Quick Guide

Australian Government
National Emergency Management Agency

Australian Institute for Disaster Resilience

Why do we need to plan for tsunami in Australia?

Speed read

- The Earth's surface is made of large sections called tectonic plates. These plates move very slowly and can cause earthquakes when they bump into each other.
- Tectonic plates near Australia make us more exposed to tsunami risk because tectonic zones are places where earthquakes can happen and trigger a tsunami.
- The impacts from tsunamis can be widespread and affect many systems.
- Good tsunami planning needs risk assessments, community understanding and early warning systems.

Key points

- A subduction zone is where one of the Earth's tectonic plates collides with another plate, and one gets pushed underneath the other. This movement can cause earthquakes.
- Subduction zone earthquakes in the north and east of Australia are the main source of tsunami risk in Australia.
- Australia's biggest offshore risk is in north-west Western Australia.
- While several tsunamis have happened in Australia's recent history, they have mainly caused marine hazards, with only a few that have caused land-based hazards.
- This does not mean that larger tsunamis will not happen in the future.
- It is hard to know how often large tsunamis happen because the information we can collect is limited, and we still don't have all the tools we need to measure the different ways tsunamis can happen.
- To assess tsunami risk, experts look at:
  - sources that generate tsunamis
  - how tsunamis move across the ocean
  - how a tsunami behaves when it reaches the coast and moves inland.
- The consequence of a tsunami impacting Australia will be different depending on the location. A tsunami may impact remote areas with low and isolated populations, densely populated zones, and offshore infrastructure such as oil and gas fields.

This brief is part of the quick guide series produced by the Australian Institute for Disaster Resilience (AIDR). Quick guides for other handbooks in the collection can be found on the knowledge hub: knowledge.aidr.org.au

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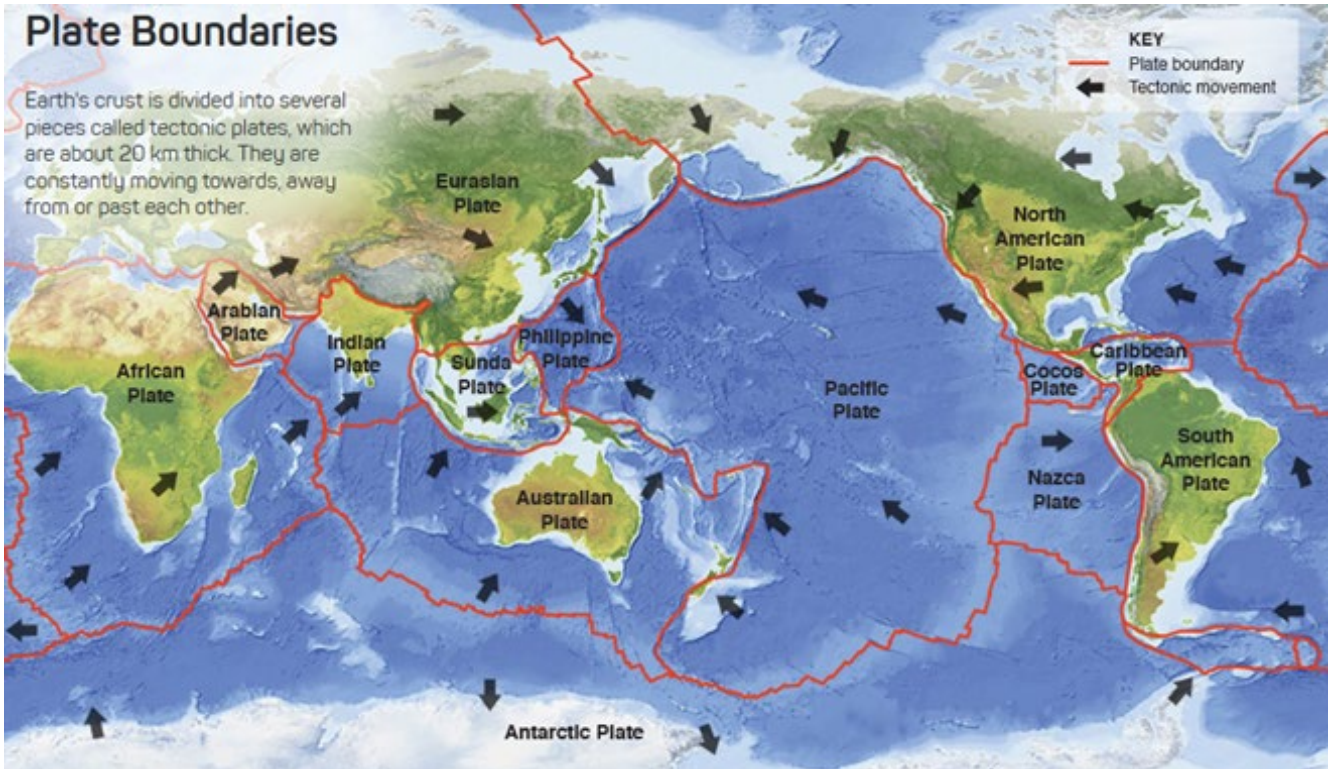

Figure 1: Global subduction zones.

Source: Tsunami: The Ultimate Guide

Take action

- Review Chapter 2 of Tsunami: The Ultimate Guide to find out more about Australian tsunami impacts. Consider the following questions:
  - Where do you sit in the Australian tsunami context?
  - Where is your closest tectonic zone?
- Find out more about the impacts of the 2004 Indian Ocean Tsunami and Australia's response on the Australian Disaster Resilience Knowledge Hub.
- Review Chapters 4 and 5 of Tsunami: The Ultimate Guide to explore Australian examples of marine threat and land threat tsunami events.

More information

- Tsunami Emergency Planning in Australia Handbook (AIDR, 2025), Chapter 3
- Tsunami: The Ultimate Guide
- Tsunami Hazard Modelling Guidelines (AIDR, 2010)
- Emergency Planning Handbook (AIDR 2020)
- Community Engagement for Disaster Resilience (AIDR 2020)

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