

COMMUNITY ENGAGEMENT AND ENVIRONMENTAL EDUCATION AS A MEANS OF ACHIEVING STORMWATER COMPREHENSIVE CONSENT COMPLIANCE

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ABSTRACT

Tauranga City Council's *Stream & Estuary Clean-up Programme* has evolved over time from one or two ad hoc clean-ups per year involving a few dozen participants to a Downer sponsored inter-council programme that in 2016 involved over 1500 students from 17 schools taking part in 10 events. The 2016 events removed almost 4000kgs of rubbish that would have otherwise ended up polluting our waterways and harbour.

The programme has been developed as a means of achieving compliance with Tauranga City Councils comprehensive stormwater consents, and as a result of the desire by community to be more active in protecting and enhancing their local environment.

An assessment of Stormwater Reserve and Harbour margin rubbish accumulation was conducted in 2014 and this provided guidance on areas for future clean-up events. Downer NZ indicated their enthusiasm to support the events and this led to their providing valuable sponsorship allowing the programme to grow.

The *Clean-up Programme* delivers:

- A reduction in litter and fly tipping pollution within TCC's Stormwater Reserves
- A way of educating the community on their impact on stormwater reserves, waterways and harbour.
- Compliance with TCC's citywide comprehensive stormwater consent educational requirements
- Involvement for TCC's city partners in a programme that benefits the community

The programme encourages students to involve the whole family in their learning, and has proven popular with students, teachers, principals and parents. The events focus on giving students a chance to learn about and connect with their local environment while empowering them to make a difference in their community in the future.

KEYWORDS

Stormwater Consent Compliance, Community Education, Pollution Prevention

PRESENTER PROFILE

Radleigh Cairns –Tauranga City Council’s Pollution Prevention Officer for the last 2 years. Previously working in an Environmental Laboratory on Water Quality of Tauranga’s Water, Wastewater, & Stormwater. Radleigh is responsible for organising TCC’s Industrial Pollution Prevention Programme, Pollution Prevention Education Programme, and Pollution Incident Response procedures.

Marcel de Leur - Marcel currently works as the Northern Region Water Manager for Downer NZ looking after the Central and Northern Auckland Council Stormwater Contracts, Tauranga three waters contract and Whangarei Water contracts. In Marcel’s 20-year career he has significant experience in managing maintenance contracts for water, stormwater and wastewater throughout New Zealand and Australia that includes emergency response planning and subcontractor management.

1 INTRODUCTION

In November 2012, Tauranga City Council (TCC) was granted a 35-year Comprehensive Stormwater Consent by the Bay of Plenty Regional Council (BOPRC) covering the majority of the city’s stormwater network. The purpose of the consent; to promote the integrated management of stormwater within the city. The consent stipulated that Catchment Management Plans were to be prepared and submitted for an initial 4 catchments covered by the consent. Their purpose; to develop an integrated management approach to stormwater for each catchment, outlining the key issues and objectives for each catchment, and addressing the effects of stormwater discharges on the receiving environment, Te Awanui (Tauranga Harbour).

Both the Consent and the Catchment Management plans required TCC to undertake community education and awareness programmes relating to Stormwater. TCC already had an effective water education programme called Waterline, and this was expanded to include a Stormwater component. An Industrial Pollution Prevention Programme was established, along with other educational programmes already running.

Initially, litter clean-ups were on an ad hoc basis with the first taking place in July 2012 around the Waikareao Estuary. These early events were instigated mainly by concerned groups such as Estuary Care groups and local schools backed by the the help of both TCC and BOPRC. By 2014 the number of events

