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**CONFERENCE PROCEEDINGS 45**

# U.S. Marine Salvage Assets and Capabilities in a Maritime Disaster

*Summary of a Workshop*

PETER JOHNSON  
*Rapporteur*

September 4–5, 2008  
Beckman Center  
Irvine, California

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Marine Board

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U.S. Army Corps of Engineers  
U.S. Coast Guard  
Port of Los Angeles

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This report has been reviewed by a group other than the authors according to the procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

This conference was sponsored by the Office of the Supervisor of Salvage and Diving of the U.S. Navy, the National Oceanic and Atmospheric Administration, the U.S. Army Corps of Engineers, the U.S. Coast Guard, the Port of Los Angeles, and the Marine Board of the Transportation Research Board.

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# Preface

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The United States is a world trade leader with an economy increasingly dependent on ocean transportation and the vitality of the nation's ports and waterways. U.S. ports and waterways are remarkably diverse in terms of the vessel traffic served, the types of services provided, geography, and environmental conditions. If a natural disaster, maritime accident, or terrorist-related incident results in the blockage of a major port or waterway, an array of marine salvage services—including salvage and towing vessels, heavy-lift assets, lightering systems, divers, and underwater robotic systems—must be available to respond. Time would be required to move these expensive assets into place, and salvors would need to conduct effective surveys and operations. Continual evaluation of the myriad legal, regulatory, economic, transportation, political, and other issues that could seriously impede the execution of a timely, economically sound, and environmentally responsible major salvage recovery operation is important to the nation's security.

The U.S. Navy's Office of the Supervisor of Salvage and Diving (SupSalv), which was established primarily to meet military needs for search and salvage, maintains a marine salvage capability primarily to meet military needs for at-sea search, recovery, and salvage operations. By statute and through agreements with other federal agencies, SupSalv, because of its recognized expertise in the field, also provides services to meet certain nonmilitary emergency salvage needs. Under the Salvage Facilities Act, the Navy has oversight responsibility for monitoring the nation's overall marine salvage capabilities, both military and commercial, and is

authorized to provide, by contract or otherwise, necessary salvage facilities and capabilities. This involves coordinating with and, as appropriate, augmenting commercial assets to protect the public interest.

Other agencies also have vital responsibilities in responding to major port or waterway blockages due to natural disasters, maritime accidents, or terrorist-related incidents. The U.S. Coast Guard (USCG) has key leadership roles for marine safety; maritime security; marine pollution prevention, response, and enforcement; and the marine transportation system (including vessel traffic and ports and waterways management). Thus, for maritime incidents such as collisions, groundings, and shipboard fire, USCG usually takes the lead federal responsibility for responding and for overseeing and monitoring the actions of the responsible parties. If salvage capability is needed beyond that which is commercially available, the Navy may be called on or consulted. In addition, the U.S. Maritime Administration has a vital interest in ensuring that U.S. ports and the marine transportation system in general are as safe, efficient, and competitive as possible, for reasons of both national defense and national economic interest. Other federal agencies that could be involved in response include the National Oceanic and Atmospheric Administration (NOAA), the U.S. Army Corps of Engineers (USACE), the Federal Emergency Management Agency, and the Federal Bureau of Investigation. The roles of the various agencies are described in the National Response Plan, an integrated plan that is designed to coordinate efforts of local, state, and national agencies to prevent terrorist attacks within the United States; to reduce U.S.

vulnerability to terrorism, major disasters, and other emergencies; and to minimize the damage and recovery time from these events when they occur ([www.nmfi.org/natresp/files/NRPallpages.pdf](http://www.nmfi.org/natresp/files/NRPallpages.pdf)).

In 1982, the Marine Board conducted a comprehensive study of salvage needs and capabilities, the findings of which appear in the report *Marine Salvage in the United States*. This was followed by a 1994 report, *A Reassessment of the Marine Salvage Posture of the United States*, which contains a description of the Navy's salvage resources and contribution to the nation's salvage capabilities. In 2003, at the request of SupSalv, an ad hoc committee of the Marine Board appointed by the National Research Council (NRC) organized a workshop to address national salvage response capabilities, with particular attention to the consequences of potential terrorist incidents simultaneously affecting operations in multiple U.S. ports and waterways. After the workshop, the committee reviewed information presented at the workshop and developed conclusions and recommendations for future action, which are contained in the report *Conference Proceedings 30: Marine Salvage Capabilities: Responding to Terrorist Attacks in U.S. Ports—Actions to Improve Readiness*. Included was a recommendation for further study of policy issues critical to maintaining an adequate readiness posture.

In recent years, there has been no significant increase in the amount or capability of domestic marine salvage assets. On the West Coast in particular, a lack of heavy-lift salvage capability has been demonstrated. Although the rate of marine casualties in U.S. waters is at a historic low, recent events—notably the situation in the Gulf region as a result of Hurricanes Katrina and Rita, terrorist attacks on the World Trade Center and the Pentagon, and the attack on the USS *Cole* in the Port of Yemen—demonstrate that issues relating to national salvage capability have importance in terms of transportation, the nation's economy, the environment, and homeland security.

Given the differences in the salvage missions and interests of the various agencies, coupled with the relative dearth of salvage capability on the U.S. West Coast, it is timely to consider, identify, and assess the legal, regulatory, economic, transportation, and political issues that might pose significant hurdles to an effective salvage response to a major maritime disaster in a critical West Coast port.

At the request of SupSalv, the Transportation Research Board (TRB) assembled a committee appointed by NRC to plan, organize, and conduct a workshop to examine these issues and suggest approaches to resolve them. The objective of the workshop was to promote robust and candid discussion among federal, state, and local government officials, industry representatives, and other experts and stakeholders concerning the issues involved with, and the time frame required for, responsible recovery from a

major maritime disaster. The workshop would focus on a hypothetical terrorist attack that essentially closes two critical U.S. ports. The catalyst for dialogue among workshop participants was a dynamic terrorist-incident scenario involving a containership, a tractor tug, a heavy-lift vessel, a tanker ship, and a car carrier, which, for all practical purposes, shuts down both the Port of Los Angeles and the Port of Long Beach, California.

The planning committee consisted of six individuals who have expertise in marine response and salvage, port and waterways management, port and harbor safety, ship operations and management, marine and transportation engineering systems, intermodal transportation, risk assessment and management, terrorism, safety, law enforcement, environmental regulation and response, economic impact analysis, and governmental emergency response policy. The committee, chaired by Malcolm MacKinnon, met twice before the workshop to discuss the realism and feasibility of the terrorist scenario and to develop the workshop program and a list of prospective invitees. A consultant-developed report was prepared for SupSalv to frame the initial workshop discussion and provide realistic assumptions with regard to the availability of suitable marine salvage assets, their costs, and the projected time required for various stages of planning, operations, and recovery from a major maritime disaster in the Los Angeles–Long Beach (LA/LB) port complex. The intent of the workshop was to draw on the expertise of the participants—from a wide range of disciplines, sectors, and institutions—to review the scenario and identify issues and areas of conflict or delay that could seriously impede a successful salvage and recovery effort.

The workshop was held September 4–5, 2008, at the National Academies Beckman Center in Irvine, California. A scenario resulting in major port and channel closures in the LA/LB area was presented at the outset of the workshop and included a comprehensive inventory of capital and human salvage assets available to respond to this event, including projected time lines and costs to deploy such salvage assets.

The workshop program was designed to maximize the exchange of information and perspectives among the participants. During the workshop, concurrent sessions were organized on the major issues identified by the planning committee. Individuals invited to the workshop were asked to participate in sessions related to their area of expertise and professional responsibilities. The sessions were moderated to facilitate open discussion of the issues among all invited participants, and a rapporteur was assigned to each working group. This summary report is based on the moderated discussions that took place in each breakout session on the workshop program. The views presented reflect the opinions of the individual participants and not those of a TRB committee or the workshop participants as a group.



This project was conducted under the overall supervision of Mark Norman, TRB's Director of Technical Activities. The committee gratefully acknowledges the work and support of Joedy Cambridge, Marine Board director. It extends special thanks to Peter Johnson, consultant, who prepared this workshop summary report, and to Beverly Huey, senior program officer, who readied the report for review, responded to review comments, and revised the report for publication. The committee also acknowledges the work and support of Suzanne Schneider, Associate Executive Director of TRB, who managed the review process; Norman Solomon, who edited the report; Jennifer J. Weeks, who prepared the prepublication files for web posting; and Javy Awan, Director of Publications, under whose supervision the report was prepared for publication.

The committee thanks the following individuals who served as rapporteurs for each of the breakout sessions: Joedy Cambridge, Susan Garbini, Beverly Huey, Peter Johnson, Brie Schwartz, and Jill Wilson. The committee extends special thanks to SupSalv, NOAA, USACE, USCG, the Port of Los Angeles, and the Marine Board for providing funding support for the workshop along with the vision and encouragement that made the event the success that it was. The committee appreciates the time and effort that USCG personnel dedicated to identifying key individuals and organizations to be invited to participate in the workshop.

