Metering Requirement

Water metering has expanded steadily within Tasman District since it was first introduced for 20 users of the Lower Confined Aquifer in the 1980s. The number of meters on the water metering database at the end of the 2007 / 2008 season is 720 (686 in the 2006 / 2007 season).

While all consents on the database require monitoring at some point during the season, 576 were 'active' or in other words, required week by week monitoring during the season. The majority of the remaining 144 were noted as 'not irrigating' and others are required to read their meters weekly but supply an annual return.

Some water management zones where metering has been identified in the TRMP continue to have a 'deferred' status. Appendix 2 shows the status of water metering for zones where water metering has been required.

## 6.2 Project Expansion

The water metering project continues to progress from being a strictly seasonal one to increasingly requiring year round resources – the ‘off season’ providing an opportunity to catch up on unfinished work. While the collection and monitoring of water use data during the summer season remains the primary purpose, other important tasks need to be undertaken. For example,

- Maintenance of the database continues until the end of May (missing readings).
- End of season summary to consent holders and an end of season report to Council in June
- Compliance work outside of missing returns and excessive takes generally defaults to the winter months, e.g. monitoring other conditions of consent.
- Meter returns for consents to take water for frost protection extend beyond the summer period.
- Meter returns for dam storage consent where the release of water for downstream residual flow is a condition of consent.
- Ongoing improvements to the database and project administration including the completion of a procedures manual generally default to the winter months.
- Information (database output) requirements.

In addition, next season will see the following consents become subject to water metering and included in the project:

- 14 consents in the Waimea Hope Aquifer (which means all consents in this zone will be metered),
- Up to 80 permitted activity water takes in the Moutere which will require annual use data i.e. a start and end of season reading only,
- Increased irrigation activity in the Upper Buller,
- Increased frost protection activity from the Riwaka River

New water metering provisions are also to be introduced under a National Environment Standard (NES). The detail of the regulations are not yet available but it is likely that all water take consent holders will need to install a water meter within a five year timeframe.

The NES has significant staff resource implications. While Council could consider a staged implementation by say 2013, the impact is that there are potentially 714 consents which will need to be added to the water metering project database.

The NES may also require some or all water meters to allow for the electronic transfer of data – particularly for larger water takes.

### **6.3 Staffing**

Daryl Page was the Compliance Officer responsible for the 2007 / 2008 water metering project. While absent for three weeks November/December, David Shaw provided assistance. Barbara Jardine (temporary contract November 2007 – January 2008) and Bettinna Koessler (January – May 2008) provided administrative support. Colin Michie (two days per week temporary contract October 2007 to May 2008) undertook water meter audit work.

This increased (by two days) staffing level was on the whole effective. Ongoing project improvements and aided by a favourable situation in respect to water restrictions, the ability to complete the projects primary purpose of collecting and analysing water use data and water meter audits was enhanced during this summer season.

Notwithstanding this, priorities continued to be established during the season and some identified (and required) monitoring work was not always completed satisfactorily. For example, consistent monitoring of missing returns, implementation of new metering, and the monitoring of all consent conditions i.e. not just the metering of a water take.

Additional resources for the water metering project will be considered in order to achieve effective administration and monitoring as demands increase.

### **6.4 Budget**

Appendix 3 provides a summary of the 2007 / 2008 Compliance Monitoring Water costs for an 11 month period to 31 May 2008.

The majority of costs are met by an appropriation of the annual (administration) charge levied on water permit holders and an appropriation from the general rate.

The End of Season summary highlights to consent holders that any additional monitoring costs will be recovered from the 2008 / 2009 season. A water meter charge which has been approved for the 1 July 2008 to 30 June 2009 budget, will provide additional funding to the project and allow the general rate appropriation to be reduced or removed.

Using a current expenditure/current database ratio, the cost impact of new water metering over the next five years is potentially \$100,000 (714 new meters at \$142). This has not been accounted for as we are hopeful the new National Environmental Standard will be phased out over time.

### **6.5 End of Season Summary to Consent Holders**

Appendix 4 is a copy of an end of season summary sent to consent holders. NB an error in the summary is highlighted – this being the quoted % of meter audits completed. The correct position is that detailed later in this report.

## **7. COMPLIANCE MONITORING**

### **7.1 Meter Reading Return Rates**

There are two key objectives in respect to water meter return rates. The first relates to the end use of the data and the aim is to have a minimum return rate of 95%. The second relates to compliance monitoring and the aim must be a return rate of 100%.

Notwithstanding the need for timely returns, actually receiving the information so reliable data on water usage is obtained is the bottom line. Despite focused monitoring during May some data remains outstanding. However and for the purpose of closure, **the water use data for the season is complete.**

Return rates (incorporating those received retrospectively) are shown as part of the water consumption graphs (Appendix 5).

There is no data to show the 'timely' rate of returns. It would be fair to say however that the majority of returns were on time. Those that were not were subject to missing reading monitoring – especially true during April and May as once again an extensive drop off of returns toward the end of March and in April occurred.

### **7.2 Missing Returns Monitoring/Enforcement**

Five consent holders were subject to formal enforcement action regarding missing returns and were invoiced the \$150.00 monitoring fee following a site visit to read the meter. These five were representative of a situation where there was a failure to respond to reminders and/or many instances of missing returns. In general, monitoring was confined to the Compliance Flowchart procedure adopted by Council i.e. by making personal contact (by telephone/email) and as resources allowed i.e. not every instance of a missing return was addressed.

The extensive drop off of returns (without notice) toward the end of March and in April is disappointing because it undermines the success of the water management project and involves additional (costly) monitoring. A key message to users in the End of Season Summary sent to consent holders, is to communicate with Council.

### **7.3 Overtake Monitoring/Enforcement**

All overtake situations were investigated. A number of verbal warnings were given and in general achieved future compliance. Two formal written warnings (one resulting in cost recovery) and one Infringement Notice were issued.

### **7.4 Water Meter Audit**

A total of 386 (54%) meter audits were undertaken this season. Noting that the completion rate last season was disappointing (163 or 23%) an objective this season was to target the meters that were not audited in the previous season and with the increased resource (two days per week) aim for a 100% completion over two summer seasons. While difficult to reconcile due to changing totals, the combined completion rate for the 2006 – 2007 and 2007 – 2008 seasons is approx 72%.