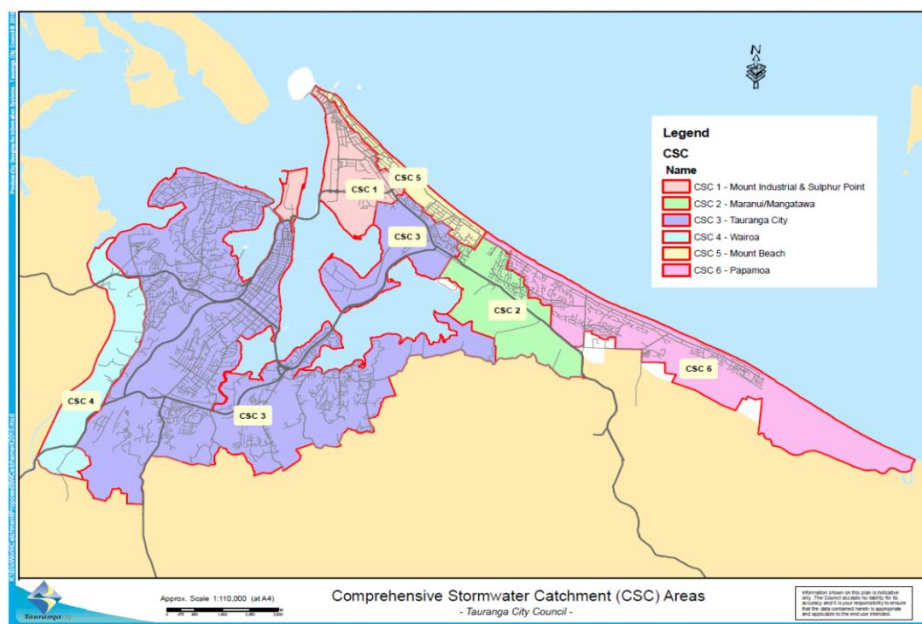
had grown, with Councils taking ownership of event planning. It was recognized that a more coordinated approach was required. At the end of 2014 Downer NZ had agreed to sponsor the fledgling programme which enabled a total of 10 events to be planned for 2015. That partnership continues, and the Programme is now at the start of its third year.

2 EVOLUTION OF THE PROGRAMME

2.1 CITYWIDE CONSENT AND CATCHMENT MANAGEMENT PLANS

Tauranga City Council was granted a 35 year Comprehensive Stormwater Consent (Consent No. 66823) in November 2012 that covered the Mount Industrial and Sulphur Point Catchment (CSC1), the City (CSC3), Wairoa (CSC4), and Mount Beach Catchments (CSC5). Comprehensive stormwater consents are also held by TCC for Maranui / Mangatawa Catchment (CSC2 - Consent No. 65714), and for Papamoa (CSC6 - Consent No. 63636). Refer to Figure 1 below for the location of each of the above mentioned catchments.

Figure 1: Map of Stormwater Sub-Catchments in Tauranga City (source: SoRE Report, May 2011)



This consent authorizes the following:

- The discharge of stormwater from the Tauranga City Council stormwater network; and
- Associated activities such as the use, maintenance and reconstruction of structures (in streams, rivers and the CMA) and to authorise the damming and diversion of water; and
- Additional stormwater discharges and structures, over and above the

existing network at the time of granting this consent, where discharges and structures have been authorised under resource consents granted by the Bay of Plenty Regional Council and are to be incorporated into the Comprehensive Stormwater Consent.

The consent also stipulated that Catchment Management Plans (CMPs) be prepared and submitted to the BOPRC for approval for the following four catchments:

- Oropi / Maleme sub-catchment
- Mount Beach Catchment area
- Mount Industrial and Sulphur Point Catchment Area
- Wairoa Catchment Area

These Catchment Management Plans were to include a variety of mechanisms for managing stormwater. This included mechanisms used to achieve compliance with the conditions of the consent, such as “Details of industry and community education and awareness programmes”.

2.2 THE EARLY YEARS

TCC’s citywide catchment management plans provided details of the existing programmes for stormwater education awareness:

Understanding what happens to the environment as a consequence of particular actions is critical if behaviour is to be changed. In many cases, actions that result in the discharge of contaminants are simply a product of how things have always been done. For example, dismantling and storing vehicles for recycling in the open on a permeable surface is typical of many industrial areas in New Zealand.

