



with assistance from
New Zealand Water and Wastes Association
presents

**Managing Stormwater
and Road Run-off
Tools, Techniques and Devices**





But we don't have a problem!

Yeah right.



Look Out it's Going to Rain....

Have you ever noticed how everything looks cleaner after a heavy rainstorm? That's because the rain washes away the rubbish and pollution on the ground.



Some of this pollution, like chip packets, plastic bags and cigarette butts is easy to see, but the most serious pollution is impossible to see without special equipment. Nasty things like chemicals, germs, heavy metals from car exhausts, garden sprays and animal waste also gets washed into our streams. The streams can become unsafe to swim in, dangerous for fishing or collecting kai, and not a healthy place for wildlife.

How many pollutants can you identify in the illustration? How many of these pollutants could you see once they reached the stream?



Examples of unusually high rainfall 2006/7

Feb 2006: Whakatane – 3 times normal

April: Paeroa – 2½ times normal

April: Oamaru – 3 times normal

April: Dunedin airport – 3.6 times normal

(but in May was 40% of normal rainfall)

October: East Taratahi - 2½ times normal

October: Auckland – 2 times normal

November: Queenstown - 2½ times normal

2007

March Northland - 2-3 times normal, record high

July Kerikeri - new record high



Hawkes Bay



Milton



Northland



Lower Hutt



Taranaki



Queenstown

Interesting facts

The first 25mm of rain carries 90% of the pollutants into our waterways. It is the Number 1 water pollution problem.

The water downstream from a sewage overflow is often of higher quality than that upstream.

One litre of oil can contaminate a space the equivalent of 2 Olympic swimming pools.

More oil enters the sea each year from stormwater drains than from oil spills at sea.

We have lots of rain anyway



Putting numbers on Westport flood risk

Each year, there's a 2% (or 1 in 50) chance that 4.6% of Westport could be more than shin deep in water. There's a 1% (or 1 in 100) chance that 18.4% of the town could have more than 200 mm of water through it.

These findings are from the final phase of a major flood hazard project for the Buller District Council.

The council will use the 2% 'annual exceedence probability' (1-in-50 year) floods to assess minimum floor building levels for compliance with the Building Act. The more extreme, 1% annual exceedence probability (1-in-100 year) flood simulations will be used to identify the key points where floodwaters could enter the town. One of the suite of reports we prepared for the council outlines options to protect Westport from the 1% floods, including the approximate location, length, and height of stopbanks.

'We were pleased with the interaction that developed with NIWA during the course of the work', says the council's regulatory services manager, Terry Archer. 'We would be happy to endorse NIWA's flood inundation modelling expertise in future.'

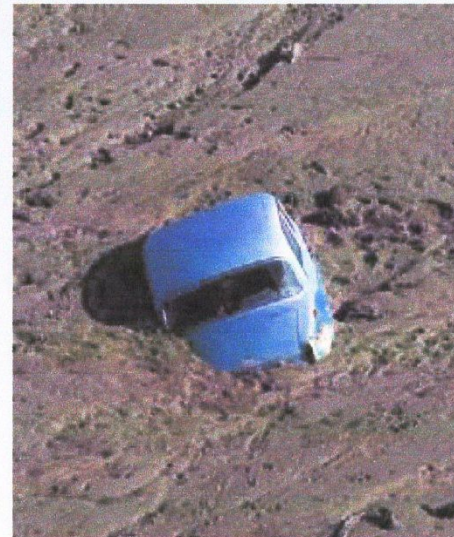


Rintoul Street, Westport, during the 1970 flood.

Managing extreme weather & flooding – short course

The township that looked like a tsunami hit it

May's heavy rainfall in the Bay of Plenty was phenomenal. Tauranga had its wettest month in more than a century, experiencing two floods.



During the 17–18 May floods, the coastal township of Matata was badly hit. A torrent of floodwater, mud, rock, and debris raced out onto the alluvial fan, devastating the township. The official rain gauge at Tauranga airport recorded a massive 347 mm of rain in 24 hours. We calculate the amounts of rain accumulated over 2 to 24 hours at Tauranga airport occur there on average once every 150 years or even more rarely. This 'average recurrence interval', however, does not mean Tauranga is guaranteed a reprieve till 2155, but that we might see events like this six times in 1000 years. The next one could turn up next year.



We have no traffic



We're a rural area



It's too expensive



Subsidies from Land Transport

Context: stormwater control must meet legal (LTMA) and consent (RMA) requirements

- Financially assist the control of stormwater from roads
- Costs assessed against benefits
- Costs fairly allocated to source of contamination
- Assist industry to reduce or mitigate contamination
- Retrofitting

Only state highways have a problem

Rural state highway network

- Rural network with grassed swales, soakpits, or land drains
- Lightly-constructed, susceptible to damage if moisture not moved away
- Mostly relies on seepage rather than collection
- Traverses sensitive receiving environments
- Cattle, milk tankers, stock and fertiliser trucks

Are your roads like this?

Urban state highway network

Contaminants include:

- Heavy metals – Zn, Cu, Pb
- Suspended solids
- Hydrocarbons – petrol, oil, greases
- BOD – organic matter
- Bacteria – E-coli, enterococci, faecal coliforms

Cities have these contaminants too...

Rural State Highway?



It's Auckland's problem

- Roads are conduits for stormwater
- Councils are responsible for the quality of water discharges from council systems
- Water may be contaminated before it enters council systems
- Councils are responsible for the costs

This is like bus drivers being responsible for the behaviour of passengers after they got off the bus!

Options are:

- Control it before it gets into the systems
- Manage the contaminants you inherit

Is YOUR head in the sand?