This report was reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by NRC's Report Review Committee. The purposes of this independent review are to provide candid and critical comments that will assist the institution in making the published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the project charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

TRB thanks the following individuals for their participation in the review of this report: Judith Harris, Department of Transportation, City of Portland, Maine; Ronald K. Kiss, Rockville, Maryland; Steve Ruggiero, Port of Long Beach, California; James T. Shirley, Jr., Holland and Knight, LLP, New York; and Captain James Wilkins, SupSalv (retired), Crownsville, Maryland. Although these reviewers provided many constructive comments and suggestions, they did not see the final draft of the report before its release. The review of this report was overseen by C. Michael Walton, University of Texas, Austin. Appointed by NRC, he was responsible for ensuring that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered.

# Overview

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Maritime commerce is vital to the nation's economic health, with about 15 percent of U.S. gross domestic product flowing through its seaports.\* Approximately one-third of U.S. imports are carried aboard foreign-flag ships calling at the Ports of Los Angeles and Long Beach, California (LA/LB), making this major port complex particularly vulnerable to any significant disruption in vessel traffic. Concerns about homeland security have led to serious consideration of the likelihood and consequences of a terrorist attack on one or more major hubs of maritime trade.

Extended blockage of access channels to the Ports of LA/LB could result in catastrophic consequences for the U.S. economy, making LA/LB an attractive target for subversive organizations with the capability of coordinating the intentional sinking of oceangoing vessels.

Understanding this threat and having the mission of maintaining national readiness to respond to it, the Office of the U.S. Navy Supervisor of Salvage and Diving (SupSalv) initiated a series of activities over the past few years to review the U.S. salvage response posture and determine whether current capabilities are adequate. This workshop, one of the activities initiated by SupSalv, is designed to examine the threat and explore key issues relating to an efficient, effective, coordinated U.S. response.

SupSalv first asked Crowley Marine Services (and Titan Salvage) to prepare a salvage response study on the basis of what it deemed to be a worst-case marine casualty scenario for the Ports of LA/LB. The objectives were

to assess the response capability of the U.S. salvage industry and identify challenges and obstacles to success.

SupSalv decided to base the study on a fictional yet plausible casualty scenario requiring the initial response of Crowley and Titan. These firms assembled an expert group responsible for developing the scenario and identifying solutions that led to a salvage plan. They also identified salvage resources and practical response solutions that took into consideration a range of typical challenges normally associated with marine salvage. The investigation included resource availability, response challenges, delay factors, and other mechanisms likely to be associated with the scenario.

SupSalv then asked the Marine Board of the Transportation Research Board to plan and conduct a workshop. The salvage response study was to set the stage for discussions and deliberations about issues of concern among relevant agencies, the private sector, and key stakeholders. The objective was to promote robust and candid discussion among federal, state, and local government officials; industry representatives; and other experts and stakeholders concerning the issues involved with and the time frame required for responsible recovery from a major maritime disaster (i.e., natural disaster, accident, or terrorist attack) that essentially closes a critical U.S. port.

The scenario was developed to present a worst-case maritime incident, well beyond the organic recovery capabilities of any one salvage company. The hypothetical incident concerned independent coordinated terrorist attacks against two oceangoing vessels operating in the Ports of LA/LB. The attacks are perpetrated against a

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\* <http://www.aapa-ports.org/Industry/content.cfm?ItemNumber=1032&navItemNumber=1034>.

container vessel at the entrance to the Port of Los Angeles and a car carrier transiting inside the Port of Long Beach. Collateral damage from the attacks is sustained by other vessels in the port area. A total of five vessels suffer major casualties requiring salvage assistance of various degrees, and LA/LB port facilities are immediately shut down.

On the basis of recent experience in responding to major maritime incidents in U.S. waters, such as the consequences of Hurricane Katrina, the following key assumptions were incorporated into the scenario:

- The Secretary of the Department of Homeland Security (DHS) declared an incident of national significance.
- The governor of California declared a state of emergency.
- The U.S. Coast Guard (USCG) sector commander for LA/LB Captain of the Port (COPT) zone is the acting federal on-scene coordinator (FOSC) and incident commander.
- A principal federal officer was appointed, and a joint field office was established 48 hours after the initial attacks.
- Search and rescue, security, and law enforcement activities closed access to the port area for 72 hours.
- Transportation worker identification credential (TWIC) regulations are in effect for the Ports of LA/LB.
- Under the Clean Water Act, the FOSC federalized the response 8 hours after the initial incident, and Sup-Salv was activated to manage the response effort.

At the beginning of the first operational period, the FOSC issued the following response objectives:

- Ensure the safety of all personnel located within the port limits.
- Search for and rescue injured or unaccounted-for personnel.
- Restore vessel traffic and port operations.
- Mitigate pollution.

In addition, the following assumptions were incorporated into the scenario:

- Civilian nonvessel casualties within the port facilities are limited to serious but non-life-threatening casualties.
- Vessel characteristics used in the scenario are fictional and are based on vessels currently trading on the U.S. West Coast.
- All vessel fires have been attacked and extinguished by port and municipal fire departments.
- Estimated plan execution time lines and costs are based on on-site time only and the execution of simultaneous salvage operations, with no sharing of resources.

The hypothetical scenario and the expected response to it were introduced to all workshop participants in a series of presentations and discussions at the beginning of the first day.

# SECTIONS 1 AND 2: SESSION SUMMARIES

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## SECTION 1

# Welcome and Opening Presentations

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Malcolm MacKinnon III, *MSCL, LLC*

Stephen E. Flynn, *Council on Foreign Relations*

Captain Richard Hooper, *U.S. Navy, Office of the Supervisor of Salvage and Diving*

Michael Herb, *U.S. Navy, Office of the Supervisor of Salvage and Diving*

Captain Paul Wiedenhoft, *U.S. Coast Guard, Sector Los Angeles/Long Beach*

Mauricio Garrido, *Titan Salvage*

Michael Kidby, *U.S. Army Corps of Engineers*

James Fields, *U.S. Army Corps of Engineers*

Gerald E. Wheaton, *National Oceanic and Atmospheric Administration*

LCDR John Hennigan, *U.S. Coast Guard, Sector Los Angeles/Long Beach*

## WELCOME

### *Malcolm MacKinnon III*

At the opening plenary session Malcolm MacKinnon III, chair of the workshop planning committee, welcomed all participants and introduced other committee members. He reviewed the events leading up to the workshop and explained that a previous SupSalv-initiated study had examined similar issues with regard to the Ports of New Orleans and Houston. Results of that work and further questions about the vulnerability of U.S. West Coast ports led to the planning for this workshop focusing on the Ports of LA/LB.

The chair reviewed the agenda for the workshop and introduced the keynote speaker, Stephen Flynn, who would call attention to the nature of the threat to the LA/LB port complex and the need for an adequate and effective response to be prepared.

## KEYNOTE ADDRESS: SETTING THE STAGE

### *Stephen E. Flynn*

Mr. Flynn's remarks, which are reproduced in full in Section 3, are summarized below.

Because the group assembled for this workshop is on the front line and represents maritime industry leaders, all participants should both understand the problem presented at this workshop and be able to explain it to others, especially local and national decision makers who may be less familiar with shipping and port operations. The National Academies and the Marine Board have studied the issue of marine salvage assets and capabilities on several occasions over the past 25 years, and as time has passed, U.S. salvage assets have steadily declined.

Historically, maintaining the sea links to the global economy have been key to the economy of the United States, and the importance of protecting these sea-lanes is greater today than ever before. Just a few major port complexes in the United States handle the overwhelming amount of the nation's maritime trade, and these ports are especially vulnerable to an attack that would shut down their operations, crippling this economic lifeline. Even though this threat has been apparent since September 11, 2001 (9/11), only recently has serious attention been given to defining port vulnerabilities, exploring hypothetical threat scenarios, and evaluating response capabilities.

The Ports of LA/LB provide valuable illustrations of these factors not only because this complex is in many ways the largest in the nation but also because lessons learned from examining problems here can be adapted and applied elsewhere. Consider the following factors:

- The complex is a major hub for West Coast energy supply.
- It is a key link to the global economy with both major shipping and unique intermodal links.
- It is a dominant location for the West Coast economy and the supply of trade goods to the nation's heartland.
- Dependency on the ports is growing.
- Port specialization has led to less redundancy.
- The region has special environmental sensitivities.
- The port complex is a likely target because of diverse management structure to control response.

It is likely that the most vulnerable targets will have the highest threat of a future terrorist attack. Ports fit that pattern because they provide critical services for the nation, and the disruption of those services would create severe problems. National leaders need an effective plan that focuses on how to restore these services after an attack. The plan should emphasize these elements:

- Robustness—creating a system that can survive when subject to extremes and that contains redundant components to enhance such survival;
- Resourcefulness—designing a response system and organization that can apply unique solutions to problems and utilize nontraditional methods and techniques;
- Rapid recovery—developing a response that gives sufficient value to speed of recovery as well as effectiveness; and
- Review—providing a system that can be improved on the basis of experience.