There are many successful education programmes carried out on a continuous basis through the TCC Pollution Prevention and Waterline programmes which aim to raise awareness of stormwater pollution issues and to highlight the relationship between land management and the quality of stormwater discharging to the receiving environment. These programmes include:

- The “Drains are Just for Rain” programme in schools;
- The placement of fish symbols on catch-pit grates in high risk and highly trafficked areas to indicate that the drain leads to waterways;
- The production of publications and print media on stormwater pollution and quality;
- Seminars, open days, and expos;

- Assistance and advice to residential properties in relation to stormwater pollution management through TCC's Waterline Education Programme; and
- Industrial Audit Programme to provide best management advice to individual site operators.

The stream and estuary clean-up programme slowly developed as part of a wider pollution prevention campaign and is now an integral part of TCCs strategy for achieving consent compliance.

The clean-up events in 2013 were planned individually and the locations were selected primarily on the interest of the local schools/groups. These clean-up events were successful in gathering large volumes of rubbish and providing for successful community engagement. These early events showed there was good community interest in holding more events, in a wider number of locations. Further work was required to identify where future efforts should be focused to maximise the benefits.

2.3 HARBOUR RUBBISH ASSESSMENT PROJECT

In 2014 TCC undertook a study into the level of rubbish accumulation around Te Awanui (Tauranga Harbour). The Tauranga Region is ranked as an Outstanding Site of Special Wildlife Interest, and as such, both TCC and BOPRC were keen to understand where and how rubbish was accumulating.

Staff undertook site visits to accessible areas of the Tauranga Harbour margins and tributaries within the TCC boundary. Information (notes, maps and photographs) on estimated volume, type and distribution of rubbish in these areas, accessibility, terrain, suitable facilities for clean-ups and likely ease of rubbish collection, were all collected. A final report detailing the above was produced which then fed into a plan for targeted clean-ups in 2014 and beyond.

Table 1 and **Figure 2** show the areas included in the study. These areas were split into sections depending on their size.

Figure 2: Map of Sites Surveyed during Harbour Rubbish Assessment Project July 2014

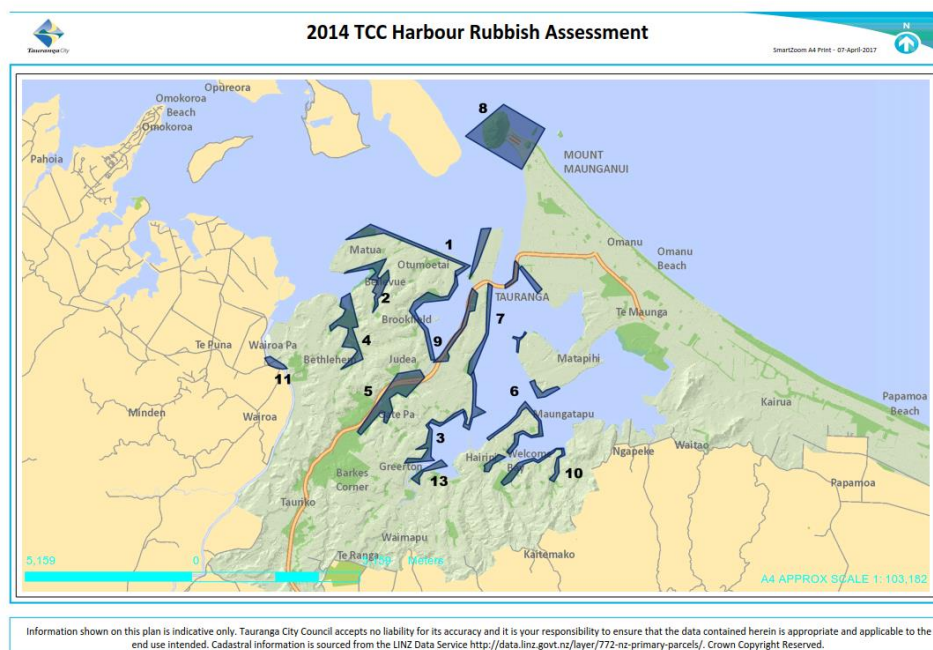


Table 1: Sites Surveyed (Source Harbour Rubbish Assessment Project July 2014)

