



City of San Clemente Emergency Planning

What is a Tsunami?

Tsunamis, or seismic waves (sometimes referred to as tidal waves), are a series of large waves most commonly caused by an earthquake beneath the sea floor or by a large undersea landslide. Areas most susceptible to damage from a tsunami in San Clemente, are areas along the coastline or near shore low-lying areas.

Potential Threat

Tsunamis can cause substantial damage to human improvements/developments and are a threat to life and safety. Citizens caught in low-lying areas during a tsunami can easily have their lives threatened by water that rages through tributaries, urban streets and coastal sections.

Areas along the coastline and near shore low-lying areas, are subject to hazards from tsunamis. However, the Orange County coastline is somewhat protected by the Palos Verdes Peninsula and Point Conception and the offshore islands of Santa Catalina and San Clemente. The City of San Clemente coastline is partially protected by the Dana Point Headlands from tsunamis originating in the north, especially the Gulf of Alaska seismic zone. The Coast is more exposed to danger from a tsunami originating in the south, or from a nearby underwater landslide/submarine mass failure.

Two general types of tsunamis could affect the coastal areas of California:

Local-source tsunami: If a large tsunami-genic earthquake occurs at or near the California coast, the first waves may reach coastal communities within minutes after the ground shaking stops. There is no time for authorities to issue a warning. Though infrequent, California has experienced local tsunamis in the past, and paleotsunami evidence shows major tsunami impact in the recent geologic past. Risk is considered high along the north coast of California, from Crescent City to Cape Mendocino; moderate south of Cape Mendocino to north of Monterey; high south of Monterey to Palos Verdes; moderate south of Palos Verdes to San Diego. Large local tsunamis may impact the entire California coastline. Waves from an earthquake at the Cascadia Subduction Zone could reach southern California in less than 2 hours. The Cascadia Subduction Zone is a very

long sloping fault that stretches from mid-Vancouver Island to Northern California. It separates the Juan de Fuca and North America plates.

Distant-source tsunami: Very large earthquakes in other areas of the Pacific Rim may also cause tsunamis which could impact California's coast. The first waves would reach our coastline many hours after the earthquake occurred. Tsunami Warning Centers are responsible for alerting local officials, who may order evacuation. Effective mitigation requires an understanding of the tsunami warning system, local areas at risk, and evacuation planning.

The coastal flood designation extends the length of the San Clemente coastline and inland at various low-lying areas such as the west end of Avenida Pico, the west end of Avenida Cascadita/Avenida Vaquero, etc. Residences along El Camino Real/Pacific Coast Highway border the coastal high hazard zone, an area subject to ocean-related hazards associated with storms, high tides, and wave action.

Effects

The effects of a tsunami can range from minor damage and no personal injuries to heavy damage and fatalities. Tsunamis may cause the following problems:

- Command and coordination problems;
- Situation reporting problems;
- Building, street, and tributary flooding that may necessitate search and rescue of trapped people;
- Need for evacuation;
- Utility disruptions (gas, electric, water, sanitation);
- Transportation-related problems;
- Communications disruptions (lines down, water in communications vaults, etc.);
- Need for emergency public information;
- Need for security;
- Need for emergency logistical support;
- Need to assist displaced/homeless citizens;
- Other effects, including health problems related to sanitation system disruption

Responding To A Tsunami

When a Tsunami Watch or Warning is issued for the City, the decision to open the Emergency Operations Centers will be made by the appropriate authorities.

By the time Emergency Management has received notification of a Tsunami Watch or Warning, the public will most likely have received the

same information. This is due to the alerting information being released via EAS and being received over the NOAA Weather Alert Radio System.

Note: Should a Tsunami Warning be received, there may be little if any time to react. Based on this short warning time, any Tsunami Warning received with an estimated arrival time of 2 hours or less, an evacuation order should be given.

Tsunami Evacuation Order

Once the decision has been made to order an evacuation, the affected public may be notified by issuance of an Emergency Alert System message in conjunction with sounding of sirens (the release of the EAS message should occur immediately after the sounding of the sirens). Release of the EAS message must be coordinated through Orange County Sheriffs Communications, Control One, and/or by conducting Route Alerting. Route alerting will be accomplished by Police Services traversing the identified areas utilizing siren and public address equipped vehicles following prescribed routes. **Marine Safety is responsible for conducting alerting of beach personnel utilizing siren and public address equipped vehicles.**

What Should I Do?

In the event you receive an order directing evacuation, move to higher ground as quickly as possible. Remain in your position on higher ground until you have received confirmation of an “All Clear” from City Officials before returning.