

Friends of Waiwhetu Stream
Annual Report, 30 November 2015

Committee

Chair: Marilyn Merrett
Vice Chair: Michael Ellis
Secretary: Andrew Campbell-Stokes

Vera Green-Bargiacchi
Chrissie Burt
Henry Steele
Grant Webby
Graham Wolf

Appointees

Teri Puketapu (Te Runanganui o Taranaki Whanui o Te Upoko a Te Ika)
Prue Lamason (Councillor, GWRC)
Lisa Bridson (Councillor, HCC)

It has been another busy and productive 12 months for the Friends. Our group is now almost 4.5 years old and in that relatively short time, the stream has been transformed from what was formerly a smelly, weed and rubbish infested waterway. With the maturation of plantings and weed management, we can now see the changes; the stream will eventually be an improved ecosystem for native species and a more natural and attractive environment for people to enjoy.

We receive a lot positive comments from walkers. Sometimes people just stop to say thank you. Some say they have been walking along the stream for several decades and comment on what a great job we are doing and how wonderful the stream is now looking.

Volunteers, as well as Hutt City Council and Greater Wellington RC staff that have been involved, have contributed toward creating a living legacy for future generations.

I will begin my report with stream happenings during the past year, followed by reports on our regular activities.

1. Early in February a comprehensive ecological survey was carried out by GW. We are still waiting for the written report but an initial summary of fish present showed good numbers of inanga and eels, including a few longfin eels. Other native fish present in smaller numbers were redfin bully, koaro, banded kokopu and koura. Inanga, longfin eel, redfin bully, and koaro are all listed on

the threatened species lists. Longfin eel, redfin bully, banded kokopu and koura are all endemic to New Zealand; they occur nowhere else in the world.

We look forward to receiving the report and comparisons with the previous survey in 2002 to see whether there has been any change.

2. Last summer there was little rain between November and April which resulted in the stream flow gradually reducing and then stopping altogether. Flows had stopped at the St Ronans weir by 21 Feb. Approximately 200 m along the lower part of Riverside Dr north was completely dry at the beginning of March. We do not know what the impact of this would have had on native fish. The water temperature would probably have reached critical levels, exacerbated by a lack of shade along most of the stream. If this becomes a frequent summer occurrence we will perhaps need to investigate what we can do to protect native fish.

3. In the middle of May heavy rain caused the stream to rise, resulting in our plantings becoming submerged. The lower section of Riverside Dr south was closed because of surface road flooding. This was a failing of storm water drainage; the stream did not overtop the stop bank. I photographed this truck driving at speed through the water which can cause wave action onto and into properties which can cause upset. The stream coped well with the heavy rain that day.

4. On 25 May an unusual visitor made its way upstream to the St Ronans weir and attracted quite an audience. The weir is nearly 5 km from the harbour so a considerable distance up a small and shallow stream channel. I wonder how many eels were consumed on the way.

5. There are currently two families of native paradise shelduck in the Riverside Dr south section of the stream and there seems to be an increase in pukeko; this one was nesting on the bank at the Rishworth restoration site. It is pleasing to see more native species on the stream.

6. In September, Waiwhetu Stream was chosen as the 'river of the month' for the Wellington region for the LAWA (land, air, water, Aotearoa) website because of improvements that have been made to the stream over recent years, including the removal of contaminated sediments from the lower section. GWRC organised a site visit by a photographer and aerial filming of the stream was done with a drone. A short video can be seen on YouTube. It is pleasing that Waiwhetu Stream was chosen.

7. Last year I reported that Waiwhetu Stream maintained its poor ranking 53rd of 55 regional monitoring sites in the 2012/13 Greater Wellington annual report. The 2013/14 report showed an improvement with the ranking moving up to 51. Although this is a small improvement, it a positive move which we hope continues.

8. In February Grant and I gave a short presentation to the Hutt Valley Flood Management sub-committee giving an overview of our activities and progress on goals as well as structural issues with the St Ronans weir, and the restricted upstream migration of inanga because of two weirs. We sought support for the inclusion of an eel sculpture into any proposed fish passage at St Ronans weir. Alistair Allen (GW) had borrowed a ceramic eel from Sam Ludden, the artist, which was a great visual aid. Approval was given and we thank Alistair for getting the eel on loan. Our plan is to

use the Community Award money we received last year towards purchasing two or three bronze eels.

