



**Emergency
Management Otago**
Te Rākau Whakamarumarū Ōtākou



Tsunami Evacuation Zone Maps

Questions and Answers

Do these maps show areas that will be flooded in a tsunami?

No – they are evacuation zones.

A tsunami evacuation zone is an area that you may need to evacuate from if you feel a long or strong earthquake, or if there is an official tsunami warning. There are three zones – red, orange and yellow – based on the areas that could be affected in different sized tsunamis.

If my house / school / business is in one of those zones, does it mean it will definitely be hit by a tsunami?

No, not definitely. We can't know exactly how far a tsunami would come onto land – it depends on lots of different factors including where the tsunami was generated and whether it's low or high tide.

The zones on the maps are areas where we would evacuate people based on the threat level. Some properties are also included because access to them could be completely cut off in a tsunami.

How were the tsunami evacuation zones drawn?

The area that would be flooded in any tsunami depends on many factors, such as the size of the earthquake, the direction it is coming from and the tide level when the waves arrive. We can never say for sure exactly which areas will be flooded in a tsunami, and every tsunami will be different. Emergency Management Otago considered many different scenarios when we created these evacuation zones. The zone boundaries also usually follow some sort of feature that is easy to see on the ground, like roads, so that you know whether you are in or out of the zone. We also considered the locations of schools and rest homes, and parks. For example, even if a certain size tsunami would only flood a small portion of a park, we include the whole park in the evacuation zone, as it is easier to close a whole park than to evacuate only part of it.

I'm in a zone – what does it mean for me and when do I get out of a zone?

The red zone includes the estuary, rivers, beaches and harbours. You should move out of this zone if you feel a long or strong earthquake, or if you are told to evacuate in an official tsunami warning (even for a tsunami that won't flood land, as these tsunamis can still cause strong and unpredictable currents and surges that can be dangerous for people in or near the water).

The orange zone is the area that could be flooded if we get a tsunami of between 1 and 3 metres high at the coast. You should move out of this zone if you feel a long or strong earthquake, or if you are told to evacuate in an official tsunami warning. If you can't evacuate quickly and safely (i.e. within about 15 minutes) after a long or strong earthquake you should consider going to the upper level of a two-storied building.

The yellow zone is the area that could be flooded if we get a tsunami larger than 3 metres high at the coast. You only need to evacuate this zone if you are told to in an official tsunami warning, if there is a very large tsunami coming from across the Pacific Ocean.

I'm close to a zone boundary but not actually in it. Should I evacuate anyway?

It's always a good idea to be prepared for unexpected events. If you feel that you and your family would be safer moving further away from the coast after a long or strong earthquake, or when there is an official warning of a tsunami, you are always able to decide for yourself to leave.

How far away do I need to go? / Where is a safe place for me to go?

If you feel a long or strong earthquake, you only need to get out of the red and orange zones. However, it is a good idea to move further inland to make room for people coming behind you. Even better, go to a friend or family's house out of the red and orange zones until it is safe to go home. If you don't have friends or family to go to, Emergency Management Otago will set up Civil Defence Centres on the day for people to stay at until it is safe to go home.

It's a good idea to get familiar with the tsunami evacuation zones near where you live or work and agree safe meeting places with your family, and the best ways for you to get there. You can do that by checking the online map and looking for places that you recognise that are outside the evacuation zones.

This is going to affect my property values – can I get my property taken out of the zone?

The information that a property is in a tsunami evacuation zone will not be included on its Land Information Memorandum (LIM).

The zones reflect areas that we will evacuate in the event of varying levels of tsunami threat to the Otago coast. For that reason, Emergency Management Otago won't be removing properties from the maps.

I want to talk to my neighbours about getting better prepared. What can you suggest?

That's a really good idea! With your local knowledge, you can help your community be well prepared for all sorts of emergencies including tsunamis. Emergency Management Otago would like to support your community to develop an emergency response plan. Here's how you can contact your local emergency management officer to start the conversation:

All of Otago: email info@otagocdem.govt.nz and phone 0800 474 082

Waitaki District: email info@otagocdem.govt.nz and phone 0800 108 081

Dunedin City: email info@otagocdem.govt.nz and phone 03 477 4000

Clutha District: email info@otagocdem.govt.nz and phone 03 419 0200

Is Otago the only region that has created these evacuation zones?

No – this is a national project that is happening all around New Zealand. The system of using three zones (red, orange and yellow) is consistent around the country.

What is a tsunami?

A tsunami is a series of waves that move through the ocean caused by a sudden movement of the sea floor or by something falling into the ocean. Tsunamis are most often caused by undersea earthquakes, but can also be caused by landslides and volcanic eruptions.

