

2014 INTERNATIONAL OIL SPILL CONFERENCE

CHALLENGES OF AN NCP RESPONSE TO THE TSUNAMI OF NORTHERN CALIFORNIA IN 2011

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ABSTRACT 299194:

On March 11, 2011, Japan was struck by a powerful earthquake that resulted in tsunami damage. In addition to the destruction within Japan, several ports in northern California were also affected. Two harbors in California suffered major vessel and infrastructure casualties which resulted in large amounts of oil and hazardous substances in the water from various sources. The agencies responding to these harbors found themselves with several challenges: (1) assessing and responding to a rare and enormous event that had the potential to effect the entire west coast; (2) organizing the tactical operations and logistical support for the two most effected locations which were 430-miles apart; and (3) assessing and mitigating unknown safety hazards in the water and then determining an appropriate funding source.

Damage reports from various cities, including Richmond, Fort Bragg and Crescent City, followed over the next few hours. Response teams deployed to mitigate the greatest threats, though some of threats weren't immediately obvious. The response became a two-branch operation, focused on Santa Cruz and Crescent City, each with distinctive problems and separated by a difficult distance, with a central Incident Command Post (ICP) directing the response. The pollution potential and economic significance was far greater in the northern city, leading the Federal On-Scene Coordinator (FOSC) to create an Area Command. This eventually evolved into a single remote ICP.

While only considered a type-3 event, Federal On-Scene Coordinator Representatives (FOSCRs) were strained to their limits on Advanced ICS knowledge, financial management, and interagency salvage. In this event, the Coast Guard struggled with, but succeeded in dealing with, a catastrophe that no one on the West Coast had dealt with in almost 50 years.

INTRODUCTION:

On March 11, 2011 a massive 9.0 magnitude earthquake hit the Pacific Ocean near Northeastern Japan devastating the region and triggering a massive tsunami. The quake also resulted in a smaller tsunami event along the Northern California coast. This event was much lower in intensity; however, repetitive wave surges caused significant damage to boats and infrastructure in the Santa Cruz and Crescent City harbors. In addition, damaged vessels spilled fuel and other pollutants into the water.

U. S. Coast Guard Sector San Francisco Captain of the Port (COTP) notified all ports within her jurisdiction by issuing a Captain of the Port order to all facilities stopping all oil transfers. A Broadcast Notice to Mariners was issued notifying all mariners of the possible threat of surges. Additionally, the COTP for San Francisco began notifying port partners and the U. S. Coast Guard Sector San Francisco Incident Management Team (IMT). The Watch Quarter Station Billet (WQSB) was activated at the Sector notifying Coast Guard active duty, reservists, civilians, and U. S. Coast Guard auxiliarists of the incident. The WQSB is a tool used by many Coast Guard units to identify and train personnel for Incident Command positions in the event of an incident.