9. On 26 March there was a field trip to the stream by participants at the annual conference of the Environmental Institute of Australia & New Zealand (EIANZ). They visited the Hutt Park stretch where Alistair (GW) spoke about the removal of contaminated sediment and then they progressed to two sites further upstream where I spoke about the work the Friends have been doing to rehabilitate the stream. The organiser of the field trip, Chris Gibbons is keen for students to become more actively involved in our activities, perhaps next year.

10. The channelisation of natural waterways was popular in the past as a means, for various reasons, of controlling river flow and their pathway. I do not know whether the impact on the ecology of the waterways was considered important at the time but this is now a key issue being faced in many countries around the world. The removal the Naenae concrete channel has been raised from time to time and was publicly reported on earlier this year. In April we put forward a concept to Craig in the form of a drawing showing the channel dimensions and a sketch of how it could look. Our idea was to retain the concrete channel itself but remove the concrete berm. Craig & I met with John Keeler and Brian Smith of Wellington Water on site where support for the concept was discussed and then given. Craig agreed to the removal of two sections of the concrete berm (8 m) as a trial and arranged contractors for the job.

On 20th August contractors removed the concrete berms, then placed weed mat over the entire area, and rocks were delivered to the site. Subsequently committee members moved many of the rocks into the channel and a few days later a small group of volunteers planted the area. The immediate result showed that this method could be used at intervals to naturalise the concrete channel without the prohibitive expense of removing it entirely. The rocks in the stream will slow flows and improve upstream access for native fish. When the plants are mature, fish habitat will also be provided.

School activity

Hutt Intermediate and Epuni Primary school pupils visited the stream to learn about stream ecology and to do some ecological data collection. I was invited to the Hutt Intermediate events which were held over two days in June. These activities are part of a programme run by the Whitebait Connection organisation that is based at the Island Bay Marine Education Centre.

In September Naenae Primary School pupils planted along a fence line adjacent to the concrete channel, near Waddington Dr.

Regular activity reports

1. Berm rubbish collection (Henry)

Since October 2011 rubbish clean ups have taken place on first weekend of each month except January from Naenae Park to Bell Road and extended to Hutt Park from December 2013.

The stream is divided into eight sections and each has a team leader who organises other volunteers.

Initially it was thought that the frequency of clean ups would reduce as accumulated rubbish was removed, but the quantity has continued at the same rate.

Larger items are regularly dragged from the streambed and new ones are still being dumped. This year children's tricycles, car tyres, traffic cones and sign, suitcase, safe and a dead eel attached to a fishing line have been found. In terms of quantities collected glass and plastic bottles, plastic bags, fast food and coffee containers and pieces of polystyrene packaging make up the majority of rubbish.

In total 238 bags have been collected, an average of 21.6 bags and 23 volunteers per month. Compared with last year, 8 more bags were collected by slightly fewer volunteers. The annual time taken is estimated at almost 300 hours or 27 hours per month. In addition to improving the appearance of the stream corridor a considerable amount of debris has been prevented from reaching and polluting the harbour.

We thank the 42 regular volunteers and team leaders for their efforts together with those residents living along the stream who see rubbish and remove it.

2. Plantings (Merilyn)

This is the second year when our focus has been on planting the stream banks, to help stabilise them to reduce collapse and resultant sediment loading, to provide fish cover, to reduce grass and weeds and to add amenity value. During the winter months this year we had eight planting events; four were 'Friends' events which were down from Whites Line E, Birdwood Rd, Tilbury St and the Laura Fergusson Trust bridge berm. A corporate group from Aurecon planted down from Wainui Rd, connecting previous planting strips, 55 Hutt Intermediate pupils planted both sides upstream from Whites Line E, and St Paul's church people did two plantings; one upstream from Hinemoa St and the other along the Flight Plastics boundary (commonly known as Griffins bend). There have been a number of other smaller plantings as well.

Unfortunately there was vandalism to the Hutt Intermediate planting with more than half the plants removed a few weeks after they were put in.

On 15 November we continued planted the edge of the stream bed between Bell Rd and Wainui Rd with oioi and *Juncus*, which we started at Bell Rd in January last year. We are currently about 2/3 of the way to Wainui Rd. There have been some losses of previous plantings which will need to be replaced in the future. The January 2014 planting is now becoming more visible.

It is also pleasing that some property owners adjacent to the stream bank have become actively involved with weeding, clearing and planting these sections. Thank you to those people.

