Low flows in the Waitohi River

Report No. U06/5

Prepared by
Suzanne Gabites

April 2006

Environment Canterbury
Your regional council

Environment Canterbury
Your regional council

Report U06/5

58 Kilmore Street
PO Box 345
Christchurch
Phone (03) 365 3828
Fax (03) 365 3194

75 Church Street
PO Box 550
Timaru
Phone (03) 688 9069
Fax (03) 688 9067

Website: www.ecan.govt.nz
Customer Services Phone 0800 324 636

Executive Summary

A draft staff report on proposed allocation management regimes for the Hurunui River and its tributaries, including the Waitohi River, was presented to the Hurunui River Advisory Group in October 2005. Members of the Advisory Group, who irrigate from the Waitohi River and hydraulically connected groundwater, questioned Environment Canterbury's understanding of the natural hydrology of the Waitohi River and how this was being impacted by abstractors. They maintained that the Waitohi River dried up almost every year prior to irrigation abstractions and that there was no hydrological data to support the theory that before abstractions the river flowed through the summer period. They disputed the data in the staff report, which led staff to the view that the abstractors were having a very significant effect on Waitohi River flows and as a consequence the values of the Waitohi River. ECan undertook to have a second look at the hydrological records and ECan's interpretation of this data. This report looks at the 7DMALF analysis for the Waitohi River in report U03/34 and using flow records not taken into account in the initial analysis and additional gauging runs reanalyses the hydrological record.

Analysis of historic and the more recent concurrent gauging runs, indicates that there are loss rates up to approximately 140 ls^{-1} between Powers Road (3.2 km downstream of Lake Sumner Road Bridge) and Bakers Ford (9.8 km downstream of Lake Sumner Road Bridge), and gain rates of about 200 ls^{-1} below the Upper Medbury Road Bridge (11.4 km downstream of Lake Sumner Road Bridge) to the State Highway 7 site (18.4 km downstream of Lake Sumner Road Bridge). It is concluded that the Waitohi River dried up naturally (before any abstractions) in its middle reaches.

The recent concurrent gauging runs show that the river can be dry in the mid reaches but still above the minimum flow of 350 ls^{-1} at the minimum flow site just upstream of the Hurunui River confluence. Almost 300 ls^{-1} is now allocated to surface and hydraulically connected groundwater takes within the Waitohi catchment. Given an estimated natural 7 day mean annual low flow for the Hurunui confluence minimum flow site, of only 330 ls^{-1}, the Waitohi catchment could be considered to be highly allocated.

Table of Contents

List of Figures

List of Tables

1 Introduction

The Waitohi River, with a catchment area of 257 km^2 flows into the Hurunui River, which it joins just above the State Highway 7 Bridge. The current minimum flow for the Waitohi River is just above the Hurunui confluence and was set by the Hurunui River Water Management Plan (1980) at 350 litres per second (ls^{-1}). The natural 7-Day Mean Annual Low Flow (7DMALF) was estimated by Facer (2003) to be 330 ls^{-1} at this site.

In 1985 it was recognised by Talbot and Callander (1985) that the Waitohi was a limited water resource that was used extensively for public rural water supplies, stock drinking water and some irrigation. Since 1996, allocation of surface water and hydraulically connected groundwater has risen significantly. The catchment has a current allocation of just less than 300 ls^{-1}.

1.1 Hurunui River Water Management Plan (1980) (HRP)

The HRP inclusive of its tributaries, particularly the Waikari River, Pahau River, Waitohi River, Washpen Stream and Mandamus River, was prepared and adopted by the North Canterbury catchment Board (NCCB) in 1980. The objectives of the HRP included; the preservation of the natural flow pattern of the Hurunui River, setting a minimum flow below which no water other than for stock, domestic use and firefighting could be abstracted from the river and its tributaries and specifying how the available water is to be allocated amongst competing demands. The minimum flows were determined for the Hurunui River mainstem on the basis of; depth, surface width in a major braid, velocity of flow, water quality and temperature, and for the tributaries by agreement on what level of flow was sufficient to maintain the instream values. The instream values of the tributaries are more limited than those for the mainstem of the Hurunui River.

1.2 Natural Resources Regional Plan (NRRP) and the associated River Management Regime Review

Variation 1 of the Proposed Canterbury Natural Resources Regional Plan (NRRP) in 2004, sets out the objective and policy framework for reviewing existing management regimes for surface water, but for the rivers in the Hurunui catchment does not set management regimes. Incorporation of management regimes into the NRRP is by way of a variation to include regional rules that will define for the Hurunui catchment the:

- level of protection to be given to the instream values of its rivers;
- level of protection to be given to existing abstractors from competition for surface water; and
- potential, if any, for new abstractors to obtain a share of the surface and hydraulically connected groundwater resources.

ECan is in the process of preparing a report on the Hurunui River and Tributaries Proposed Flow and Allocation Regime, with the purpose of reviewing the minimum flows on the Hurunui River and tributaries and proposing a further variation to the NRRP to include the reviewed management regimes in the NRRP. In the process of preparing the report on the Hurunui River and Tributaries Proposed Flow and Allocation Regime and consulting with the community, members of an Advisory Group who irrigate from the Waitohi River and from groundwater which is hydraulically connected to the Waitohi River, questioned ECan's understanding of the natural hydrology of the Waitohi River and how this was being impacted by abstractors.

They claimed that the Waitohi River dried up almost every year prior to irrigation abstractions and that there was no hydrological data to support the theory that before abstractions the river flowed through the summer period. They disputed the data in the staff report which led staff to the view that the abstractors were having a very significant effect on Waitohi River flows and as a consequence on the values of the Waitohi River. This report reviews Report U03/34 Council with respect to the Waitohi River in the light of hydrological data that has only recently become available.

Several gauging runs between 1986 and 1992 where Bakers Road Ford and Medbury Road Bridge were visited and recorded as being dry, but this information was never entered into ECan's gauging database. Five additional gauging runs were undertaken during the winter of 2004 to assess natural gains and losses when there was only minimal water taken for stock water. This investigation seeks to re-analyse low flows in the Waitohi River using the additional information.

This report seeks to answer the following questions:

- Does the Waitohi River dry naturally in the middle reaches, or is this induced by abstractions?
- When the minimum flow of 350 ls^{-1} is reached at the Hurunui River confluence, could the Waitohi be dry in its middle reaches?
- Is a proposal to establish a new minimum flow site at the Lake Sumner Road Bridge a better option to protect flows for the length of the river than the current minimum flow site at just above the Hurunui confluence?

Figure 1.1 shows the Waitohi catchment with the gauging sites used in this analysis.

