This is a summary of the key findings from State of the Environment monitoring we carry out on the Kapiti Coast. It is one of five sub-region summaries of eight technical reports which give the full picture of the health of the Wellington region’s air, land and water resources. These reports are produced every five years.

The findings are being fed into the current review of Greater Wellington’s regional plans – the ‘rule books’ for ensuring our region’s natural resources are sustainably managed.

You can find out how to have a say in our regional plan review on the back page.

Key features
Home to the towns of Otaki (in the north), Waikanae, Paraparaumu, Raumati and Paekakariki (in the south), the Kapiti Coast boasts long sandy beaches and a mild climate suitable for a range of agriculture and horticulture – and which make it a popular regional holiday destination. The two main rivers are the Otaki and Waikanae, which flow from headwaters in the Tararua Range. The Kapiti Coast sub-region (694km²) makes up 9% of the Wellington region.

What we routinely monitor in this sub-region
- Soil quality at a selection of dairy, drystock, horticulture, market garden and native forest sites
- Rainfall at nine locations
- River flows and wetland water levels (four sites each)
- Groundwater levels at over 50 sites (22 of these via automated level readers)
- Groundwater quality at 13 sites
- Recreational water quality at selected locations on the Otaki and Waikanae rivers, and along much of the coast
- General water quality and ecological health at 11 river or stream sites
- Ecological health and sediment quality in the Waikanae Estuary

Although air quality isn’t routinely monitored – the sub-region is relatively exposed with no major known sources of air pollutants – we have done some short-term air quality monitoring in Raumati South and the results are reported here.

Key points
- Most soils in vegetable growing areas have low carbon and high phosphorus levels, while some dairy soils are compacted and contain too much nitrogen
- Demand for freshwater has increased over the last few decades, largely to meet the needs of a growing population
- The groundwater is generally fit for drinking but nitrate levels are elevated in some areas
- Lake Waitawa is in a poor state – nutrients levels are too high and toxic algal blooms occur
- River and stream health is excellent in the ranges but degraded in the smaller lowland streams draining intensively farmed or urban areas. Water quality in the two main rivers is almost always suitable for swimming
- Water quality at the beaches is mostly ‘good’ for swimming – no sites are graded ‘poor’ or ‘very poor’
- The Waikanae Estuary is in a moderate condition
How clean is the air?
Air quality isn’t monitored on a regular basis on the Kapiti Coast because this sub-region is relatively windy and extremes in temperature are fairly unusual. However, from time to time the conditions that trap air pollutants can occur (ie, low-level temperature inversions). A short-term monitoring programme in Raumati South during winter 2010 found poor air quality on some nights due to fine particulate matter (PM$_{2.5}$) from household fires.

Smoke from home fires in Raumati South during winter 2010. The smoke particles are largely made up of extra fine particles called PM$_{10}$ which are potentially more harmful to human health than PM$_{2.5}$ because they’re smaller and penetrate more deeply into the lungs.

Are the soils healthy?
Some soils are healthy, but some could be better. Only around two-thirds of the 37 monitoring sites sampled between 2000 and 2010 scored well against the seven key indicators used to measure soil quality (including soil structure, nutrients, organic matter and pH). Soils from 7 of the 10 vegetable growing sites had at least two or more indicators outside their target range – two sites ‘failed’ on four indicators. Several dairying sites also had soils outside of their target range for at least two indicators. Region-wide, vegetable growing and dairying are the land uses showing the greatest impact on soil health. Low carbon and high phosphorus levels are the main concerns at vegetable growing sites. In contrast, soil compaction and too much nitrogen are the main issues for dairy soils.

Sampling of vegetable growing soils across the Wellington region shows that the ratio of carbon to nitrogen decreased significantly between 2000 and 2010. Low carbon levels means there’s less organic matter to trap nitrogen, so nitrogen can leach into the groundwater below and, from there, into nearby streams.

Water resources – what’s being used?
Water allocated through resource consents almost doubled between 1990 and 2010 on the Kapiti Coast. At the end of 2010, the total was 28.7 million cubic metres per year of water. Nearly 60% of this allocated water comes from groundwater aquifers and the rest is from rivers and streams – of which around 80% is from the Waikanae River.

Annual extremes in low rainfall and river flow have not changed dramatically – over the past 30 years there were no significant increases or decreases in minimum summer rainfall amounts or low flows in the Otaki and Waikanae rivers. However, there are a few signs of dropping groundwater levels. Analysis of records from 13 selected groundwater monitoring wells on the Kapiti Coast found that water levels in two wells significantly declined between 1994 and 2011. These wells are in the semi-confined and deep artesian aquifers in the Waikanae and Hautere areas. The decline in water levels may be related to groundwater abstraction and indicates we need to keep a close watch on these aquifers.

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Three quarters of the current water allocated is for public supply and almost all of the remainder – some 6.1 million cubic metres per year – is used to irrigate pasture, orchards and crops

Irrigation breakdown

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<thead>
<tr>
<th>Irrigation type</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Dairy</td>
<td>6%</td>
</tr>
<tr>
<td>Non-dairy pasture</td>
<td>3%</td>
</tr>
<tr>
<td>Horticulture / cropping</td>
<td>31%</td>
</tr>
<tr>
<td>Vineyard</td>
<td>47%</td>
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<tr>
<td>Recreation</td>
<td>13%</td>
</tr>
<tr>
<td>Landscape</td>
<td>3%</td>
</tr>
</tbody>
</table>

How healthy is the Waikanae Estuary?
While the Waikanae River is in good health the estuary is only in a fair or moderate condition. Ecological assessments in 2010 and 2011 show the estuary’s sediments are quite muddy – which limits the diversity of organisms that can live there. Sediments from the upstream catchment are being deposited in the estuary at an average rate of more than 30mm/year – 30 times above the natural rate for estuaries.