	Site	Sections
1	Bureta Foreshore	A-B
2	Carlton Street Reserve	A-D
3	Fraser Cove	A-D
4	Gordon Charmichael	A-F
5	Kopurerua Valley	A-D
6	Maungatapu	A-D
7	Memorial Park Foreshore	A-H
8	Pilot Bay & The Mount	A-C
9	Waikaraeo	A-K
10	Welcome Bay	A-G
11	Wairoa	A
12	Whareroa	A-B
13	Windermere	A-D

Each section was rated using a number of factors:

- Amount of Rubbish found
- Accessibility
- The Facilities in the area (toilets/park BBQ's / access to drinking water)
- Importance of the area for public use, tourism etc.

The rating was shown on maps of the sections using a basic traffic light system with Red areas showing the worst rating requiring a clean-up in the short term; Orange and Yellow areas showing a moderate accumulation but not an immediate issue; and green areas showing minimal rubbish and no clean-up required. Examples of this can be found in the below **Figures 3 – 5**.

Figure 3: Pilot Bay & Mount Rubbish Assessment (Source Harbour Rubbish Assessment Project July 2014)

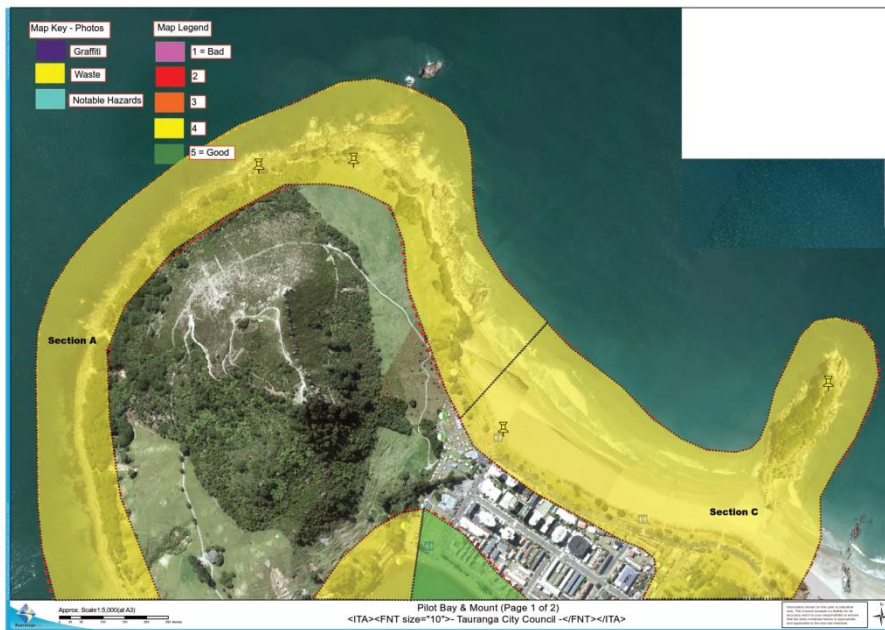


Figure 4: Waikareao Estuary Rubbish Assessment (Source Harbour Rubbish Assessment Project July 2014)