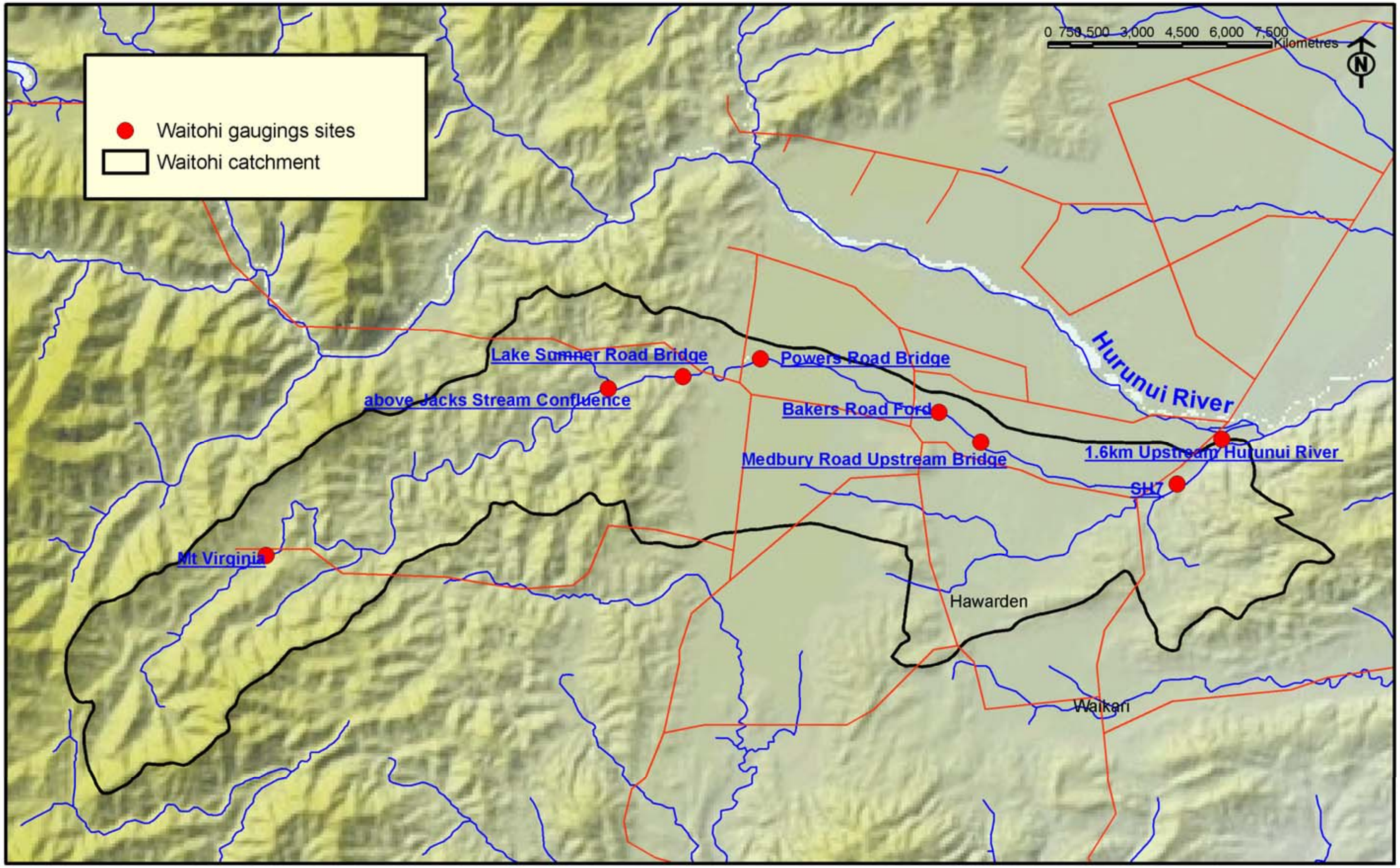


Figure 1.1 Waitohi catchment map with gauging sites located

2 Resource Consents

Within the Waitohi catchment there are currently eight surface water consents and 13 groundwater consents that are considered hydraulically connected to the Waitohi River. Three abstractions from the river are for stock and community supplies, while five surface takes are for irrigation and individual property stock supplies. The 13 groundwater consents take from galleries, waterholes or shallow wells (which are all within very close proximity to the Waitohi River bed). There are also five current consents to take from ‘deep groundwater’ (greater than 30m) in the Waitohi River catchment. It is assumed that these will not have hydraulic connection to the river.

Figure 2.1 below shows the increase in surface water takes and shallow groundwater takes used for irrigation, in each reach of the river over the last 20 years. Since 1996 there has been a significant increase in takes, which is similar to trends in consented water use throughout Canterbury.

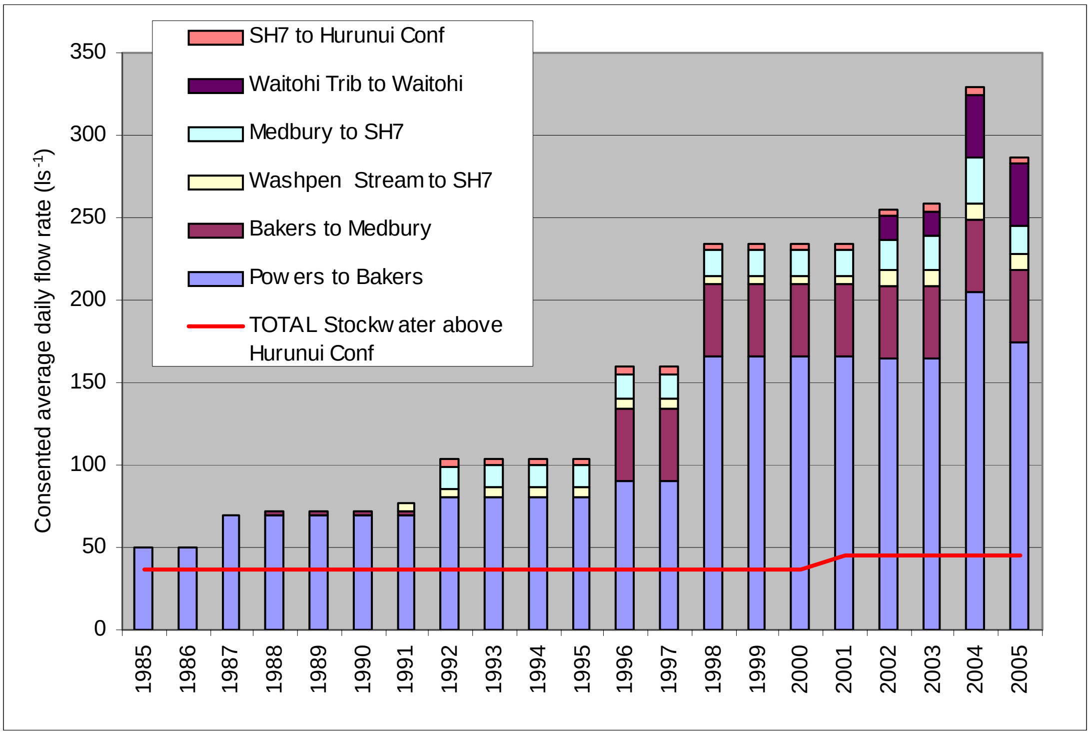


Figure 2.1 Surface and hydraulically connected groundwater consented abstractions for irrigation

There are three current discharge permits for a range of activities within the Waitohi. The Hurunui District Council (HDC) has one to discharge treated sewage (maximum rate of 4.6 ls^{-1}) into Washpen Stream, and a second for discharging water under flood conditions. Transit NZ holds the third for discharging stormwater from road construction. None of these discharges would have significant effect on flows in the Waitohi, especially when the river flow is low.