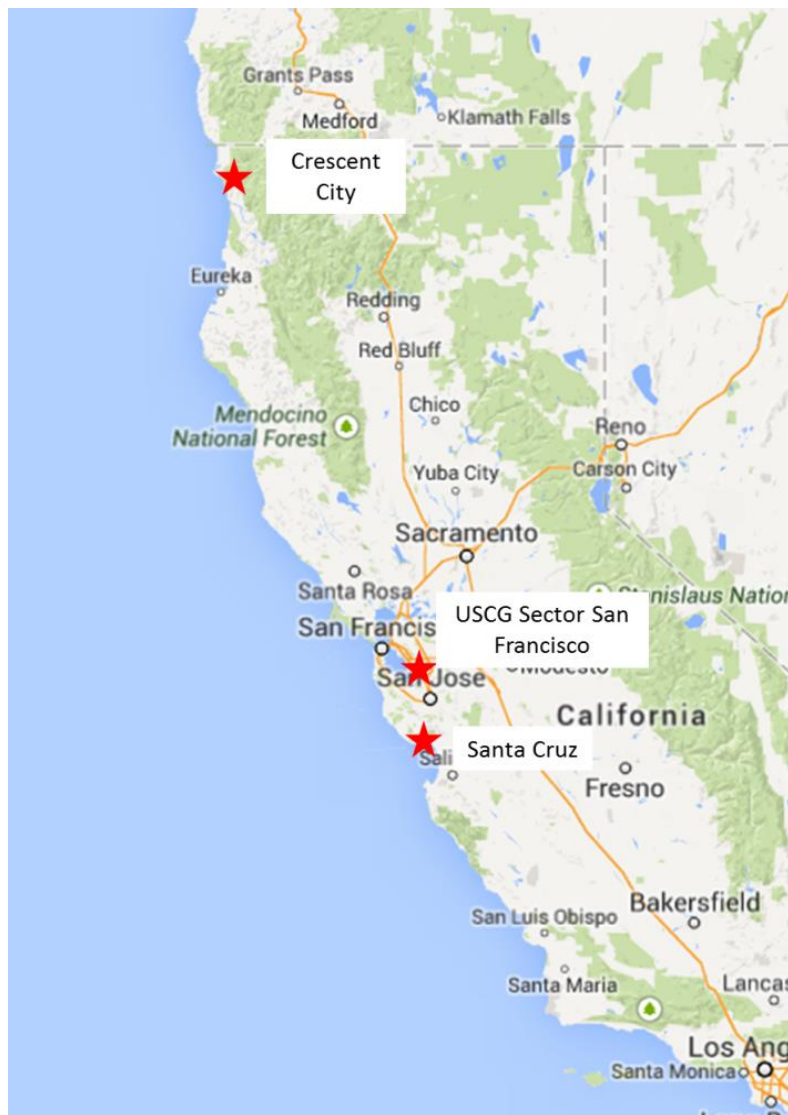


Figure 1 - Map of Northern California coast

All IMT personnel reported within an hour of notification to the Incident Command Post (ICP) at U.S. Coast Guard Sector San Francisco at Yerba Buena Island, which is located in the middle of the Oakland Bay Bridge. Additionally, the U.S. Coast Guard established a Unified Command with California Department of Fish and Game (CDFG), as well as local Harbor Masters, and deployed crews to the impacted areas to conduct damage assessments, mitigate pollution impacts, and conduct cleanup operations.

The agencies responding to these harbors faced several challenges: (1) assessing and responding to a rare and enormous event that had the potential to effect the entire west coast; (2) organizing the tactical operations and logistical support for the two most effected locations 430-miles apart; and (3) assessing and

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mitigating unknown safety hazards in the water and determining an appropriate funding source.

Tactical pollution response operations occurred primarily in Santa Cruz and Crescent City. Santa Cruz is not a major industrial port, but is a large recreational and tourist area. Crescent City proved to be a greater challenge due to its larger fishing fleet.

The last tsunami to truly affect the west coast occurred in 1964, due to a massive 9.2 magnitude earthquake in the Prince William Sound region of Alaska. The tsunami from the “Great Alaska Earthquake” caused observable damage in Crescent City. Post-1964, tsunami readiness planning and exercises were conducted at irregular intervals, usually in coastal areas of California, but rarely ever exercised in a large state-wide manner. While the USCG was involved in some contingency planning, there were no major cost investments for public safety other than local signs and sirens. The only comparable exercise, that would train communities to prepare for such a wide-spread event, would be a Spill of National Significance (SONS)—a SONS exercise has never been conducted in the Northern portion of California.

This paper will discuss impacts and early response activities at the Santa Cruz and Crescent City locations which include response authorities, assessment and cleanup actions, and documentation and cost recovery issues related to this rather unique and uncommon event.



