



Air quality 2007/08

Key points:

- The region had low air pollution levels – there was only one night in Wainuiomata and in Tawa (winter 2007) and three nights in Masterton (winter 2008) when high air pollution was recorded.
- Particulate matter (PM₁₀) was the only air pollutant measured to exceed the national environmental standards for air quality.
- Air quality is worst during cold, clear and calm weather, especially in valleys where pollution can become trapped overnight.
- Domestic fires are the main contributors to air pollution in winter.

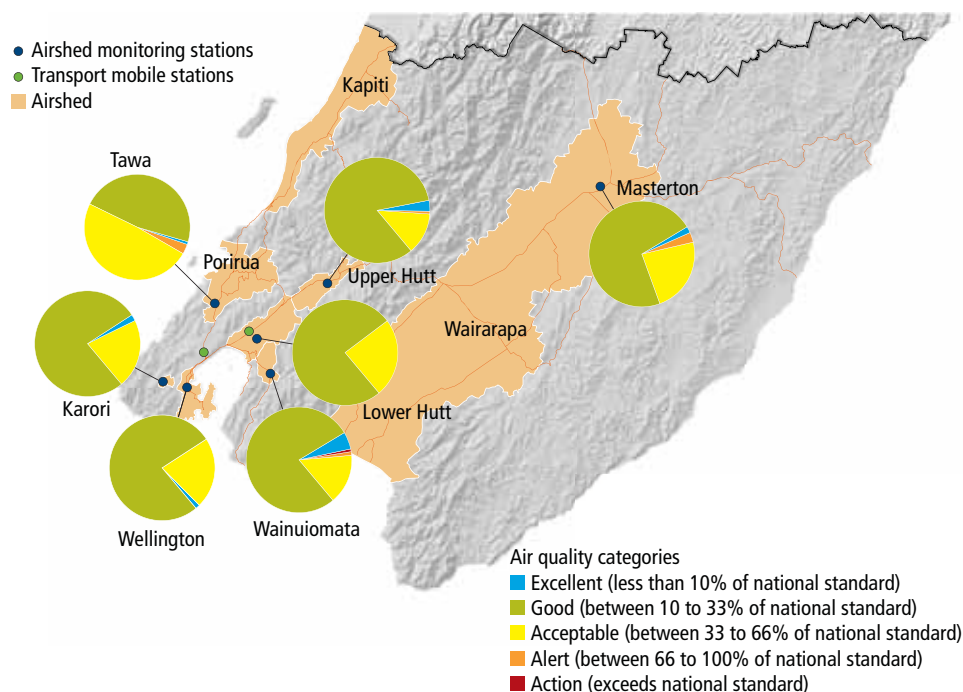
What happened in 2007/08?

Regional air quality

Greater Wellington continued monitoring air quality at selected sites in the region and installed monitoring stations in Tawa and in Karori. Three key pollutants are measured – particulate matter (PM₁₀), carbon monoxide and nitrogen dioxide – with the results compared against the national environmental standards and guidelines. These standards and guidelines are designed to protect those who are particularly vulnerable to the effects of air pollution, such as children and the elderly.

Monitoring during the 2007 calendar year showed that air pollution levels in the region were low. Carbon monoxide concentrations were mostly “excellent” and reflect the national trend towards more modern, lower emission petrol vehicles. Nitrogen dioxide levels were generally “excellent”, except for the central Wellington site where levels were mostly “good”.

Levels of PM₁₀ measured throughout the region were for the most part “good”. However, there were 11 days in Masterton, seven days in Tawa, three days in Wainuiomata, and two days in Upper Hutt where air quality reached the “alert” level. There was also one day in Wainuiomata and in Tawa where the national standard was exceeded.



