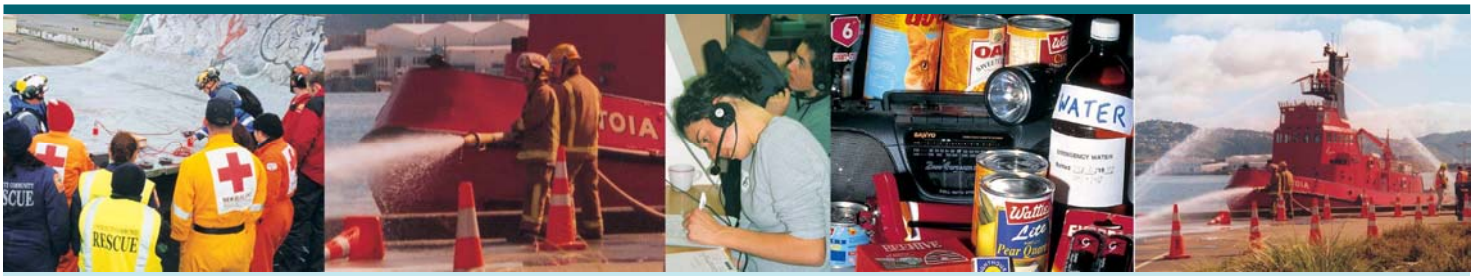
Quality for Life

greater WELLINGTON | Environment
THE REGIONAL COUNCIL



Hazards Update Newsletter May 2005

The Hazards Update Newsletter provides a summary of natural and technological hazard and emergency management research, news and information from the Wellington Region.

The Greater Wellington hazards and emergency management team has two new members!

Jo Guard started as Emergency Management Officer last October. Feel free to contact Jo on (04) 381 7742 or at jo.guard@gw.govt.nz for any questions regarding emergency management and preparedness.

Helen Grant came to Greater Wellington from Environment Canterbury at the end of January to take up the Hazard Analyst position. If you want to know more about hazards in the Wellington Region, or have comments or questions about this newsletter then contact Helen on (04) 801 1031 or at helen.grant@gw.govt.nz.

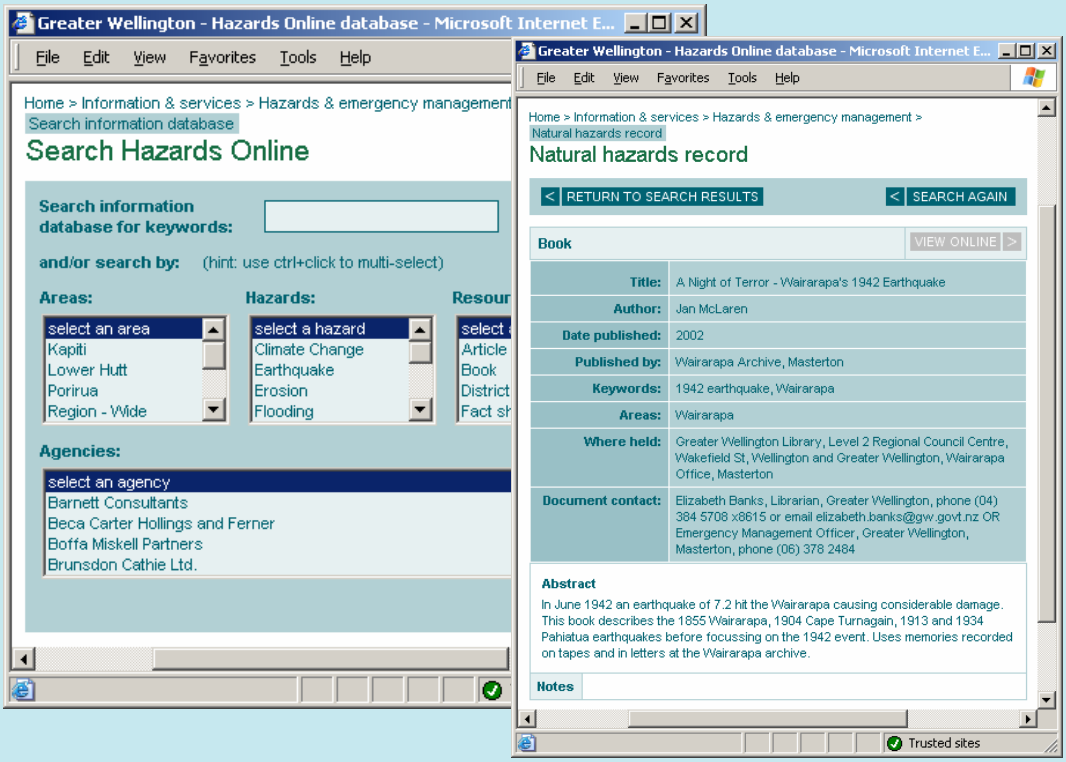
Current Projects

Greater Wellington website

The new Greater Wellington website went online in February. As part of this, the hazard and emergency management pages at www.gw.govt.nz/hazards-and-em are getting a bit of a spruce up and will be updated over the next few months. This will make it easier to navigate and quickly find the information you need.