Flynn urged all workshop participants to focus their work on the strategies and mechanics of responding to an attack and restoring vital port services. These are significant considerations for enhancing the nation's homeland security posture and will be valuable in establishing the highest level of national readiness.

## HYPOTHETICAL DISASTER SCENARIO

*Captain Richard Hooper and Michael Herb*

After the keynote address, Captain Hooper introduced the hypothetical disaster scenario. He explained that the scenario to be described in detail was chosen to illustrate how a serious incident could affect the LA/LB port complex by blocking harbor entrances and creating conditions that would lead to a shutdown of all operations. After an examination of the scenario and its consequences, a plan was developed for recovery of the port complex and restoration of all activities. The plan, which included an estimated time line and summary of major steps in the recovery as well as a review of significant

challenges that could be expected during the recovery operations, was also presented to the workshop. SupSalv expressed the hope that it would learn from this exercise and subsequent discussions and encouraged all participants to give their opinions concerning the realism of the recovery plan, whether major concerns had been adequately addressed, and whether the time line and the recovery assumptions were realistic; any other suggestions for improvement were solicited. SupSalv's goal is to receive feedback on the plan and related initiatives from the maritime community and other stakeholders and to make improvements to enhance national readiness.

Michael Herb presented the hypothetical disaster scenario for the LA/LB port complex, the details of which are contained in the PowerPoint slides in Section 3. The scenario describes an attack on commercial vessels with the intent of blocking and closing the ports. It specifies vessels, locations, and resulting conditions that include a shutdown of two ports and major pollution. It presents a salvage challenge that would require significant capabilities and assets to address.

## HYPOTHETICAL RESPONSE AND RECOVERY STEPS

*Captain Paul Wiedenhoef, Michael Herb, Mauricio Garrido, Michael Kidby, James Fields, Gerald E. Wheaton, and LCDR John Hennigan*

PowerPoint presentations by the speakers in this session, which address the response and recovery steps assumed to be taken after the incident, are given in Section 3.

Captain Wiedenhoef described the incident command system and response management structures that are assumed to be used after the disaster scenario. He explained the rationale for USCG having a leadership role on site from the beginning; two of its missions are to be prepared for all threats in U.S. ports and waterways and to have a continuous presence on the water. The scenario chosen for this exercise represents a typical day in the Ports of LA/LB. If the incident were to happen, the necessary organizations and personnel would be available to mobilize within hours to establish a command staff and begin critical operations such as firefighting, rescue operations, and oil spill containment. After the first response efforts, expeditious planning would begin to address salvage and port recovery.

Mike Herb began the presentation of the salvage response that would occur as the next step in the recovery process. He described the overall approach toward a program focusing on clearing and reopening the channels as soon as possible. In this scenario it was assumed that the availability of assets would be as they were on September 21, 2007, and that they would need to be

moved to the site from their locations on that day. It was noted that major assets such as heavy-lift vessels are usually in commercial use worldwide; none are dedicated to immediate availability for a response such as this. Thus, they would need to be identified, secured, and most likely moved long distances.

Mauricio Garrido continued the salvage response presentation with a detailed description of how the salvage team and necessary equipment would be mobilized and the salvage work carried out. He explained the assumptions concerning what assets would be needed as well as their locations and how they would be moved to LA/LB. Heavy-lift equipment would only be available from the U.S. Gulf Coast or Europe. Lessons learned from salvage work during Hurricane Katrina would be useful for planning purposes. He presented the time line assumed and the costs estimated for the salvage response as well as the wreck removal charts and time lines for each of the vessels to be salvaged. On the basis of the Titan report concerning current salvage assets, he concluded that the salvage industry believes it can carry out adequate channel clearance operations if it is mobilized from various locations.

He noted that SupSalv capabilities are critical to a successful and expeditious outcome. He suggested other challenges that might arise and need to be addressed: delays due to leadership conflicts, questions with regard to third-party liability potential, concerns about worker access to secured areas, the need for adequate cash flow over time, application of local regulations concerning such issues as air quality, local union rules, and whether a long response time might bring about new problems as the work proceeds.

Michael Kidby presented the approach for managing the removal and disposal of debris from the wrecked and salvaged vessels. Under the Rivers and Harbors Act of 1899, the U.S. Army Corps of Engineers (USACE) has the responsibility of removing hazards to navigation from all U.S. navigable waterways and ensuring that the approximately 25,000 miles of waterways in the United States are free from any hazards to navigation. In practice, USACE secures funding for such debris removal from ongoing project funds and then seeks reimbursement from supplemental appropriations. Salvageable vessels are not “debris” according to USACE definitions. USACE coordinates debris removal with all other involved agencies.

A few other clarifying points were made in response to questions that were raised:

- USCG would lead in responding to any pollution event.
- SupSalv would be involved in the early stages of any event requiring salvage because only it has the necessary capabilities.
- In the event of a national emergency, and in areas outside of navigation channels, the Federal Emergency

Management Agency (FEMA) would have the authority to order action and secure federal funding for all other agencies.

James Field and Gerald Wheaton then presented the actions assumed to be taken for channel assessment (surveying and mapping). They included bathymetric surveys and side-scan sonar surveys to locate obstructions in the channels, which the National Oceanic and Atmospheric Administration (NOAA) has the assets and capabilities to perform. NOAA would also address the oil spill fate and effects and provide data for assessments and cleanup operations.

LCDR John Hennigan described a final step in the recovery: restoring aids to navigation. USCG has West Coast assets for this purpose, including temporary buoys for emergencies and work vessels to install such navigation aids. USCG also engages in regular planning for emergency recovery operations in all major ports.

The following points were raised during a question-and-answer period after the presentations:

- Who would decide on a proper order to follow in multiple ship salvage operations, and how would it be decided? The assumption is that simultaneous operations would be conducted on all vessels.
- Is much of the U.S. oil spill response inventory now located in the Middle East? This could affect response time, but the assumption is that adequate assets are now and would be on the U.S. East Coast.
- Would law enforcement during initial response delay the beginning of salvage operations? On the basis of experience, it is assumed that law enforcement would be involved continuously and would probably not unduly delay salvage—the key is early establishment of a unified command (UC).
- How should additional explosive hazards that may be present after the initial incident be handled? Experience has shown that salvage operations should not proceed until first responders address these issues. Suspected hazards should be of serious concern to salvors during initial work.
- Why did the scenario not consider the option of dredging a channel around the damaged vessels? This would be an option to consider and evaluate at the time.
- What is the rationale for federalizing the scene immediately? Another option may be that the shipowner is the responsible party, but that is a decision to be made at the time and must take into consideration many other factors, including economic impacts.
- What is the potential size of economic impacts? The cost projection slide has estimates of economic impacts; the regional supply of gasoline from local refineries would be a key factor.

## CHARGE TO THE WORKING GROUPS

### *Malcolm MacKinnon III*

Malcolm MacKinnon then addressed all participants and gave guidance to the working groups, who were to meet in six separate sessions. The subjects that each group was asked to consider and a series of questions to facilitate the discussions for each group are provided in Section 2. The participants for each group were self-selected. Each group was asked to consider key issues and meet again in plenary session at the end of the first day to provide a quick report. The individual working group discussions would then continue during the morning of the second day, followed by a final plenary session to report results and present concluding observations.

## WORKING GROUP DISCUSSIONS

Six breakout groups met concurrently in separate working sessions. Each considered and addressed a series of questions (see Section 2) that had been prepared before the workshop to guide group discussions. Each group focused on the scenario discussions presented in the plenary session and whether the group could provide useful suggestions to improve planning, readiness, and prospects for prompt recovery should such a disaster occur. The following sections summarize key points raised by each working group and certain suggestions for improvement.

### Environmental and Response Safety

Many participants in the group thought the scenario represented a feasible and possible event. Some were skeptical about the proposed response schedule, noting that the time before first action appeared too long (48 to 72 hours). Some believed that all required assets are available in the United States and that there should be no need to consider bringing in foreign vessels. Some noted that it would be better to have certain assets closer to LA/LB because of the national importance of this port complex. The salvage industry noted that it has an extensive inventory of equipment at its disposal and is optimistic about opportunities for shortening the schedule. Other participants suggested that an attacker might expand the scope by blocking other locations necessary for bringing in equipment (e.g., the Panama Canal).

It was noted that the impacts of an attack would be global, affecting other countries as well as the entire United States. It may be useful to prepare a backup plan now so that if an incident like this occurs, cargo can continue to be handled.

The group reviewed the plans presented for channel clearance and other response tasks. Participants noted the need to coordinate law enforcement with the initiation of salvage work and to consider ways to avoid a conflict between expeditious channel clearing and environmental protection. It was suggested that more detailed forward planning might be helpful. The scenario does not completely integrate oil spill response decision points with salvage activities. For example, some suggested that getting divers in the water quickly may conflict with oil cleanup operations.

