Tsunami Awareness and Safety

What is a tsunami and where do they happen?

Tsunamis are a series of large ocean waves generated by large undersea disturbances, such as a major earthquake on the sea floor or landslide. Tsunamis are not affected by tides or currents – a tsunami in the ocean means the whole water column is moving, not just the surface. Tsunamis can strike any ocean shoreline.

When tsunami waves enter shallow water, they rise to form massive moving water called "run-up." The run-up of water many feet high rushes onto shore striking the coast with tremendous, destructive force.

If you are on the shore and in low coastal areas, you should know that a tsunami could arrive within minutes after the earth shakes. Devastating tsunamis can also happen when major earthquakes happen far away. Recent earthquakes in Chile and Japan have caused tsunami strikes in Hawaii, Alaska, Washington, Oregon, and California, causing loss of life and millions in property damage.

The tsunami danger period can continue for many hours as the waters move onto land, recede, and return. Sometimes the second or third waves are more devastating than the first. A tsunami can occur during any season of the year and at any time, day or night.

What is the best source of information in a tsunami situation?

Listen to local news reports, and visit NOAA/National Weather Service's website, tsunami.gov.

The International Tsunami Warning System monitors oceans through a network of buoys and scientific instruments. When the instruments detect a major earthquake and the potential for tsunami to occur, warnings are issued to local authorities who can order the evacuation of low-lying areas if necessary.

The National Oceanic and Atmospheric Administration (NOAA)'s National Weather Service operates two tsunami warning centers:

1. West Coast/Alaska Tsunami Warning Center (WC/ATWC), Palmer, Alaska. Serves Alaska, Washington, Oregon, California, the U.S. Atlantic and Gulf of Mexico coasts, Puerto Rico, the U.S. Virgin Islands and Canada.

2. Pacific Tsunami Warning Center (PTWC), Ewa Beach, Hawaii. Serves Hawaii and the U.S. Pacific territories, and as an international warning center for the Pacific and Indian oceans and the Caribbean Sea.

This information provided by the National Tsunami Hazard Mitigation Program, a partnership among NOAA/National Weather Service, the Federal Emergency Management Agency, the U.S. Geological Survey, the National Academy of Sciences, and 28 states, territories, and commonwealths.

Be aware of the signs of a tsunami:

- **A strong earthquake lasting 20 seconds or more near the coast.**
- **A noticeable rapid rise or fall in coastal waters.**
- **A loud roaring noise from the ocean.**

How can I prepare ahead of time?

Find out if your home, school, workplace or other frequently visited locations are in tsunami hazard areas.

- Know the height of your street above sea level and the distance of your street from the coast or other high-risk waters. Evacuations may be based on these numbers.
- Plan evacuation routes from your home, school, workplace and other places you could be where tsunamis could happen. If possible, pick areas 100 feet (30 meters) above sea level or go as far as 2 miles (3 kilometers) inland, away from the coastline. If you cannot get this high or far, go as high or far as you can. Every foot inland or upward may make a difference. You should be able to reach your safe location on foot within 15 minutes. An alternative in some areas is "vertical evacuation" by going to a high floor of a tall building.
- Find out what the school evacuation plan is. Schools will keep children safe by moving them out of harm's way. Find out where the assembly area is and if that is where your school wants you to come to pick up children. Do not rush to the school during an evacuation.
- Practice walking evacuation routes. Familiarity may save your life. Be able to follow your escape route at night and during inclement weather. Practicing your plan will make it easier to understand and to do during an actual emergency.
- If you are a coastal visitor, find out about local tsunami safety procedures. For long-lead time warnings, you may be asked to leave by driving away. For short lead-time warnings, you may be able to take refuge in reinforced concrete hotel structures on the third floor or above.

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What To Do When A Tsunami May Happen

If you are in a coastal area and feel a strong earthquake:

- Drop, cover and hold on. You should first protect yourself from the earthquake.
- When the shaking stops, move quickly to higher ground away from the coast. A tsunami may be coming within minutes.
- Be prepared for aftershocks which happen frequently after earthquakes. Each time the earth shakes, drop, cover, and hold on.
- Move to your designated assembly area, or as far inland and uphill as possible.

What to do during a tsunami watch

- Use a NOAA Weather Radio or listen to local radio or television stations for updated information.
- Locate loved-ones and review evacuation plans. Be ready to move quickly if a tsunami warning is issued.

What to do during a tsunami advisory

- Because of the threat of a potential tsunami which may produce strong currents or waves dangerous to those in or near the water, local officials may close beaches; evacuate harbors and marinas; and ask ships to reposition to deep water. Obey their directions.

What to do during a tsunami warning

- If you hear a tsunami warning siren, detect signs of a tsunami, or hear about a tsunami warning on the radio or TV, leave immediately.
- Ask neighbors who may need help leaving to come with you and offer assistance.
- Bring pets with you to keep them safe.
- Take your disaster supplies kit. Having supplies will make you more comfortable.
- Move to higher ground as far inland as possible. Watching a tsunami near the shore is dangerous and it is against the law to remain in an evacuated area.
- Keep listening to NOAA Weather Radio or local radio or TV for the latest updates.

What do I do after a tsunami?

- Return home only after local officials tell you it is safe. A tsunami is a series of waves that may continue for hours. Do not assume that after one wave the danger is over. The next wave may be larger than the first.
- Stay away from damaged areas so emergency responders can have full access.
- Stay out of any building that has water around it.
- Be careful re-entering buildings or homes. Tsunami-driven floodwater may have damaged buildings.