Extreme Hazard Event
Preparation & Response for
Earthquakes & Tsunami

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Overview of Tools for Fault Rupture Planning

Alquist-Priolo Earthquake Fault Zoning Act
Maps issued 1974 to 2018

Coverage of Regulatory Maps

Map data available at: https://bit.ly/CGSfaults
Overview of Tools for Fault Rupture Planning

PREPARATION
Alquist-Priolo Earthquake Fault Zones
Teams respond within hours to the affected area to document and measure the amount of surface rupture.
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**RECOVERY**

New A-P Fault Maps

New maps showing active surface faults for use in Preparation and Response

**WHITE** lines = 1982 fault mapping considered not “sufficiently active”

**BLACK** lines = post-2014 active fault mapping based on rupture mapping and data analysis
LESSONS LEARNED

Rupture on an unmapped fault severed the only domestic water line into Trona.

Town was without water for 6 days in July desert heat
Overview of Tools for Tsunami Planning

PREPARATION
Tsunami Hazard Area Maps

Areas that could be exposed to tsunami hazards (flooding or strong currents) during a tsunami event.

2013 USGS SAFRR study finding: Improving overall tsunami planning could reduce casualties and damage by 80-90%

Overview of Tools for Tsunami Planning

RESPONSE

Tsunami Response
“Playbooks”

Decision support tools designed for emergency managers to plan and respond to distant-source tsunamis.

Accounts for forecasted heights & current tide/storm conditions

2013 USGS SAFRR study finding: Improving overall tsunami planning could reduce casualties and damage by 80-90%
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**RECOVERY**

Sediment & Debris Movement Modeling

Estimates total debris and flow paths to identify areas where hazardous debris may accumulate.

Sediment & debris clean-up leads to delays in recovery and accounts for ~40% of recovery costs.
January 15, 2022, tsunami in California from Tonga volcanic eruption; photos from Santa Cruz Harbor and Beach Boardwalk, hours after first wave arrival

This was an Advisory-level event (tsunami smaller than 2011) but coincided with a High tide – produced more localized flooding on beaches and in some harbors.
THANK YOU

Questions?

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Earthquake Outlook for the San Francisco Bay Region 2014–2043

Map of known active faults in the San Francisco Bay region.

The percentage shown within each colored circle is the probability that a magnitude 6.7 or greater earthquake will occur somewhere on that fault system by the year 2043.
Seismic Hazards

Left-laterally offset street, Cometa Ave, Sylmar
$M_w 7.1$ event

Railroad tracks offset 1 meter

Photo by K. Hudnut (USGS)
Updated Tsunami Hazard Area Maps for Evacuation Planning [www.tsunami.ca.gov](http://www.tsunami.ca.gov)

County-Wide Poster Maps Available!

Contact Us For Printed Copy

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