The following are among the issues that might be missing from the scenario: assumptions about pollution response efforts and organizations, environmental protection of sensitive sites, the need to accommodate numerous other organizations that need to do assessments in conjunction with salvage operations, ways to expedite partial openings and work-around for some cargo movements during recovery operations, and consideration of external system shutdowns that affect the ability to conduct local operations (e.g., airports). One impediment to a successful response was possible conflicts among local, state, and federal agencies, especially related to funding and command structures.

With regard to the question of what environmental agencies should be involved, participants identified those with authorities and capabilities from all government levels as well as the private sector. They noted the need to coordinate different plans and priorities. When there are problems, often the FOSC needs to take charge. A key coordination issue might involve such agencies as the Federal Bureau of Investigation (FBI) (the lead for terrorist events) and USCG (the lead for maritime disaster responses).

Individuals in the group mentioned the need to work out details with regard to permits for salvage operations during the planning process as well as to address issues of indemnification in possible national emergency cases. The group discussed the availability of oil spill cleanup assets and the benefits of early planning. Safety issues and the roles of the Occupational Safety and Health Administration (OSHA) (and corresponding state agencies) as well as USCG and other agencies were discussed. It was noted that salvors, themselves, ensure safety of operations and that USCG, working through a UC, has ultimate responsibility for operational safety. Training exercises are also important to safety.

### Legal, Insurance, and Cabotage

Members of the group cautioned that their expertise may be limited with regard to some of the questions posed. Several noted that the hypothetical scenario was a rea-



sonable representation, that capabilities and time frames were achievable, and that there is a critical need for heavy-lift assets. Some believed that the assumed response is optimistic but achievable.

It was suggested that nonconventional thinking be added to the approach to salvage operations. Also, the assumptions appeared too optimistic, and there may be difficulties if all assets are not available. The group discussed a number of other options. One major topic missing could be consideration of responder immunity, which might be in place before the incident, and new legal authority with regard to immunity to civil and criminal liability.

The issues of who has primary responsibility to fund the recovery operations and options concerning how money would flow through the system deserve more review.

It was suggested that major impediments to a successful response include pressures from various interest groups who would be affected and conflicts among various stakeholders. It was noted that California requires compliance with numerous state and local regulations.

With regard to financial and insurance issues, the group listed the normal channels of funding but noted that there is conflict between USACE and FEMA about the need for presidential direction on channel-clearing funds. If a tanker sinks without an oil spill, it is not clear how to use an oil spill fund with only a threat of leakage. Another issue noted is whether terrorism risks are excluded from insurance policies and whether current law [the Terrorism Risk Insurance Act (TRIA)] is adequate—especially because it has never been tested.

The group discussed how issues of foreign-flag vessels and crew access would be handled, given the need for exceptions and expeditious action. Another concern is whether foreign salvage workers would be needed and used and how to ensure adequate justification and compensation. The fact that heavy-lift assets are not now available on the West Coast has led to proposals for developing a Ready Reserve system as a national security measure. Some participants suggested that this issue be considered in more detail.

The group discussed the nature of salvage contracts that provide protection to vessel owners and insurers and the possible need for the government to requisition or purchase commercial assets in a time of national emergency. It was suggested that the legal background be reviewed in detail to ensure that authority is available and that all parties are protected. A final issue was the definition of what is salvageable and what remains as “debris.” This may need further clarification and consideration because it could cause delays in decisions about removal actions.

## Security, Incident Scene, and Forensics

The group generally considered the hypothetical scenario to be instructive. It was suggested that the UC (including training and exercise) would help avoid or alleviate many potential conflicts (e.g., crime scene investigation versus salvage priority). One problem identified with the scenario, however, is that the size of explosion and the damage to vessels do not appear to be consistent with the assumption of catastrophic damage out to 1 mile.

Some believed that discussion of broader national issues is needed because such issues could compound difficulties, at least in the short term (e.g., immediate reactions of other port authorities, national threat levels, possibility of a series of incidents). These actions would affect priorities and logistics and would present other challenges. Lessons learned from the responses to 9/11 and the TWA 800 crash may be useful in shedding more light on this subject.

Participants noted that law enforcement will set boundaries for the crime scene immediately after the incident, but when the threat assessment is completed, salvage workers could work together with law enforcement to carry out both salvage and investigation functions. LA/LB is a relatively easy location in which to secure a crime scene due to limited access inside a controlled port.

In the area of forensics, normally law enforcement designates collectors of evidence to work with all first responders and salvors to preserve chains of custody, because everything collected is potential evidence. It was suggested that, since search and rescue will be the initial priority, people conducting operations in the field (e.g., oil spill cleanup) be briefed to be alert for possible evidence. If foreign salvage assets are used, workers could be escorted, but all those entering the crime scene would need to be credentialed. The Jones Act and cabotage issues are usually addressed through a Department of Defense (DOD) waiver process.

The group discussion highlighted the following key points to be considered in future response planning efforts:

- The likely national reactions to these incidents would lead to concern about whether every port in the United States would shut down immediately or institute heightened levels of security, whether other modes of transportation would be affected, and how the schedule for crime scene investigation and salvage would be affected.
- Because of the need to get the port complex open and conduct investigations simultaneously, law enforcement would probably need to feel assured that the threat had been mitigated and that it was relatively safe to proceed before allowing salvors to go forward.

- The FBI has people located at the port complex whose main role is to be alert for incidents of this type—they would not be distracted by other responsibilities, and they could probably set the crime scene perimeter immediately.

- TWA 800 is a good analogy for this situation: part of the ocean was initially off-limits, and then salvors (and subsequently others) were allowed in. The FBI would allow salvage divers in early if there was good reason to be there. Law enforcement and salvors can work together to define requirements for both.

- It seems unlikely that the Ports of LA/LB would be completely shut down for more than 1 week. A longer closure would have severe economic consequences and be politically unacceptable. The port complex could probably resume limited operations more quickly, but participants were not clear how this would be done. Law enforcement is sensitive to such issues as not impeding commerce. For example, if any highways in California had to be closed, the governor would have to be informed.

- Participants noted that the LA/LB port complex is large and has many resources, which gives it advantages over other ports. Also, first responders in California have experience with similar disasters such as fires and earthquakes.

- Over time, sustaining the salvage effort would be a challenge because of the drain on personnel and resources.

- While some members of the group recognized that serious challenges would arise, they also expressed confidence that these challenges could be overcome.

### Logistics, Utilities, and Hidden Infrastructures

Most in this working group reacted positively to the hypothetical scenario and recovery assumptions as presented; many suggested that the schedule was feasible and that the salvage plan was practical. It was also suggested that responder training be part of readiness plans. Some believed that additions were needed to include commercial maritime and port interests as well as the land transport sector. Possible impediments to a successful outcome were suggested, including unavailability of a capable workforce, safety of operations, and general labor issues.

Members of the group suggested the need for a plan to identify command post and logistics operations sites and for a communications plan for all involved, with attention to emergency operability. Other needs identified included planned staging areas, transportation detours and evacuation plans, and a plan to assign personnel to each site by title. Engineering plans for each critical area should be readily available.

Some contributors noted that a blast radius study is not available but may be needed. Also needed is an infrastructure inspection plan for all underwater installations—especially those privately owned. It was suggested that the port complex assign people for searches and damage inspections in the affected areas. Other issues include personnel responsible for finances during the emergency, medical assistance for work crews, and center personnel. A plan for diversion of incoming vessels to other ports during emergency recovery and for emergency crews to work the vessels diverted was also suggested. Finally, the need for local natural resources experts to be included in personnel plans was discussed.

### Communications, Economics, and Political Factors

Most participants in this group also had a positive response to the scenario and recovery plan. Schedules appeared realistic, and the approach toward salvage operations was feasible. However, some noted that the scenario would lead to significant stress on the local economy. This comes mainly from the fact that the port complex is critical to the operations of local refineries (the only supply line for most of the crude oil into these refineries) and that these refineries supply gasoline to the entire region. Shortages of gasoline in the Southern California region could lead to pressure to reopen the port as soon as possible.

While the incident would put stress on both the national and the international economy through the closing of the LA/LB port complex, most believed that those impacts would be slower to develop than the local impacts. Because of pressures to resume maritime trade as soon as possible, some suggested trade-offs that might be necessary during the salvage and recovery operations. For example, national intervention might be needed to lift some environmental regulations in the event that they hindered expeditious recovery operations. Planning for this eventuality may be useful.

Many contributors considered the channel-clearing presentations to be reasonable but felt that some funding issues needed clarification. For example, in the present climate of strained budgets for some responsible agencies (USACE, NOAA), it appears necessary to question whether funds will be available in a timely manner to meet emergency schedules. In addition, the private sector has most of the needed salvage assets (there are few federal resources), and maintaining them in a state of readiness is critical to homeland security goals.

