

# WHAT'S ON OUR PLATES?

EXPLORE OUR ACTIVE PLATE BOUNDARY

MODULE

7

Learning about  
Tsunami Waves

## MAKING WAVES

Fill in the blanks:

Tsunami is a \_\_\_\_\_ word meaning 'harbour wave'. A tsunami is series of powerful waves that is caused by a disturbance on the sea or lake floor by an \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ or \_\_\_\_\_.

When people think of a tsunami they often imagine a scary 50 metre high wave but in reality tsunami are all different sizes.

Match the tsunami size to it's impact.



Threat is mainly coastal. Some turbulence and strong currents.



Some damage to fragile coastal stuff like wooden buildings, machines and electrics.



Lots of damage and inundation. Damage to concrete buildings and coastal roads, pipes, electrical networks etc.



Lots of serious damage and inundation. Buildings, roads, bridges, pipes and wires washed away.

## NOT JUST NORMAL WAVES

No matter where they occur tsunami can travel very fast. Even once a tsunami reaches land it keeps going, moving across land.

How fast can tsunami travel on land?

Circle the correct answer.

30km/h

300km/h

Can you figure out if these statements are True or False? Circle the correct answer.

A tsunami is caused by the wind, weather, tides and currents.

True

False

Only the top layer of the water moves in a surf wave.

True

False

Tsunami and surf waves speed up in shallow water.

True

False

There may be 10 mins to 2 hours between tsunami waves.

True

False

A wave is a form of energy transfer.

True

False

A tsunami is more powerful than a surf wave.

True

False

A natural warning sign of a tsunami is a long or strong earthquake

True

False

## HERE AT HOME

The **New Zealand Tsunami Database: Historical and Modern Records** records all tsunami that have been recorded or reported on from tide gauges, newspaper articles, harbour masters, records from ships, personal diary entries and Māori oral records within the last 200 years.

How many records does this database have?

Circle the correct answer.

123      345      939      334534

## ANYWHERE, ANY TIME

All of Aotearoa New Zealand is at risk of tsunami. This means it is really important that we all know the natural warning signs of a tsunami.

Unscramble these letters to help you remember one of the natural warning signs of a tsunami.

NOGL OR RGSNOT ETG NEOG

\_\_\_\_\_

Match the Tsunami Source to the average travel time it would take it to reach the coastline of Aotearoa New Zealand.



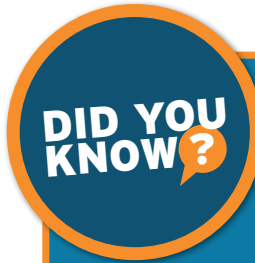
1-3 Hours



Minutes to an Hour



3 or more Hours



If the tsunami's origin is close to New Zealand a tsunami could arrive within minutes.

If you feel a **LONG** earthquake that lasts more than a minute or a **STRONG** earthquake that makes it hard to stand, or if you see or hear unusual ocean behavior, **move immediately** to the nearest high ground or as far inland as possible, as soon as any shaking has stopped.

Don't wait for an official warning.

## PRACTICE MAKES PERFECT

What **THREE** steps should you follow if you feel a long or strong earthquake while you are at the beach, by the coast or on a shoreline?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

What **TWO** things could you prepare in advance to be ready to evacuate to stay safe from a tsunami?

1. \_\_\_\_\_
2. \_\_\_\_\_



New Zealand has a network of **DART** (Deep-ocean Assessment and Reporting of Tsunami) buoys to provide **early detection** and **support warnings** for tsunami generated from the Kermadec and Hikurangi trenches and Pacific sources further away.