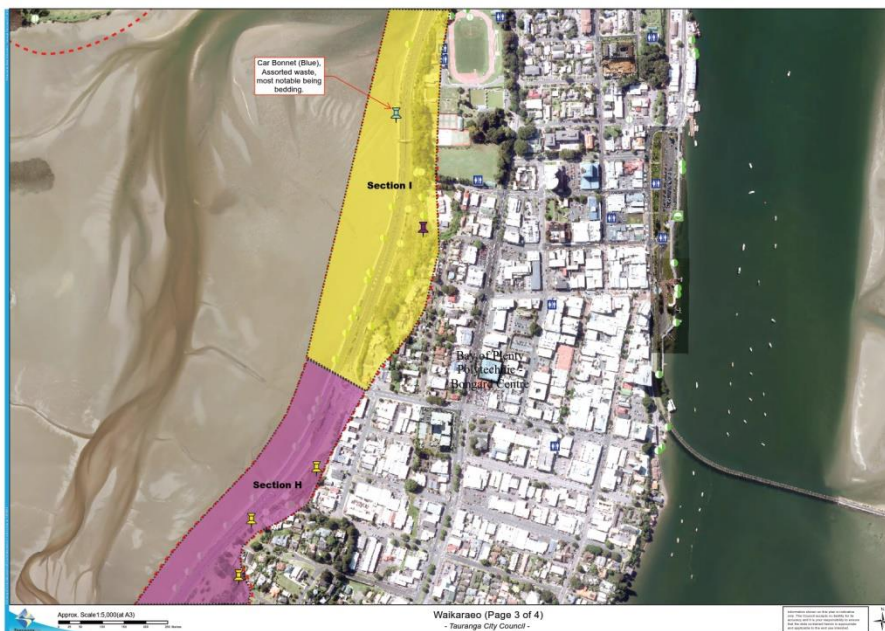
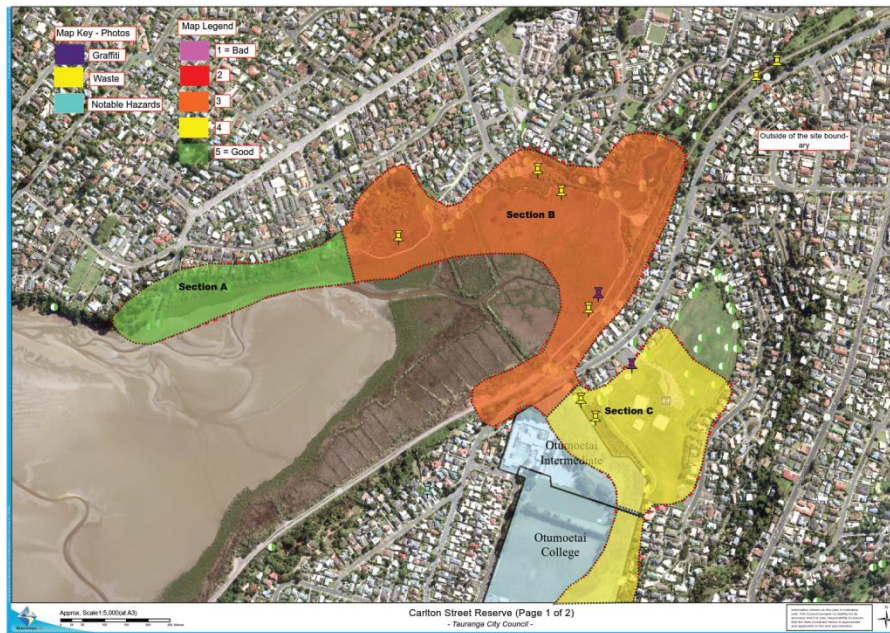


Figure 5: Carlton Reserve Rubbish Assessment (Source Harbour Rubbish Assessment Project July 2014)



The report fed directly into the clean-ups undertaken during 2014, and formed the basis of the first Tauranga Stream & Estuary Clean-up Programme Schedule for 2015.

2.4 DOWNER SPONSORSHIP

Figure 6: Project Tauranga News Issue 134 November 2016

The image shows the cover of Project Tauranga News, Issue 134, dated October-November 2016. The cover features three main articles:

- Greerton Rotunda feels right at home at Greerton Village School:** This article reports on the successful relocation of the Greerton Village Rotunda to its new home at Greerton Village School. It mentions that the school gala held in conjunction with the Greerton Village Cherry Blossom Festival on 24 September was a success. The article quotes Simon Pollard from Higgins Contractors, who expressed delight in helping relocate such a great community amenity and renovate it on school grounds. It also notes that the Rotunda was removed from the Village Green to make way for the new Greerton Library construction project.
- Waimapu Estuary Clean-up a huge success:** This article highlights a successful clean-up event at the Waimapu Estuary. It mentions that Project Tauranga partner, Downer, along with over 170 students from Merivale School, Tauranga Intermediate School and Bay of Plenty Polytechnic, as well as teachers, parents and volunteers, cleared over 70kg of rubbish, recycling and old tyres from the reserves and foreshore around the Waimapu Estuary. The event, part of the region's Stream and Estuary Clean-up Programme and proudly sponsored by Downer, was in support of Keep NZ Beautiful Clean-up Week which is held in September each year. The article quotes Jan Neale from Downer, who said: "The success of a community event like this affords that together we can all help keep our environment in the best possible shape so that it can be enjoyed for many more generations to come." Tauranga City Council Pollution Prevention Officer, Rodleigh Cairns, also commented: "The success of a community event like this affords that together we can all help keep our environment in the best possible shape so that it can be enjoyed for many more generations to come." Downer's Jan Neale said: "The success of a community event like this affords that together we can all help keep our environment in the best possible shape so that it can be enjoyed for many more generations to come."
- Downer Sponsorship:** A short article at the bottom of the page thanks Downer for their ongoing sponsorship of the Stream and Estuary Clean-up Programme. It mentions that Downer would like to thank Downer for their ongoing sponsorship of the event and looks forward to working with the company to achieve another successful campaign in 2017. "Without the support of an organisation like Downer, events like these would not be possible," said Rodleigh. The Stream and Estuary Clean-up Programme has 11 scheduled clean-up events for 2016, in various areas of the city. These events remain for the year covering Maungapu, Memorial Park Foreshore, and Jones and Wylie Streets.

The cover also features a large group photo of students and volunteers at the Waimapu Estuary clean-up, and a smaller photo of students performing at the Greerton Village Rotunda.

The number of Litter Clean-ups undertaken had steadily grown from one in 2012 to 9 in 2014. The events were popular with the schools involved, and were clearing somewhere between 300kg and several tonnes of rubbish per event. However they had a very small budget jointly funded by TCC and BOPRC, and with the growing number of students taking part, the ability to provide a structured, safe and fun event for everybody was becoming strained.

In late 2014 discussions began with one of TCC's Project Partners, Downer NZ about sponsoring the new Tauranga Stream & Estuary Clean-up Programme. Downer NZ were keen from the start of discussions, and agreed to partner the programme for the following three years.

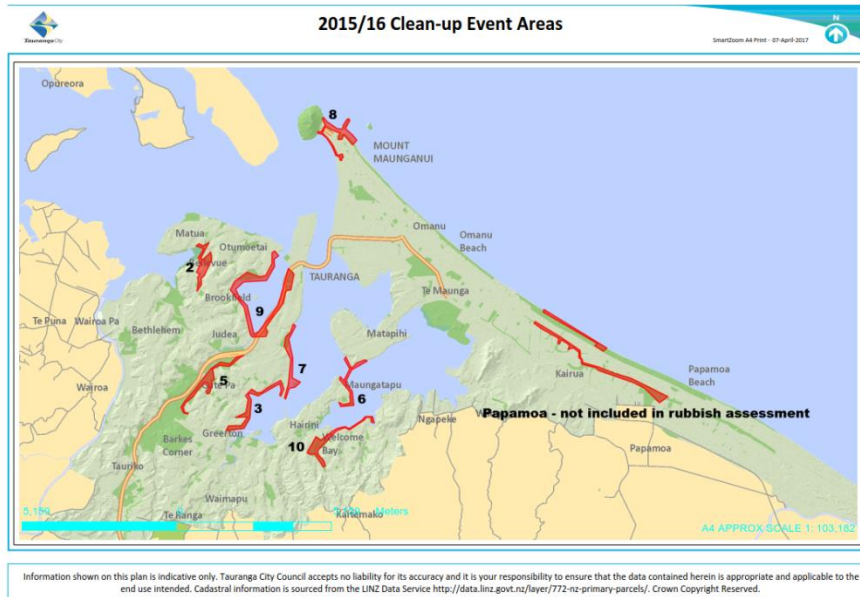
Downer was excited to be a key sponsor for the Tauranga City Stream & Estuary Clean-up Programme as it is a good fit for the areas that they hold important to the future of not only their business but also for New Zealand.

