

A summary of Greater Wellington's work on stormwater

Stormwater quality investigation

What's being done?

A research project assessing the contaminants in stormwater discharges from 10 urban areas around the Region.

What are the expected outcomes?

Identification of the contaminants being discharged in urban stormwater in the Greater Wellington Region.

An understanding of how the contaminants are being transported e.g., dissolved in water or attached to the sediment.

How will it help us?

The results will help us to:

- Understand what, and how much, contamination is being discharged in urban stormwater.
- Develop an understanding of the relationship between land use and stormwater contamination.
- Assess whether, and how, we can use the vast amount of stormwater information coming out of Auckland and other places (recognising that geology, soil chemistry, topography weather and receiving environments are different in Wellington).
- Identify how we can most effectively reduce contaminant discharges. For example, if 80% of the contaminants of concern are being transported attached to sediment, then removal of the sediment will be a major step in improving the quality of stormwater discharges.

Progress?

At the end of 2003 samples had been taken from eight sites. Our plan is to sample two more urban areas, rain water and two stream sites upstream of urban influence, by the end June 2004.

A progress report on these investigations was presented at the last Environment Committee meeting.

Catchment models

What's been done?

To complement the stormwater quality investigation we have developed pollution runoff models for four of the catchments which have been the focus of our stormwater

quality investigation. Models have been developed for the Island Bay, Waring Taylor, McLeod Park, Duck Creek catchments.

How will it help us?

The models, coupled with the results of stormwater quality monitoring, will help us in predicting annual contaminant loads from urban catchments with different landuse patterns. Annual contaminant loads are useful for determining the impact of contaminants in stormwater on the receiving environments and prioritising mitigation measures.

Investigation of contaminants in marine food chains

What's been done?

Greater Wellington has undertaken an initial investigation of contaminants in shellfish. Shellfish flesh was analysed to measure the concentration of heavy metals and a range of organic contaminants.

What were the outcomes?

The results identified the presence of a variety of contaminants in shellfish taken from around the Region, especially those shellfish collected adjacent to urban areas. The results of this investigation have been reported to the Environment Committee.

How does it help us

These results provide a baseline so that if further sampling is undertaken we can assess whether the levels of contamination in our shellfish are increasing or decreasing.

The contaminants found in shellfish around the Region are mostly the same contaminants found in discharges of urban stormwater. This suggests that stormwater discharges are having environmental effects and that our current regulatory methods may have to be modified to ensure that these effects are avoided, remedied or mitigated.

Further investigations?

The shellfish testing could be part of a rolling programme which would see marine algae, shellfish, fin fish and crabs being analysed on a regular basis (e.g., every three years) to identify trends in the movement of contaminants into the marine food chains.

Due to cost and other priorities this programme is not included in our current budgets. We expect to put it forward for consideration when we do the next LTCCP exercise.

Some additional sampling and analysis of shellfish is being undertaken this year using existing budgets.

Catchment risk assessment

What's being done?

As part of its recreational water quality monitoring programme Greater Wellington is carrying out catchment risk assessments for bathing beaches in the Region. These identify the risk of microbiological contamination entering the bathing areas from sources within the contributing catchment.

WCC have recently completed an exercise which examines the environmental risks associated with contaminants being discharged from their stormwater system.

KCDC have undertaken a risk assessment exercise of their stormwater discharge outfalls to identify which of them are priorities for further work.

What are the intended outcomes?

The identification of priority areas for actions to reduce the risks associated with stormwater discharges as a source of microbiological contamination.

How will it help us?

Mitigation efforts and resources can be directed to areas where significant risks exist. Over time this should lead to incremental improvements in the quality of stormwater discharges in higher risk areas.

Progress?

Greater Wellington has completed preliminary catchment risk assessments for most monitored bathing beaches in the Region. We hope to finalise these assessments using new software provided by MfE, during 2004.

WCC's environmental risk assessment report has been completed. We expect to receive a copy of it once it has been presented to their Council.

KCDC expect to complete their risk assessment exercise in about three months time.

Regional Stormwater Strategy/ Action Plan

What's been done?

In September 2002 Greater Wellington released its *Erosion and Sediment Control Guidelines for the Wellington Region*. These guidelines are a non-statutory document intended to assist people in controlling the effects of earthworks. This was largely a modification of Auckland Regional Council's Technical Publication 90.