The meter audit continues to include a reading of the meter, that the meter is sealed, and an updated (digital) photographic record of the meter. The meter audit in future seasons should incorporate checking for meter accuracy and the field work requirements under Council's bores database.

## **7.5 Fictitious Meter Readings**

Some inconsistencies continue to be identified as part of the meter audit. These cases were dealt with and no formal enforcement was required.

## **7.6 Water Consumption Data**

Appendix 5 provides graphical representation for each water management zone subject to full metering – 17 in total. The Hope Minor Aquifer zone is also included this year as full metering is to be in place by 1 October 2008.

The graphs show that 15 zones (11 last season) registered a water use greater than 40% of the zone allocation at some point. This indicates that overall water consumption increased in comparison to last season. Six (three last year) registered water use greater than 60% at a time when demand over all zones was generally higher – these times being mid December and late January/early February. The six zones were Waimea Lower Confined Aquifer, Waimea West, Motueka Hau, Motueka King Edward, Tapawera, and the Wangapeka.

## **8. RECOMMENDATION**

That Council receive this report.



Daryl Page  
**Compliance Officer**

## Water Management Zones subject to water metering in the TRMP

Zones subject to full metering

<b>Motueka/Riwaka_Plains</b>		<b>Consents</b>
MHAU	Hau	(29)
MTRN	Transition	(14)
MKEZ	King Edward	(43)
MSZ	Swamp (implementation deferred)	
MUMU	Umukuri (implementation deferred)	
MRWS	Riwaka Surface (implementation deferred)	(4) Frost Protection users

**Moutere**

OMEG	Moutere Eastern Groundwater	(67)
OMWG	Moutere Western Groundwater	(20)

Note: Metering of permitted activity takes in the Moutere has been discussed.

**Waimea**

WDEL	Delta	(132)
WGHZ	Golden Hills	(30)
WLCA	Lower Confined Aquifer	(26)
WRES	Reservoir	(46)
WUCA	Upper Confined Aquifer	(33)
WWW	Waimea West Aquifer	(22)
WWAI	Wai-iti	(17)
WDSA	Wai-iti Dam Service Zone	(102)
WHAQ	Hope Minor Aquifer (by 1-10-08)	(23)

**Upper Motueka**

UMUM	Dove, Stanley Brook, etc	(18)
UMMS	Motupiko	(15)
UMTP	Tapawera Plains	(44)
UMTS	Tadmor	(2)
UMWS	Wangapeka	(7)

**Zones containing individual water meters**

(includes TDC water supplies)

AA	Aorere/West Coast	(2)
BWLD	Buller/Westland	(6)
MCPZ	Motueka Central Plains	(7)
MLSZ	Motueka Little Sydney	(7)
MRWZ	Riwaka Groundwater – Motueka	(3)
ODMG	Waimea – Moutere Gravels	(3)
TTA	Takaka	(6)
TTS	Takaka	(7)
OMOS	Moutere Surface	(3)



**APPENDIX 2**  
**Water Meter Requirements**

The following table (formed from Schedule 31.1B in the TRMP) shows those zones (*highlighted*) where water metering implementation has been deferred and zones subject to water meter implementation in the future. The number on the left hand side represents the *highlighted* number of consents involved.

<b>Water Meter Requirements</b>	
<b>Water Management Zone</b>	<b>Zones where Water Meters are Required</b>
<b>Motueka/Riwaka Plains</b>	
<b>30</b>	<b><i>Riwaka Plains Zone – by 3 November 2004</i></b> (four consents involving frost protection are now metered)
<b>23</b>	<b><i>Swamp Zone – by 3 November 2004</i></b>
<b>42</b>	<b><i>Umukuri Zone – by 3 November 2004</i></b>
<b>Moutere</b>	
<b>50-80</b> Domestic takes. (Irrigation already metered).	<b><i>Moutere Eastern and Western Groundwater zones</i></b>

**2007 / 2008 Compliance Monitoring – Water**

**Expenditure (predominately staff)**

<b>Description</b>	<b>2007 / 2008</b>	<b>2006 / 2007</b>
Compliance Monitoring of Missing Returns and Overtakes (potentially recoverable)	\$6,352	\$17,610
Preseason, Database Administration, Meter Audits, Permitted Activities, Drought Management	\$96,351	\$76,017
<b>TOTAL</b>	<b>\$102,703</b>	<b>\$93,627</b>

**Income**

<b>Description</b>	<b>2007 / 2008</b>	<b>2006 / 2007</b>
Recoveries	\$1,146	\$1,250
Annual Charge levy	\$35,000	\$40,000
General Rate Appropriation	\$71,168	\$32,066
<b>TOTAL</b>	<b>\$107,314</b>	<b>\$73,316</b>

**Net Cost of Project**

<b>2007 / 2008</b>	<b>\$4, 611 surplus</b>
<b>2006 / 2007</b>	<b>\$20,311 deficit</b>

**Note:**

A water meter charge has been approved for the 1 July 2008 to 30 June 2009 budget and will be levied December 2008. This will provide additional funding to the programme allowing the general rate appropriation to be reduced and this is provided for in the 2008 / 2009 budget.

### **Water Metering Monitoring 2007 – 2008 Summer Season**

Another irrigation season completed, and thankfully without getting too far into water rationing. Once again, my thanks to the consent holders who have consistently met their consent conditions. Your co-operation and contribution to the water use database is appreciated. The responsiveness of consent holders and the communication that exists are highlights for me this season.

Monitoring still involved contacting some consent holders who breached the conditions of their resource consent. For me, this is a timely and avoidable area of work. The two main consent requirements this relates to are:

- **The supply of an accurate and timely water meter reading for the whole season i.e. 1 November to 30 April each year, and**
- **Not to exceed the authorised water allocation.**

**Water Consumption** On the reverse side you will find two graphs which show water use as a % of the allowable take on a weekly basis. The first graph represents your individual water take during the season; the second graph represents the aggregate water take for the water management zone from which you draw your water.

**Missing Water Meter Returns** No data (i.e. no dark line above the date) on your individual water take graph represents a missing return unless you had told Council you were not using water during the season. The absence of returns means costly additional monitoring effort and while it is a problem during the season, the extensive drop off of returns occurring in late March and April is disappointing and impacts on the success of the water management project. The solution is simple if you have an early finish to the irrigation season; all you need to do is tell Council to avoid monitoring and additional costs.