Figure 2 - Damaged recreation boats (USCG)

IMPACTS AND EARLY RESPONSE ACTIVITIES:

On the northern coast of Monterey Bay, south of San Jose, lies the popular beach town of Santa Cruz. Most visitors and residents enjoy the access to the Pacific Ocean where they spend much time in recreational activities such as surfing and boating. At approximately 11:00 Friday morning, a large series of waves and tidal currents surged into the harbor sinking 18 boats and damaging more than 100 other vessels. Several docks and piers located inside and harbor were also damaged but no injuries or deaths were reported. The damaged boats and resulting fuel spills had a minimal effect on local wildlife. This is due to pleasure boats typically carry less than five gallons of fuel (primarily gasoline). The Unified Command mobilized an initial pollution response team to coordinate operations, including assessing and moving damaged boats to safety and identifying potential environmental hazards.



Figure 3 - Crescent City inner boat basin post tsunami surges (USCG)

Some 430 miles north of Santa Cruz, greater impacts from the tsunami were noticed. In the fishing town of Crescent City, the residents evacuated as a series of waves and strong tidal currents surged into the Crescent City Boat Harbor. When the evacuation lifted, residents returned to the area to find most of the inner boat basin destroyed. While many of the fishing vessels had been able to leave the area before the tsunami landed, several other fishing vessels could not or were not moved before impact. The surges destroyed the majority of the moorings and docks in the inner harbor, tossing debris both onshore and in the harbor basin, sinking 16 vessels, damaging numerous other vessels and grounding one vessel at the mouth of the Elk River. Unfortunately, the tsunami also took the life of one local man.

A big part of the success of the response was attributed to the flexibility of responders under difficult conditions. After the initial notifications, the difficult task of determining where the overall command coordination and ICP should be located had to be made with limited

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knowledge as to the extent of the impacts. The appropriate choice was determined to be the newly built Integration Operations Center at U. S. Coast Guard Sector San Francisco. Coordination of two divisions located 430 miles apart was another challenge that was managed as part of this successful response.

Organization of the Unified Command was the next challenge to overcome. Would the Sector Federal On-Scene Coordinator (FOSC) act as an Area Command? Should branches be used? These were just a few questions that needed to be decided upon. Based on the information on hand, the appropriate decision was made to manage as divisions.

Following the lifted evacuation order, the U. S. Coast Guard, the CDFG, the Army Corps of Engineers, National Oceanic and Atmospheric Administration (NOAA) and several oil spill response organizations (OSRO) responded to the harbor. The responders conducted many pollution response activities including removing several boats and many pilings from the harbor. Crews removing sunken vessels took great care to avoid causing further damage to those that were salvageable. Over 1,400 gallons of fuel and petroleum product were recovered and more than 1,460 cubic yards of oil debris was removed from the harbor. No wildlife impacts were observed.

AUTHORITIES:

As information came in about the type of damages that had occurred from the tsunami, it was clear the U. S. Coast Guard would use its authorities under the Oil Pollution Act of 1990 (OPA 90). Additionally, the Coast Guard would follow the incident phases outlined under the National Oil and Hazardous Substances Pollution Contingency Plan, also known as the National Contingency Plan (NCP). For funding, the pollution response would use the emergency fund from the Oil Spill Liability Trust Fund. By using these authorities and processes the Coast Guard was required to ensure that all response actions were directly tied to the process, removal, and cleanup of oil or oil threats to the environment.

Under the NCP, oil discharges have four identified phases: discovery or notification; preliminary assessment and initiation of action; containment, countermeasures, cleanup, and disposal; and finally, documentation and cost recovery. The NCP also supports the use of the Incident Command System (ICS) to manage the response structure, bringing together the functions of the federal government, the state government, and the responsible party (if known). The goal of ICS in such situations is to achieve an effective and efficient response where the FOSC maintains authority working directly with other agencies that also have incident specific authorities. By designation, the FOSC for the coastal zone is the U.S. Coast Guard. Santa Cruz and Crescent City were within the U. S. Coast Guard's COTP area of responsibility and they were the pre-designated FOSC for the incident.

