

# Whakatāne Stormwater 2050



## Whakatāne Stormwater Quality Investigation

Council are reviewing the management of stormwater including the quantity and quality of runoff. This is driven in part by the need to obtain a Comprehensive Stormwater Consent (CSC) for the Whakatāne urban area. Council is using this as an opportunity to review the overall stormwater management system for Whakatāne to plan for a stronger, more resilient system.

## Whakatāne Stormwater Zones

The following table contains information on the stormwater zones that are being investigated:

Stormwater Zone Name	Zone Description	Monitoring Points
Apanui	Mostly residential, some industry and the Whakatāne CBD.	Apanui, Amber Grove, Waiewe
Hinemoa	Mostly residential with the Kopeopeo CBD and Whakatāne Hospital.	Hinemoa Street, Wainui Te Whara Downstream
Whakatāne South	Mostly residential with the Te Tahi Street Industrial Park.	Te Tahi Street, Sullivan Outlet, Sullivan Inlet
Whitehorse/Melville, Wainui Te Whara	Residential and native bush.	Wainui Te Whara Upstream (at footbridge)
Awatapu	Residential, closed landfill and lagoon area.	Awatapu Outlet
Wairere	Residential, native bush, closed landfill and grazing.	Wairere Stream
Coastlands	Residential.	Coastlands (swale leading to Orini Canal)
Gateway Drive, The Hub	Industrial / Commercial	Gateway Drive, The Hub

## Common pollutants found in stormwater

Pollutant	Effect	Urban Source
Sediment	<ul style="list-style-type: none"><li>Reduces the amount of light in the water available for plant growth, decreasing the supply of food for other organisms.</li><li>Can clog and damage sensitive tissues such as the gills of fish.</li><li>Can suffocate organisms that live on or in the bed of lakes and streams by forming thick deposits when the suspended material settles out.</li></ul>	<ul style="list-style-type: none"><li>Land surface erosion</li><li>Pavement and vehicle wear</li><li>Building and construction sites</li><li>Spillage, illegal discharge</li><li>Organic matter (for example, leaf litter, grass clippings)</li><li>Car washing</li><li>Weathering of buildings / structures</li><li>Atmospheric deposition</li><li>Earthworks</li></ul>