Hazards Online database

Do you want to know what natural hazard information for the Wellington Region is out there and where to find it? Our Hazards Online database is now up and running on the Greater Wellington website at www.gw.govt.nz/hazardsonline. Hazards Online is a searchable database containing information on over 450 natural hazard resources, including reports, books, articles, maps and theses, with a focus on the Wellington Region. This information has been collected from over 70 agencies including territorial authorities, crown research institutes, universities, consultants and Greater Wellington. Each entry has information on the resource and where you can access it, and some of the more recent resources have links to the online document.



We are now in the process of updating the Hazards Online database with new entries. If you have produced a report or an article during the last 18 months that you would like to contribute to the database then we would love to hear from you. Contact Helen Grant on (04) 801 1031 or helen.grant@gw.govt.nz.

State of the Environment reporting

Greater Wellington is collating information for its State of the Environment Report, due out at the end of the year. The Natural Hazards technical report feeds into the State of the Environment Report and will describe and examine the consequences of earthquake, flood, tsunami, coastal, landslide, drought, wildfire and volcanic hazards within the Region over the last ten years. It will also look at what Greater Wellington is doing in response to these natural hazards and evaluate the effectiveness of the Regional Policy Statement.

Upper Hutt fault trace survey

Greater Wellington and Upper Hutt City Council are beginning a project to better define active fault traces (fault lines) within Upper Hutt. The information collected will be included in the Upper Hutt District Plan together with planning measures to reduce the impact of movement along faults at the ground surface during an earthquake.

Upper Hutt is crossed by several active faults including the Wellington, Akatarawa, Moonshine, Otaki Forks and Whitemans Valley Faults. While the ground shaking hazard from these faults can't be avoided, damage or injury resulting from permanent displacement of the ground surface along a fault can be avoided by restricting or prohibiting development on or near the fault.

Wairarapa coastal contour mapping project

Palliser Bay

Greater Wellington has engaged Tse Group to carry out the Wairarapa coastal contour mapping project. The project will use photogrammetry to map the 5 and 10 metre contour along the entire Wairarapa coast from Turakirae Head to Mataikona, north of Castlepoint – over 200km altogether. The mapping project is a recommendation of the Wairarapa Coastal Strategy and will help to identify the areas most at risk from tsunami and storm surge inundation. Due for completion in early June, the information will be used by territorial authorities and Greater Wellington in the Wairarapa for assessing tsunami and storm surge risk in the subdivision and land use consent process. The Wairarapa Coastal Strategy, including recommendations for coastal hazard management, is available on the Greater Wellington website at http://www.gw.govt.nz/section1237.cfm, or hard copies can be ordered from wcsg@gw.govt.nz or from Rachel Hornsby, Greater Wellington Wairarapa Office, on 06 378 2484.

Ava to Ewen flood protection improvements

The first stage of the Ava to Ewen flood protection improvements in Lower Hutt is nearly completed. Stage One, the realignment of the river through Strand Park has involved excavating the corner of Strand Park and creating a wider berm area in Alicetown. The new berm has been lined with rock edge protection and rock groynes to prevent erosion. The project will protect the community from a 1 in 440 year return period flood when it is completed. The environmental enhancement for Stage One will begin shortly with the planting of hundreds of native trees and shrubs. For more information on this project contact Kim Wall on (04) 374 5708 or email kim.wall@gw.govt.nz.

The Hutt River at Alicetown showing Stage One of the Eva to Ewen flood protection improvements (sourced from GW flood protection)

Recent Reports

Kapiti flood hazard fact sheet

Waikanae River flooding at Otaihanga, 28 October 1998

The *Flooding Hazard – Kapiti* fact sheet was produced in August last year and outlines areas at risk from flooding in Kapiti, focussing on the Otaki and Waikanae Rivers. It also looks at what is being done to manage flooding in Kapiti. The *Flooding Hazard – Kapiti* fact sheet complements the *Flooding Hazard* fact sheet which has tips for what you can do in a flood and how you can protect yourself, your family, home and business. Both fact sheets are available on the Greater Wellington website at www.gw.govt.nz/section75.cfm. Alternatively you can request copies of the fact sheets from Helen Grant on 04 801 1031 or helen.grant@gw.govt.nz.

Recent Events

CDEM Group Plan launch

The event of the year so far was the launch of the Wellington Region Civil Defence Emergency Management Group Plan on 5 May 2005.