The good news is that levels of organic matter, nutrients and heavy metals in the sediment are all low.
How good is the quality of the groundwater?

Groundwater quality varies across the Kapiti Coast but – looking across all the key indicators we measure – it’s fit for drinking in most areas. Groundwater in one shallow well at Te Horo Beach regularly records the presence of E. coli bacteria – but this well isn’t used for drinking.

Five of the 13 groundwater wells we monitor have nitrate levels high enough to potentially affect aquatic life in rivers and streams that the groundwater is connected with. The good news is that in one of these wells, nitrate levels declined over the five-year period we looked at – continuing a longer-term trend among several wells on the northern Kapiti Coast. We think this improvement may be due to improved land management practices, eg, more efficient use of fertiliser.

How healthy are the rivers and streams?

It’s a mixed bag. While water quality at five sites we monitor is graded ‘good’ or ‘excellent’, five sites have ‘poor’ water quality because they fail to meet recommended guidelines for five of our six key indicators. It all comes down to size, location and the surrounding land use. The larger rivers are in good health where they flow out of the forested ranges – but water quality and ecological health are degraded in small lowland coastal streams in largely farming or urban catchments, such as the Mangapouri, Mangaone and Whareroa streams.

Our assessment

To get an overall picture of river and stream water quality we combine six key indicators into an index: water clarity, oxygen content, dissolved reactive phosphorus, nitrite-nitrate nitrogen, ammonia and E. coli bacteria.

Located in an intensive farming catchment, the lower reaches of Mangaone Stream are in poor condition – they fail to meet guidelines for all six key water quality indicators. The impacts flow onto Te Horo Beach where water quality is sometimes affected by the stream.

Are they getting better or worse?

River and stream health has largely remained stable, with a few exceptions – water clarity appears to have declined at several sites, including the Whareroa Stream at Waterfall Road where invertebrate health has also declined.

Will I get sick if I swim?

The risk is fairly low at popular sites on the Otaki and Waikanae rivers. Weekly summer monitoring between 2005/06 and 2010/11 shows these sites rarely breach the national water quality guidelines for swimming, even when it rains. Recreational users and dog owners do need to keep an eye out for potentially toxic algae (cyanobacteria) on the riverbed though – the algae is common in the Waikanae River during the summer.

The beaches fare reasonably well too. With the exception of Te Horo Beach and two other sites affected by poor water quality in streams that discharge to the beach, all coastal sites in the Kapiti sub-region are graded at least ‘good’ for recreation. This means the water is suitable for swimming most of the time. At the four ‘fair’ sites, water quality breaches guidelines at times, especially after rainfall or if stock or contaminants find their way into the streams flowing onto the beach.

Mudflat and estuarine snails are the most common animals living on the intertidal mudflats in Waikanae Estuary but the estuary is also home to several small crustaceans, molluscs and marine worms.

The forested upper reaches of the Otaki River are popular for swimming. Our site at ‘the Pots’ (Pukehinahau) is graded ‘very good’ for recreation – even after rainfall.

Paekakariki Beach at Memorial Hall is graded ‘very good’ for swimming. The site never went over the ‘alert’ or ‘action’ levels of the national recreational water quality guidelines during the five summers to 2010/11.
What’s happening now?

Our analysis of the Wellington region’s air, land and water resources has been a crucial component in reviewing our current regional plans. We’re now developing a new integrated plan to sustainably manage these natural resources. The review has identified several key areas on which the new plan will focus:

- Water quality – stormwater and urban land use
- Water quality – rural land use
- Water allocation
- Coastal and hazards management

As part of the regional plan review process, in winter 2010 we asked people in the Kapiti Coast sub-region about their environmental concerns at workshops in Otaki, Paraparaumu and Paekakariki. Air quality, subdivision development and coastal hazards were important issues. Participants also thought providing opportunities for learning about resource management and support for community care groups were important.

If you would like to get involved with the review of our regional plans, email regional-plan@gw.govt.nz.

What you can do to help

- Burn only dry untreated wood or consider switching to clean heating – see www.gw.govt.nz/warmer-gw
- Develop a nutrient budget that’s appropriate for your soils and land use – avoid using heavy machinery, high stocking rates or effluent application when the soils are saturated
- Use water efficiently – only use what you need and irrigate during the night where possible to reduce evaporation
- Keep stock out of rivers and streams, and plant stream margins to help prevent bank erosion and improve habitat in the stream for aquatic life
- Avoid contaminants entering the stormwater system and, from there, nearby streams and the coast by saving the roadside gutter outside your house just for rain:
  - Clean your car in a commercial carwash
  - Take household chemicals and waste oil to the specific sections at official landfills
  - Leave small leftovers of paint and solvents to dry rather than pouring them down the drain

More information

- Find out about the health of air, land and water resources across the wider Wellington region in the Regional overview summary – and for more detailed information download the full technical reports. See www.gw.govt.nz/ser
- Check out what we currently monitor and where at www.gw.govt.nz/environmentalmonitoring
- Contact us at environmentalscience@gw.govt.nz

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