## INVESTIGATING HAZARDS NEAR YOU

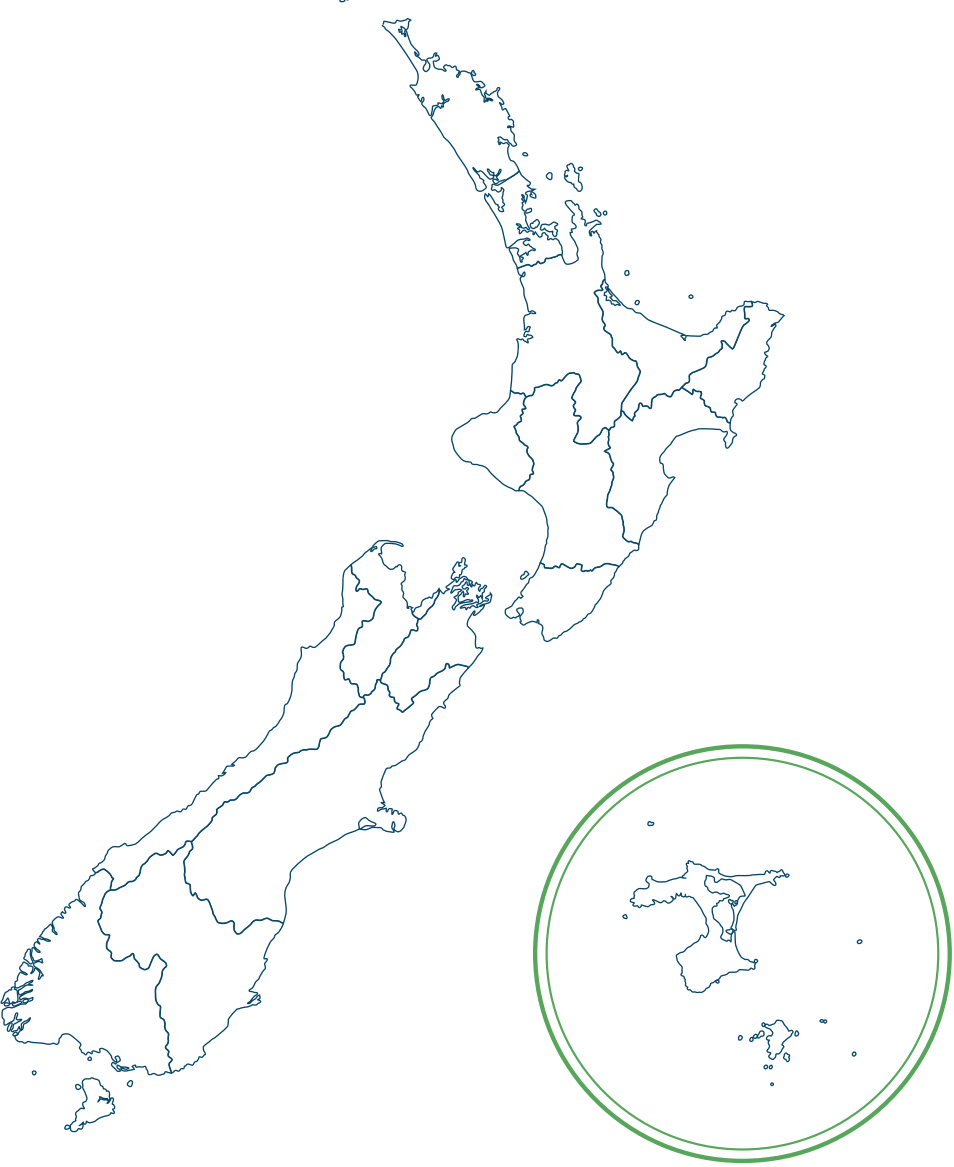
Using the New Zealand The New Zealand Tsunami Database: Historical and Modern Records. Plot 5 tsunami that have occurred in New Zealand in the last two hundred year on the map below.

<https://tsunami.gns.cri.nz/>

Make sure you also include what caused the tsunami.

- Earthquake
- Volcano
- Landslide
- Other/multiple causes
- Unknown

Note: Only select tsunami that are definite = indicated by the green dot



- 1.
- 2.
- 3.
- 4.
- 5.