When a Tsunami Warning is issued

Act early on the warnings. There can be a very short time between the earthquake, tsunami forming and impact. Follow all instructions given to you by the emergency services. Listen to the radio for information about the tsunami. Make sure your neighbours know about the warning.

Actions to take include:

**Marine and immediate foreshore threat**
- Get out of the water and move to high ground away from the immediate foreshore (beach, rocks, estuary etc.)
- Boats in harbours, estuaries and in shallow coastal water should return to shore. Secure your boat and move away from the waterfront.
- If your vessel is in deep water and offshore, stay there

**Land inundation threat**
- Move away from foreshore areas and the Tsunami Evacuation Area to higher ground, at least 10 metres above sea level or 1 kilometre inland
- When moving to higher ground take only essential items, such as important papers, family photographs and medication
- Leave by foot, avoid taking your vehicle
- If you cannot get to higher ground seek shelter in the upper storey of a sturdy brick or concrete building at least 10 metres above sea level
- Boats near to shore should be returned to shore and securely moored. Move away from the waterfront to high ground at least 10 metres above sea level or 1 kilometre inland
- Boats outside harbours, rivers and estuaries should move to deeper water. If your vessel is in deep water and offshore, stay there
- Do not go to the coast to watch the tsunami

How to prepare yourself

**Some of the things you can do are:**
- Prepare an emergency kit
- Know where the nearest high ground and the evacuation zones are located
- If you are a business or school keep your emergency plan up-to-date and practice it regularly
- If you live or work in the tsunami evacuation zone identify an evacuation route to the nearest high ground that you can reach by foot
- Know how you will take your pets with you and what essential documents and emergency supplies you can easily carry
- Discuss your emergency plan with your family, neighbours and workmates and be prepared to act
- If you are visiting the area be aware of what to do in case there is a Tsunami Watch or Warning

**How could I receive an official warning?**

Depending on lead time and available resources official warnings may be issued using one or more of the following methods:

**Tune in:** Radio and television broadcasts are one way of receiving warnings. They may be accompanied by the Standard Emergency Warning Signal (SEWS) - a siren-like noise.

**Log On:** To the Bureau of Meteorology bom.gov.au/tsunami and NSW SES website. Official warnings may also be shared on social media including Facebook and Twitter.

**Listen Out:**
- Standard Emergency Warning Signal (SEWS) or announcement through a loud speaker.
- A text or recorded message on your phone may be sent to people in the affected area.
- Low flying aircraft equipped with public address systems.
- Two-way radio / Marine Satellite Phone VHF, CB marine VHF radios and where appropriate marine satellite phones.
- Door knocks by emergency service personnel.

**Emergency contacts**

**Police, Fire and Ambulance - 000 (triple zero)**
Life-threatening emergencies.

**NSW SES Emergency Assistance - 132 500**
For rescue and resupply following a tsunami. The deaf, hard of hearing or speech impaired can call Triple Zero (000) or SES (132 500) using the National Relay Service (NRS).

Connect to NRS by:
- Texting 000 or 132 500 to 0423 677 767
- Video call via Skype at relayservice.gov.au
- Phone 1800 555 727 and ask for triple zero (000) or SES (132 500)

**Supporting information & contacts**

- Live Traffic (Roads and Maritime Services) - 132 701
  livetraffic.com for major road closures
- Wollongong City Council - (02) 4227 7111
  wollongong.nsw.gov.au for local road closures and property information
- Joint Australian Tsunami Warning Centre (Bureau of Meteorology) - 1300 878 6264
  bom.gov.au/tsunami for the latest Tsunami Warnings
- GeoScience Australia ga.gov.au/hazards/tsunami for earthquake information

**Recovery**

Disaster Recovery Centres may be established following major tsunamis. They may provide a range of welfare services including financial assistance, personal support, organising temporary accommodation and providing information and referrals.

**How to prepare yourself**

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Tsunami are a series of powerful waves, the first wave is not always the largest. These waves can be hundreds of kilometres long. Waves can be a few minutes or over two hours apart. As tsunami waves approach shallow water, they slow down, their height grows and they get closer together. A tsunami that is invisible at sea may grow to be several metres or more in height near the coast.