In total we planted about 3200 plants this year. To date, we have planted more than 14 000 plants along approximately 3 km of stream banks.

We appreciate the additional support provided by the extra volunteer groups.

Hutt City Council provided the bulk of the plants and has sourced additional supplies when requested. We were donated surplus plants by MIRO (Mainland Island Restoration Operation) and are grateful for their contribution.

3. Weeds and weeding

There has been abundance growth of grasses and weeds in our planted areas since the beginning of September. Often the weeds can be more than twice as tall as the planted carex which inhibits carex growth. Once the carex are about 18 months old, they usually grow to a size that inhibits weed growth so only require minor maintenance. We don't have an army of volunteers out every weekend weeding and our plantings cover too much distance now to rely solely on hand weeding, so we are using herbicide to try to manage weed growth. I have been spraying around the plants and Craig has recently had a contractor spray along the mowing strip. A clear strip between the plants and mowing reduces the risk of mowers accidentally cutting carex and also reduces weed spread into the planted area. Having a clear edge is also helpful when hand clipping and weeding around the plants.

I have been grateful to Bruno Pasquier who has been helping with weeding over the past few months at various sites along the stream banks.

Weed busters (Chrissie)

A small, dedicated team has been out fortnightly on a Sunday afternoon for an hour or so. The weeds have grown faster than the weed busters could remove them, but it has been rewarding to release our plantings so they can prosper without the restriction of weeds.

Many comments have been made by passing walkers who are happy at how the stream looks and the work of the wider Friends group.

Weed busters finish their sessions with refreshments and a chat and welcome all helpers.

There were in total 63 weed buster volunteer hours this year.

4. Aquatic weeds (Merilyn)

Cape pondweed

Ongoing removal of vagrant Cape pondweed plants has been undertaken by Franz over the past twelve months. He has been recording the number of plants he has removed from each stream section. In total he removed 145 plants this year, with August, October and January producing 93% of them. 26% (38) were from the Te Whiti Park to Whites Line E section and 59% (85) were from the Whites Line E to the end of Hayward Tce. We are grateful to Franz for doing regular pondweed patrols and for providing the data.

Semi-aquatic weeds

Semi-aquatic plants such as willow weed, *Veronica* and *Mimulus* are being managed well by Greater Wellington Regional Council and all large patches of willow weed have been removed. Current preventative management will hopefully ensure these weeds do not invade the stream channel as they have in the past.

The experimental treatment of yellow flag iris I started last year has proved successful and any further plants located will be treated to ensure total eradication. Some of the stream bank at the Rishworth restoration site shows the remains of the root system of the iris and some areas that were dominated by the iris are being colonised by herbaceous species such as bachelor's button and *Leptinella*.

I have also started using this control method on arum lily which forms large clumps at the edge of the stream and can encroach into the stream channel. Both yellow flag iris and arum lily have large, extensive and deep root systems that are almost impossible to dig out so it good to have an effective control method.

5. Stream patrol (Graham)

Graham has been regularly riding his bicycle up and down the stream corridor checking for pollution incidents and illegal dumping. He has taken a large number of photos and also done evening and night patrols checking on rabbit and rat presence.

He has noted and reported pollution incidents, mainly in the Seaview\Gracefield area.

We can all help by reporting to GW or HCC any visible pollution such as detergent suds and coloured or cloudy water. The sooner an incident is reported the greater chance of locating the source.

6. Stream advocacy meetings with Wellington Water and HCC (Grant)

Wellington Water

FWS representatives (Grant, Henry & Merilyn) met with Wellington Water (WW) staff on 25 March and 23 September to follow up on progress in identifying the sources of wastewater contamination of the Naenae stormwater system. Similar six-monthly meetings were held last year which were prompted by very high *E. coli* measurements in 2013.

The Naenae stormwater system continues to be a focus of attention for WW with an ongoing programme of monitoring aimed at trying to track down localised sources of cross-contamination. However progress appears to be painfully slow with many of the problem sites continuing to be reported on at each six-monthly meeting.

In accordance with the conditions of consent held by Hutt City Council for the discharge of stormwater to Waiwhetu Stream, WW monitor *E. coli* levels at the Tilbury Street Bridge. WW's

target objective is to keep the annual median *E. coli* count to below 1000 cfu/100 ml which is the National Bottom Line standard for rivers and streams in the Government's 2014 National Policy Statement for Freshwater Management. This compares with Greater Wellington Regional Council's (GWRC) threshold level of 540 cfu/100ml.

