

# Waimaori Streamcare Programme Reservoir Creek



A report prepared by Waimaori Streamcare and the Tasman District Council with financial support from the Minister for the Environment's Sustainable Management Fund, which is administered by the Ministry for the Environment.



Ministry for the  
**Environment**  
*Manatu Mo Te Taiao*

**Sustainable Management Fund**

*This work is copyright. The copying, adaptation, or issuing of this work to the public on a non-profit basis is welcomed. No other use of this work is permitted without the prior consent of the copyright holder(s).*

## JUNE 2007

### Waimaori Streamcare Programme And Reservoir Creek

#### BACKGROUND<sup>1</sup>

Through the Waimaori Streamcare programme, an initiative that has metamorphosed from DOC's Whitebait Connection, schools have been offered an opportunity to "adopt" their local stream. The delivery of stream-side workshops provides a vehicle for educating and raising awareness in the community.

In essence the term "Waimaori" means "freshwater in it's natural state". In the traditional Maori view, all things in the natural world possess mauri (the physical life force) that is protected by a Kaitiaki (guardian) or Atua. Tangata (humans) possess mauri-ora, of a higher order than mauri but conferring on us a certain responsibility toward other living things.

While at the stream, participants are asked to identify the life within and around the stream as an indicator of its' health. History and tikanga are integrated to emphasize the importance of kaitiakitanga, a sense of guardianship that encourages people to actively protect the freshwater areas in their locality.

Waimaori's involvement with Reservoir Creek began in 2005 while introducing Salisbury Girls and other school's environmental groups to monitoring and identification in their neighbouring stream.

TABLE OF MONITORING SITES

RES0	
RES1	
RES1a	Above Reservoir
RES2	Below Reservoir
RES3	Keith's track, seat
RES4	Easby Park
RES5	Welsh Place
RES6	Templemore Pond
RES7	Salisbury Road
RES8	Aquatic Centre
RES9	Estuary
STI1	Hill Street
STI2	Walkway (south of tunnel)
STI3	Junction by Grampians home

Highlighted in blue are the sites most accessible by schools on foot. This has worked well, but it is planned to re-assign two or three sites, allowing Kaitiaki to experience comparisons relative to each area. I've proposed to teachers that at the end of the year we visit the sites upstream RES1a & RES 2, adding inspiration to those involved, by offering a look at a richer, more abundant diversity of aquatic life.

---

<sup>1</sup> *The Ministry for the Environment does not necessarily endorse or support the content of the publication in any way.*

This area provides an example of the ideal stream, particularly above the reservoir where the creek is in its natural state surrounded by native vegetation. Templemore Pond has not been assigned as it was generally found in a poor state with invertebrates found rating as lowest in terms of sensitivity e.g. worms/snails. Though the lack of diversity here counts towards the assessment of the creek's health, the students' enthusiasm seemed to flag after a few visits where little was found.

The Salisbury Girls, who've been dedicated monitors for a long period at the Salisbury Road site, will begin regular visits to Easby Park, and Waimea Intermediate & College groups will be encouraged to continue at Salisbury Road, and other accessible sites upstream.

## **SUMMARY OF SITES FOR THE YEAR**

### **RES4 Easby Park**

#### September 2006

- 13 degrees water temperature
- 56% water clarity

Surprisingly 118 mayflies recorded as present by the group, as I was not present at the session, I cannot determine whether these were correctly identified (being so similar to damselflies). It would not be out of the question, as mayflies are usually present here.

The findings for September were a certain improvement compared to the previous session, in May when only four types of bugs were found, 3 of those of lowest sensitivity. Unfortunately, no temperature was taken. The Salisbury group plan to monitor for remainder of 2007, to date this year no data has yet been gathered.

#### December 06

- 15 degrees water temperature
- 38% water clarity

Very low diversity of macro-invertebrates, mayflies and uncased caddis are of a high sensitivity making them indicators of good water quality. The low clarity is likely due to the grass having been recently cut, the girls put effort into clearing the cuttings out, from the creek.

The site was monitored for macro-invertebrates in November, a good diversity found, but as participants were pre-schoolers and time was tight, no other parameters were tested. Generally the site is slightly above average, in terms of macro-invertebrate life data shows that the highest numbers and diversity found was in October 2005 - water temperature of 12 degrees. The decline may be linked to the removal of shady trees and riparian vegetation at the site.

### **RES5 Welsh Place**

Henley Primary school children became Kaitiaki of Welsh Place in August last year, and students have visited the site on 11 occasions. Mayflies were found there regularly throughout 06, monitoring commenced in May for this year, but no highly sensitive MI's recorded since.

The number of damselflies has definitely increased and in the month of June there was a marked improvement in water clarity. In October 06 the monitoring sessions were somewhat thwarted by presence of contractors (SICON) at the site, removing grassy riparian vegetation. This site lacks shade trees so the aquatic life here relies on the grasses and shrubbery for a sustainable habitat.

Flow rates have greatly fluctuated at this site - a peak shown in October 06, but since then dropped to a point of no reading, our method for measuring flow though modest, with tennis ball and rope proved that the stream would be lacking in oxygen. Clearly the contractors, though instructed to top the grass rather than remove it all, made no provision to prevent the cuttings from clogging the creek.