2.1 Naturalising flows

Flows were naturalised (corrected for abstractions) at each location by totalling up the surface and shallow groundwater consented takes above each site. To assess the shallow groundwater takes a hydraulic connection assessment was made, from Weeber (2002) or individual consent auditing. These assessments include estimates of the total depletion (in ls^{-1}) on the surface water body, allowing them to be accounted for in the same way as a surface take. In the case of the Waitohi River, most shallow groundwater takes are either excavated pits next to the river or galleries and it is assumed they have full connection to the river. Irrigation takes are only added back to those gaugings done within the irrigation season, which is considered to run from October to April, in most years, while stock and rural supplies are usually taken all year (unless otherwise stated). This approach has been used in numerous other catchments throughout Canterbury.

For the days when Bakers Road Ford and Medbury Road Bridge were visited and assessed as dry, only hydraulically connected groundwater takes were added back as it was assumed that surface water takes were not physically possible in this reach.

During the irrigation season of 2004/2005 all, but two, consents within the Waitohi catchment were monitored by ECan’s Compliance Monitoring Staff. Only two of the monitored takes were significantly less than their consented maximum rates. All consents were similar to their **average daily rate**, which was the value used when adding back to naturalise flows for all the other years when monitoring data was not available. Daily records were received from Hurunui District Council for their three stock water intakes.

3 Flow Analysis

3.1 Losses and gains

All of the available gaugings runs were split into two groups, those done during the irrigation season, (Oct-April) and those done outside of the winter months (May-Sep). October to April runs were naturalised for upstream abstractions (details in Section 3). Naturalising flows becomes a step more difficult however, when there are dry reaches in a river. The analysis is seeking to determine whether the river would go dry without upstream abstractions, and to what degree abstractions are affecting the length of dry reach and the duration of time it is dry.

The winter runs were therefore the most useful way for determining natural losses and gains down the river, as during this time only water for stock and rural supplies were being abstracted. During winter, when river flows are generally higher, groundwater levels are also generally higher. Therefore calculated losses are likely to be less, and gains in flow greater than in summer when river flows and groundwater levels are lower.

Thirteen runs were completed in winter months in 1987, 1988, 1989, 1990 and 1992 and five complete runs were undertaken in the winter of 2004. Figure 3.1 shows the measured flows in winter months. In the winter months there is a significant loss of flow between Powers Road and Bakers Road, generally similar flows at Bakers Road and the Upstream Medbury Road Bridge, with large gains occurring before the river reaches SH7. Further gains occur between SH7 and the confluence with the Hurunui River.

Figure 3.2 show the gains and losses as the river moves downstream from the Lake Sumner Road Bridge, during summer months with generally similar trends but some of the runs show greater losses especially between Powers and Bakers Road. This is most likely due to lower groundwater levels in the area at the time of the concurrent gaugings.

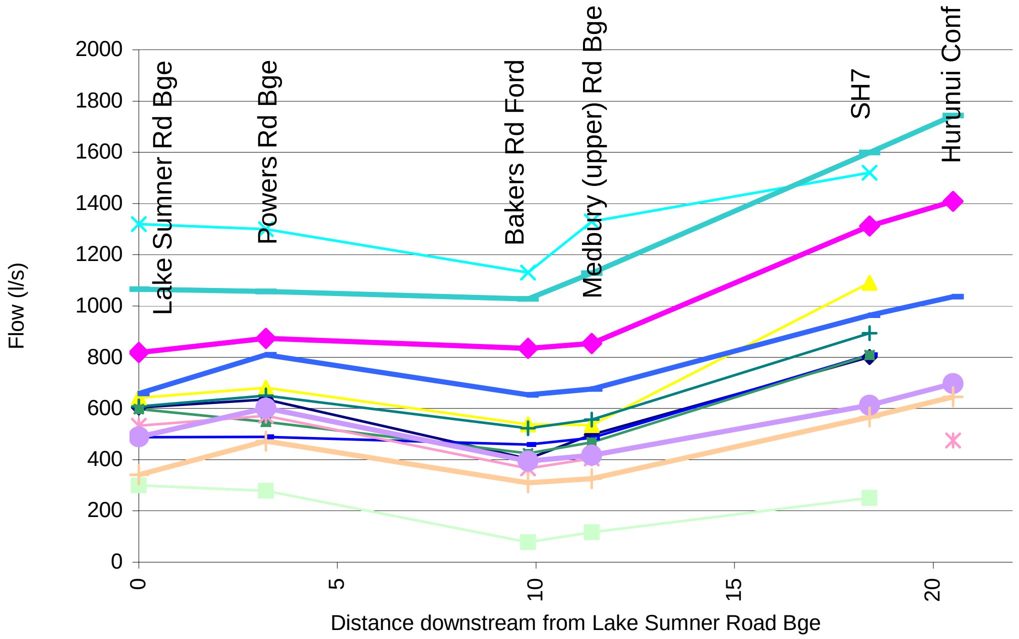


Figure 3.1 **Losses and gains in the Waitohi River during winter months (1987-1992 and five runs in 2004) Bold lines are gauging runs completed in 2004.**

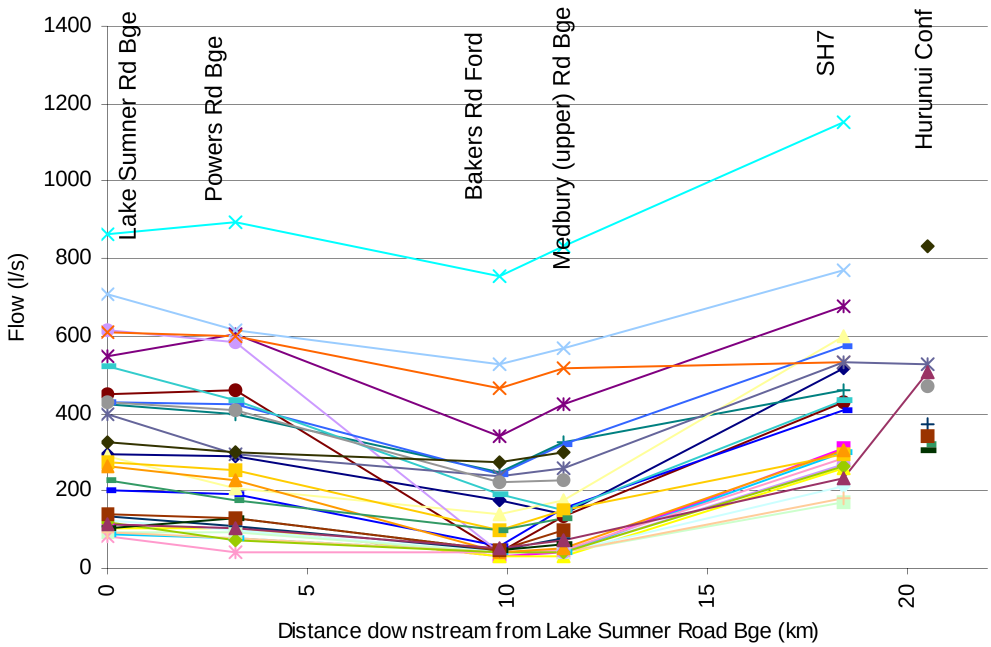


Figure 3.2 **Losses and gains (naturalised data) in the Waitohi River during summer months (1986- 1993 and one run in 2005)**

Using all the available data, average values were calculated for the losses and gains between each gauging location (see Figure 3.3). The largest loss is always between Powers and Bakers Road, however the actual loss rates are very similar be it winter or summer. As most of the gauging runs were completed between 1986 and 1993, when there was less water taken for irrigation purposes, these trends can be assumed representative of natural losses and gains in the Waitohi River system.