GWRC measure *E. coli* levels and other water quality parameters from the Whites Line East bridge area on a monthly basis for the purposes of their monitoring of the state of the environment. Our analysis of their *E. coli* data for the last five years, from July to June, provides a more complete picture of water quality trends for the stream. The overall monthly spread of values gradually declines in the 2013-14 year but worsens during the 2014-15 year. Annual median values have continually hovered just under 1000 cfu/100ml. The distance between the large Naenae stormwater pipe and Whites Line E is approx. 4 km so there is considerable dilution at Whites Line E meaning *E. coli* levels will be increasingly higher further upstream.

The box and whisker plots show GW data from 2010-2015 with log scale on vertical axis. Maximum and minimum values at the top and bottom of boxes show 90 percentile and 10 percentile exceedance values, and black diamonds shows the median value.

Most of the cross-contamination of the stormwater system in Naenae and elsewhere along the course of the stream can probably be attributed to the aging sewer pipe system (along with illegal cross-connections). It is probable that the budget allocation by HCC for sewer pipe renewal is constraining the rate of progress in reducing sewage cross-contamination, and thus entering Waiwhetu Stream.

Our vision is to achieve a recreational contact standard of water quality continuously in Waiwhetu Stream.

Because of our removal of Cape pondweed and rubbish from the stream bed, the water now looks clean, and children are regularly seen playing in it. This unexpected result from our work has meant greater urgency is required to stop the discharge of wastewater and its associated pathogens which are a health risk.

HCC - annual stakeholder meeting re WWTP Discharge Consents (Grant)

Friends representatives attended the annual stakeholder liaison meeting with HCC on 13 August to be briefed on issues related to the operation of the Seaview Wastewater Treatment Plant (WWTP) and the continuing investigations to identify an alternative discharge strategy for overflows from the plant. The following matters were reported on:

- The 2014-15 year was relatively dry until May with only two significant overflow incidents to Waiwhetu Stream on 14 May and 19 June. The impact of the treated overflows to the stream was minimal due to dilution by flood flows.
- One change to the discharge consent conditions for the WWTP was agreed with the consent authority. This related to water sampling during overflow incidents at each of the monitoring sites being taken at only one depth rather than at two which were the water surface and at 150

mm below the surface. One other change that FWS had accepted was not agreed to by the consenting authority which was changing the location of the upstream monitoring site from Bell Rd Bridge to Whites Line East Bridge. However HCC and its consultant plan to undertake additional sampling at the latter bridge site during future overflow incidents so that the background water quality levels in the stream are measured at the two sites at the same time.

- A major leak on the main outfall pipeline occurred between 4 – 17 August last year requiring unscheduled discharge from the plant into Waiwhetu Stream. Only treated wastewater was discharged to the stream, mostly on the ebb tide and the plant was operating well micro-biologically with *E. coli* and *Enterococci* counts generally meeting GW guidelines. However nutrient levels (Ammonia-N and Dissolved Reactive Phosphorus) significantly exceeded GWRC guidelines. The levels of Ammonia-N are a deterrent to fish migration.
- Investigations of options for overflow discharges are ongoing; 3½ years of the 5 year consent period have now elapsed. These investigations are considering different discharge concepts, the dilution performance of the options and their likely construction costs. The investigations are being informed by three NIWA reports on water and dispersion characteristics under various environmental conditions, and their modelling. Four discharge options are being considered:
 1. The existing Waiwhetu Stream outfall; 2. a shoreline discharge into the Hutt River near the mouth of Waiwhetu Stream; 3. a seabed discharge into Hutt River off Barnes Street; and 4. a seabed discharge 2 km off Matiu-Somes Island.

The key findings show environmental conditions under which effluent discharge occurs can be highly variable with the amount of dilution affected by the volume of river or stream flow, tide conditions, tidal current speeds, wind conditions, wave conditions, and the amount of density stratification. There was clear evidence of a thin layer of freshwater overlying sea water throughout much of the harbour, particularly in winter and following flood events in the Hutt River.

- The existing outfall provided the least effluent dilution while a seabed discharge off Matiu-Somes provided the greatest far-field dispersion.
- The two Hutt River mouth options provided greater dilution within 50-100 m of the discharge point than the Matiu-Somes option.

