

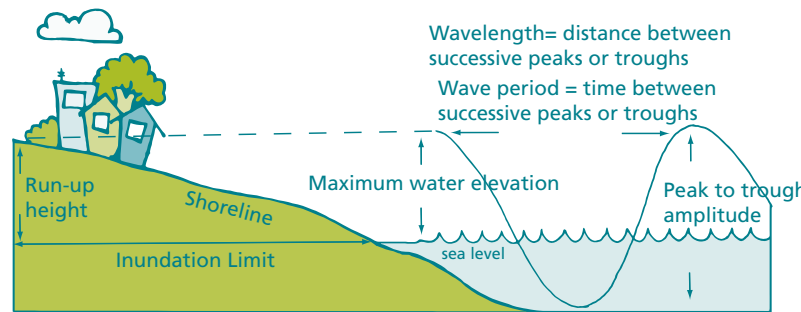


Tsunami Hazard

This fact sheet describes hazards and risks associated with tsunami in the Wellington Region.

What is a tsunami?

Tsunami is a Japanese word meaning 'harbour wave or waves'. Tsunami result from the displacement of water caused by earthquakes, underwater landslides, volcanic eruptions or even meteorites. A series of waves spreads out across the ocean like ripples on a pond when a stone is thrown in. Tsunami are not usually noticed at sea, but in shallower water near the coast, the waves slow down and pile up. Some waves can be tens of metres high when they break onshore.



Features of a tsunami.

More common smaller tsunami (less than one metre in height) come onshore as non-breaking waves, rather like a rapidly rising tide. The waves wash over low-lying land and may continue to hit the coast for several days.

What do tsunami do?

Tsunami hazards include flooding, strong currents, bores (wall-like waves of water travelling up rivers or into estuaries), seiching ('sloshing' in a harbour or semi-enclosed area), sediment scouring and deposition, sandblasting, and floating debris. Tsunami flood low-lying coastal areas and are incredibly powerful. Even a tsunami 20cm high could knock you off your feet. During a tsunami, people may be drowned or injured by floating debris. Inundation causes saltwater contamination. This can damage sensitive ecosystems, land productivity and buildings and structures. The effects of saltwater flooding may last long after the water has receded. While destructive on their own, tsunami are often associated with a large earthquake which may have already caused considerable damage.

How is the Wellington Region at risk?

Tsunami may be caused by undersea landslides in the Hikurangi Trough or Cook Strait or by earthquakes on a local faultline, such as the Wairau Fault (which runs alongside the Kapiti Coast), the Wairarapa Fault (which caused a tsunami in 1855) and the Palliser-Kaiwhata Fault (which runs parallel to the south-eastern Wairarapa coastline).

Tsunami can also arrive from overseas. The diagram opposite shows the most likely sources of distant tsunami affecting the Wellington Region.



Tsunami Hazard from distant sources.

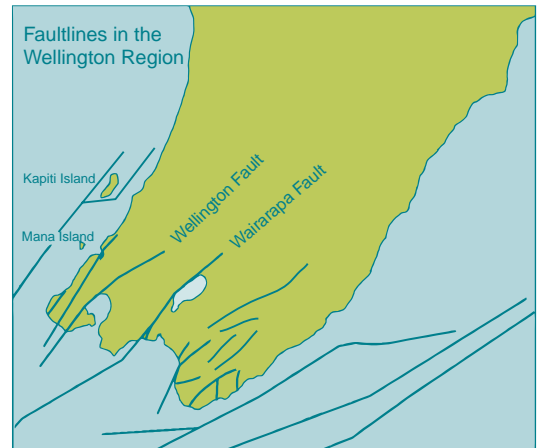
Have we experienced tsunami in the Wellington Region?

The Wellington Region has experienced at least three tsunami that started near South America (1868, 1877 and 1960). They all arrived at low tide, avoiding major damage. A tsunami caused by the 1855 Wairarapa earthquake washed over Lyall and Evans Bays, flooded shops along Lambton Quay and caused erratic tides for 8-12 hours afterwards. The diagram opposite summarises areas at risk from tsunami in the Wellington Region.

Do we get any warning?

If a nearby earthquake, landslide or eruption causes a tsunami, there may only be a few minutes warning or no warning at all.

If a tsunami started overseas, it can take hours to reach New Zealand. For example, it can take about 14 hours for a tsunami to travel from South America to New Zealand. The Pacific Tsunami Warning Centre in Hawaii sends a warning to the Ministry of Civil Defence and Emergency Management, who make sure local communities are warned. Warnings will be broadcast over the radio and television.



Tsunami Risk in the Wellington Region

What should you do?

If you feel an earthquake or hear a tsunami warning:

- Move inland or to higher ground.
- Listen to a radio for further advice.
- Don't go down to the beach to see a tsunami arrive!



Tsunami warning sign on the Wairarapa Coast.

Further reading

Gilmour, A.E. and Stanton, B. 1990. *Regional National Disaster Reduction Plan – Seismic Hazard. Tsunami Hazards in the Wellington Region.* Copies are available to view at Greater Wellington.

GeoEnvironmental Consultants, 2001. *Wellington Regional Tsunami Hazard Scoping Project.* Report prepared for the Greater Wellington. Copies are available from the Greater Wellington website (www.gw.govt.nz) or a printed version may be requested.

For more information,
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or contact a civil defence
emergency management
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