Australia sits in the middle of a tectonic plate. Most tsunami are triggered by undersea earthquakes and occur along the subduction zones (where the earth’s tectonic plates are moving under each other). The nearest subduction zone to the east coast of NSW is the Puysegur trench south of New Zealand. The Pacific Ocean boundary is commonly known as the Ring of Fire.

How likely are tsunami?

There is a reasonable chance of tsunami affecting the NSW coast compared to other parts of Australia. The most common tsunami we will experience in NSW will be those affecting the marine environment and immediate foreshore. These may not cause the devastating effects that people often associate with tsunami (e.g. Boxing Day Tsunami 2004). However, there could be strong waves, rips, currents and unusual sea levels that can be dangerous. Beachgoers, rock fishermen and those on small fishing vessels may be at risk.

Land inundation tsunami may have devastating consequences, especially in low coastal areas and estuaries. In even the largest tsunami, understanding the warnings and how and when to evacuate could help protect many people.

How are tsunami detected?

Undersea earthquakes that may cause tsunami are detected by the global monitoring network. This information allows the Joint Australian Tsunami Warning Centre (JATWC) to estimate the tsunami size, its arrival time and possible impact locations and issue either a Tsunami Warning or No Threat Bulletin.

Tsunami from New Zealand or a distant source are detected by Deep Ocean Tsunami Detection Buoys. They help to confirm an undersea earthquake has occurred and that no tsunami threat exists.

Official tsunami warnings

Detecting an earthquake that may cause a tsunami

The JATWC is set up to detect tsunami from earthquakes. The JATWC detects, monitors, confirms and warns of any tsunami threat to the coastline of Australia. The first stage determines if there is the potential for a tsunami threat to Australia. If there is a threat, the Bureau of Meteorology (the Bureau) will issue a National Tsunami Watch. This advises that a tsunami threat may exist and people should look out for further updates. If there is no threat, a No Threat Bulletin will be issued. This advises that the earthquake has been assessed and that no tsunami threat exists.

When a tsunami with the potential to affect Australia is detected

A Tsunami Warning is issued advising people that a tsunami threat does exist, of the level of threat and actions they should take.

Tsunami Threats have 3 different threat levels:

1. No Threat: An undersea earthquake has been detected, however, it has not generated a tsunami, or the tsunami poses no threat to Australia and its offshore areas.
2. Marine and Immediate Foreshore Threat: warning of potentially dangerous rips, waves and strong ocean currents and the possibility of only some localised overflow onto the immediate foreshore.
3. Land Inundation Threat: warning for low-lying coastal areas of major land inundation, flooding, dangerous rips, waves and strong ocean currents.

When the threat has passed

When the main threat has passed or if a tsunami didn’t occur, JATWC will issue a Tsunami Watch Cancellation or Tsunami Warning Cancellation.

After a tsunami

An All Clear will be issued by emergency services when it is safe to return to areas impacted by tsunami. It may not be safe to return for up to 24 hours or longer, depending on the impacts.

Do not go sightseeing

Keep listening to radio for information, updates and advice

Natural warning signs

The natural warning signs of a tsunami are:

1. FEEL the ground shake. If you are near the ocean this may mean a large earthquake has happened nearby. This may generate a tsunami.
2. SEE the ocean drop. As a tsunami approaches the shore, the ocean may drop, but not always
3. HEAR a roaring sound. This may be heard before the arrival of a tsunami.

What is a tsunami

Tsunami sources and travel times

The tsunami threat comes from local, regional or distant ocean trenches.

Local sources include those areas to the NSW coastline where either underwater or coastal landslides are possible and have an impact within minutes.

Regional sources include the trenches to the north and south of New Zealand. Undersea earthquakes are the more likely source of tsunami that could impact the NSW coast within hours.

Distant sources include locations far away in the Pacific Ring of Fire, such as Chile and may take up to 12 hours to reach the NSW coast.

How JATWC issues warnings

Official tsunami warnings

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Disclaimer: The evacuation areas depicted in this map extend 10km up estuaries. They do not depict inundation areas. These broad evacuation areas will be used by the NSW SES for tsunami response planning in the events of a land threat tsunami, and may change depending on the size of the tsunami forecast. They are conservative and based on the best information available at the time. Online maps (ses.nsw.gov.au) will be updated as new information becomes available.

This map is current at the time of print. Please refer to ses.nsw.gov.au for the most up to date information.

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Act early on the first warning you hear