What's being done?

We are currently undertaking a round of meetings with territorial authorities in the Region. The purposes of these meetings are:

- To find out what stormwater issues are a priority for each territorial authority;
- To find out what work has been done, is being done, is proposed in relation to stormwater issues;
- To share the preliminary findings of our stormwater investigation;
- To raise and discuss the idea of developing a regional stormwater strategy/action plan; and
- To examine the most appropriate process for pursuing a regional approach.

What are the intended outcomes?

The development of a regionally consistent approach to stormwater management by local authorities in the Wellington Region.

How will it help us?

We have recognised that the delivery of sustainable solutions for stormwater in the Region cannot be undertaken independently. A regionally consistent approach is considered to be more likely to deliver a sustainable outcome.

Progress?

Meetings have been held with all TAs in the western region. We are currently trying to arrange meetings with TAs in the Wairarapa.

We expect to present an issues paper to the regional stormwater management reference group in 2004.

Pilot trials of stormwater treatment devices

What's being done?

As part of our meetings with TAs we have signalled an interest in collaborating with TAs in undertaking pilot trials of stormwater treatment devices.

An agreement has been reached with Horokiwi Quarry to conduct a trial of the flocculation chambers used extensively in Auckland.

What are the intended outcomes?

Identification of stormwater treatment solutions which are appropriate for our Region.

How will it help us?

Collaborative efforts will signal that we are prepared to work with our TAs and other parties in finding solutions for the Region.

Progress?

A flocculation chamber is already installed at Horokiwi Quarry ready to be trialed.

Roof runoff

What's been done?

Greater Wellington contributed the costs of a project undertaken by Kingett Mitchell Ltd. which examined the contribution that contaminants in roof run-off makes to urban stormwater discharges.

What was the outcome?

The identification and quantification of contaminants being washed off different types and ages of roof surface.

How will it help us?

Identification of the source of contaminants will aid the development of targeted measures to reduce contamination.

Pauatahanui Inlet sediment investigations

What's being done?

Two specific projects relating to Pauatahanui Inlet Sediments will be undertaken during 2003/04. These projects address issues discussed at the Pauatahanui Science Workshop. The projects are:

1. An investigation into the degree to which major land-use changes and storm events in the past 300 years have influenced the rate of sedimentation in Pauatahanui Inlet. This project is being jointly funded by Greater Wellington and PCC using existing budgets.
2. An investigation of marine sediment quality in Pauatahanui Inlet. This is the initial survey of what we hope will become a long term marine sediment monitoring programme for both Porirua Harbour and Wellington Harbour. This initial work is funded from existing budgets.

What are the expected outcomes?

- An understanding of the rate of sedimentation of the inlet, where it is coming from, and its causes (e.g. land use change, urbanisation, storm events); and
- An baseline measurement of the quality of the marine sediments in Pauatahanui Inlet.

How will it help us?

Understanding the causes of changes in sedimentation rates in the Inlet will allow us to identify opportunities and priorities for intervention to slow the rate of sedimentation. It will tell us the contribution made by rural areas, the impacts of the development of urban areas, and the on-going contribution of urban area when they are developed. This will enable us to make better decisions to protect the long term health of the inlet (e.g. how development should occur, where to develop land, and the use of riparian management).

The results of the marine sediment quality monitoring programme will enable us to quantify the amount of contamination in sediments in Pauatahanui Inlet. Over time, with repeated sampling, we will be able to determine the rate at which contaminant levels are increasing (or decreasing). This information will allow us to predict when contamination levels will breach sediment quality guidelines and prioritise and measure the effectiveness of work to control inputs of contamination into these harbours.

Progress?

Contractual details for both projects are currently being finalised.

Take Charge

What's being done?

The initial modules of *Take Charge*, our pollution prevention programme, focuses on managing discharges from small to medium sized businesses. Many of these discharges occur into the stormwater system and end up in our rivers and the sea.

What are the intended outcomes?

The elimination of all unauthorised discharges of contaminants into the environment from small businesses.

How will it help us

Take Charge provides a mechanism to eliminate contaminants entering the stormwater system and hence the receiving environments.

