

Fact sheet 2: Tsunami

What is a tsunami?

Tsunami is a Japanese word meaning 'harbour wave'. A tsunami is a series of fast travelling waves caused by a large disturbance in the sea or on the ocean floor, such as an earthquake, landslide, volcanic eruption or meteorite. The waves can be separated by as much as an hour, and can travel many thousands of kilometres across oceans at great speeds of up to 800kph.

A tsunami may pass unnoticed as it crosses deep oceans, but it loses speed and gains height when it reaches shallow water. Large waves up to 15 metres or more in height can come crashing onto the land. The effects may become worse in narrow bays and inlets.

Tsunami waves appear either as rapidly moving tides with very strong currents that can wash people and objects out to sea, or as large breaking waves that can cause significant impact damage at the shoreline.

As New Zealand is surrounded by water, many of our coastal communities are at risk from tsunami. These can be caused by distant disturbances (for instance, the Chilean earthquake in 1960), or may be generated closer to our shores (such as the two near source tsunami experienced near Gisborne in 1947).

In a tsunami the water level may fall very quickly below the normal low tide mark then return just as quickly. If this happens, there won't be enough time to issue a warning, so it is important that you know what to do, and that you act quickly.

There are three distinct types of tsunami. The type you encounter depends on the distance you are from the place where it is generated.

- **Distant tsunami** are generated from a long way away, such as from across the Pacific in Chile. In this case, we will have more than three hours warning time for New Zealand.
- **Regional tsunami** are generated between one and three hours travel time away from their destination. An eruption from an underwater volcano in the Kermadec Trench, to the north of New Zealand, could generate a regional tsunami.

- **Local tsunami** are generated very close to New Zealand. This type of tsunami is very dangerous because we may only have a few minutes' warning and damage could be quite significant in specific areas. A landslide in the Hikurangi Trench or a large earthquake from an offshore fault could cause a local tsunami.

What do we do before a tsunami?

- Know if your local area could be struck by a tsunami.
- Talk with your family and prepare an emergency plan.
- Identify safe places close to your home and school – as far inland and as high up as possible.

What do we do during a tsunami?

- Stay calm.
- Leave the area immediately if you are at the beach or near a river when a strong earthquake occurs. Move quickly but safely.
- Go as far inland and as high up as you can.
- Don't go to a river or beach to watch the waves come in if a warning has been issued.

What do we do after a tsunami?

- Listen to, and follow, instructions from adults or the radio.
- Do not go down to the sea or river until you have been told it is safe to do so.
- Help others who may need it, if you can do so safely.