PRELIMINARY ASSESSMENT AND INITIATION OF ACTION:

After lifting the COTP evacuation order, reports of impacts and damage to coastal communities and infrastructure were received, and based on the preliminary information, the greatest impacts occurred primarily at two ports: Santa Cruz and Crescent City. Although reports

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were coming in, the information needed to be verified to determine actual impacts from the tsunami wave which would determine response priorities. Initially, USCG and CDFG pollution responders were sent to Santa Cruz from the ICP at Sector San Francisco.

As local, municipal, state, and federal responders were conducting initial assessments, local news media started collecting information and airing reports on the tsunami impacts. Hundreds of people from the local area had gathered on a bridge over the harbor to watch the surges from the tsunami. This drew the attention of the media.



Figure 4 - Assessment of damages in Crescent City (USCG)

In this particular situation, the media coverage served a supporting role in the initial assessments and assisted in determining the impacts to the harbor and response needs.

Based on reports of damages, additional personnel were deployed to Santa Cruz and Crescent City to establish geographical divisions within the Unified Command. Santa Cruz and Crescent City were designated as divisions under ICS. The divisions were responsible for conducting overall assessments of the areas to determine actual response priorities. Under the NCP the assessment process includes: evaluation of the magnitude and severity of the discharge or threat to public health or welfare of the United States or the environment; assessment of the feasibility of removal of oil and to the extent where practicable; and identification of potentially responsible parties.

After preliminary assessments along the northern California coast, with particular attention to the harbors in Santa Cruz and Crescent City, it was determined that relative to oil

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pollution and the threat of continued oil discharge, Crescent City harbor was a larger concern for the FOSC due to the size of its fishing vessel fleet. A division would remain in effect in Santa Cruz to address the oil pollution concerns there and a larger response effort was organized at Crescent City for what was expected to be a long-term clean up with the likely transfer of the ICP to that location.

CONTAINMENT, COUNTERMEASURES, CLEANUP, AND DISPOSAL:

Following the NCP, the divisions diligently began the process to contain pollution, clean up the oil, and mitigate additional pollution threats caused by the tsunami. OSRO were brought into both locations to conduct the removal of oil and oiled debris under the direction of the U.S. Coast Guard.

In Santa Cruz, Parker Diving Service based out of Sausalito, CA was hired by the U. S. Coast Guard. Their capabilities and expertise in oil pollution control and cleanup was used to provide appropriate equipment and personnel to mitigate the oil pollution and threat of pollution. Many recreational vessels had already sunk or were taking on water. Each vessel was assessed and evaluated to determine the threat and appropriate response actions necessary for mitigation. Some vessels had to be removed or partially salvaged in order to mitigate oil discharge. While these initial actions were going on, surges from the tsunami event continued to occur, putting responder safety at risk.



Figure 5 - Mitigation of pollution threat from a recreation vessel in Santa Cruz (USCG)

The pollution response in Crescent City proved to be much more challenging as the number of sunken vessels was understood. The initial actions of the Crescent City division included a thorough assessment of just how many vessels were sunk. One of the early response actions conducted was to remove oil debris that prevented responders from conducting a complete assessment. NOAA provided personnel and equipment to conduct a side-scan sonar survey of the entire harbor. The NOAA survey not only provided an accurate number of the

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vessels that were sunk, but also location of fishing gear which was an important safety concern. At one location near the center of the harbor, 16 vessels were identified as sunk and collected in a submerged pile. It took over a month for responders to safely remove the oil from these vessels. Two OSRO's were hired to achieve this task, Global Diving based out of Richmond, CA and National Response Coordination (NRC) Environmental Services based out of Alameda, CA.