Progress?

To date *Take Charge* audits have been conducted at operational quarries and service stations across the Region. It is now being applied to mechanical workshops.

Take Action

What's being done?

This programme provides 8-12 year olds with essential learning about streams and stormwater (both rural and urban) and the effects of stormwater on water quality and stream life. Children “take action” to help their local stream through a range of actions

which help reduce the effects of stormwater or improve its quality (by looking after it in their daily lives).

What are the intended outcomes?

Children understand stormwater and how not to pollute it. Families understand the difference between stormwater systems and sewerage systems. Households and communities care for their local streams or coastal water.

How will it help us?

The programme raises the profile of stormwater in the community and contributes to cleaner stormwater and healthier streams through:

- reduced litter
- more recycling
- vegetated stream banks that reduce erosion and sediment in streams
- increased composting of organic materials; and
- fewer instances of paint, oil, and detergents entering stormwater systems

Progress

The programme has been undertaken by 68 schools (each with between 30 and 120 students) since 2000.

Riparian Strategy

What's being done?

Greater Wellington staff are helping landowners and community groups to fence off and plant sections of streams around the Region.

What are the intended outcomes?

The riparian management strategy is intended to have the following outcomes:

- Improved water quality
- Improved aquatic habitat
- Healthier river ecosystems
- The building of ecological links through the wider landscape
- Halting the decline of regional biodiversity
- Improved ability for Maori to exercise their traditional use of and guardianship over water and its environs
- Improved community recognition of the part streams play in environmental systems, and consequent improved care for those streams by the community.

How will it help us

The riparian management strategy helps by:

- increasing people's awareness of the values of rivers and streams and the activities which impact on these values; and
- demonstrating the environmental benefits of undertaking riparian planting programmes

Progress?

We are preparing a booklet entitled "*Mind the Stream*" which is a guide to looking after urban and rural streams in the Wellington Region. This booklet has two audiences, private landowners and community groups. It contains information about the effects of activities, including discharges, on stream environments, and ways to mitigate them with streamside planting.

Sections of four streams have been fenced and planted as pilot projects. There are three rural streams (Enaki Stream, Carterton; Ngarara Stream, Waikanae; and now the Papawai Stream, near Featherston) and one urban stream (Karori Stream, Wellington).

Staff are monitoring the progress of the pilot projects and the changes in the stream environment. This information is already used at field days and will be used in publications to communicate the benefits of riparian planting to the community.

Twelve catchments have been short-listed for receiving riparian management assistance. Promotion of the programme will start this winter.

Urban stream ecosystem investigations

What's being done?

An investigation into the ecological characteristics of urban streams in the Wellington Region.

What are the intended outcomes?

Realistic management objectives for urban streams. For example, in highly modified stream sections with good habitat upstream, we could manage for fish passage rather than habitat restoration.

How will it help us

The study is giving us evidence about the effects of urbanisation on the stream habitats in the Wellington Region.

With better understanding of the factors that affect the urban streams, we aim to develop ecosystem objectives for the identified stream types. This will help us take a realistic effects-based approach to any changes to regional rules about structures in urban streams, and discharges into those streams.

Progress?

Stage 1 assessed forty-four sites in eight stream catchments. This project was jointly funded by Greater Wellington, Porirua City Council and Wellington City Council. The streams ranged from forested and unmodified upper catchments, to the lower catchment highly modified larger streams. Five stream categories were developed.

For the streams in Stage 1 of the project, we found that streams of lower ecological condition occur where a greater percentage of the catchment is covered in hard impervious cover and less forested bush.

Stage 2, planned for March 2004, will investigate a further 12 streams. These will be in Hutt City, Upper Hutt City, and Kapiti Coast.

Be the Difference

What's being done?

The initial campaign for *Be the Difference* focuses on water quality, in particular what the community can do to reduce its impact on our rivers, streams and the coast.

What are the intended outcomes?

Raised community awareness about the effects that people's activities have on water quality and the simple steps people can take to prevent these effects.

How will it help us

It is anticipated that raised awareness of stormwater issues will lead to the adoption of behaviours which minimise effects on stormwater.

Progress?

At the time of writing this report 4300 people had signed up to the *Be the Difference* campaign and will be sent the water quality information.