

What to do with your boat....

You should have an emergency plan for your vessel which includes information on where to moor your boat quickly and safely should a tsunami warning be issued. If it is safer to move to the deep ocean, you should also be familiar with the boating requirements of the area you are operating in, local dangers, special rules and regulations. You should know where and how to move out to the deep ocean, how long it takes and how to get back to the harbour or port. The tsunami warnings issued by the Bureau of Meteorology will advise the initial arrival times for various locations along the coast of any possible threat. While in the water it is extremely important you listen to weather reports and monitor warnings on public or marine radio. These are all important factors to consider in deciding whether to move your vessel in the event of a tsunami warning.

Please note: Tsunami can cause rapid and unpredictable changes in water level and dangerous currents and turbulence in harbours and ports. These effects can occur even during a relatively small tsunami.

If your boat is at sea or in the deep ocean

While tsunami may go unnoticed in the deep ocean, unpredictable waves and dangerous currents can affect harbours for some time after a tsunami. If your boat is at sea or in the deep ocean and a tsunami warning is issued, maintain your position and **do not** return to port until further advised.

Boats are safer from tsunami damage in the deep ocean rather than moored in a harbour or estuary.

If your boat is moored

If a tsunami warning is issued and your vessel is moored, **do not** risk your safety and attempt to move the vessel out to the deep ocean. Move quickly to higher ground or inland.

If your boat is in shallow water or a harbour or estuary

A tsunami wave slows down in shallow water but its wave height increases due to the energy in the wave remaining the same. If a tsunami warning is issued and your boat is in shallow water, a harbour or estuary, return to shore, secure the vessel and move all passengers quickly to higher ground.



Where can I find more information on tsunami?

Bureau of Meteorology

www.bom.gov.au/tsunami

Geoscience Australia

www.ga.gov.au/hazards/tsunami

Emergency Management Australia

www.ema.gov.au/tsunami

Australian State and Territory emergency services

www.ses.nsw.gov.au

www.ses.vic.gov.au

www.emergency.qld.gov.au/ses

www.fesa.wa.gov.au

www.ses.sa.gov.au

www.ses.tas.gov.au

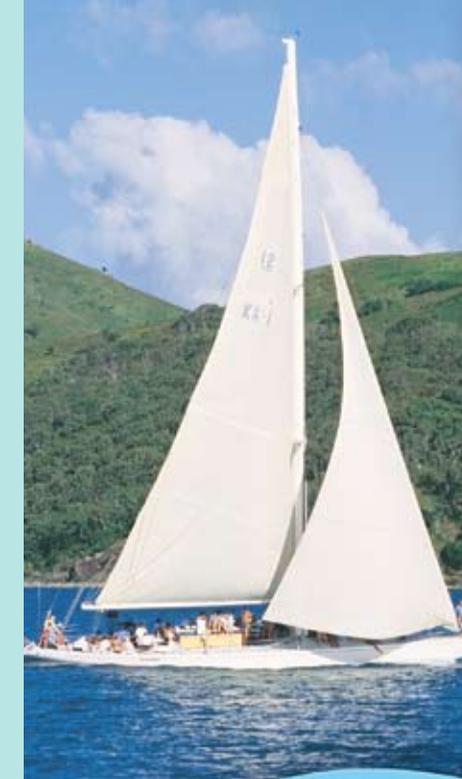
www.ses.act.gov.au

www.emergency.nt.gov.au

**For latest tsunami warnings call
1300 TSUNAMI (1300 878 6264)
or visit the Bureau's website www.bom.gov.au/tsunami**

**For tsunami assistance call SES on 132 500
(or if in Tas or NT police assistance on 131 444).**

For life threatening emergencies call 000.



Australian Government

Tsunami Information for Recreational Boaters

Produced in conjunction with Australian State
and Territory governments.

If you own or use a boat for recreational purposes please read ahead for some important safety information about tsunami. Keep this brochure handy in case of a tsunami warning.



Tsunami explained

A tsunami is a series of waves travelling across the ocean due to a sudden displacement of a large body of water. This displacement can be caused by events such as undersea earthquakes, landslides, volcanic eruptions or even asteroid impacts. Tsunami are different from wind swell waves on the ocean. Normal ocean and wind swell waves may cause motion in the water to depths of 150 metres. In contrast, the passage of tsunami involve the movement of water all the way to the seafloor.