Communications issues appear to be adequately covered except for the concern with emergency operability (such as cell phone overloads), and some urged consideration of dedicated communications systems for these

incidents. Likewise, the UC structure as it is now established appears to be workable. However, it may be necessary to ensure that the command have one person in charge but that all other responsible agencies be intimately involved in the planning and decision-making process, including labor interests and the commercial maritime sector. It was suggested that the incident command plan for adequate media and other public communications early and continuously.

The group discussed the nature of and probable reactions to economic impacts from this scenario. A shutdown of these ports for the duration assumed in the scenario would likely result in serious economic impacts on the nation and be felt in all other countries that participate in maritime trade with this major hub. Recent studies have examined this issue and are available to assist the recovery planning exercises. Some stressed that oil supply disruption would dominate the potential for local economic impacts, while the disruption of container shipping traffic would have more of a national and international effect. Finally, it appears logical to separate consideration of economic impacts into short-term effects (mostly local) and long-term effects (more national) to consolidate plans for both immediate and sustained recovery initiatives.

### Debris Staging, Dredging, and Disposal

Participants in this working group first identified objectives for their discussions. They pointed out that legal definitions were needed for what is “debris” and what is “salvageable.” A challenge would be to decide where to put material in the interim and how to divide material between hazardous and nonhazardous. For example, after 9/11 material was placed on barges for temporary storage awaiting final disposition.

Many participants considered the scenario to be realistic, but some believed that the time frame was optimistic. They noted that the challenge would be to open the port to commerce quickly and thought that there would be a need to incorporate commercial representatives in the decision-making process. A shipper’s ability to divert cargo may be limited, and many factors are involved.

A standardized method for approval of expenditures and operations may be necessary. Planning must also include consideration of whether other ports might be attacked, thus stretching capabilities and resources. Another concern is whether the necessary private salvage assets may already be in use elsewhere. In that case, special financial incentives might be needed to get the equipment. Prior legislation may be required to ensure that the authority is there.

The group reviewed the channel clearance presentations, and several members thought that other options should be considered as well. For example, USACE could dredge an alternative channel around a sunken vessel, and the recovery could proceed from there. Participants also noted that lack of private industry involvement and an underestimation of environmental and public reaction could impede recovery. There may be a need to consider increasing mass transit to relieve fuel demand pressures, and there might be a potential for vessel ligh-tering to restore cargo movements earlier.

The group reviewed debris regulatory issues in detail, including the regulatory authority of key agencies, and some thought that the Environmental Protection Agency (EPA) should have more involvement, as should state and local regulatory and health agencies. Other concerns include who issues permits for what, how disposal sites would be secured, what testing may be required and who would conduct it, what standards are in place and what might be needed, and how to separate hazardous from nonhazardous debris. Some suggested that a detailed scenario is needed to explore all issues related to debris removal and disposal. The key issues concerning debris may be legal (liability concerns, definitions), but more evaluation would help clarify this.

A number of other issues remain, and the following obstacles to success in recovery were identified:

- Lack of major salvage equipment on the West Coast,
- No good definition for debris and lack of a decision tree to guide planning,
- A need for staging areas and criteria for disposal decisions,
- A need for a streamlined process for disposal operations, and
- Consideration of at-sea disposal for some debris.

### PLENARY DISCUSSION OF WORKING GROUP REPORTS

#### Summary Points

A second plenary session was held at the end of the first day, after the working group discussions (above), to present topics that were identified and receive feedback on them. These initial report-outs were used to help focus each working group on key issues and to help lead further discussions of common themes; they reflected the discussions of each working group, not a consensus of the participants in those groups. On the second day of the workshop, each working group continued discussions of its assigned topics. Each produced a summary of

key points that were raised during the discussions. They address how best to improve the national readiness posture and ensure an adequate marine salvage capability. The key points from each working group are given in Section 2.

At the conclusion of the workshop, at a final plenary session, each group presented and led a discussion of summary points.

### *Environmental and Response Safety*

Most participants believed that the scenario should more fully explore the dredging option for channel opening and further examine actions related to oil spill response. Ongoing drills and training are needed to maintain proficiency. The roles and authorities of the numerous federal, state, and local environmental agencies should be further clarified to improve readiness. Possible conflicts between oil spill containment and salvage operations need attention. The salvage plan should include oil removal to barges or dracones. Safety will be a primary responsibility of salvors, with USCG as the approval agency. OSHA rules would also apply to land-based aspects of wreck removal. Finally, the roles of volunteers should be integrated into command structure plans.

### *Legal, Insurance, and Cabotage*

Funding and insurance issues must be further studied and clarified, especially those related to who will pay the major costs and how to ensure expeditious access to the various pools of funds. Smooth flow of payments would ensure that salvage work can proceed quickly. The impact of terrorist exclusions in insurance policies is not clear, and it is unknown whether recent legislation (TRIA) is adequate. Planners should address the possible need for umbrella protection and indemnity (P&I) insurance for workers. Finally, planners should incorporate government requisitioning of vessels into service with just compensation to follow.

### *Security, Incident Scene, and Forensics*

The UC structure in the scenario would alleviate many potential conflicts and improve salvage response. Major challenges would come from broader national issues during the LA/LB response (other ports affected, national threat reactions, logistics). This port complex is a relatively easy location to secure; experience has shown that law enforcement can work together with salvage operations personnel, given an adequate command system.

Prior training in collection of evidence by all field workers is important. Cabotage issues could be addressed by a DOD waiver process.

### *Logistics, Utilities, and Hidden Infrastructures*

Response plans should address landside casualties and related activities. Planners should adapt the LA/LB experience to assist other ports with a similar need to improve readiness posture. Response plans should be expanded to cover command centers, port infrastructure, worker transport, work with victims' family members, financial systems, and ongoing medical systems. Communications with local community and commercial interests need attention. Flexibility is needed in all plans, and regular drills are critical.

### *Communications, Economics, and Political Factors*

Important funding issues remain to be resolved, such as defining the authorities and responsibilities of each of the funding agencies. The UC would need to set priorities for money flows and schedules of payments in readiness planning. Economic impacts will stress both local (especially gasoline supply) and national economies (if recovery times extend to weeks and months). Methods for expediting recovery, such as the pre-positioning of salvage assets, the use of work-arounds to open the port, and trade-offs between environmental and economic impacts, should be considered. The UC should include all stakeholders: commercial shipping, labor, insurance, and so forth. Adequate media and public relations activities should take place early and continuously to maintain public support.

### *Debris Staging, Dredging, and Disposal*

Debris staging and disposal objectives should be clear and concise statements covering port reopening, containment of pollution, and reopening of navigation channels. There are useful approaches to achieve partial opening quickly through work-arounds and cargo diversions. Certain obstacles remain, such as equipment unavailability, no standard definition of "debris," regulatory jurisdictions, and possible delays from investigation complexities. Public response may be unpredictable. Commercial interests should be included in the UC structure. Logistical issues may delay disposal of debris, and disposal space should be defined early. The group has developed a proposed disposal flowchart (Figure 1) for further consideration by planners.

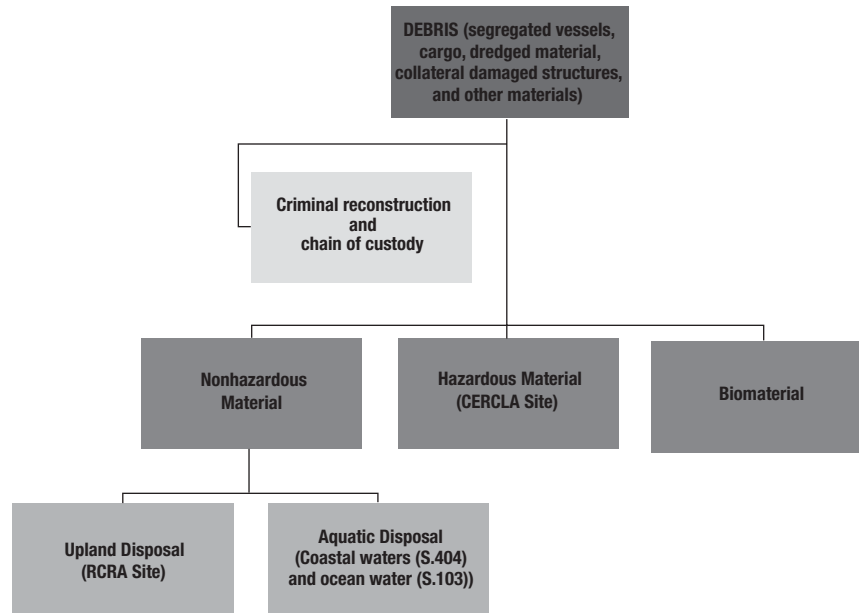


FIGURE 1 Disposal flowchart.