**Excessive Takes** Mainly verbal warnings were given which generally resulted in future compliance. However, repeat offenders received more formal enforcement action.

**Monitoring Costs** A portion of the annual charge on your consent is allocated to the water metering project and covers the basic administration costs of processing water use data. Council has signaled that monitoring effort over and above this basic function must be recovered starting from the 2008-2009 season. For those users who required additional monitoring during the season just gone, I have taken the opportunity to include a handwritten note on your water use graph to indicate what this cost recovery could have been. It is hoped that additional monitoring (and cost to you) will not be necessary in the future.

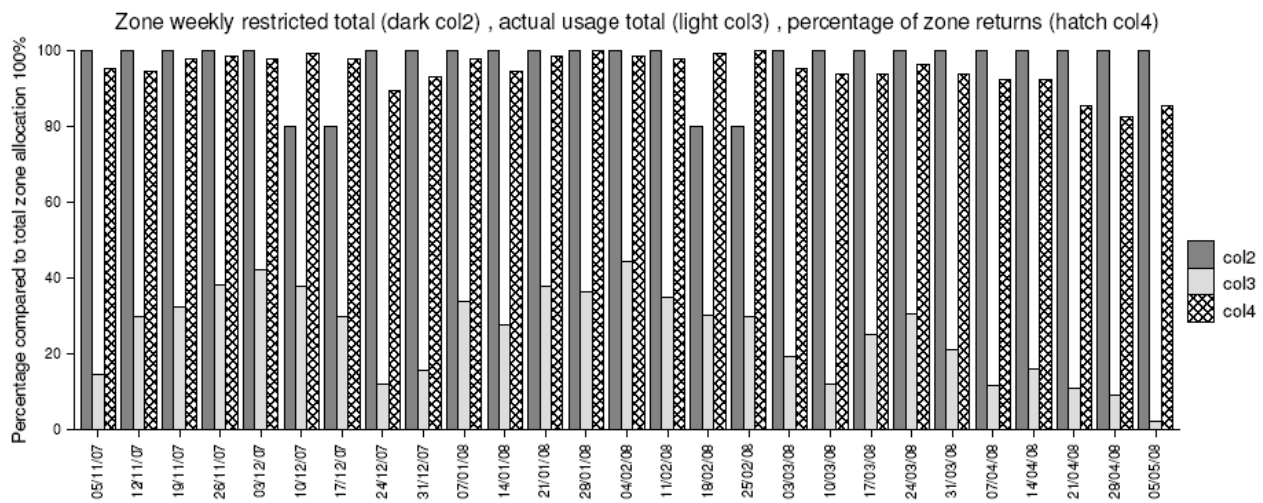
**Water Rationing** Water rationing for zones in the Waimea Plains was introduced as at 3 December 2007 and 11 February 2008 – each for a two week period.

**Water Meter Audit** An 'anytime, anywhere' water meter audit continued. A 72% audit has now been completed over the past two seasons. While only relevant to a small number of meters, some inaccuracies were identified during this process which is a concern to Council and a breach of consent conditions. I take the opportunity to confirm the audit will generally take place without introduction and will involve a white TDC vehicle entering onto your property. The staff member involved will carry identification.

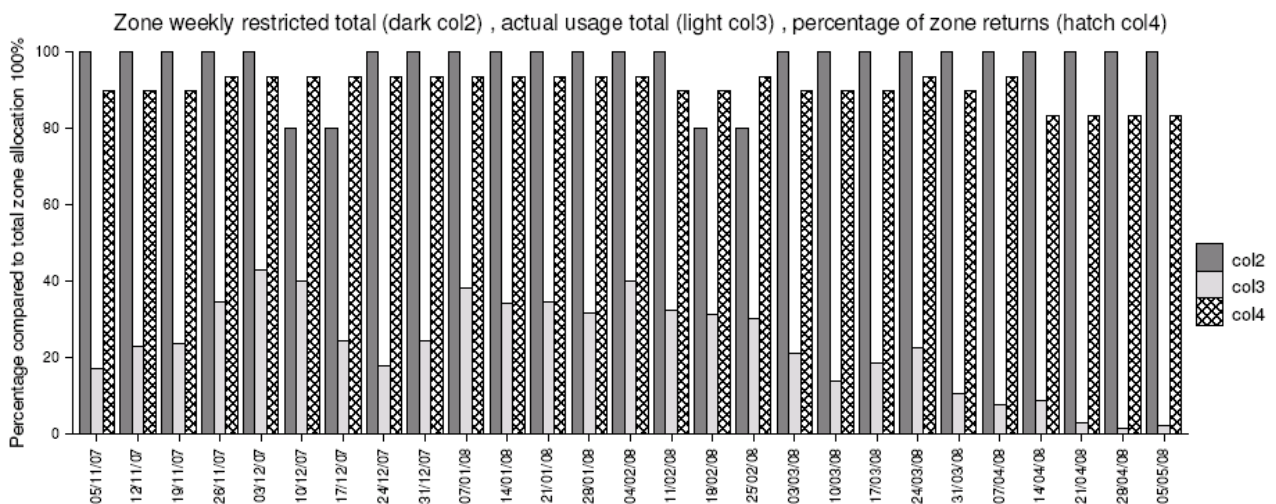
You will hear from me again in October 2008 as we once again start a pre-season process. If you wish to discuss any matter about the water meter monitoring project, please contact me anytime.