The reach between Bakers Road Ford and Medbury Road Bridge, appears to have a small gain in summer and winter months. The gains in the lower reaches, between Medbury Road Bridge and SH7 are noticeably higher in winter months, this is due to higher flows in winter forcing the average values higher.

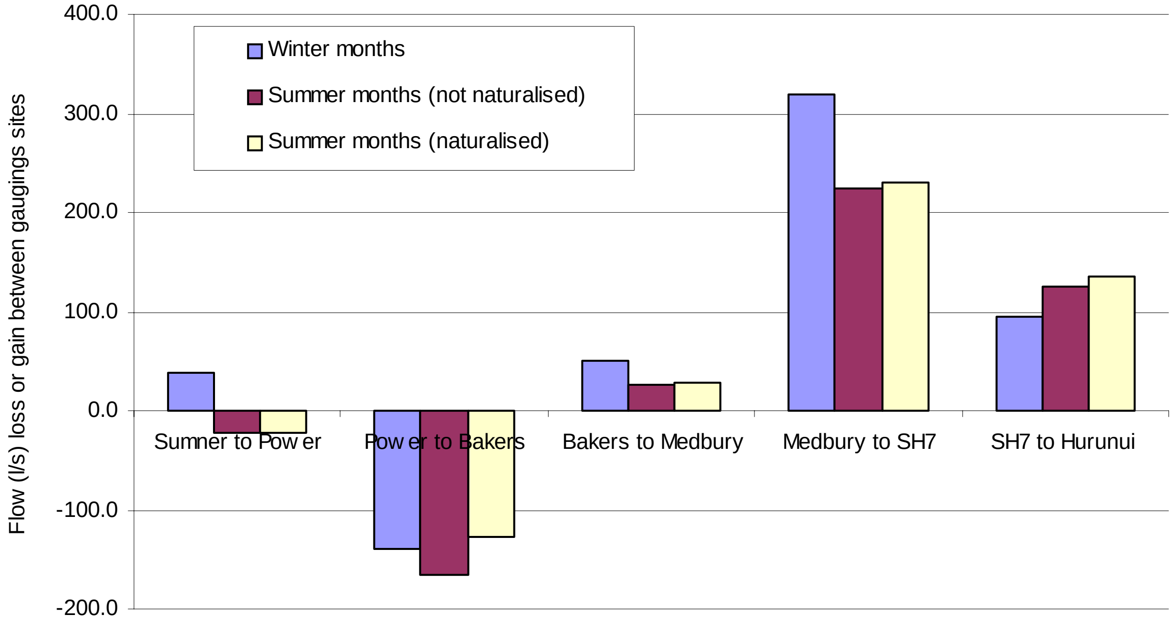


Figure 3.3 Differences in flow gains and losses through each reach of the Waitohi River

Talbot and Callander (1985) briefly discuss that the narrow channel aquifer beneath the Waitohi River is recharged with seepage of surface flow. They suggest that recharge to the gravels only occurs when flows are 'considerable', but the analysis shown above shows that surface flow is lost at all flow levels.

3.2 Groundwater levels

Two shallow wells (the location of these is shown in Figure 3.4), either side of the Waitohi River were measured on most gauging runs in the period 1987-1993. Unfortunately these wells have not been measured since 1993. There appears to be two runs where the losses between Powers and Bakers were larger than normal. Only one of these days had groundwater levels taken on the same day, when the levels on both sides of the river were the lowest readings over the 1987-1993 period.

Figure 3.3 below shows the measured groundwater levels with the gauged flow at Bakers Road Ford. M33/0196 is located in the North Bank, while M33/0195 is on the South Bank. They both show a general trend with higher groundwater levels in winter months. This plot also shows that whenever M33/0196 was measured at less than 1 metre below ground level (MBGL) that Bakers Road Ford was dry, while levels in M33/0195 were below 2 MBGL when the ford was dry. Groundwater records are generally pretty stable when the river is flowing, and only drop significantly out of the 'usual range' when the river is dry at Bakers Road.

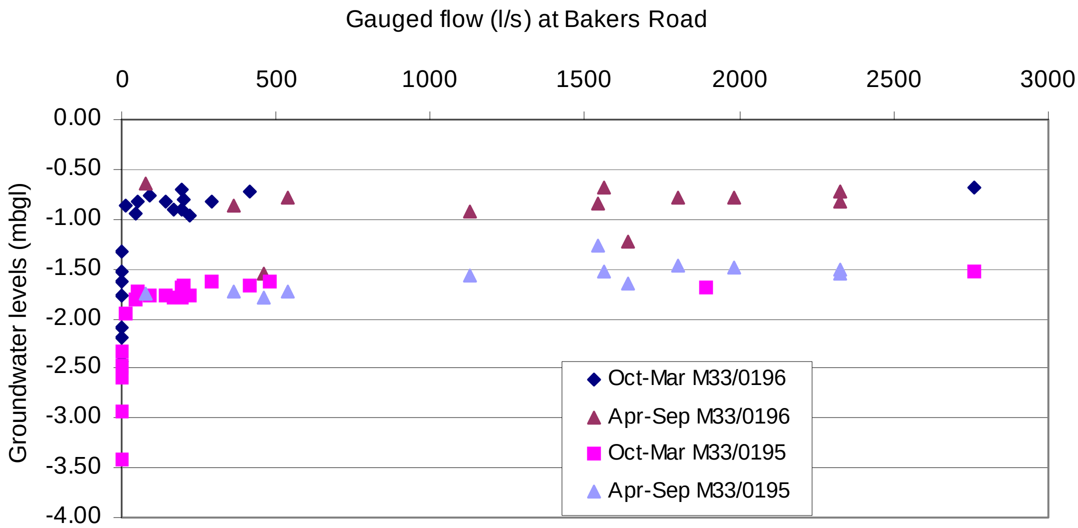


Figure 3.4 **Seasonal groundwater levels as measured at M33/0196 (North bank) and M33/0195 (South bank) compared with gauged flows at Bakers Road Ford**

3.3 7DMALF estimates using Regression

Using regression with a long-term flow recorder site, Waipara at White Gorge (closest catchment with most similar characteristics), estimates of 7-day Mean Annual Low Flow (7DMALF) were reassessed for all sites on the Waitohi. Most sites have a good regression relationship with White Gorge flows. All regression plots can be found in Appendix 1, while summary Table 3.1 shows the results, including the standard error of these values. Some of these are quite large in proportion to the estimated values. This is due to the scatter of the concurrent flows. Figure 3.5 shows the gains and losses during MALF conditions.