Tsunami waves move outwards away from their source and may go unnoticed by ships, boats or from the air. As tsunami cross the deep ocean, wave heights may be much less than one metre but speeds can reach up to 950km/hr. Tsunami have extremely long wavelengths – up to hundreds of kilometres between wave crests in the deep ocean.

Depending on how tsunami approach the coastline, they may look like rapidly rising or falling tides or a series of breaking waves. Tsunami will also look and behave differently depending on the shape of the seafloor and coastline. There may be a relatively long time between waves arriving at the coastline and the first wave is not necessarily the largest. The second or third wave is generally larger. As tsunami approach the shore, speed reduces and wave height can grow significantly – up to several metres. It is not so much this movement of water, but the energy moving through it that makes tsunami so dangerous.

Even small tsunami can cause dangerous rips and currents that are a risk to people on boats or those in or near water.



Tsunami warnings in Australia

Marine and immediate foreshore threat

The Joint Australian Tsunami Warning Centre (JATWC), jointly operated by the Bureau of Meteorology and Geoscience Australia, detects and verifies any tsunami threat to the coastline of Australia and its offshore territories. Depending on the level of threat determined by the JATWC, the Bureau of Meteorology may issue a tsunami warning (via the radio, television, 1300 TSUNAMI, or the Bureau's website www.bom.gov.au/tsunami) restricted to the marine environment and immediate foreshore area for parts of the Australian coastline. You will be advised to:

- Get out of the water and move away from the immediate water's edge of harbours, coastal estuaries, rock platforms and beaches.
- Return any boats in harbours, estuaries and in shallow coastal water to shore, then secure your boat and move away from the waterfront.
- Move any vessels already at sea to deep water well offshore and remain there until further advised.
- Not go to the coast or headlands to watch the tsunami.
- Listen to the media for further information and follow the advice from emergency services.
- Check that your neighbours have received this advice.

Land inundation threat

If there is a possibility of more serious inundation of coastal land (ie water that overflows onto normally dry land areas), the JATWC may extend the tsunami warning for the marine environment and immediate

foreshore to a tsunami warning for more extensive land inundation. Advice on the appropriate response is determined in consultation with the relevant State or Territory emergency authority who may order the evacuation of low lying coastal areas. You will be advised to:

- Take only essential items that you can carry including important papers, family photographs and medical needs.
- Go to higher ground or inland. Move away from all beaches and the water's edge of harbours and coastal estuaries.
- Walk to safety if possible to avoid traffic jams.
- Take shelter in the upper storey of a sturdy brick or concrete multi-storey building if you cannot leave the area.

Cancellation of a tsunami warning

Tsunami warnings will be cancelled by the JATWC when the main threat is deemed to have passed. The relevant State or Territory emergency authority will inform the public when it is safe to return to the affected area. Caution should still be exercised however, as unusually strong waves, currents and abnormal sea levels may still affect some beaches, harbours and coastal waterways for hours, or even days after, depending on the location.

Information within warnings

It is important that you follow the advice contained in these warnings. By reading this guide and responding to advice included in warnings, you can minimise the risk to your safety. Evacuation or exclusion orders are legally enforceable under State/Territory legislation.

Natural warning signs of tsunami

Tsunami may go unnoticed by vessels in the deep ocean or from the air. Therefore, it is extremely important to listen carefully to port authorities or volunteer marine radio base networks for current information and follow advice given by emergency service authorities.

In harbours and ports the following natural signs of tsunami may, but not always, be experienced near the coast in Australia or overseas. If you notice any of these warning signs take appropriate action as outlined in this guide.

You may...

Feel the earth shake

A large undersea earthquake may be felt prior to tsunami by an ongoing shaking of the ground in coastal regions. However, you may not feel an earthquake if the source is far away.

See the ocean drop

As tsunami approach the shoreline, the sea level may, but not always recede/drop dramatically before returning as a fast-moving wall of water.

Hear an unusual roaring sound

A roaring sound from the ocean may precede the arrival of tsunami.

In the unlikely event of tsunami being generated directly offshore from our coast, little or no warning may be available for communities initially impacted apart from possible natural warning signs.