It enabled their staff to: become involved in the programme as volunteers; to realise the issue of rubbish impacting on our waterways, and take this back to their colleagues and family and friends outside of work; and to feel that they were helping make a real difference in the community, and the education of the next generation of "Tidy Kiwis".

2.5 STREAM & ESTUARY CLEAN-UP PROGRAMME

The programme of events is designed to cover the worst areas identified in the 2014 Rubbish Assessment Project that can be safely accessed by a large number of students with the required facilities for such an event on hand. Figure 7 shows the areas used for clean-ups during the last two years.

Figure 7: 2015/16 Clean-up Event areas (numbers correspond to sites in Table 1)



Each event has a number of objectives that include:

- That the students have fun in the natural environment.
- To raise their awareness of the current state of their local area, as well as that of the Tauranga Harbour as a whole
- To get them thinking about how they can improve their local areas themselves
- To spread that message to their family and friends
- To remove the accumulated rubbish from TCC's stormwater reserves and Estuarine fringes.

Figure 8: Omanu School students in Pilot Bay, Mt. Maunganui



Over the last two years, together with BOPRC, and Downer NZ the Programme has delivered 19 events around the City, involving over 3000 students, teachers, and parents from 20 schools. It has also involved volunteers from a number of community and environmental groups including: Coast Care groups, Lions Clubs, Keep Tauranga Beautiful, Envirohub Bay of Plenty, Toi Ohomai Institute, and the New Zealand Caravan and Motorhome Association.

In 2015, the 10 events collected almost 4 tonnes of landfill waste, scrap metal, and recyclables. Rubbish that would have remained in our stormwater reserves, parks, and foreshore areas if not for the enthusiasm of the schools and volunteers involved.

The events ranged from having 10 volunteers at an event in the Wairakei Reserve in Papamoa (where 80kg of rubbish was collected), to close to 300 students and volunteers for the events around the Waimapu Estuary, and Matua Saltmarsh / Carlton Street Reserve areas (where over 400kg and 650kg of rubbish were collected respectively).

The events had previously run on a very tight consumables budget that did not enable investment in some of the bigger resources required for the size the events had grown to. The sponsorship by Downer NZ allowed the purchase of a number of items that allowed the events to run smoother, and promoted the programme to a wider audience. These included a new BBQ, tables, a Gazebo, and flags / banners, along with a small promotional video to introduce the

programme to more schools. The video can be found on the programmes Facebook page (<https://www.facebook.com/taurangaestuarycleanup/>).

Figure 9: Greenpark School students at Wylie Street Reserve, Gate Pa



An important development in the events was an attempt to separate out any recyclables collected, thereby reducing the amount of rubbish going to landfill. This was not always successful in the initial stages, with large amounts of the recycling being too contaminated for the transfer stations to take, due to dirt, or more importantly contamination by non-recyclables. However by the end of the 2015 schedule, an increase in the amount of recycling being diverted was seen.

In 2016, the 9 events collected over 3.5 tonnes, including over 500kg of recyclable material that was diverted from landfill. The events now had a volunteer recycling coordinator, who was able to better direct the students as to what could be recycled, and what had to go to landfill. The coordinator also instigated a light rinsing of the recyclable material, which meant that virtually all of the material sorted was accepted by the transfer stations.

Figure 10: Brookfield Students rinsing recyclables



There were some minor changes made to the events to incorporate the new Health and Safety legislation that came into force in April of that year, as well as some additions such as:

New Signage that was placed in the clean-up areas after the events. These were designed to thank the schools for their participation, but to also be an obvious sign to the local community that the school was stepping up to make a difference to the area, and that perhaps they too should be more aware of how they disposed of their rubbish and waste.

In 2017, the programme intends to supply each school with an individualized certificate thanking them for their participation, and including the amounts of rubbish collected and photos taken on the day. There will also be a competition developed for students to enter intended to promote discussion with family and friends about the issues discussed during the events. One idea put forward is for a design competition for a piece of artwork made entirely of single use plastic collected through the clean-up events. The winning design would be made, and displayed in the reserve / area where the students event was held.

