Beach and stream/lake water quality

- In general, the risk to public health is relatively low at the majority of marine water sites (beaches and harbours) sampled across the eight cities.
- Waitakere, Christchurch, Dunedin and Hamilton are the only cities of the eight that currently monitor freshwater bathing quality at selected streams and lakes.
- North Shore, Auckland, Manukau and Hamilton residents rated water pollution as more of a problem in their neighbourhoods than people in other cities.

WHAT THIS IS ABOUT
Beach and stream/lake water quality is measured to ensure that the water is safe for human recreational use and to show the impact of human activity on beaches and natural waterways. High levels of bacteria can directly impact on the health and wellbeing of citizens as they indicate the presence of pathogens (illness-causing bugs). A key factor in the quality of beach and stream/lake water is the quality of a city’s stormwater and sewerage systems.


Three measures were used for this indicator:
- Public health risk at selected marine bathing sites
- Public health risk at selected freshwater bathing sites
- Residents’ rating of water pollution as a problem in their neighbourhood.

WHAT DID WE FIND?
Public health risk at selected marine bathing sites

The number of monitoring sites (marine and freshwater) varies considerably across the eight cities, largely dependent upon the geography of the city. For example, cities with harbours and beaches have more marine monitoring sites whereas Hamilton which is an inland city has no monitoring sites.

Public health risk is based around the number of times warning signs are erected, which is shown as a percentage of the number of samples taken over the bathing season. For example, in the 2001/2002 North Shore bathing season 624 samples were taken and warning signs were erected once (1/624 x 100 = 0.2%).

The rate of public health risk is relatively low in six out of the seven cities that monitor marine water quality. This seems to be far higher in Waitakere, but can be attributed to the use of different sampling and analysis methodologies.

Public health risk at selected freshwater bathing sites


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119 The Ministry for the Environment and Ministry of Health recreational water quality guidelines are open to interpretation by each council. This has resulted in a number of different methodologies being implemented across the country. The differences in methodologies used by the individual councils contributes to some inconsistencies in results, therefore the comparison of data shown within this section is difficult.
120 Public Health Risk (%) is calculated by taking the total number of times public warning signs were erected, dividing it by the total number of single samples taken over the season, then multiplying it by 100 to obtain a percentage.
121 Public warning signs are erected when there are two consecutive samples greater than 277 enterococci/100ml. * Manukau City Council erected permanent public warning signs at a number of sites each season (1999/2000 = 3 sites, 2000/2001 = 2 sites, 2001/2002 = 1 site).
122 Waitakere City Council erected public warning signs after recording a single sample greater than 277 enterococci/100ml, while the national guidelines only require public warning signs to be erected when there has been two consecutive samples greater than 277 enterococci/100ml in a 24 hour period.
Beach and stream/lake water quality

Continued...

As with marine water quality, public health risk is based around the number of times warning signs are erected, which is shown as a percentage of the number of samples taken over the bathing season.

The rate of public health risk at Christchurch and Dunedin freshwater sites appears significantly higher than those recorded in Waitakere. This difference is not necessarily due to poorer water quality in the south, but can be attributed to the difference in the total number of samples taken over the sampling season. For example, in the 2000/2001 bathing season, Dunedin only monitored twice at their one sampling site and erected signs once (1/2 x 100 = 50%). In comparison, Waitakere monitored 8 sites 21 times and erected warning signs 15 times (15/168 x 100 = 8.9%). It is therefore very difficult to compare the rates of public health risk for Waitakere, Christchurch and Dunedin freshwater sites.

Residents’ rating of water pollution as a problem in their neighbourhood

This measure presents residents’ ratings of water pollution in their neighbourhood. Residents in the Eight Cities Quality of Life Survey 2002 were asked to rate how much of a problem water pollution has been in their neighbourhood in the previous twelve months, on a five point scale from ‘a big problem’ to ‘not a problem at all’.

Responses varied across the eight cities with North Shore, Auckland and Manukau residents significantly more likely than others to state that water pollution was a problem or a big problem. Just over half of all North Shore respondents (51%) stated that it was a problem/big problem compared with 18% in Wellington and 20% in Dunedin.

Maori and Pacific Islands residents were more likely to feel that water pollution was a problem in their neighbourhood than other ethnic groups. Just under half of all Pacific Islands (48%) and Maori (47%) residents rated it as a problem/big problem in their neighbourhood, compared with 33% European and 18% Asian/Indian residents.

123 Water quality is tested using indicator species. The indicators used for testing freshwater and marine water are different – freshwater is E.coli, marine is Enterococci. The numerical thresholds are also different due to the different indicator species and methodologies used for testing freshwater and marine water - 410 for E.Coli, 277 for Enterococci.