## Wrap-Up

After presentations and discussions of the above group summaries of issues, Malcolm MacKinnon asked for final comments from all participants. The wrap-up session provided an opportunity to identify common themes from the group reports and to note that this exercise gives stakeholders and decision makers a knowledge base on which to design readiness plans and improve

both the local and the national readiness posture. This work was focused on the LA/LB ports but can be adapted to other major U.S. ports that need to make similar plans. Many of the participants noted that a real threat exists and that having the ability to respond adequately is critical to the nation. Several suggested that this message be delivered more widely so that the public might better understand the need to support preparatory work such as discussed during this workshop.

## SECTION 2

# Working Group Questions and Summaries of Key Points

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After the plenary sessions, workshop participants were divided into six preassigned working discussion groups. Each group, led by a member of the workshop planning committee, focused on one of six areas (lists of questions that were addressed by the specific breakout groups appear later):

- Group 1. Environmental and response safety issues;
- Group 2. Legal, insurance, and cabotage issues;
- Group 3. Security, incident scene, and forensics issues;
- Group 4. Logistics, utilities, and hidden infrastructures issues;
- Group 5. Communications, economics, and political factors; and
- Group 6. Debris staging, dredging, and disposal issues.

Each group was asked to consider four general questions:

- What is each participant's overall reaction to the hypothetical response and recovery scenario as presented? Does it appear feasible and practical? Are the needed assets available? Can they be mobilized as planned by the responsible organizations? Is the schedule realistic? Is the management structure in place and will it work?
- What is each participant's overall reaction to the detailed presentations with regard to channel clearance, debris removal, and channel assessment tasks? Do the steps as outlined appear feasible and practical? Are the needed assets available and can they be mobilized as planned by the responsible organizations? Is the schedule realistic? Is the management structure in place and will it work?

- What key steps or major topics appear to be missing from the hypothetical scenario?
- What are the major impediments that might prevent conducting a successful response as presented?

## ENVIRONMENTAL AND RESPONSE SAFETY

### Group-Specific Questions

#### *Environmental*

- What environmental agencies should be involved? in what roles? with what authority?
- Are there any special environmental concerns in the areas of the salvage operations? What are they? How might they be addressed? Are endangered species a concern?
- What permits, if any, may be required to conduct the salvage operations? How long might this process take? How might it be expedited because of the nature of the problem?
- What oil spill cleanup assets are available? Where are they? How and how soon can they be marshaled?
- What other environmental aspects should be considered?

#### *Response Safety*

- Besides USCG, what agencies have a role in safety considerations?
- Who ensures that the salvors are conducting safe and effective operations?

- Is there a safety czar? If so, who is it, and by what authority?

### *Other*

- Are there any specific OSHA concerns that should be considered?
- Are there special issues or problems that may arise if the water is contaminated in the area of the salvage operations?

### **Responses**

#### *Hypothetical Response and Recovery Scenario*

- The scenario was thought to be reasonable and possible:
  - The scenario could be worse; other ancillary targets may be attacked.
  - Closure of the Panama Canal could exacerbate response and recovery.
  - A second event is possible after first responders arrive.
  - The blast radius could cripple USCG command and control personnel.
- Assets for response exist:
  - Priority consideration should be given to U.S.-owned assets; avoid Jones Act issues.
  - The inactive and Ready Reserve Fleet (RRF) could be considered.
  - It would be better if heavy lift was located in LA/LB.
  - Ongoing logistical support may be a challenge.
  - There is a need to maintain and update the asset inventory (in existing plans such as the Area Contingency Plan).
- The crime scene investigation time line is likely to be longer than indicated in the scenario.
  - The scenario has global consequences; its impact is not merely local or national.
  - The priority of the oil spill response needs further consideration.
  - Overarching legislation to allow the emergency response and recovery command to cut through unforeseen regulatory obstacles may be necessary.

#### *Channel Clearance, Debris Removal, and Channel Assessment Tasks*

- These issues are treated satisfactorily.
- Oil spill considerations should be addressed more

thoroughly; action on this affects crime scene investigation and salvage assessment time lines.

- The prioritizing of wreck removals should be considered; clearing M/V *Panther* would allow some access to both ports.
- Gas pockets can form under docks when fuel spills are not cleaned quickly.

#### *Key Steps or Major Topics Missing from the Scenario*

- The dredging possibility is not fully explored.
- Oil spill action is not fully explored.
- There is a potential to exploit obsolete and currently unused terminals.
  - The national response to the attack (airport closures, heightened threat levels) could slow LA/LB response and recovery.
  - Other innovative and undefined methods to move containers and petroleum should be considered before the incident.

#### *Major Impediments to a Successful Response*

- Rules and regulations that work well in “normal” situations may impede necessary action in such a major event.
  - Existing plans (local, state, and federal) may not be consistent, thereby introducing procedural and jurisdictional conflicts.
  - Ongoing drills, exercises, and training are required to maintain proficiency.

#### *Role and Authority of Environmental Agencies*

- Roles and authorities are not fully understood.
  - More than 10 state and federal agencies have interests.
  - There is a reliance on goodwill and cooperation.
  - Agencies and organizations include Oil Spill Prevention and Response, EPA, the South Coast Air Quality Management District, the California Air Resources Board, the California Environmental Protection Agency, State Lands, the Fish and Wildlife Service, and the National Marine Fisheries Service.
  - The following agencies and organizations are involved in hazardous material (hazmat): the Los Angeles Fire Department at LA and at LB, the Regional Water Quality Board, the Department of the Interior, the Civil Support Team (which would

operate like a strike team), and the California Coastal Commission.

- Local marine firefighting plans and hazmat response plans should be reviewed.
- Contractors will play a key role.
- USCG has authority for most actions and permits; hot work and dive permits will be needed—this is not thought to be an impediment.

### *Specific Environmental Concerns in Salvage Operations*

- The following are concerns with respect to oil spill cleanup:
  - The spill response will be conducted in accordance with UC priorities on the basis of contingency plans.
  - The potential for containment of spilled oil in the vicinity of the vessel may affect salvage operations and ongoing investigations.
- The following points were made concerning endangered species and protected resources and sites:
  - Participants believed that natural resources trustees would not make these issues an impediment to salvage, although they are a concern.
  - The need for cultural resources review should be recognized.

### *Permitting Processes*

- The UC will coordinate approvals through the Incident Action Plan process to include emergency consultations and local port expertise.
- The Oil Pollution Act of 1990 (OPA 90) provides federal indemnification, but not at the state or local level.

### *Other Environmental Issues*

- Contingency plan issues that may be of a sensitive nature (e.g., water intakes) should be considered.
- As part of the salvage plan, consider viscous oil removal and oil removal to barges or dracones.

### *Agencies with a Role in Safety (Besides USCG)*

- OSHA and the California Department of Occupational Safety and Health would have roles.
- Within the UC structure and site safety plan development, contractors have a primary role and concern with safety.
- Under the Stafford Act, the federal OSHA is the lead agency for safety.

- Local response agencies (e.g., fire department, law enforcement) will collaboratively develop public safety response, including perimeters and potential evacuation.

### *Ensuring Safe and Efficient Salvage Operations*

- Within the UC, salvors have a primary role.
- USCG approves salvor safety plans.
- The UC has top-level responsibility.

### *OSHA and Other Concerns*

- OSHA requires all workers to be trained in hazardous waste operations and emergency response.
- Volunteers should be integrated into the command structure.

## LEGAL, INSURANCE, AND CABOTAGE

### *Responses to General Questions*

The group was asked to consider the four general questions listed at the beginning of this section.

- There is concern about the structure of the response. One concern is the assumption that the case would immediately be federalized. What is really meant by “federalize”? Only if it were an incident of national significance would the federal government take control.
  - The scenario may be overly optimistic—impediments increase over time once the “grace period” has passed. More resistance to waivers and lack of compliance with environment regulations can be anticipated.
  - The scenarios and responses are optimistic.
  - The issue of responder immunity to civil liability is missing.
  - There is a possibility that USCG would resist federalization.
  - There may be pressure from special interest groups and other stakeholders, all of whom have a say.
  - Responder immunity to civil liability could be an impediment.

### *Questions and Responses Concerning Financial and Insurance Issues*

- Who will pay?
  - Sources of funds include responsible parties (certificate of financial responsibility/P&Is); Oil Spill Liability Trust Fund; USACE; Stafford Act; possibly the Compre-



hensive Environmental Response, Compensation, and Liability Act (CERCLA); and the state oil spill fund.

- Will there be access to pools of funds—Tanker Owners Voluntary Agreement Concerning Liability for Oil Pollution/Contract Regarding an Interim Supplement to Tanker Liability for Oil Pollution, International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, and federal pollution or emergency funds?

This is discussed above.

- What are the mechanics for getting the funds to flow? Will salvors work on a written guarantee to pay, and who will guarantee?

P&I clubs will initially cooperate under the terms of their contracts with individual companies.

- What will be the impact of terrorist exclusions in club and insurance policies?
  - TRIA may not be adequate.
  - The impacts of the terrorism exclusion may accelerate federalization.

### Foreign Flag and Crew Access

- Will TWIC be required for the foreign workers? How can that be accomplished in a timely manner?