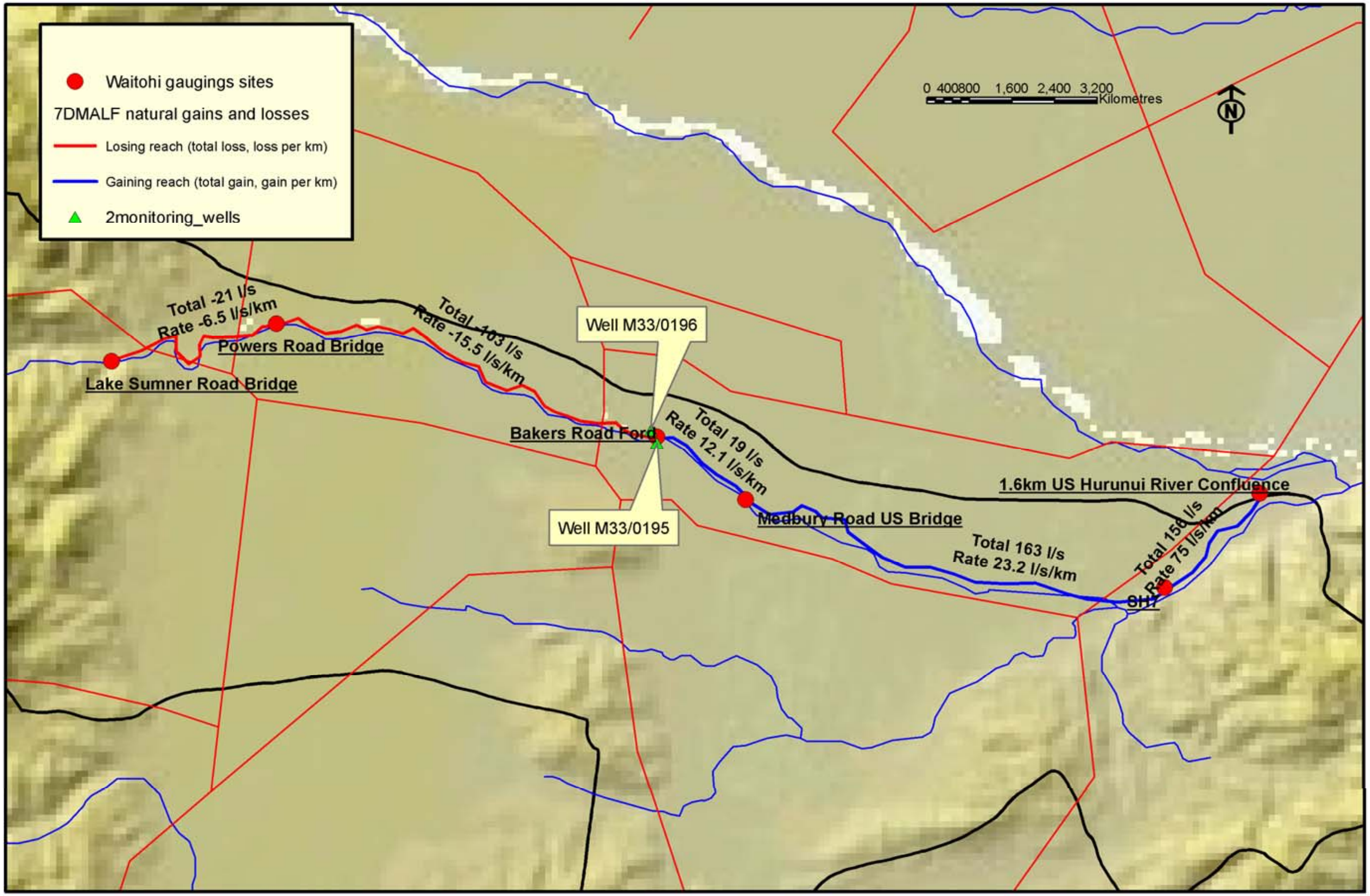


Figure 3.5 Estimated natural gains and losses from Lake Sumner Road Bridge under 7DMALF conditions

Table 3.1 Estimated natural 7DMALF, median and mean values for Waitohi River sites (all values in litres per second)

Site number	Grid Reference	Waitohi River Site Name	Catchment Area above site (km^2)	2006 estimate of 7DMALF	Standard error of predicted 2006 7DMALF values	Estimated Median	Estimated Mean
1506	M33:573-106	Mt Virginia	35.3	105	±62	234	542
1503	M33:688-162	above Jacks Stream confluence	102.7	217*	±214	487*	1150*
1504	M33:713-166	Lake Sumner Road Bridge	128.7	124	±151	467	1310
1508	M33:739-172	Powers Road Bridge	139.4	103	±131	463	1349
1498	M33:799-154	Bakers Road Ford	154.9	0	±159	372	1330
1505	M33:813-144	Medbury Road (Upstream) Bridge	157.4	19	±199	374	1242
1507	M33:879-130	State Highway 7	256.8	182	±220	687	1927
1501	M33:894-145	1.6km Upstream Hurunui River confluence	268.1	338	±301	748	1756

* based on a poor regression with insufficient gaugings – use values with caution

The estimated 7DMALF's have been plotted in Figure 3.6 with one full Waitohi River gauging run completed in March 2005, to give an indication of the effect of abstraction on this reach. As mentioned in Section 2.1, most of the abstractions were monitored during the 2004/2005 irrigation season:

- 110 ls^{-1} was measured from four consents between Powers Road Bridge and Bakers Road Ford (2 direct surface consents and 2 groundwater consents, one with 2 waterholes and one with two galleries),
- 47 ls^{-1} was measured from one shallow groundwater takes consent between Bakers Road Ford and the Upstream Medbury Road Bridge,
- 16 ls^{-1} measured from three consents between the Upstream Medbury Road Bridge and SH7,
- 46 ls^{-1} was measured from two direct surface water takes from Sheep Dip Creek, which joins the Waitohi between the SH7 site and the Hurunui Confluence.

This plot gives an indication of flows when measured in March 2005, at approximately 7DMALF conditions at the upper end of the catchment. The Lake Sumner Road site and at Powers Road site flowed while the river went dry by the time it reached Westenras Road end. The river did not start flowing again until below the pylons cross the Waitohi between Medbury and SH7. The 7DMALF estimates in Table 3.1 suggest that under natural conditions the river would have started flowing again before the Upstream Medbury Road Bridge. It is important to note that this is only one run and two extra sites (at Westenras Road end and pylons) were also visited, and it is unknown for certain whether the dry reach would have stretched to these locations on occasion, or not before the bulk of these abstractions started.