# APPENDIX 5 Water Consumption Data

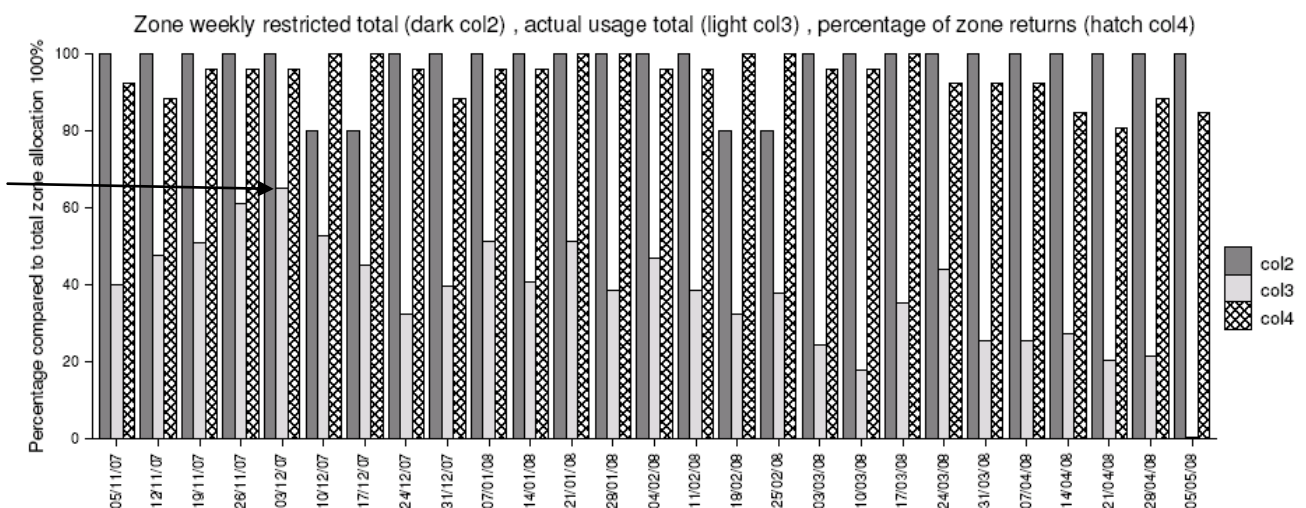
## Waimea Delta Zone



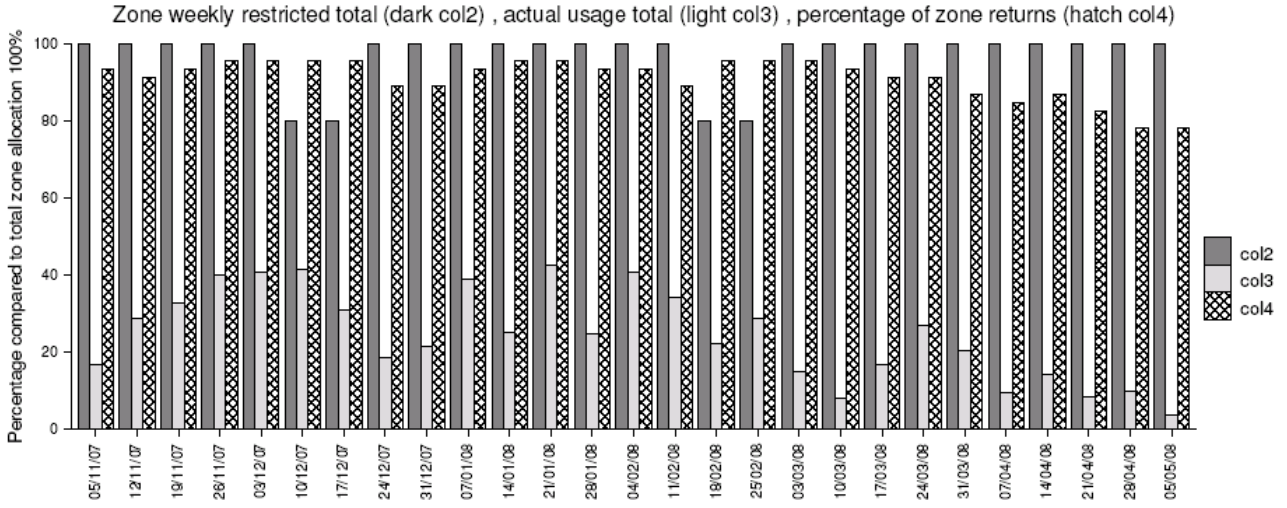
## Waimea Golden Hills Zone



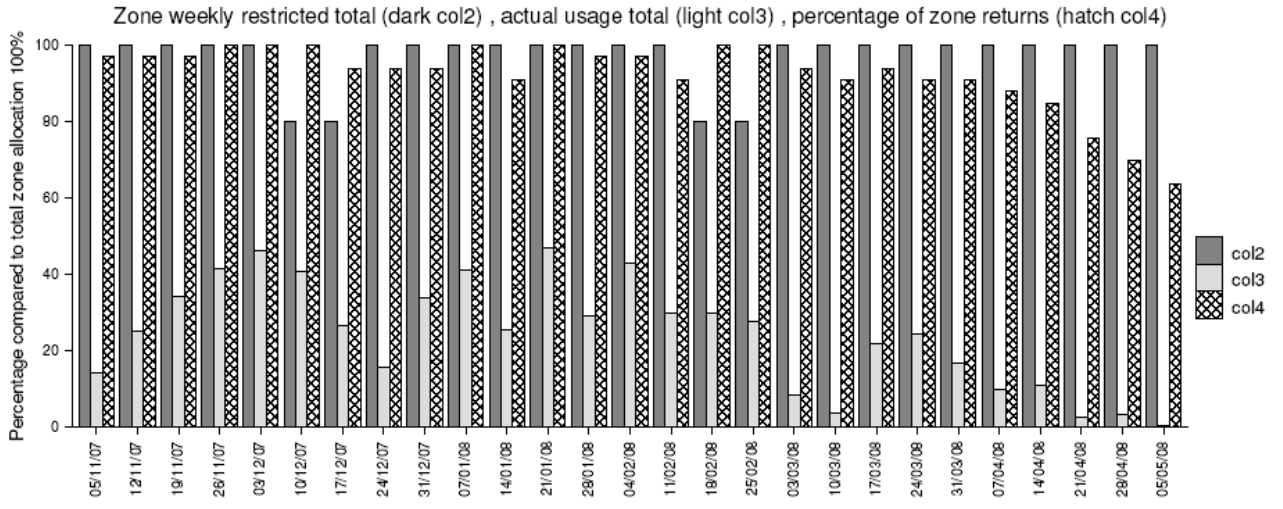