Rishworth restoration project (Vivien Pohl & Henry)

It is just over three years since work started to create a podocarp-dominated lowland forest on public land at the end of Rishworth St. Since then, planting, weeding and mulching has been undertaken every Wednesday and on other days when conditions were suitable. Over 1000 native trees and shrubs have been planted each winter. This year the final weedy and overgrown areas at the north end of the site were cleared, allowing planting to take place.

Although Pindone was used in February last year control a large number of rabbits, their presence was evident again this winter so another application was made in October. Other than rabbits, plant losses were largely due to the drought conditions prevailing in summer but plants are mostly thriving and survival rates are high at over 90%.

This year 1200 plants were planted – 380 from HCC, 700 from Vivien, 60 from MIRO and 60 from Barbara and Henry. Planting has continued through October as cold, moist conditions prevailed. Almost the entire site is now initially planted.

Two aims for planting this year were 1) to increase the numbers of some species such as wharangi, pigeonwood, titoki, lancewood, nikau, fuchsia, northern rata, kamahi, and horopito and 2) to increase ground cover and low growing plants such as ferns, and small *Coprosma* spp. More than 70 native species have been planted with nearly all significant tree species now in.

Additional volunteer help came from 20 members of the Church of Latter Day Saints, Petone who mulched and weeded in February and did some planting in July. On 25 February a 13 strong ASB team from IAG worked on site clearance, weeding and mulching. After planting along the stream bank on 5 June (World Environment Day), the group of 8 volunteers from Aurecon relocated to Rishworth for lunch and then moved mulch to the north end, did some path maintenance, and a little weeding and clearance. They made a big impression on the mulch and moved quantities of logs with help from Michael Jones. Other people who have helped at Rishworth are Steve, Louis and Bruno. All sources are thanked for their valuable contribution towards the restoration project.

The path now extends to the northern end and it is interesting to see unearthed items being made use of as edging.

New signage is about to be put at the entrance to the site and the existing sign alongside the stream which was erected in 2002 is to be updated.

The Friends are also grateful for the continuous supply of mulch from Hutt City Council.

7. Liaison with HCC and GW (Merilyn)

Meetings have been held every 2.3 months with Craig Cottrill (HCC) and Mike Jenson (Operations, GW) and usually other council staff, to discuss and resolve any stream and weed management issues. These meetings have proved very beneficial in developing a coordinated approach to stream management and are a useful conduit between councils and the committee.

8. Amenity improvements

Two new picnic tables of the same style are in the process of being installed. The new additions are at Wyndrum Ave and Riverside Dr south. The picnic tables are a wonderful amenity and being made use of. We thank Craig for supporting and organising these.

HCC has also planted 25 large trees in groups of five at various sites from Bell Rd to Tilbury St.

End of regular activity reports

Volunteer hours

This year I have estimated volunteer hours at approx. 2500, which is highly likely to be an underestimate. This is a significant contribution by the Friends community and a reflection of the value placed on the stream and its corridor.

Acknowledgements

The success of our community group and its activities over the past twelve months is the result of the interest, time and commitment of the many volunteers who have helped with our activities and for this, as Chair, I would like to say thank you.

I thank Hutt City Council and Greater Wellington RC for supporting our activities throughout the year.

I also want to again acknowledge non-committee people who have made a significant contribution:

Franz Hubmann for his Cape pondweed vagrant patrols. Franz has also helped at Rishworth doing the tough work on clearance of blackberry, vines, fennel and scrap metal. He also helps with monthly rubbish collection, and blackberry removal at the base of Summit Rd.

Vivien Pohl for her commitment to the success of the Rishworth native forest restoration project which has progressed at a fast rate thanks to her energy and enthusiasm.

Barbara de Ste Croix also contributes at Rishworth, tends to rat bait stations there, and regularly helps me with extra plantings and weeding, often several times a week.

Alan White was one of the first to volunteer for the Cape pondweed group, was a committee member until the 2014 AGM and initiated the liaison meetings with HCC & GW. FWS is grateful for his support and wish him well in Napier.

The Hutt City Council volunteer co-ordinator plays a significant role in supporting our activities. Kristan Robinson held this position from about the same time as our group formed. She has now moved back to Canada but I wanted to acknowledge the support she provided both with the background organisation of planting deliveries, supplies for our activities and also helping with planting and weeding herself, always very cheerfully.

I would like to thank Michael for chairing our meetings, Andrew for doing a great job as secretary, and the rest of the committee and appointees for their contribution and commitment to the success of the 'Friends'.