Figure 6 - Oiled debris removal in Crescent City (USCG)

Personnel and logistics become the next challenge to overcome. Crescent City did not have many locations for responders to use as an ICP. Additionally, USCG Sector San Francisco needed to strategically determine the number of people needed to establish and maintain the ICP. Although the Unified Command had the initial resources and personnel available, a long-term response requires a much greater scale of people, which effects daily job routines, other emergency responses, and personnel lives (e.g., family, vacations, education, etc). With recent cutbacks and organizational changes, and especially following major deployments of active and reserve U.S. Coast Guard to Deep Water Horizon, the Sector did not have many “extra” personnel to deploy for this longer term event. In addition to the resources that port partners brought, the Coast Guard activated reservists and brought on U. S. Coast Guard auxiliarists. Many of the reservists were able to fill positions in the command post and in the field due to their previous training. The use of U. S. Coast Guard auxiliarists proved to be a huge benefit in both locations as they provided a personal touch. Since they were from that area, they were able to provide valuable local knowledge. This was critical to the response effort. The U. S. Coast Guard auxiliarists provided much needed real-time information from the ICP to private citizens.

Each location also needed appropriate meeting spaces. Santa Cruz's Harbor Master office quickly became too small for the surge of personnel. Sector San Francisco provided a small pollution response trailer that was outfitted for use as a mini office. This trailer was used to conduct meetings and complete paper work. Fortunately, the amount of time in Santa Cruz was short as this was not a good long-term option. In Crescent City, the Harbor Master's office ran into similar challenges. It was too small for the amount of responders and for the duration of the response. Additionally, the Crescent City Harbor Master's office served as the hub of information for the local fisherman, many



Figure 7 – Trailers for ICP in Crescent City (USCG) 126

who lost their vessel from the surges. The local Coast Guard auxiliary had a small meeting room near the Harbor Master's office that was able to be used temporarily until trailers could be delivered.

DOCUMENTATION AND COST RECOVERY:

The old saying, “the job is not done until the paperwork is done,” applies also to emergency spill response. The final phase of the response included concluding documentation and cost recovery, and proved to be just as challenging as the cleanup itself. Documentation from both divisions and the overall ICP were collected to produce a full administrative record—that was relatively easy. However, funding, or cost recovery, was not as easy.



Figure 8 - Operations brief in Crescent City (USCG)

Early on during the incident it was determined that the Oil Spill Liability Trust Fund (OSLTF) would be used to provide funding for the removal and cleanup of oil that was discharged due to the incident. There were initial discussions about the possibility of Stafford Act funding under the Disaster Declaration. However, that was never seen at the incident responder level. OPA90 authorities and funding and Stafford Act authorities and funding are very different with respect to what actions can be conducted and the potential for State-shared costs. By using the OSLTF responders needed to ensure that all response activities were tied directly to the removal of oil and oil threats. Better coordination between these funding authorities prior to such an event would have reduced the confusion.

CONCLUSION:

The challenges faced during the Northern California Tsunami response were similar to those during other incidents. Community planners and response planners have the overwhelming challenge of determining what natural and human-caused disasters are considered high risk and most likely to cause significant threats to coastal populations and coastal resources. Threat assessment is based on known risks and previous historical data of occurrences. In the case of the Northern California Tsunami, it was deemed a high risk but unlikely. Considering there had not been a tsunami impact since the 1964 event, other threats deemed high risk and more likely to occur became a focus for planning. Fortunately the port partners had previously worked together and found it easy to adjust and respond.

Although there were many challenges the responders conducted the best response possible with the information and resources they had. As with many responses there were lessons to be learned and grow from. Sector personnel learned more about advanced ICS, and the use of the Area Command structure. All responders discovered a great deal more about the Stafford Act and emergency declarations than our current doctrine and training gives us. Finally, all members of the community and the Unified Command gained a better appreciation for the effects of a

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Tsunami, and what needs to happen to recover. The incident resulted in high level discussions throughout a broad district and has better prepared this region for this, hopefully rare, disaster.