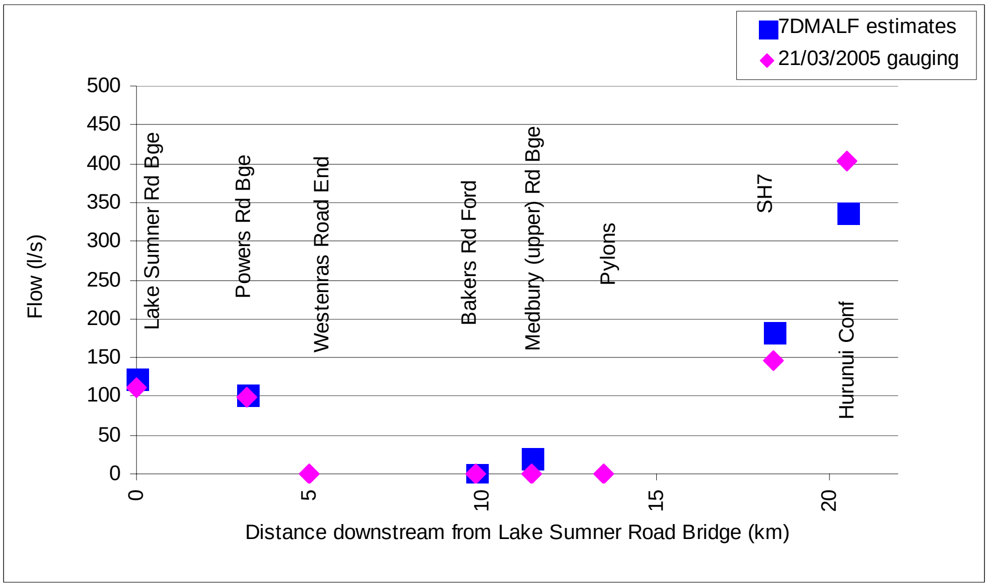


Figure 3.6 Estimated natural 7DMALF's compared with the gauged flows on the 21/3/2005.

3.4 Catchment yield

A specific yield for the Waitohi catchment to the Lake Sumner Road Bridge site, is equal to approximately 1 ls^{-1}/km^2 (where 7DMALF/catchment area = 124 ls^{-1}/129 km^2). This is approximately three times greater than the Waipara catchment to White Gorge, which has a specific yield of (112/370) 0.3 ls^{-1}/km^2. This would result from the Upper Waitohi being in a higher rainfall band, with the top of the catchment receiving approximately 1500mm per year, while the upper reaches of the Waipara receives only about half that.

The lower part of the Waitohi, between Medbury Road Bridge and the reach to the State Highway 7 site, gains water through Washpen Stream and it is likely that groundwater re-emerges from the losses upstream. Whereas, the reach below State Highway 7 site to the Hurunui confluence gains water from a tributary known as Waitohi tributary, or Sheep Dip Creek, which has very little flow information. This tributary is spring fed, and probably gains some water from emerging groundwater sourced from the Hurunui, and maybe a small amount from the upstream border-dyke scheme.

3.5 Correlation between Upper and Lower Waitohi

A good correlation between the gauged flows at Lake Sumner Road Bridge and Hurunui confluence is shown in Figure 3.7. However, with a closer examination of the lower end of this relationship, there appears to be quite a scatter of flows. For example, on the majority of occasions the Hurunui confluence has about twice the flow as at the Lake Sumner Road Bridge site, but on about three occasions flow at the upstream site was gauged approximately equal to that at the bottom. This would suggest that the lower site is influenced by losses and gains upstream, the fluctuating groundwater levels in the catchment, abstraction from the river and shallow groundwater, and probably has some groundwater contribution from the Hurunui River.

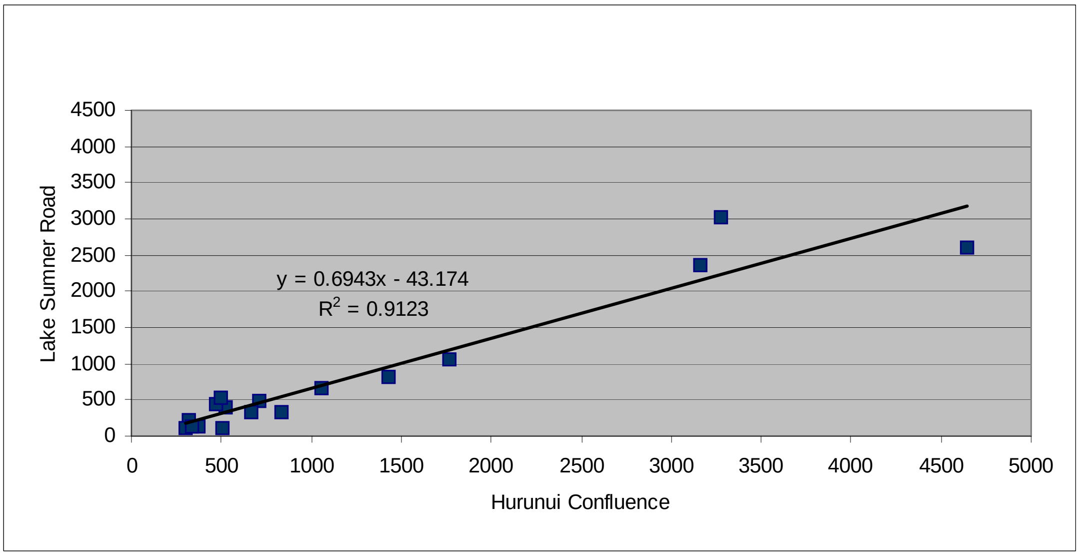


Figure 3.7 Naturalised Lake Sumner Road Bridge flows Vs Naturalised flows at Hurunui confluence

4 Discussion

Natural losses in the mid reaches of the Waitohi, between Powers Road and Bakers Road Ford, are in the order of 100-140 litres per second. The reach surrounding Bakers Road Ford **would** be dry under natural conditions, which concurs with anecdotal local information. While the river to Medbury Road appears to be a gaining reach and the naturalised 7DMALF is estimated at 19 ls^{-1}, this site is still likely to have been dry naturally on some occasions, but on fewer occasions than Bakers Road Ford. Talbot and Callander (1985) made a comment that although even when there is no surface flow in the mid reaches, subsurface flow still exists and is visible in waterholes in the riverbed. Below Medbury Road Bridge the river gains significant flow to State Highway 7 and continuing down to the Hurunui confluence.

However, it also has to be noted that despite the fact that the middle reaches did go dry naturally pre irrigation, the increasing number of abstractions (especially since 1996) will mean the length of the dry reaches will be longer, and are likely to remain dry for greater periods of time. Using the available data and information it is virtually impossible to estimate the effect that abstractions might be having on the dry reaches.

The latest full gauging run completed in March 2005, indicates that the river can be dry in the middle reaches but still flowing at greater than 350 ls^{-1} at the minimum flow site the Hurunui River confluence. If the minimum flow of 350 ls^{-1} was originally set at the Hurunui confluence to protect the instream values **throughout** the river, then this is clearly not effective in protecting the flows throughout the river and it is not clear whether the instream values are being sufficiently protected. Talbot and Callander (1985) suggested that '*the minimum flow set at 350 ls^{-1} for the Waitohi River at the Hurunui confluence is not appropriate for the Waitohi River. Above the confluence, the Hurunui contributes flow to the Waitohi via seepage through floodplain gravels. A portion of the flow measured at the confluence will be from the Hurunui River'.*

It has been suggested that a better location for a minimum flow sites would be at the Lake Sumner Road Bridge site, above the takes and above any complicating losses or gains. Given that the river loses about 100 ls^{-1} under natural 7DMALF conditions between Powers Road and Bakers Road, ensuring a flow, of say 100 ls^{-1}, throughout the length of the river, would require a flow at the Lake Sumner Road bridge site of at least 230 ls^{-1} (100 ls^{-1} greater than the estimated 7MALF of 124 ls^{-1}). To ensure a flow of 25 ls^{-1} at Bakers Road the flow at Lake Sumner Road would need to be about 150 ls^{-1}.