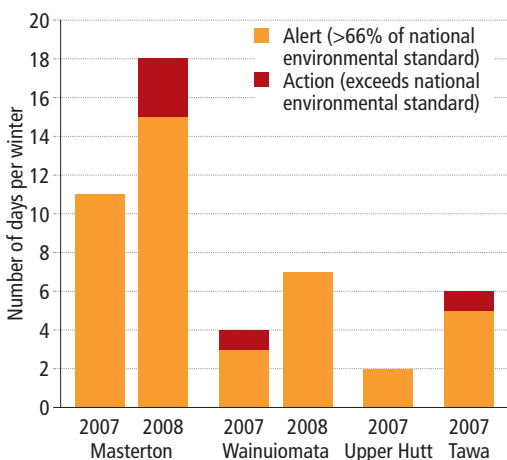
The pie graphs show the percentage of days during 2007 that PM₁₀ levels fell into the five different air quality categories. The “excellent” category has the lowest level of risk to human health and the “action” category the highest risk. An “action” result also means that the national environmental standard has been exceeded.

Winter air quality

Masterton, Upper Hutt, Wainuiomata and Tawa are susceptible to pollution from domestic fires on still, cold and clear evenings. Smoke containing particulate matter (PM₁₀) builds up in valleys and is not dispersed until the following morning when the ground heats up and the air starts to circulate.



A single chimney may cause nuisance smoke. Valley areas with many households using their wood burners can lead to the build-up of particulate matter (PM₁₀) on cold, still evenings.



This graph shows the number of days during the last two winters when particulate matter (PM₁₀) concentrations were in the "alert" or "action" air quality categories. Greater Wellington's long-term target is to always achieve "acceptable" or better air quality by 2016.

Roadside air quality

Vehicle exhaust fumes contain pollutants that, in sufficient concentrations, can harm people's health. Greater Wellington has a permanent monitoring station at the corner of Vivian and Victoria Streets in central Wellington. Temporary stations are currently set-up beside State Highway 2 at Melling Bridge in Lower Hutt and at Ngauranga Gorge in Wellington.

Although levels of carbon monoxide and nitrogen dioxide are higher than at the residential areas we monitor, the air quality measured at the roadside sites in 2007 was well within the national environmental standards and does not pose a risk to people's health.



Photo courtesy of GNS Science

Traffic travelling past the Ngauranga Gorge monitoring site. Peak concentrations of carbon monoxide and nitrogen dioxide measured at the site coincide with rush hour traffic but do not exceed national environmental standards or guidelines.

Scientific studies

We are continuing to work with GNS Science to identify the sources of particulate pollution in the region, so that we can develop effective strategies to improve air quality where needed. The studies examine both fine particulate matter (PM_{2.5}) and coarse particulate matter (PM_{10-2.5}) and provide valuable information about the impact particulate emissions from domestic wood burners, vehicles and natural sources, such as sea-salt and wind-blown dust, have on air quality

Areas investigated so far include Masterton, Upper Hutt and Seaview. In Masterton, domestic fires were found to be responsible for about 80 per cent of PM₁₀ on nights when the national standard was exceeded. Wainuiomata also experiences winter particulate pollution and we are currently investigating the contributing sources in this area.

Samples of particulate matter from the Seaview industrial area in Lower Hutt that were collected between July 2005 and July 2007 show that sea-salt and soils are the major contributors to PM₁₀ in air. Other sources are local industry (producing zinc and sulphur-containing particulate), road dust, motor vehicles and, in winter, domestic fires in the Hutt Valley.

What is Greater Wellington doing?

- Monitoring air quality at selected sites around the region, including Wellington, Lower Hutt, Upper Hutt, Wainuiomata, Karori, Tawa and Masterton.
- Investigating possible locations in the Kapiti airshed for an air quality monitoring station.

What can you do?

- Keep your vehicle tuned and serviced to reduce smoke and fumes.
- Insulate your house effectively and burn only dry wood in your fireplace. After starting the fire, leave the air vent open for at least half an hour to create a hotter, cleaner burning fire.
- Don't burn rubbish or treated timber – in the fireplace or outside. Send paper and plastic for recycling and compost green waste.

More information

Some of the information on this card is a summary of the 2007 annual air quality monitoring report, which is available on our website at www.gw.govt.nz/envreports. If you would like to know more about air quality, visit our website or contact:

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