The Civil Defence Emergency Management Act 2002 required local authorities to form a Civil Defence Emergency Management Group (CDEM Group). This Group was tasked with the development and implementation of a Civil Defence Emergency Management Group Plan (the Plan) for the Wellington Region.

The Plan provides the context and strategic direction for civil defence emergency management in the Region, and its purpose is to put in place procedures and arrangements to achieve the CDEM Group vision – that the communities of the Wellington Region are resilient.

The Plan builds on the existing knowledge and arrangements already in place and it reflects the high level of co-operation that already exists between all those involved in emergency management in the Region.

If you would like a copy of the Plan, check out the CDEM Group website www.wrcdemg.govt.nz or contact Jo Guard at the CDEM Group Office on (04) 381 7742 or cdemplan@gw.govt.nz.

The Group website will soon be redesigned and will provide information on Wellington CDEM Group work programmes, plus lots of useful information on how you can be prepared for an emergency.

Hon George Hawkins, Minister of Civil Defence and Emergency Management (left), and Mayor Wayne Guppy, Chairman of the Wellington Region Civil Defence Emergency Management Group, at the launch of the Plan

5-6 January floods

Heavy rain on the night of 5 January caused flooding in Kapiti and the Hutt Valley. A northwesterly airflow across the lower North Island was responsible for dumping a month's worth of rain on parts of the Tararuas in one night, although most rain fell within a four to six hour period. Along with widespread surface flooding in Kapiti, the Otaki and Waikanae Rivers rose quickly. The Waikanae River burst its banks at around 3am on 6 January forcing the evacuation of hundreds of people from the Waikanae Christian Holiday Park. Around a metre of water also inundated 18 houses in Otaihanga with the evacuation of some residents.

Severe gully erosion occurred in the upper Waikanae catchment around Reikorangi. Large amounts of gravel were deposited causing streams to change course. State Highway 1 was closed at MacKays Crossing and Paekakariki, along with Paekakariki Hill Road, Akatarawa Road and several others in the Hutt Valley. Rail services were also suspended between Paraparaumu and Paekakariki as debris covered the tracks.

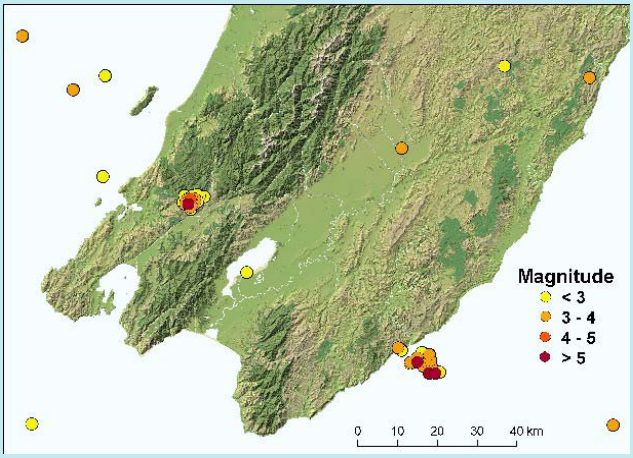
Four hour rainfall return intervals were up to 35 years in the Otaki catchment, 40 years in the Waikanae and Akatarawa catchments, and 70 years in the Whakatikei catchment. At their peak, flows in the Otaki and Waikanae Rivers were the highest recorded since measurements started (1980 and 1975 respectively). The estimated return interval for flow in the Otaki River was 40 years (a 2.5% chance of happening in any one year) and 80 years in the Waikanae River (a 1.25% chance in any one year).

Return periods for the Akatarawa and Whakatikei catchments in the western Hutt Valley were 80 and 60 years respectively. These high flows resulted in a 25 year return interval flow in the Hutt River at Birchville and Taita Gorge.

A full report on the hydrology and meteorology of this event can be found on the Greater Wellington website at www.gw.govt.nz/section949.cfm or can be obtained from Laura Watts on 04 384 5708 or laura.watts@gw.govt.nz.

Upper Hutt and Wairarapa earthquake swarms

If it wasn't flooding, it was shaking: the Wellington Region experienced an unusually large number of earthquakes during the second half of January. The largest event, a magnitude 5.5 shock beneath Upper Hutt on 21 January rattled more than a few nerves. While the earthquake was relatively small, the Earthquake Commission still received over 1000 claims and has paid out almost $1.5 million for damage incurred. There was also a sequence of shallow earthquakes off the Wairarapa coast near Tora with magnitude 5.2 and 5.3 events on 18 January, and a further magnitude 5.3 event on 1 February.