No, they must be escorted, but they do require immigration documents that allow them to be here unless there is a waiver. However, there are sometimes problems getting TWIC holders as escorts.

- Will U.S. salvors be discriminated against in favor of cheap foreign labor and salvors? Is this a violation of cabotage laws? How can availability of salvors be reconciled with demand in light of cabotage laws?

- DHS will not grant a Jones Act (46 USC 55102) waiver without adequate justification; however, a DOD request will require DHS to do so.

- There is a specific statute (46 USC 80104) precluding foreign-flag vessels from conducting salvage operations in U.S. waters absent a waiver by DHS. Again, a DOD request will require that DHS waive this prohibition.

### P&I Clubs

- What role will the P&I clubs play in contrast to established funds (federal, international)?

This is covered above.

- Will there be credits for payments made in good faith if it is subsequently discovered that such payments were not the liability of the club? How would this be reconciled?

The Oil Spill Liability Trust Fund is available to pay

claims that are compensable under OPA 90. There will not be credits for wreck removals.

### Salvage Issues

- After successful salvage or wreck removal, who owns the hull? Who is responsible for oil that came from the hull?

This is addressed in the salvage contract.

- Is there any legal possibility or precedent to press equipment into service if such equipment is on higher-value commercial jobs? How would this be accomplished? by court order? by previous agreements? How could this be enforced against equipment owners?

There are laws providing for federal requisition of such vessels, and they require just compensation.

- When does the status change from salvage to debris?

- Among the equipment issues are ownership, compensation, and damages.

### SECURITY, INCIDENT SCENE, AND FORENSICS

#### Group-Specific Questions

#### *Crime or Incident Scene Access and Control*

- It is likely that the two original casualty vessels and their surrounding waters will be regarded as “crime scenes” with a need to limit access. What are the immediate (hours or days) and long-term (weeks or months) law enforcement expectations for securing these crime scenes? How might access control to the crime scenes be implemented?

- How might salvage surveys and salvage execution be facilitated (commercial salvage crews would need to work inside these crime scenes throughout)?

#### *Maritime Safety and Security Zones*

How would access to and movement within safety and security zones be controlled? What impacts would the safety and security zones have on salvage survey, planning, and execution (wreck removal)?

#### *Forensic Considerations*

- If some (or all) of the original casualty vessels are considered as potential forensic evidence, careful handling, chain of custody, and accountability issues arise. How would law enforcement and salvage crews coordinate their activities to enable salvage crews to remove the

wrecks and at the same time preserve the viability of potential forensic evidence?

- What law enforcement expectations exist in terms of underwater evidence gathering (underwater video, sampling, etc.)? How can these activities be conducted in conjunction with salvage survey and planning efforts (to be conducted by commercial salvage crews)?
- As wrecks and contents are removed from the water, what are the expectations in terms of handling and chain of custody (commercial salvage crews would be removing the wrecks and their contents)?

### *Foreign Salvage Assets*

- What issues are associated with utilization of international assets and crews?
- What would be the process for handling these international salvage crews in view of TWIC requirements?

## Responses

### *General Comments*

The UC (including training and exercise) would help avoid or alleviate many potential conflicts (e.g., crime scene investigation versus salvage priority). The scenario is inconsistent. The size of the explosion and the damage to vessels are not consistent with catastrophic damage out to 1 mile. Broader national issues [e.g., immediate reactions of other port authorities, national threat levels, the possibility of a sequence of incidents (9/11 analogy)] will compound the difficulties, at least in the short term. Priorities, logistics, and other challenges will be affected. TWA 800 is a useful analogy.

### *Crime or Incident Scene Access and Control*

Law enforcement will set boundaries for the crime scene immediately after the incident. Subsequently, once threat assessment is completed (all dangers cannot be ruled out in this case), salvage workers can work hand-in-hand with law enforcement to carry out both salvage and crime scene investigation functions. The characteristics of the location—underwater and surrounded by water, inside a controlled port—make it relatively easy to secure the crime scene.

### *Forensic Considerations*

- Law enforcement designates collectors of evidence to work alongside all first responders and salvors to pre-

serve chains of custody. Everything collected is potential evidence.

- Search and rescue will be the initial priorities.
- People conducting operations in the field (e.g., cleaning up oil spills) should be briefed to be alert for possible evidence.
- Through local media, ask the public to report finding any possible evidence.

### *Maritime Safety and Security Zones*

Safety and security zones would be adjusted as needed.

### *Foreign Salvage Assets*

- In this instance, TWIC is not an issue—it can be addressed by escorting foreign workers or workers without a TWIC card (work-arounds are possible). Everyone entering a crime scene will need to be credentialed.
- Jones Act and cabotage issues (e.g., bringing in heavy-lift equipment from overseas) can be addressed through a DOD waiver process.

## LOGISTICS, UTILITIES, AND HIDDEN INFRASTRUCTURES

### Responses to General Questions

The group was asked to consider the four general questions listed at the beginning of this section.

- The group participants responded that the scenario was feasible, assets were available, the management structure would work, and the schedule was realistic.
- Participants indicated that the steps were feasible and practical, that the assets would be mobilized, and that the schedule was realistic. On the assumption that a National Incident Management System structure will be used, the group participants indicated that the management structure would work.
- There is an assumption that the supply chain will be addressed by another party.
- The issue of land intermodal transportation appears to be missing.
- The major impediments are human capital (including availability, safety, environment, capability), intermodal transportation, and labor (the fear factor).

### Discussion of Group-Specific Questions

- Is there a plan in place that identifies

- Command post sites? Yes.
- Logistics operations sites?
  1. USCG and first responders use the CG facility, but they found that it is too small. They are looking for alternative sites with larger areas that are still accessible for personnel. Not everyone has access to IT.
  2. Inoperability is covered. Everyone is given a communications plan.
- Transportation operations sites? USCG has some, but they are not designated. Universities (MOUs) pre-designated, pre-priced (sign an emergency code).
- Engineering group site? Yes.
- Accommodations and transportation for work crews? Yes. If they are not responding with personal vehicles, the Los Angeles County Metropolitan Transportation Authority (MTA) with all bus companies in the county will organize to be a responder; MTA will coordinate through the Emergency Operations Center (EOC).
- Staging areas for trucks and railcars? Practical staging (trucks particularly).
- Shipping company representatives? Yes.
- Surface transportation detours? Yes (evacuation plan, traffic detour plan); strength of unified structure (allow local as a coordinated decision for evacuation, not CG); the Alliance (detailed plans of evacuations for all of Los Angeles County, all hazard evacuation).
- Have personnel been assigned to the above sites by title? Have essential personnel been identified who would be required to be on site?
  - Yes.
  - Los Angeles County: EOC, three separate teams with backups for each team member; personnel as liaisons; if no authority, then not present.
  - USCG: no name or title, but have commitments to fill those roles.
  - Emergency management is highly personal; ports need training and exercising; must be competent.
- Does the personnel list include local and state engineers and utility company representatives? Does the personnel list include representatives of local and state government who have been assigned specific roles and given decision-making power?
  - Yes.
  - Are engineering plans available for all affected areas? Where are they located?
 

Plans are available. For LA/LB, they are in the EOC; department operations center (plans, maps, communication all terminals); ICS system for civilians.
  - Are there any combined sewer overflow or other water issues?

The answer is not known.

- Is a blast radius study available?
  - According to Los Angeles County, the collateral damage workshop scenario is too extreme and not viable; the blast radius should be reduced.
  - No shoreside assets are available.
  - According to USCG, no blast radius study is at hand (there are too many variables to be critical).
- Is an infrastructure inspection plan in place for all underwater installations? Is an infrastructure plan in place for all land installations?
  - USCG: Only underwater pertains to high-value assets, check for attachments or explosives, beyond that other property owners have responsibility.
  - Port: Assign people specifically (POG search for bombs and physical damage). FAT (engineer, real estate, environmental) consult for repairs.
- Is there a plan for finance personnel in logistics? Who will supply the personnel?
  - Port of LA/LB: City emergency plan [various departments creating a business continuity plan; medical, evacuation, accommodations, finance, risk; tenant input incorporated for port complex (needs contact database)].
  - Port of Portland: Vulnerability plan, but insurance risks are not developed.
  - Salamander, ETteam.
- Is there a plan for medical assistance for work crews and center personnel?
 

The plan is in development (LA/LB is furthering the plan).
- Is there a plan for diversion of incoming vessels to other ports and corresponding plans for ground transportation of goods? Will personnel be able to relocate to diversion ports as needed for loading and unloading?
  - CCDoTT—approved.
  - USCG—has not (seismologists).
- Should contact be made with seismologists?
 

Contact should be made with seismologists or anyone with experience in local natural resources.

## COMMUNICATIONS, ECONOMICS, AND POLITICAL FACTORS

### Group-Specific Questions

#### *Communications*

- What communications problems might be anticipated among the various agencies and other organizations? How might they be alleviated?
  - How should communications systems be set up and managed (frequencies, protocols, equipment compatibility, etc.)?