## Waimea Lower Confined Aquifer



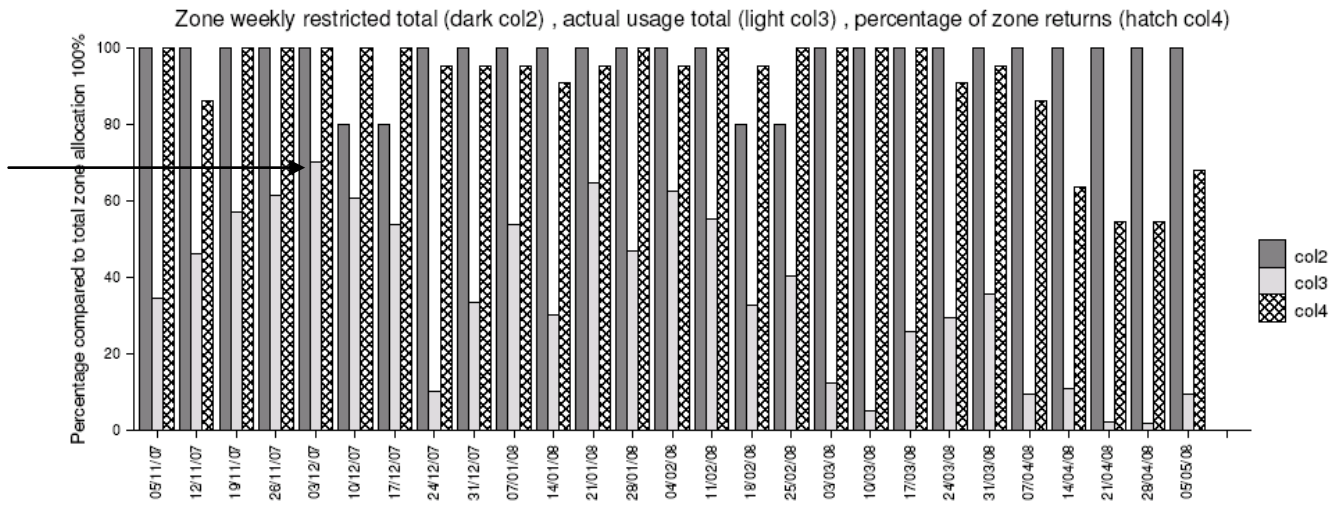
### Waimea Reservoir Zone



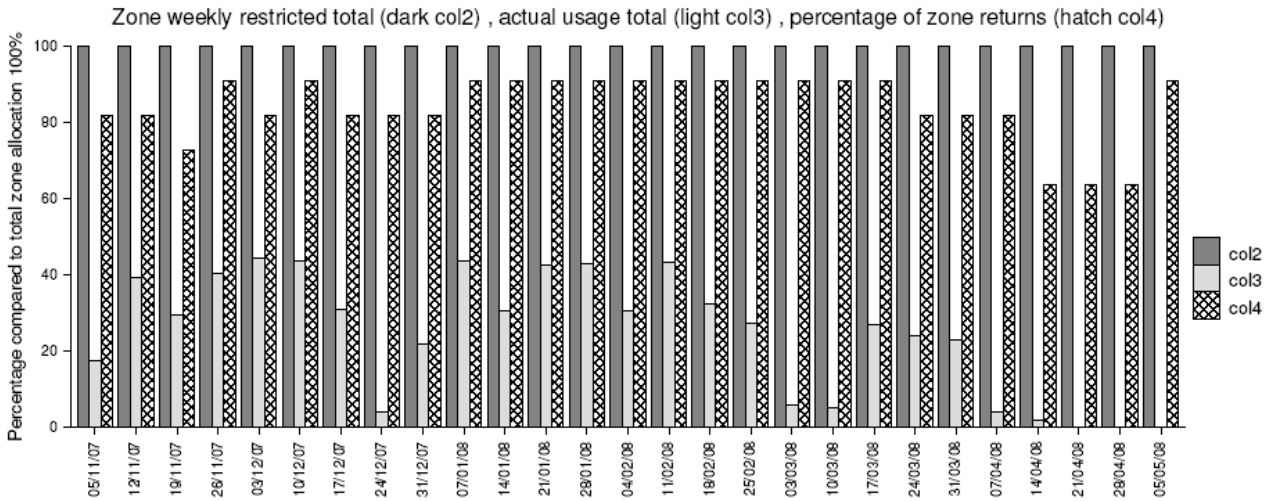
### Waimea Upper Confined Aquifer



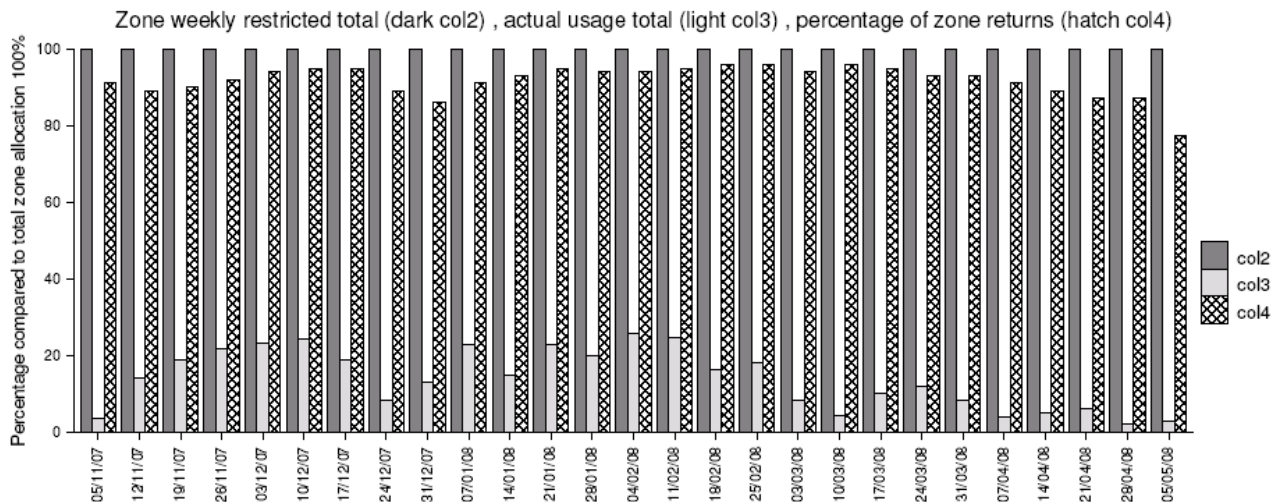
### Waimea West Zone



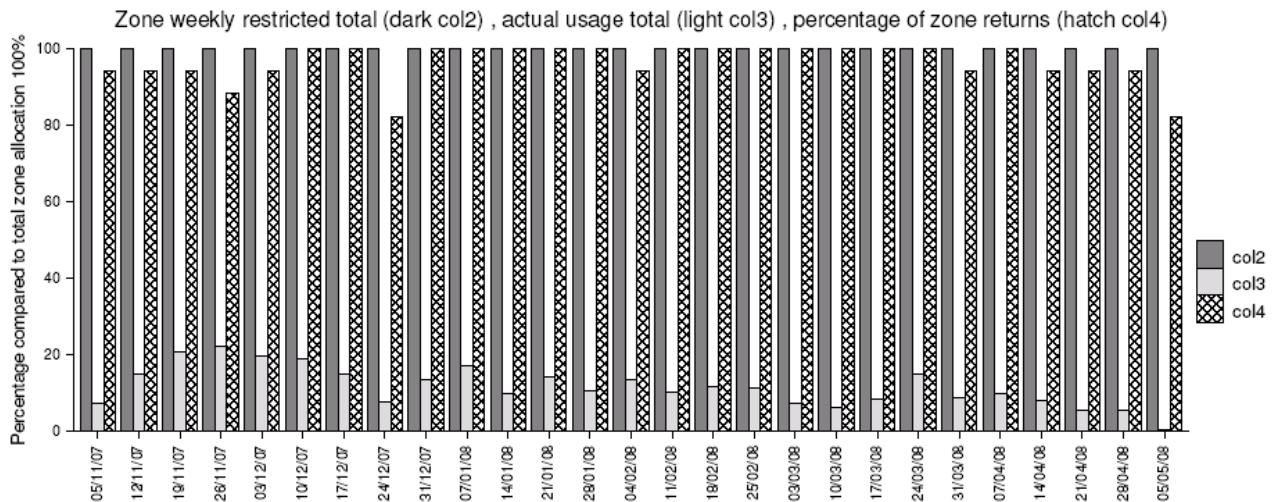