Most tsunamis don't flood land, but they do cause strong and unpredictable currents and surges around the coast, which can be dangerous for people in the water or on the beach or rocks.

Bigger tsunamis will push water onto the land, sometimes several metres high.

Because a tsunami is a series of waves, it causes many waves or surges that arrive over several hours or even days. The first tsunami wave is often not the largest – the largest wave can arrive hours after the first one.

Why is New Zealand at risk from tsunamis?

New Zealand lies right on top of a plate boundary, where two of the earth's enormous tectonic plates are colliding. This collision breaks the rocks around New Zealand – these breaks are better known as earthquake faults, and some of them lie under the ocean around New Zealand. These undersea faults can create tsunamis if they move. New Zealand is also exposed to tsunamis that come from earthquakes on faults in the Pacific Islands or from across the Pacific Ocean.

Where do tsunamis come from?

Tsunamis can come from local, regional, or distant sources, depending on how long they take to travel from where they were generated to the Otago coastline.

A local source tsunami takes less than 1 hour to reach the coast, and is created by an earthquake or underwater landslide close to shore. **If you are at the beach or in a red or orange zone and feel a long or strong earthquake, move inland or uphill immediately – in other words, if it's "long or strong, get gone".**

There will not be enough time to issue an official warning for a local source tsunami before the first waves arrive – the earthquake is the natural warning.

A regional source tsunami takes 1-3 hours to reach the coast, and could be created by an earthquake off the Canterbury or Southland coast, in Cook Strait, or off the eastern North Island coast. A tsunami from these locations is possible. The earthquake that could cause a regional source tsunami would be felt as a mild or moderate but long (longer than a minute) earthquake. **If you are at the beach or in a red or orange zone and feel a long or strong earthquake, or you see unusual changes in the sea such as the water receding rapidly from the beach, move inland or uphill immediately. In other words, if it's "long or strong, get gone".**

There may not be enough time to issue an official warning for a regional source tsunami before the first waves arrive – the earthquake is the warning.

A distant source tsunami takes more than 3 hours to reach the coast. For Otago this includes tsunamis from southern New Zealand, the Pacific Islands, or across the Pacific Ocean. This is considered to be the most likely type of tsunami to affect Otago and at worst it could create tsunami waves up to 10 metres high. The earthquake that could cause a distant source tsunami would not be felt in Otago, but there will be time to issue an official warning.

What are the warning signs?

A long (longer than a minute) or strong (hard to stand up) earthquake is your best warning for a tsunami. If you feel a long or strong earthquake, move out of the red and orange evacuation zones on the map as soon as the shaking stops. An approaching tsunami can also draw the sea away from the coast exposing the ocean floor, often rapidly, before it rushes back with considerable force. This is often accompanied by a loud roaring sound like a jet plane.

It is not worth waiting to find out if a tsunami has been generated because by the time you see it coming, it will be too late to get out of the way. If you can't evacuate quickly and safely after a long or strong earthquake, you should consider going to the upper level of a two-storied building.

If there is time to issue an official warning, how will I know about it?

If there is time to issue an official warning, you will hear warnings in a variety of ways. These include:

- the new national mobile alerting system (due to launch in November 2017) – check if your phone is capable of receiving these alerts [here](#) or at www.mcdem.govt.nz
- radio stations will broadcast alerts. You are most likely to hear these on RNZ National, The Hits, Newstalk ZB, MoreFM and Radio Live
- social media – follow the Emergency Management Otago Facebook page and Twitter feed (they are both @otagocdem)
- television
- Some communities have organised telephone trees
- There may be dedicated tsunami sirens in some communities

If the tsunami is large enough to flood land, emergency services may also be active in the evacuation zones, but only if there is time to send their staff through the area safely.

You can help by sharing official warnings with neighbours, friends and family.

If possible, an official tsunami warning will be issued for local or regional source tsunamis, even if the first waves have already arrived. This is to keep people that have evacuated out of the evacuation zones until it is safe to return, and to warn people that haven't yet evacuated as the largest wave can be up to a few hours after the first wave.

Are there going to be sirens?

We'll consider that on a case-by-case basis, particularly looking at areas where there is no cellphone coverage which means the new national alerting system won't reach there, but there are no plans for a siren warning system along the whole length of the coast. There are sirens in place at Waitaki Bridge and Shag Point, which are cellphone blackspots.

Personal responsibility

In the event of a possible tsunami, authorities will assess the risks as quickly as possible and provide information to potentially affected communities as fast as possible. However, the best thing you can do is to be informed about the risk and, in the event of a long or strong earthquake, heed the advice and "Get Gone" without waiting for an official warning to be issued.