Though the contractors were polite and accommodating in moving their noisy operation away from our monitoring session, the students spent most of the time removing grass from the stream. In an area where flow is nearly non-existent, the grass presents a number of issues, the increase of organic matter in-stream potentially heats up the water.

Recent sessions at Welsh place show again that flow rates are declined due to extra weed, that greatly assisted in keeping temperatures down over summer, but potentially brings problems if not attended to after it's purpose has been served. I recommend that a strategy be set out and adhered to by contractors as part of the restoration of the creek, in regard to riparian management.

### **RES6 Templemore Pond**

This site certainly seems prone to fluctuations, possibly due to in-flow of wastewater. Res6 is actually located just across the road from the actual pond. Often, on approaching this site, the depth is found to be very low, containing dirty-looking froth and excess algae.

Records show that clarity in January and September was 100% but August and September 06 readings were approximately 50-60%. Despite high banks and some riparian planting, little shade is provided here. Stream health is compromised by the nearby location of Templemore Pond, populated by ducks. As mentioned earlier in report MI diversity here isn't great and numbers are generally low with snails and worms most commonly found.

### **RES7 Salisbury Road**

November 06 showed a peak in MI life here, but immediately prior to then, and since, the sensitivity of the bugs found has been very low. Always plenty of shrimp and subsequently native fish (when in season), water-boatmen and damselflies (low to average sensitivity, so not best indicator). The redfin bully found back in February this year, was clearly not in good shape and covered in spots of white fungus.

#### February

- 20 degrees water temperature
- 89% water clarity

PH levels in October and November – 8, rarely do we find it this high anywhere else, but as these sessions were carried out independently, it's difficult to verify definite accuracy. A recommendation I'd like to suggest again - to put boulders in to the creek where the natural habitat has been modified to create a walkway under the road. Because of the concrete bottom and surround there, the water is gathering heat where it flows across the concrete.

Considering the high taonga value of the native fish frequently found here (and at RES8) in very high numbers in the last year, I feel extra care should be taken to remove obstacles while promoting a

natural meander, with plenty of overhanging vegetation, necessary for the promotion of spawning/life cycles of these fish.

### RES8 Aquatic Centre

Though willows have been cleared from the central part of the stream site, there is the need for a large remaining stump to have a run carved through it to prevent erosion and further blockage. St Pauls school students put plenty of effort in on two occasions in October and November removing built up debris around the trunk.

The highest recorded water temperature was in March at 20 degrees, nonetheless, the diversity of aquatic life is always well indicated at this site. Clarity has been recorded as low as 10% on a windy spring tide day, 50% following rain and 100% on a good day. The students involved as kaitiaki also spent school time planting at this site.

### KAITIAKI GROUPS ESTABLISHED FOR CONTINUED MONITORING - RESERVOIR CREEK

School/group	Teacher/Contact	Number of students	Number of visits 06-07	Commenced monitoring
St Pauls Catholic Primary – Kea Kereru	George Watterson <a href="mailto:george.watterson@xtra.co.nz">george.watterson@xtra.co.nz</a> Angela Moeke <a href="mailto:angela@stpauls-richmond.school.nz">angela@stpauls-richmond.school.nz</a>	26 <del>27</del> <b>53</b>	10	October 06
<b>Henley Primary</b>	Ali Alder <a href="mailto:Rm14@henley.school.nz">Rm14@henley.school.nz</a>	27	11	August 06
	Sue Strawbridge <a href="mailto:sues@henley.school.nz">sues@henley.school.nz</a>	31		
	Cath Stevenson <a href="mailto:caths@henley.school.nz">caths@henley.school.nz</a>	<del>28</del> <b>86</b>		
<b>Salisbury Girls</b>	Carolyn Shirliffe <a href="mailto:room1@salisbury.school.nz">room1@salisbury.school.nz</a>	6	12	August 05
Waimea Intermediate	Darren Sundbye	10	5	August 06
Waimea College	Richard Dunn	60	1	April 05
Garin College	Sam Demello <a href="mailto:samdemello@garincollege.ac.nz">samdemello@garincollege.ac.nz</a>	4	3	November 06

One student Matthew Ruffell of Garin College has chosen to continue with his own individual project, monitoring the creek in 3 places measuring; flow, temperature, invertebrates, clarity, conductivity, pH, and the riparian vegetation of the site.

### CONCLUSION

While monitoring on-site I often find that there is one individual or family who take it upon themselves to clear, plant and generally monitor the waterway near their residence. This is the sort of

attitude the Waimaori - programme aims to promote. Many assume it is entirely up to council to ensure the beauty and cleanliness of all waterways in the region.

As a direct result of this restoration project, we have an avenue for providing the information needed. Wonderful opportunities to gather, open lines of communication, answer questions and advise those who are unsure how to proceed.

Letting weeds and grass over-grow in some areas successfully achieved the purpose, shown by lowered temperatures, presence of native fish, and great increase of macro-invertebrates. Ideally as the project progresses and proper riparian planting is undertaken, the issues of over abundant weeds and grass would be on the way to sorted.

### **RECOMMENDATIONS**

- ❖ Trunk at aqua-centre site to be cut through to allow water flow through.
- ❖ Re-create natural habitat at underpass
- ❖ Plan tree planting for Welsh Place
- ❖ Allow vegetation to overgrow in high seasonal temperatures on banks