## Waimea Hope Minor Aquifers



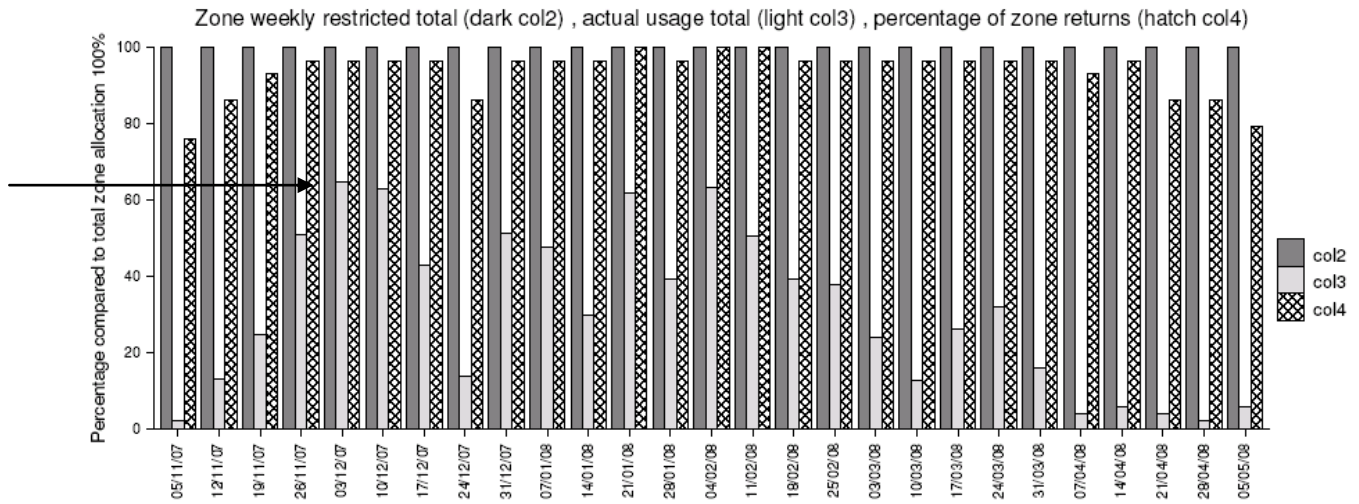
## Wai-iti Dam Service Zone - Waimea



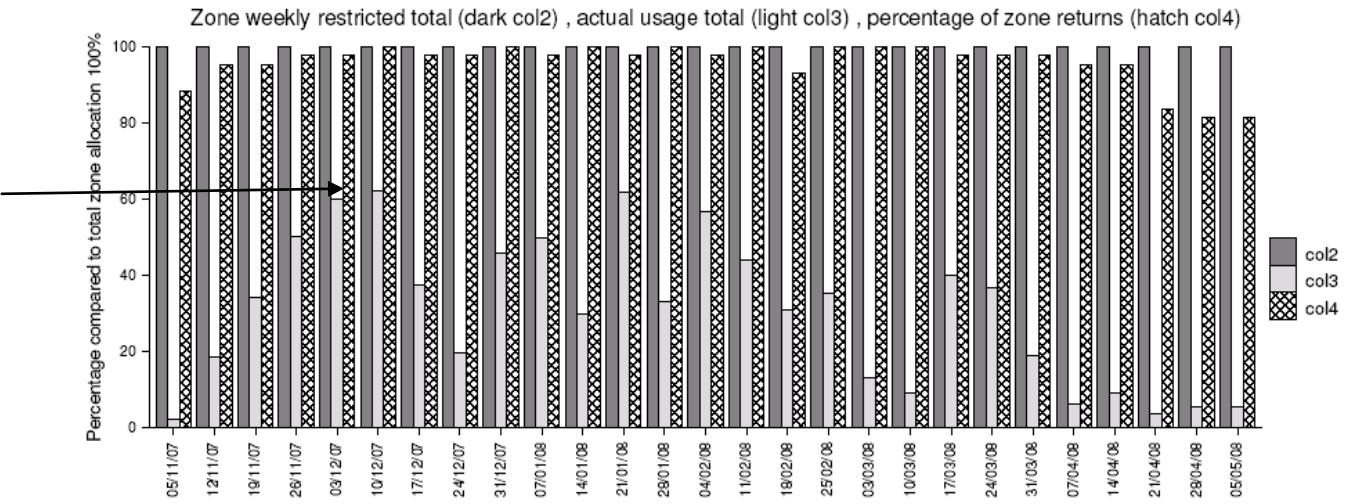
## Wai-iti Zone



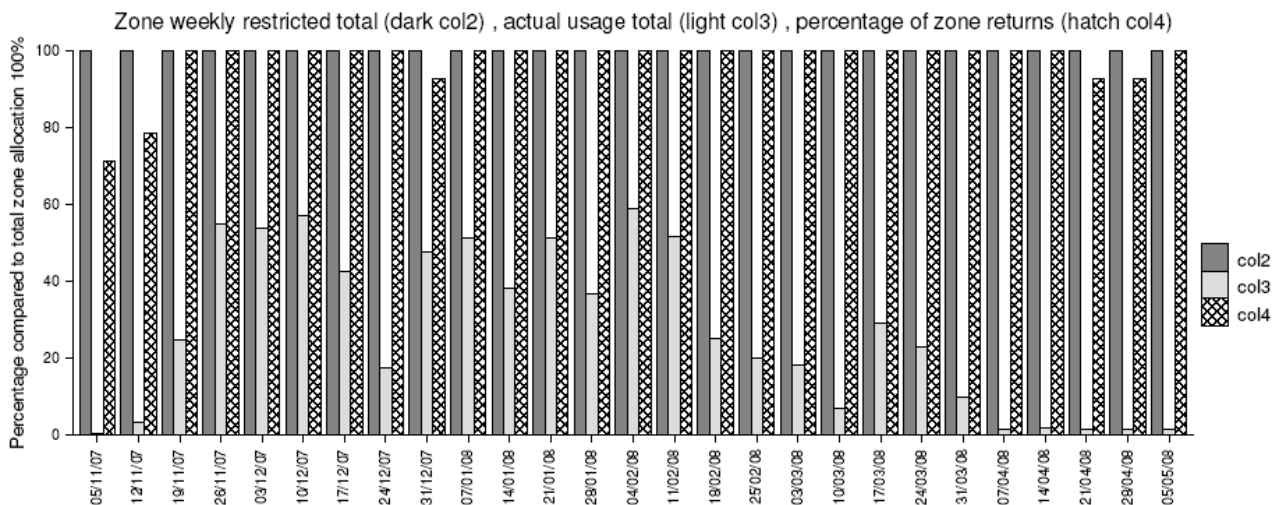