Figure 11: New Signage thanking Pillans Point School



2.6 CHALLENGES

Any event or programme will have its challenges, and the Stream & Estuary Programme is no different. The main challenges are as follows:

- Although filling the events has never been a problem, getting schools to commit early to each event has been.

The 2015 programme was promoted to the Principal of the schools contacted by TCC's Water Education Contractor, and included an introductory pack with relevant information, and dates for the upcoming year. This was done prior to the Christmas Break so that schools could plan in advance, but did not seem to filter down to the relevant teachers to enable early commitment from the target classes.

IN an attempt to solve this, in 2016 the programme was directly discussed with teachers of the target classes in schools where TCC's Waterline programme was also being utilised. This increased the time between schools agreeing to take part, and the event days. In 2017 the same approach has been undertaken, and

the initial response has been excellent with schools already signed up for a number of the events, including those in November and December.

- Confirming the number of students attending has been tricky

This has been a recurring challenge for a number of reasons. Individual classes may pull out close to the event or schools as a whole struggle to get the required level of support from parents to meet their adult to child ratios. TCC and BOPRC are very supportive in their staff attending the events as volunteers however, the numbers that attend each event vary depending on workloads and so can not be relied upon.

By signing up early, schools are able to give parents more time to arrange availability, minimizing any disruption.

- Comparisons of amounts collected year on year have been difficult.

Some areas are subjected to a number of clean-ups throughout the year, and these are increasing as the community interest in this issue increases. At the moment not all of these clean-ups are known about, or the amounts collected are unable to be measured. They also impact on the amount of rubbish collected by the events and can impact on identifying trends. Other areas are not routinely in the public eye, and so can become dumping grounds for those not wanting to pay the costs of taking rubbish to a transfer station.

The initial clean-ups included a lot of historical rubbish, so it maybe that trends will only become apparent later on as more data is collected. TCC's Resource Recovery Team are also developing a community clean-up guide, with helpful information, on how the council can help groups wanting to put on clean-ups, and health and safety requirements. An account has also been set up at the city's two transfer stations so that groups can take their collected rubbish there for free. This will enable the weights from the clean-ups to be recorded, and a better overall picture of how much rubbish (and recycling) is being collected across the city.

2.7 COMMUNITY RESPONSE

The Primary schools in Tauranga have really supported the programme, and this is shown by the steady growth in the number of clean-ups that the programme can accommodate, as well as the speed with which spots for the 2017 events are being reserved.

There has been a noticeable increase in community awareness of the programme. This can be put down to: the higher profile the events have when running; the continuing news stories about the events in both the Bay of Plenty

Times and Sunlive, along with stories included in Project Tauranga Updates; and the programmes Facebook page which is shared by both TCC and BOPRC main pages as well as local environment groups meaning the event reports reach thousands of people.

TCC's Resource Recovery team have seen a steady rise in requests for help with community clean-ups, and are now developing a Litter Clean-up Guide which will provide groups with all the steps and information they require to run an event based on the Stream & Estuary Clean-up events.

3 CONCLUSIONS

The stream and Estuary Clean-up Programme is an integral part of TCC's strategy for achieving consent compliance. The programme encourages students to:

- Interact with their local environment;
- Develop an awareness of the issues affecting it;
- Become empowered to make a difference to their community now, as well as with their future actions; and
- Share their knowledge with family and friends.

The programme helps to improve the quality of stormwater currently entering Te Awanui, by removing a large volume of waste from the environment, as well as aiming to improve future water quality, by engaging the community into actively finding ways to reduce their impact going forward.

Figure 12: St Mary's Catholic School students at Memorial Park, Tauranga



ACKNOWLEDGEMENTS

There are a number of people that have helped the programme to progress, but firstly the events would not be able to be the successes they are without the enthusiasm of the students, staff, and parents of the schools involved, as well as the volunteers from both TCC, BOPRC, and Downer NZ.

Toby Barach – TCC Consents Officer

Bruce Gardner – BOPRC Project Manager

Jim Nicol – Downer NZ National Manager - OSM

Michael Vujnovich – TCC Manager - Project Tauranga

TCC Communication Team

TCC Parks Team

TCC Resource Recovery Team

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