A synthetic continuous flow record was created for the Lake Sumner Road gauging site using the regression equation (in Appendix 1), with the Waipara River long-term flow record. An exceedance table was created (Appendix 2, Table 1) and shows that the naturalised 7DMALF for this site (124 ls^{-1}) is exceeded 91% of the time (using full year period), or in other words the flow is less than 124 ls^{-1}, 9 % of the time. If assessing the record just for the irrigation season (Appendix 2, Table 2- Oct-Apr) for 15% of the time, the flow is less than 124 ls^{-1}.

5 Conclusions

Incorporating the additional data into the analysis of the natural flow of the Waitohi River has resulted in a better understanding of the natural Waitohi River flows than that provided in the 2003 (Report U03/34).

The conclusions of this report are that:

- The Waitohi River flow disappears subsurface through its middle reaches, and would have done naturally, pre irrigation. The flow emerges again between the Medbury Road Bridge and the SH7 site.
- Increased abstraction since about 1996 (current peak allocation rate about 330 ls^{-1} – stockwater included) is likely to have increased the length of the dry reach and for the length of time it is dry, although to the exact extent is not known.
- The minimum flow of 350 ls^{-1} at the Hurunui confluence can be exceeded, even when the river is dry in it middle reaches.
- Assuming natural conditions, the flow at the Lake Sumner Road Bridge would have to be in the vicinity of 150 ls^{-1} for there to be flow of about 25 ls^{-1} at Bakers Road.
- The proposed Lake Sumner Road bridge site would be a secondary minimum flow site, because it is not affected by abstractions or influenced by tributary and groundwater inflows into the Waitohi. However further assessment of the instream values flow requirements for the critical reaches would need to be assessed.

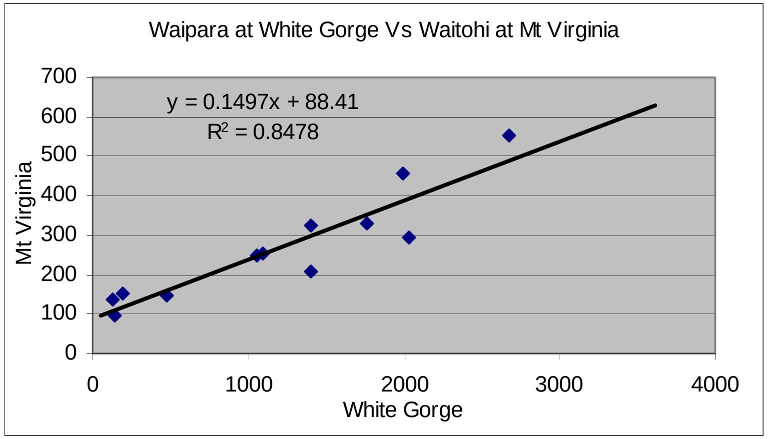
6 References

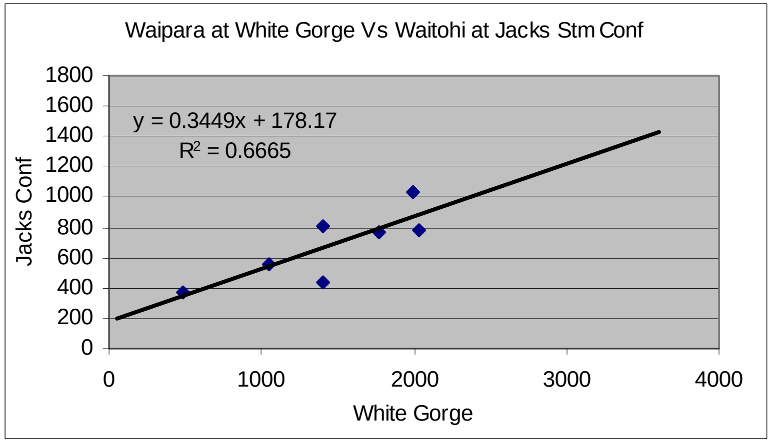
Facer, S.C. (2003) *Seven-day mean annual low flow mapping in the Hurunui catchment*, Technical Report U03/34, Environment Canterbury, Christchurch.

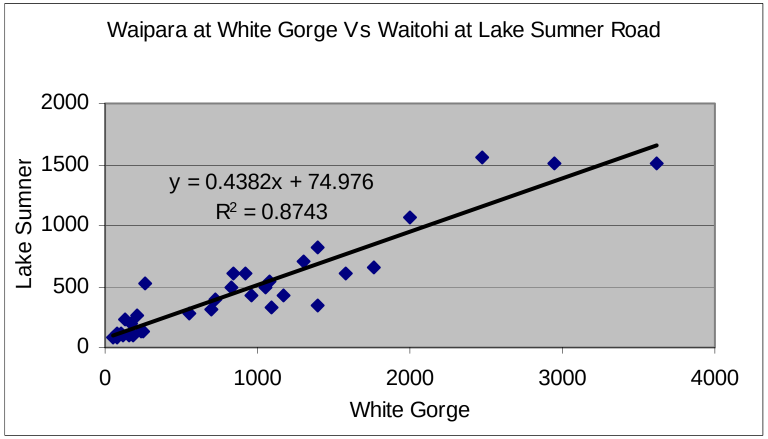
Talbot, J.D. and Callander, P.F. (1985) *Waitohi River and Aquifer Water Right Investigation, prepared for Hillview Pastures Ltd, J.R.N Zino and C.W. and S.F. Hay*, North Canterbury Catchment Board Report.

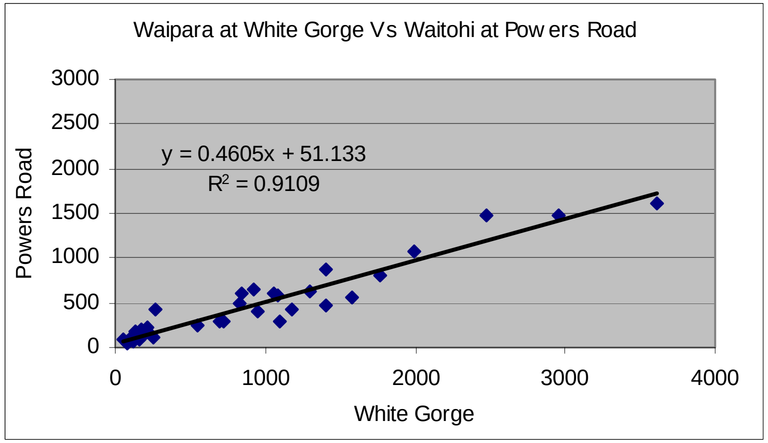
Weeber, J.H. (2002) *A desktop assessment of the effects of groundwater abstraction on surface water flow in the Hurunui River catchment,* Technical Report U02/70, Environment Canterbury, Christchurch.