### Motueka Hau Zone



### Motueka King Edward Zone

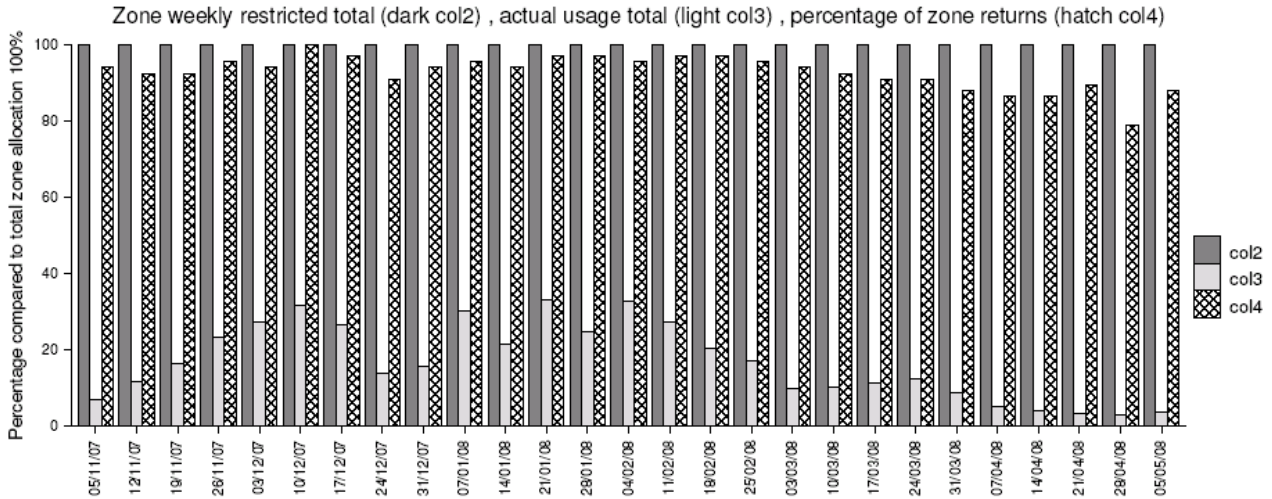


### Motueka Transition Zone

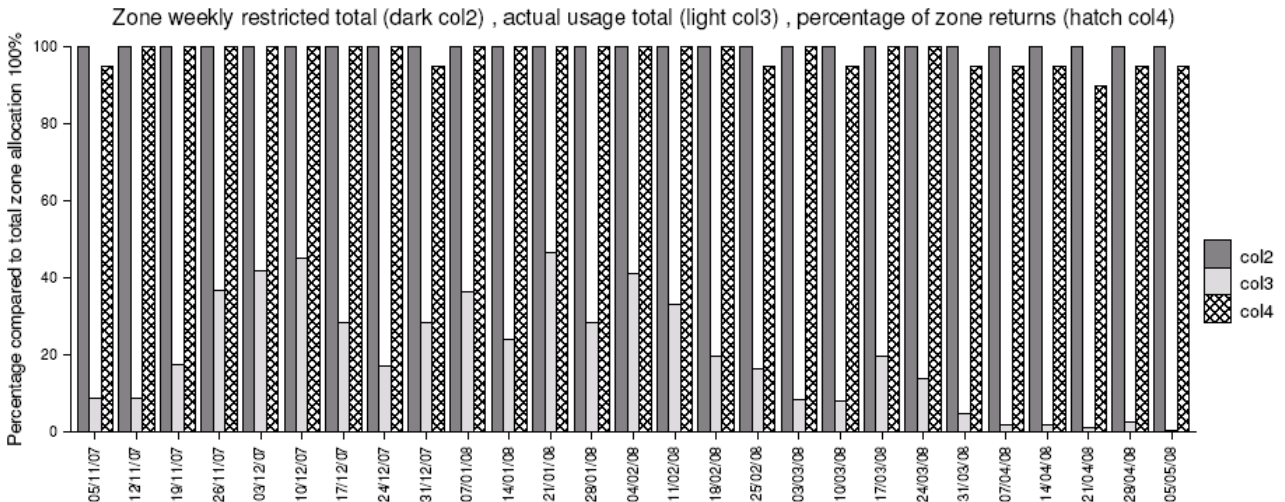




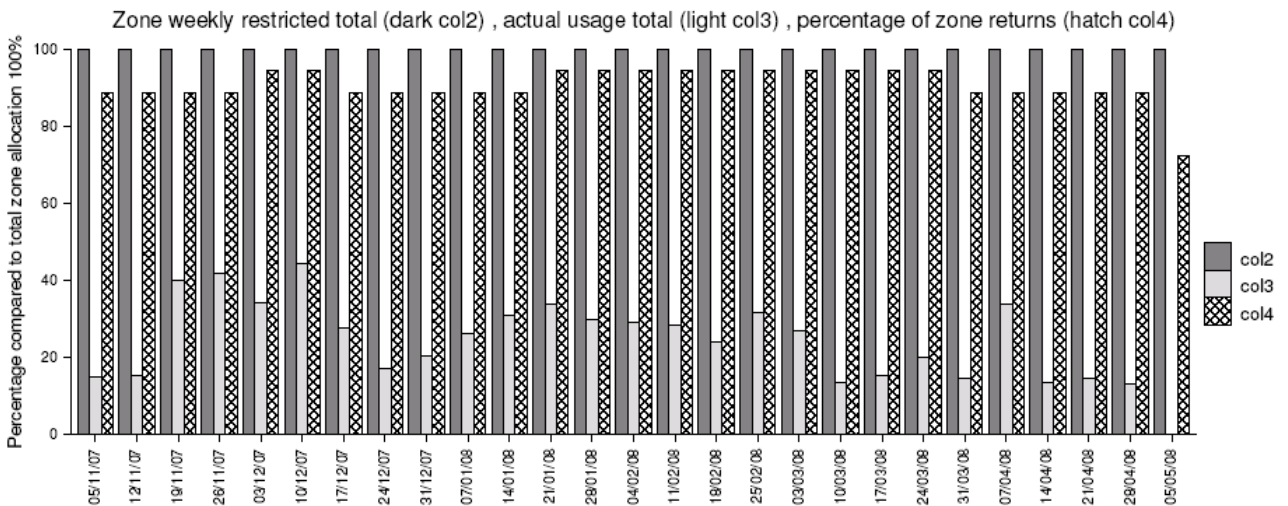
