

ESRI base map: The map provides coverage for the world down to a scale of approximatetely 1:72,000. Coverage is provided down to approximately 1:4,000 for the continental United States. Tsunami Hazard Area boundaries may reflect updated digital orthophotographic and topographic data that can differ significantly from contours shown on the base map.





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California Geological Survey

Tsunami Hazard Area Map

County Of San Francisco

July 8, 2021

(Updated October 7, 2022)

PURPOSE OF THIS MAP

assist cities and counties in identifying ng. It is intended for local jurisdictional s map, and the information presented neet disclosure requirements for real purpose.	The Tsunami Hazard Area Map was compiled with the best currently available scientifi information and represents an area that could be exposed to tsunami hazards during a tsunami event. It is primarily based on inundation limits corresponding to a 975 year average return period tsunami event model. These limits have been extended to reflect potential local tsunami sources not considered in probabilistic analysis and are also modified to reflect the practical need to define limits that coincide with geographi features or city streets.
	ANATION

Tsunami Hazard Area

Outside Hazard Area

METHOD OF PREPARATION

Tsunami modeling was performed by AECOM Technical Services and the University data (e.g., 1-meter resolution LiDAR digital elevation models) to refine the location models that are associated with different probabilities of exceedance over time. The fieldwork coordinated with local county personnel. tsunami modeling process allows for wave evolution over a variable bathymetry and inundation mapping.

For the probabilistic modeling the bathymetric/topographic data that were used in the as the near-shore grids since these data represent a more conservative sea level may be greater as required by the local agencies. for the intended use of the tsunami modeling and mapping. In order to enhance the 10-meter resolution inundation data, we used higher resolution digital topographic

of Southern California funded through the California Governor's Office of Emergency of the maximum inundation area. The location of the inundation area was refined by Services by the National Tsunami Hazard Mitigation Program and through FEMA. using digital imagery (e.g., recent National Agriculture Imagery Program imagery) and Recent tsunami modeling used probabilistic tsunami hazard analysis to compute digital terrain data on a GIS platform with consideration given to historic inundation tsunami waves from sources from around the Pacific Ocean resulting in inundation information. This information was verified, where possible, with workshops and

topography used for inundation mapping. The California Geological Survey (CGS), Data from the CGS Tsunami Inundation Maps for Emergency Planning (2009) and the Seismic Hazards Program, Tsunami Unit used the 975-year average return period enhanced high-resolution mapping of the 975-year return period probabilistic tsunami tsunami model, with a 5% probability of exceedance in 50 years, as a basis for the inundation model results were initially used as a minimum spatial constraint for the minimum hazard level; this minimum hazard level along with a suite of credible local placement of the tsunami hazard area. Guidance from local stakeholders, including scenario events not included in the probabilistic analysis helped define the extent for emergency managers, first responders, and subject matter experts was used to advise CGS on the placement of the final hazard area in places that would help the public and government safely evacuate during a tsunami event.

tsunami models consist of a series of nested elevation grids. Deep ocean modeling The accuracy of the hazard area shown on these maps and in these data is subject was prepared using SRTM30+ bathymetric data (30 arc-second resolution). National to limitations in the accuracy and completeness of the mapping conducted by the Centers for Environmental Information coastal digital elevation models with a 1/3 arc- CGS. While an attempt was made to define a maximum tsunami hazard extent at any second (10 meters) resolution and a "Mean High Water" vertical datum was used location along the coastline, it remains possible that the actual tsunami hazard area

ADDITIONAL INFORMATION

Please refer to the following websites for additional information on the construction and/or intended use of the Tsunami Hazard Area Maps:

State of California Tsunami Information: https://www.conservation.ca.gov/cgs/tsunami

California Governor's Office of Emergency Services, Earthquake, Tsunami, and Volcano Program: https://www.caloes.ca.gov/office-of-the-director/operations/planning-preparedness-prevention/seismic-hazards

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* 2009 San Francisco County Quadrangles Pacific Coast/San Francisco

San Francisco Bay/San Francisco San Francisco Overview

CITATION FOR THIS MAP

Wilson, R.I., 2022. Tsunami Hazard Area Map, San Francisco County; produced by the California Geological Survey and the California Governor's Office of Emergency Services; dated 2022, displayed at multiple scales.

NOTE

The tsunami hazard areas are based on the State of California 2009 Tsunami Inundation Maps for Emergency Planning and the enhanced high-resolution, 975-year return period probabilistic tsunami inundation model results. The boundary of the tsunami hazard area is defined by the California Geological Survey. Local stakeholders, including emergency managers, first responders, and subject matter experts, are consulted on the placement of the final hazard area in places that would help the public and government safely evacuate during a tsunami event.

DISCLAIMERS

The California Governor's Office of Emergency Services (Cal OES), the University of Southern California (USC), AECOM Technical Services, and the California Geological Survey (CGS) make no representation or warranties regarding the accuracy of this Tsunami Hazard Area Map nor the data from which the map is derived. The State of California shall not be liable under any circumstances for any direct, indirect, special, incidental, or consequential damages with respect to any claim by any user or any third party on account of or arising from the use of this map.

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AUTHORSHIP CREDITS

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<u>Work in Responsible Charge:</u> Numerical tsunami source and model review, high-resolution (Lidar) elevation analysis, field verification, and final tsunami hazard area map production.

Program Manager – Timothy Dawson, Supervising Engineering Geologist

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Work in Responsible Charge: Technical review and approval.

