Natural hazards 2007/08

Key points:

- A severe drought in the Wairarapa caused concern for farmers.
- A number of storm events caused flooding and landslips around the region.
- Three tornadoes struck the Kapiti Coast.

A natural hazard is any natural process (e.g. flood, earthquake, tsunami) that can adversely affect human life or property. On their own, these natural events do not constitute a hazard; they become hazardous when they have the potential to affect a community.

The Wellington region has one of the most physically diverse environments in New Zealand and, with the exception of volcanic and geothermal activity, is subject to the full range of natural hazards experienced in New Zealand.

What happened in 2007/08?

Drought

Drought conditions prevailed over the region during a very dry summer and autumn, despite the occasional thunderstorm. The drought was caused by a La Nina episode that led to warm sunny weather, with lower than average rainfall. The Wairarapa was particularly affected by drought conditions that started in November and continued until May. This followed a cool dry spring in which pasture growth was below normal, leading to a severe shortage of silage and hay. Many farmers were forced to sell underweight lambs. More information on the drought can be found in the *Rainfall and river flows* report card.

Photo: Pete Nikolaison

Dry conditions in the Wairarapa through summer and autumn forced many farmers to sell stock.

Earthquakes

Although the Wellington region is crossed by numerous faults, there was very little seismic activity during 2007/08, with only 13 moderate sized (over magnitude three (M 3.0)) earthquakes recorded and no reports of serious damage. The most widely felt local earthquake was a M 4.0 that occurred in the early hours of 3 May, on a fault 10 km west of Porirua.

A further 56 earthquakes that occurred outside the region were also reported to have been felt. Sixteen of these earthquakes were moderate to large (M 5-6.9) and one, that had an epicentre some 1,800 km northeast of Wellington, was very large (M 7.8). This earthquake was the largest to occur in the New Zealand region in 2007/08 and resulted in the Pacific Tsunami Warning Centre issuing a tsunami bulletin on 9 December 2007.

The second largest earthquake felt in the Wellington region in the past 12 months (M 6.8) occurred on 20 December 2007 in a deep submarine canyon – the Hikurangi Trench – off the east coast of the North Island. This earthquake caused substantial damage in Gisborne and was widely felt in the Wellington region. Two large aftershocks in the following days were also felt in Wellington.

Floods

Floods are the most frequent and costly natural hazard in the Wellington region. The 2007/08 year was relatively uneventful in terms of large floods, however, there were a number of extreme rainfall events that led to localised flooding.

On 7-8 January, a strong northwesterly brought sustained heavy rain to the western foothills of the Tararua Range for a 48 hour period. Greater Wellington's monitoring stations measured rainfall depths of up to 350 mm, producing record 24 hour and 48 hour rainfall totals. The storm caused flooding in the rivers and streams on the Kapiti Coast. The Waikanae River experienced the sixth largest flood since 1975. Significant floods also occurred in the Waitohu and Mangaone streams. A camping ground in Waikanae and three homes adjacent to the flooded streams were evacuated.

A severe rainstorm event on 7-8 January on the Kapiti Coast saw the Waikanae River flood properties in Otaihanga and threaten a number of homes.

On 11 February, a thunderstorm caused surface flooding in Wellington City, Hutt Valley and Porirua and cut power to 21,000 households on the Kapiti Coast and Pauatahanui after lightening struck the Pauatahanui sub-station. Lightening also damaged several houses in the suburb of Korokoro in Lower Hutt after a chimney was struck and caused bricks to fly into neighbouring houses.

Two large storms followed in quick succession on 29 April and 1 May bringing heavy rain to Wellington City and the Kapiti Coast, resulting in surface flooding in Kapiti, Wellington City and Porirua and slips in many hill suburbs. A number of shops and homes in Otaki, Waikanae, Paraparaumu, Raumati Beach and Johnsonville were flooded when stormwater drains, unable to cope with the high rainfall, became blocked and overflowed into surrounding properties. Our rain gauge at Karori recorded 80 mm, which is the second highest 24 hour measurement in the last 25 years.

Tornadoes

Onlookers at Raumati South view the spectacular twister that occurred on the Kapiti Coast on 15 February.

Squally southerly conditions in February and June spawned three tornadoes on the Kapiti Coast. The first occurred in the early evening of 15 February. It started as a waterspout that formed near Kapiti Island and slowly moved south, coming onshore at Queen Elizabeth Park. It evaporated soon after and no damage was reported. The second tornado occurred on 2 March and was similar to the first event, except that it remained at sea as a waterspout. The third occurred on 12 June during a storm event and was more serious, ripping up trees and damaging property. One property on Mazengarb Road had 20 mature pine trees uprooted.

Landslips

Landslips in the region are most commonly caused by heavy, sustained rainfall, particularly if the ground is already saturated. All of the severe meteorological events that caused flooding in the past 12 months also triggered slips in hill suburbs and in road cuttings around the region. The largest slip occurred at Ngawi, on the South Wairarapa Coast, in the evening of 9 May. The slip occurred during a torrential rainstorm, in which 100 mm of rain fell. An estimated 10,000 m^2 section of hillslope failed, causing a large debris flow containing mud and boulders to badly damage four properties and block a road. South Wairarapa District Council removed almost 1,000 cubic metres of material from the road and affected houses.

On 17 May a much smaller slip occurred in Athol Crescent in central Wellington, threatening to undermine an apartment building. It is thought that a leaking water main contributed to the slope failure. Building residents were evacuated – with some unable to return for over a month – until the cliff face beneath the building was stabilised. It is not uncommon for leaky water pipes to contribute to landslips in urban areas, highlighting the need to manage water drainage on developed hillslopes.

What is Greater Wellington doing?

Greater Wellington helps manage the impacts from natural hazards on communities through floodplain management plans, natural hazard policies in the Regional Policy Statement, conducting research and collecting information on hazard events, and by coordinating regional Civil Defence Emergency Management activities and public education programmes.

What can you do?

Be prepared: You need to be able to look after yourself for a minimum of three days in a natural disaster. Put together an emergency survival kit containing: drinking water (3 litres per person per day); non-perishable food (canned or dried); cooker (camping or BBQ); torch; radio; spare batteries; first aid kit and essential medication; blankets or sleeping bags; baby supplies; pet supplies; warm clothing; rain gear and walking shoes or boots. See **www.getthru.govt.nz** for a full checklist of items and other useful tips to *Get Ready* and *Get Thru*.

More information

Check out our online database of natural hazards in the Wellington region at **www.gw.govt.nz/hazards**

We have also prepared a number of fact sheets about the natural hazards that affect our region. They are a great way to learn more about hazards and what you can do to prepare for them. Read them online at **www.gw.govt.nz/em/hazard.htm** Alternately, you can email hazards@gw.govt.nz or phone 04 384 5708 to order a set or if you have any further questions about natural hazards.