Wellington Region earthquakes between 17 January and 4 February 2005 (sourced from Geonet)

The magnitude 5.5 earthquake under Upper Hutt occurred very close to an earthquake swarm which occurred during April-May 2004. Both earthquake sequences occurred within the Pacific plate, which dives beneath the overlying Australian plate and is about 26 km deep under Upper Hutt. Seismologists at the Institute of Geological and Nuclear Sciences have determined that the 2004 earthquakes occurred on a fault within the Pacific plate at 29 km depth. The magnitude 5.5

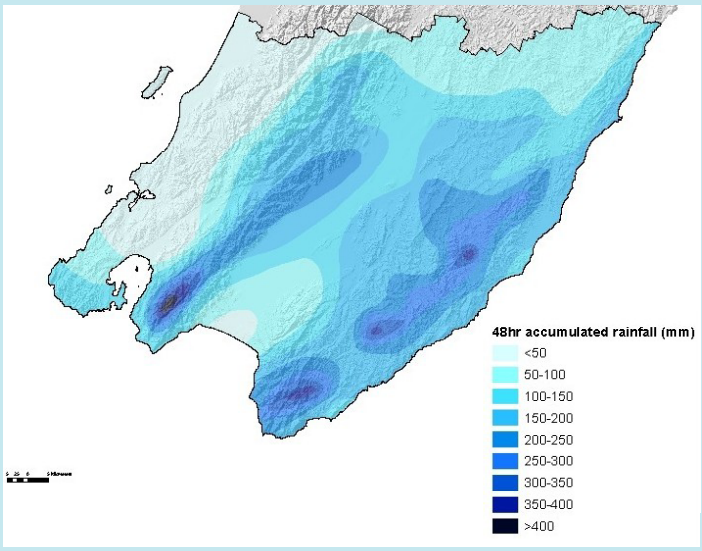
shock this year occurred on a parallel fault about 1 km deeper. Work is underway to look at why there is such concentrated activity in this part of the Pacific plate.

On 14 March, many people were woken at 4.08am by a magnitude 6.4 earthquake that originated 150km under the sea between Opunake and Nelson. The earthquake was too deep to create a tsunami or cause much damage on land. This earthquake was unrelated to the earlier Upper Hutt and Wairarapa earthquakes.

To find out more about these and other earthquakes go to the Geonet site at www.geonet.org.nz. And remember to fill out the Felt Earthquake Report on this site if you feel an earthquake - this helps scientists to better understand ground shaking effects from earthquakes.

30-31 March floods

The Region experienced heavy rain and flooding again on 30-31 March, however this time it was a southeasterly storm in which the eastern Wairarapa and the Orongorongo and Wainuiomata Valleys were the hardest hit. The storm appeared to be a "weather bomb" event with weather cells causing localised areas of heavy rain.



Rainfall distribution in the Wellington Region over the 48 hours from 9am 29 March to 9am 31 March 2005 showing heavy falls in the Orongorongo Valley and eastern Wairarapa

Almost 70mm of rain fell on the eastern Wairarapa coast between 6.15pm and 7.15pm on 30 March, with a total of 240mm for a 24 hour period. This resulted in localised flooding and landsliding at Mataikona, Castlepoint, Riversdale, Ngahape, and at coastal communities in South Wairarapa, damaging roads and forcing 20 people from their homes. Access was cut to these locations and emergency supplies were airdropped in to isolated communities. Stock, farm fences and machinery were also lost with widespread damage to farm tracks.

In the Wainuiomata Valley the Department of Conservation recorded 444mm of rainfall in the 36 hours, whereas only 23mm fell in Belmont on the western hills during the same period. The Wainuiomata River burst its banks and the Coast Road was washed out in several places. Large areas of farmland were covered with gravel and silt and many fences were destroyed or damaged.

Tonnes of gravel were mobilised into debris flows in the Orongorongo Valley during the deluge, damaging tramping huts and a Greater Wellington water supply intake. One debris flow in Boulder Creek formed a gravel dam about 4m high across the Orongorongo River where the two waterways converge. Experts were sent in to inspect the dam as water built up behind it. After examining the site a decision was made to allow the dam to erode naturally during the next flood in the river as the danger of catastrophic failure of the dam and release of the dammed water was considered to be very low. The return period for rainfall in the Orongorongo catchment was estimated by Greater Wellington water resource scientists to be greater than 150 years, in other words there is less than a 1% chance in any one year of this amount of rain falling over a 48 hour period.

Fresh landslide scars in the Orongorongo Valley after rainfall over 30-31 March

The Orongorongo River looking downstream to the confluence of Boulder Creek. A large debris flow swept down Boulder Creek (shown by black dashed arrows) and blocked the Orongorongo River, forming a lake behind a gravel dam.

FOR FURTHER INFORMATION

Greater Wellington –
The Regional Council
Wellington
P O Box 11646
T 04 384 5708
F 04 385 6960
W www.gw.govt.nz

Publication date May 2005
Publication No. GW/RP-G-05/53