### Moutere Eastern Groundwater Zone



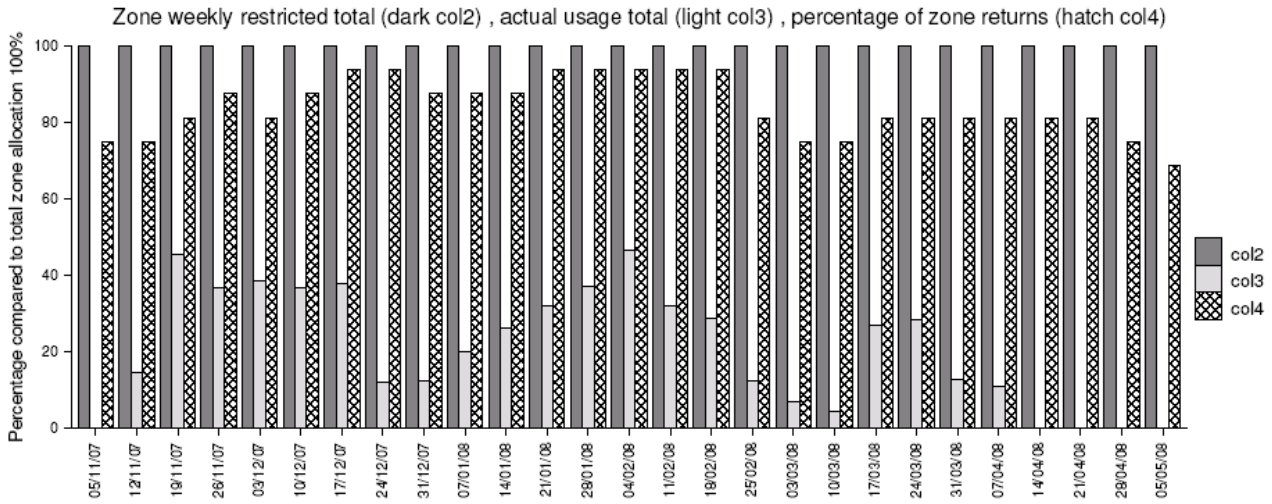
### Moutere Western Groundwater Zone



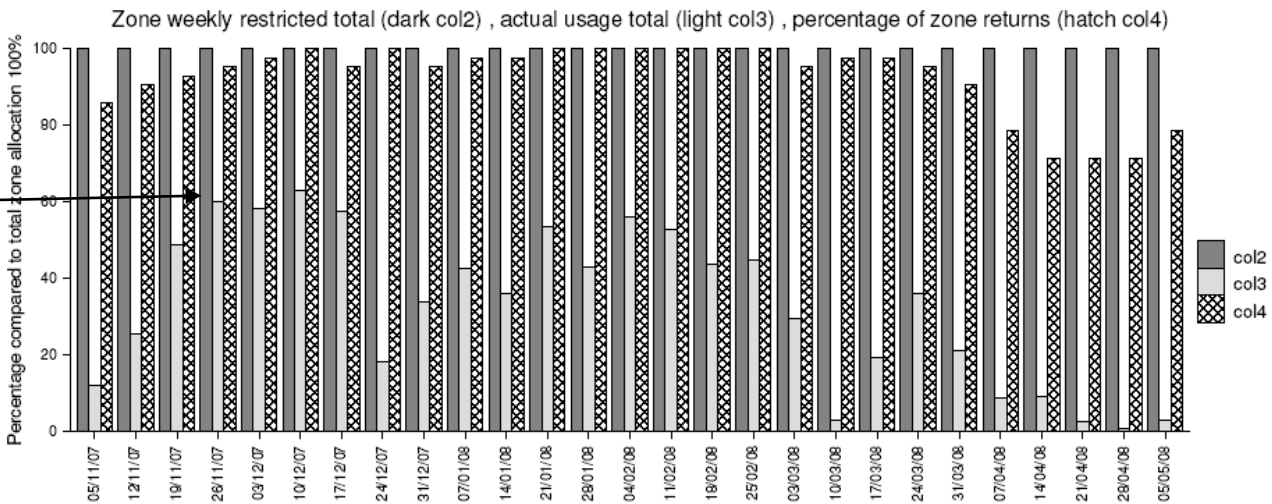
### Upper Motueka



### Motupiko Subzone



### Tapawera Plains



### Wangapeka Subzone

