

MARCH 2011 CALIFORNIA TSUNAMI AFTER ACTION/CORRECTIVE ACTION REPORT

EXECUTIVE SUMMARY

The tragic events of the March 11, 2011 Japan Earthquake and Pacific Tsunami and resulting radiological disaster were catastrophic for the people of Japan and has provided emergency management lessons for consideration in California. The following March 2011 California Tsunami After Action / Corrective Action Report (AAR) focuses solely on the impact to California of the tsunami that resulted from this event. Cal EMA is performing a comprehensive review of the Japan Earthquake and Pacific Tsunami event, particularly the information related to the possible secondary emergencies that may occur as a result of a large earthquake and tsunami. Though the following AAR includes successes and recommended corrective actions related to the tsunami response, it is anticipated that Cal EMA's comprehensive analysis of the Japan event will result in further lessons learned that will strengthen California's preparedness efforts.

Background

On March 10, 2011, at 2246 hours, a magnitude 9.0 earthquake struck near the coast of Honshu, Japan. The earthquake generated a tsunami that gravely impacted Japan and traveled across the Pacific Ocean where it eventually struck the California coastline.

On March 11, 2011, at approximately 0114 hours, the California State Warning Center received a Tsunami Warning Statement from the West Coast and Alaska Tsunami Warning Center (WCATWC). The Tsunami Warning was in effect for the California coastline from Point Conception north to the California/Oregon border. A Tsunami Advisory was in effect for the coastline from Point Conception south to the California/Mexico border. In response to the tsunami warning and advisory, all coastal communities were notified and immediately initiated their respective Tsunami Response Plans.

On March 11, 2011, shortly after 0800 hours, the tsunami reached the California coastline on March 11, 2011 shortly after 0800 hours, which was approximately 9.5 hours after the initial earthquake. The wave action had sufficient energy to cause damage to the harbors of San Luis Obispo, Santa Cruz, San Mateo, Del Norte, Mendocino, and Humboldt Counties. The total preliminary damage assessment for all affected counties was \$39,895,552.

Statistical Summary

Incident Period:	March 11, 2011 to March 13, 2011
Fatalities:	1
Major Injuries:	1
Minor Injuries:	0
Structures destroyed:	1
Structures damaged:	30
Sheltered/Displaced:	305

Damage Report:

The majority of damage was concentrated in the Santa Cruz and Crescent City harbors. The estimated Preliminary Damage Assessment totaled \$39,895,552.

Crescent City:

In Crescent City (Del Norte County) one local man was killed in the tsunami surge. Many fishing vessels that were docked in the harbor left the area before the tsunami arrived, but several other vessels remained in the harbor. The surges destroyed the majority of the moorings and docks in the inner harbor, tossed debris both onshore and in the harbor basin, sunk 16 vessels, damaged numerous others and grounded one vessel at the mouth of the Elk River. Once the tsunami struck and the threat of further danger had passed, the US Coast Guard, California Department of Fish and Game, the Army Corps of Engineers, National Oceanic and Atmospheric Administration and several oil spill response organizations responded to the harbor. Several boats and many pilings were removed from the harbor. Over 1,400 gallons of petroleum product was recovered and more than 1,460 cubic yards of oil debris was removed from the harbor. No wildlife impacts were observed.

Santa Cruz:

In the City of Santa Cruz the series of waves and tidal currents surged into the harbor, sinking 18 boats, capsizing 4 and damaging more than 100 other vessels. Several docks and piers inside the harbor were also damaged.

Other Areas:

Humboldt, Mendocino, San Luis Obispo and San Mateo counties also reported the need for financial assistance in the categories of debris removal, protective measures, water control facilities, and other facilities.

Summary of Key Findings

This report outlines nine areas in need of improvement and includes recommended corrective actions to address the needed improvements. The following summarizes the key findings of this report:

- Translation services for overall communication with limited English-speaking populations are critical for the provision of early notifications as well as ongoing assistance with response and recovery.
- Training was identified as an area where improvement is needed, to include operational area training to improve coordination and interactions among local jurisdictions, training of Emergency Operations Center personnel, mutual aid training, as well as training for recovery-related disaster assistance approval.

STATEWIDE AAR
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- Communications and information sharing was identified as an area in need of improvement, to include use of Response Information Management System (RIMS), and providing outreach regarding debris removal, individual assistance programs and local assistance centers.

Organizations Contributing to this Report

State Agencies and Departments:

California Emergency Management Agency
California Department of Fish and Game
California Department of Transportation
California Department of Water Resources

Local Governmental/Operational Areas:

Del Norte County
Humboldt County
Mendocino County
San Mateo County/Sheriff's Office of Emergency Services
Santa Cruz County