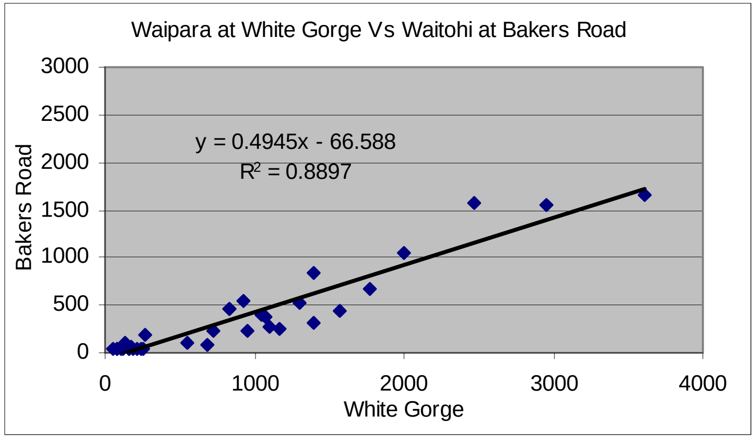
Appendix 1: Regression Plots for each gauging location

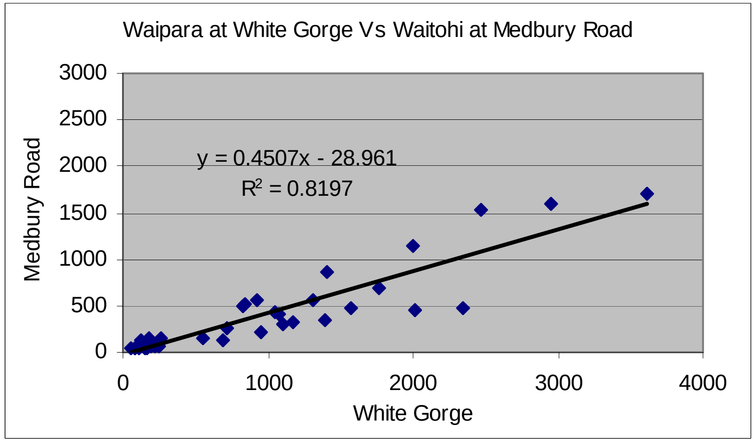


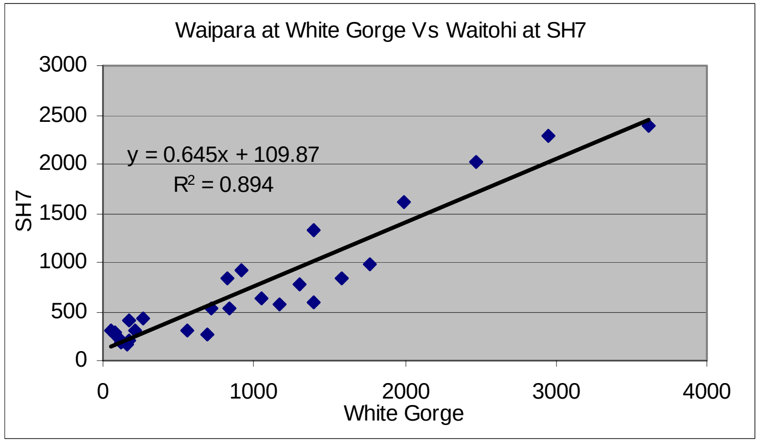


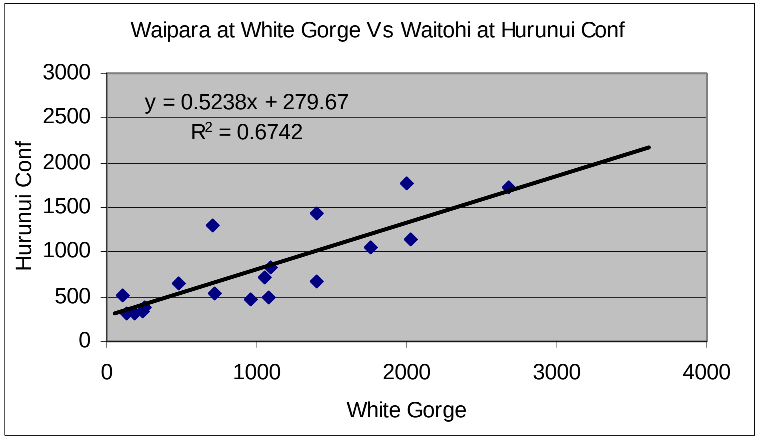





Waipara at White Gorge Vs Waitohi at Bakers Road
y = 0.4945x - 66.588
R^2 = 0.8897
Bakers Road
White Gorge
0
500
1000
1500
2000
2500
3000
4000


Waipara at White Gorge Vs Waitohi at Medbury Road
y = 0.4507x - 28.961
R^2 = 0.8197
Medbury Road
White Gorge
0
500
1000
1500
2000
2500
3000
4000


Waipara at White Gorge Vs Waitohi at SH7
y = 0.645x + 109.87
R^2 = 0.894
SH7
White Gorge
0
500
1000
1500
2000
2500
3000
4000


Waipara at White Gorge Vs Waitohi at Hurunui Conf
y = 0.5238x + 279.67
R^2 = 0.6742
Hurunui Conf
White Gorge
0
500
1000
1500
2000
2500
3000
4000

Appendix 2: Exceedance Percentile tables

Table 1: Waitohi at Lake Sumner Road synthetic flow record (full year period)

Exceedance percentiles

	0	1	2	3	4	5	6	7	8	9
0	160554	13776	8384	6432	5324	4592	4090	3683	3352	3081
10	2837	2623	2436	2270	2124	1998	1884	1770	1672	1580
20	1492	1417	1352	1293	1240	1186	1128	1077	1034	995
30	958	921	884	849	816	785	757	730	703	674
40	647	620	598	579	560	543	527	512	497	482
50	467	452	437	422	408	394	381	367	354	343
60	333	324	315	307	298	290	282	275	268	261
70	254	247	239	231	223	214	205	197	189	181
80	173	166	161	156	152	147	143	139	135	131
90	128	**124**	120	117	115	112	108	104	99	93
100	85									

Table 2: Waitohi at Lake Sumner Road synthetic flow record (Oct-Apr period)

Exceedance percentiles

	0	1	2	3	4	5	6	7	8	9
0	136408	7084	4606	3636	3003	2544	2217	1992	1785	1602
10	1454	1337	1235	1142	1070	1014	962	905	850	806
20	763	728	688	651	619	591	567	548	530	514
30	498	485	470	454	439	425	411	399	386	375
40	363	352	343	333	325	317	309	301	294	287
50	280	274	268	261	255	249	243	236	230	223
60	217	210	204	199	194	188	182	177	172	167
70	163	160	157	154	152	149	146	144	141	138
80	135	133	130	128	126	**123**	121	119	117	115
90	113	112	110	108	107	104	102	99	94	89
100	85									

Christchurch
58 Kilmore Street, PO Box 345, Christchurch

General enquiries: 03 365 3828
Fax: 03 365 3194

Customer services: 03 353 9007
or: 0800 EC INFO (0800 324 636)

Timaru
75 Church Street, PO Box 550, Timaru

General enquiries: 03 688 9069

Fax: 03 688 9067

www.ecan.govt.nz