Pollutant	Effect	Urban Source
<b>Nutrients</b>	<ul style="list-style-type: none"> <li>An increase of nutrients in water stimulates growth of aquatic plants. This causes excessive growth of aquatic weeds and algae that may choke lakes and streams and lead to dramatic daily fluctuations in dissolved oxygen levels.</li> </ul>	<ul style="list-style-type: none"> <li>Organic matter</li> <li>Fertiliser</li> <li>Sewer overflows, septic tank leaks</li> <li>Animal faeces</li> <li>Detergents (car washing)</li> <li>Atmospheric deposition</li> <li>Spillage, illegal discharge</li> </ul>
<b>Oxygen-demanding substances</b>	<ul style="list-style-type: none"> <li>Oxygen is used up more quickly than it can diffuse into the water from the atmosphere. The resulting drop in oxygen levels may then kill fish and other aquatic organisms.</li> <li>If all oxygen in the water is used up, can cause unpleasant odours.</li> </ul>	<ul style="list-style-type: none"> <li>Organic matter decay</li> <li>Atmospheric deposition</li> <li>Sewer overflows, septic tank leaks</li> <li>Animal faeces</li> <li>Spillage, illegal discharges</li> </ul>
<b>pH (acidity)</b>	<ul style="list-style-type: none"> <li>Increased acidity damages plants and animals</li> </ul>	<ul style="list-style-type: none"> <li>Atmospheric deposition</li> <li>Spillage, illegal discharge</li> <li>Organic matter decay</li> <li>Erosion of roofing material</li> </ul>
<b>Micro-organisms</b>	<ul style="list-style-type: none"> <li>Contain very high numbers of bacteria and viruses. Some of these organisms can cause illnesses, including hepatitis and gastroenteritis.</li> </ul>	<ul style="list-style-type: none"> <li>Animal faeces</li> <li>Sewer overflows, septic tank leaks</li> <li>Organic matter decay</li> </ul>
<b>Toxic organics</b>	<ul style="list-style-type: none"> <li>Can poison living organisms or damage their life processes.</li> </ul>	<ul style="list-style-type: none"> <li>Pesticides</li> <li>Herbicides</li> <li>Spillage, illegal discharge</li> <li>Sewer overflows, septic tank leaks</li> </ul>
<b>Heavy metals</b>	<ul style="list-style-type: none"> <li>Poison living organisms or damage their life processes in some other way.</li> <li>Persist in the environment for a long time.</li> </ul>	<ul style="list-style-type: none"> <li>Atmospheric deposition</li> <li>Vehicle wear (including tyres and brake pads)</li> <li>Sewer overflows, septic tank leaks</li> <li>Weathering of buildings and structures (galvanised fence / roofing),</li> <li>Spillage, illegal discharges</li> <li>Industrial areas (including scrap storage)</li> </ul>
<b>Gross pollutants (litter and debris)</b>	<ul style="list-style-type: none"> <li>Unightly.</li> <li>Animals can eat and choke on this material such as plastics.</li> </ul>	<ul style="list-style-type: none"> <li>Pedestrians and vehicles</li> <li>Waste collection systems</li> <li>Leaf-fall from trees</li> <li>Lawn clippings</li> <li>Spills and accidents</li> </ul>
<b>Oils, detergents and surfactants (shampoos)</b>	<ul style="list-style-type: none"> <li>Highly toxic to fish and other aquatic life.</li> </ul>	<ul style="list-style-type: none"> <li>Asphalt pavements</li> <li>Spillage, illegal discharges</li> <li>Leaks from vehicles</li> <li>Car washing</li> <li>Organic matter</li> </ul>
<b>Increased water temperature</b>	<ul style="list-style-type: none"> <li>Elevated temperatures can be lethal to fish and other aquatic organisms.</li> <li>Increased water temperatures stimulate the growth of nuisance plants and algae.</li> <li>This and other effects can lead to decreased levels of dissolved oxygen, which can threaten other aquatic life.</li> </ul>	<ul style="list-style-type: none"> <li>Run-off from impervious surfaces</li> <li>Removal of riparian vegetation</li> </ul>

# How metals enter our stormwater system

Many different types of metals can make their way into stormwater. Metals can accumulate in waterways and are harmful and even toxic to aquatic life, depending on the specific type and concentration. Some metals are also harmful to humans.

## POTENTIAL SOURCES OF METALS

- Building materials such as galvanized metal roofing and gutters (zinc, aluminium)
- Corrosion of metal surfaces such as fences or steel, aluminium, and other galvanized metal structures (zinc)
- Hydraulic fluid spills (zinc)
- Wear on body and brakes of equipment and vehicles (iron, lead, copper)
- Material handling equipment operating at slow speeds where wear on tires is more likely due to frequent turning (zinc)
- Asphalt sealcoating (zinc, copper)
- Storing bulk materials such as ores or minerals, or scrap metal (all)
- Storage and disposal of paint, tyres, or metal materials (all)
- Pesticide or fungicide application (zinc, copper)
- Biocides used for roof cleanings or boat coatings (zinc, copper)
- Galvanic corrosion protection for equipment such as boats and tanks (zinc, aluminium)
- Use or demolition of pressure-treated wood (copper, arsenic)
- Surface erosion (iron)

## BEST MANAGEMENT PRACTICES

- Select building and facility materials for roofing or fencing that will not corrode.
- Where possible, use surface infiltration to manage stormwater runoff from areas where galvanized material must be used.
- Develop and implement spill response and cleanup procedures.
- Prioritize preventative maintenance. Change hydraulic fluid hoses regularly.
- Limit use of pesticide and fungicide, which can contain copper. If using pesticide or fungicide, follow manufacturer's application instructions. Keep them away from impervious surfaces where they can be washed into the storm system.
- Dispose of treated wood properly. Do not grind or sand treated wood in areas where it may come into contact with the stormwater system.
- Cover storage areas for tyres, paint, metal, or bulk materials.
- Use standard erosion prevention techniques for any soil disturbance.