- What lessons have been learned from local drills or other related exercises?

### *Command*

- What problems might be encountered in the response command structure? How might they be overcome?
- Is the command structure now in place adequate for this kind of response effort? What actions, such as more local or regional drills or organizational changes, might lead to an improved or more effective structure?
- What “lessons learned” from local drills or other exercises may be of help?

### *Public Relations*

- What public relations problems are anticipated during an operation of this nature?
- How is public relations handled under normal conditions in the Ports of LA/LB and how should it be modified for this scenario? What actions can be taken to minimize problems? Are there any “lessons learned” from local drills that may be of help?

### *Economics*

- When maritime commerce is stopped or interrupted as in this scenario, what actions can be expected from the business community and local stakeholders to pressure responders? How can responders anticipate such pressures and how can they best accommodate them?
- What data are available to estimate the economic impact of closure of the Ports of LA/LB and how can the data be used to better prepare for a disaster such as this?
- What funding methods and structures are in place for a response effort such as this? Is a better funding structure needed and should it be developed? What funding problems might occur and how best might they be alleviated?

### *Responses*

#### *Funding Issues*

- There are multiple sources of response funding (FEMA, USCG, COE, RP, PA); each agency has its own funding authority.
- UC needs to set priorities and clarify up front how money flows, and it should include these factors in readiness planning.

- The time frame to resolve who is responsible and who pays is uncertain.
- Use lessons learned from Hurricane Katrina to help deal with potential problems after a terrorist attack.

### *Schedule and Economic Impacts*

- Long recovery time stresses local economy (especially fuel supply).
- Work-arounds to expedite response in critical areas are possible (e.g., temporary pipeline, lightering, dredging).
- The prioritizing of ship movements (preestablished) should be considered.
- Consider pre-positioning heavy-lift assets.
- Trade-offs between environmental protection and economic impacts may require national intervention.
- Work closely with all players in the international trade network.

### *Command Structure and Communications*

- The UC should include FBI, labor interests, commercial shipping interests, and insurance.
- The command structure needs agency representatives with authority and adequate resources.
- The communications system should not rely on cell phones.
- Planning for adequate media and public relations should be begun early and should be continuous.

## DEBRIS STAGING, DREDGING, AND DISPOSAL

### *Responses to General Questions*

The group was asked to consider the four general questions listed at the beginning of this section.

- The scenario is so hypothetical that it is scary.
- The estimated time frame is optimistic; the real challenge is opening up the port to commerce.
- Who is making the decisions with regard to opening up the port to commerce (as contrasted with “clearing the channel”)?
- Who is speaking for commerce?
- There is a question with regard to availability of fuel.
- There are supply chain options.
- Parts of the port will open up in stages right away—within 10 days.
- Who is determining priorities, the ports or the shippers?
- What is missing here? The shippers’ ability to divert cargo (e.g., ship through San Francisco).

- The crude oil supply is limited—this is the most critical. How can the crude be transported to the refineries—barge traffic, rerouting?

- Go through Cerritos Channel with tug and barge? El Segundo? The railroad bridge creates a problem. It is doable.

- Obtaining cash flow quickly is critical to operations.

- A standardized methodology is needed for approval of expenditures and operations.

- Is there any fatal flaw in the way this scenario has been developed?

- What if additional ports are attacked, stretching recovery capability and resources?

- Operationally, it is not likely that all this heavy-lift equipment would be available. Usually, it is in use. More could be paid so that contracts could be broken. Legislation with an “out” clause to allow equipment to be available for a federal emergency could be passed.

- Legislation to acquire assets from ongoing federal projects without penalty for a national emergency could be passed.

- If ports are closed down all over the country (e.g., 9/11), the equipment becomes available. But if only one port is attacked, equipment may be committed elsewhere.

- The proposed solution is not complete, but there are alternatives.

- The following is an example of an alternative that is missing: bring in USACE and dredge an alternative channel—do a survey, design an alternative route, and dredge.

- There may be a lack of private industry and Customs and Border Protection (cargo) involvement.

- Public reaction in California may be underestimated.

- How can mass transit be increased to relieve pressures for commuter fuel demand?

- There is potential for ship lightering of cargo and petroleum.

- Carriers will divert cargo, where possible, to other ports.

- Is there a short-sea shipping alternative?

### Discussion of Group-Specific Responses

At the beginning of the discussion, participants identified three issues of concern:

- What is the definition of “debris”? “If it has no salvageable value. . . .”

- Constructed total loss.

- There is a distinction between debris with value and debris that has to be disposed of.

The group then went on to address their specific questions.

- What regulatory agencies would have permit requirements or regulatory oversight of the transfer site, debris removal, and final disposal or recycling?

- EPA does a lot with debris removal.

- EPA is missing from this discussion (along with FEMA, the Maritime Administration, health agencies, the California Environmental Protection Agency, water boards, local government, etc.).

- FEMA would pay for the removal of debris in these circumstances.

- What about contamination, “debris” outside the federal channel? There is a need to mark or remove it to facilitate the long-term salvage of the ships. There will be a debris field in the water and on the land.

- EPA has jurisdiction on land (only for hazardous? What about nonhazardous? Among the landowners are counties, cities, and the California Coastal Commission; some are private).

- USACE is responsible for dredge debris.

- How would real estate be secured for these activities, and in what time frames?

- Is there a construct for obtaining real estate? Agency-to-agency—no private organization will take the risk of contamination. Is this the function of USACE? There is a real estate group within USACE.

- Who takes care of ultimate disposal? A decision will be made at some point. USACE is the contracting agency.

- Some will go in the United States; some will have to be placed in a landfill.

- A process must be set up for screening materials (hazmat, debris, etc.).

- What protocols would be implemented to prevent accidental spills or discharges of hazardous substances from the debris on land or water during transfer and transport activities?

- There are already procedures and protocols in place for handling this. Are there potential problems that go beyond standard practices?

- Time = money.

- There is a need to develop standard practices to deal with the expected materials.

- There is probably a lot of variation among localities with regard to these protocols and expectations.

- Who takes the lead in developing the procedures?

- Maritime Area Security Team.

- Scenarios should be run through. What is missing in the scenario is the “landside”—a land-based contractor who can set up a receiving area.

- Ultimately, oil debris has to be placed on land.

- Coast Guard/EPA.

- Area Maritime Security Plan: include plan.

- Procedures should be in place.

- Can we write them down by locale? That would give a place to start in case of an event.
- Who is the responsible agency?
- Temporary staging areas could be delineated.
- There is a difference between contaminated material and hazardous material.
- The cost of doing this is miniscule compared with the damage of lost business in the port complex.
- Who would determine the potential economic value of the debris and handle its sale and disbursement?
- If it is salvageable, then it is not debris? It may have a value but not be considered debris from the owner's standpoint. A scrap consultant can be brought in as a subcontractor. Valuing as scrap could be considered.
- Segregating the debris from each vessel from the beginning would be good.
- Legal issues with regard to debris could be key. (Is this the domain of another group?)
- What special conditions would need to be considered with regard to the crime aspects and issues of human remains at the point of transfer, transport, and disposal or recycling?
  - Human remains can give rise to complex concerns (police, etc.). These concerns can shut down activities.
  - Are containers also debris?
  - What about debris related to “crime scene” concerns?
  - How to stage and segregate debris is the crucial issue.
  - If opening up the port to commerce is crucial, that will shape how some of these problems play out.
- What long-term monitoring may be required at the disposal site?
  - If debris is dumped in the water (e.g., 65 miles out), who does the long-term monitoring? Then it would be “final disposition” (103 site)—does it need to be monitored? London Dumping Convention? Hazardous materials (e.g., PCBs) must be removed.
  - The preferred, simpler way is to take it out to sea and dump it.
  - There will still be storage issues for forensic reasons. Storage should be planned for.
  - Store it on the barge until it can be disposed of at sea.
  - Cutting up ships could release toxic materials.
  - But in this case, there should be an ability for long-term storage so that it can be sorted out later.
- Would there be any special requirements by local or regional government for on-land disposal or by federal or state agencies for in-water disposal? Would these requirements be covered in a permit or other authorizations?
  - There would be endangered species and environmental windows requirements. Nonindigenous species being brought in by equipment from other areas or nations to help out with the crisis would be a concern.
  - How would final liability be handled for the debris disposal?
  - In New York, a blanket policy was put into effect for the whole project. Debris went to Fresh Kills. Forensic evidence was reviewed by the FBI; New York City then had the responsibility. Ultimately, the landowner is responsible. Buy insurance.
  - Whoever touches it last owns it.
  - Hand it to EPA?
  - The good news is that the port will be open in 10 to 20 days.
  - But what is the bad news? There are obstacles to achieving the objectives:
    - Equipment may not be available on the West Coast.
    - Debris does not have a definition.
    - Salvageability is an issue.
    - Decision tree:
      1. Debris:
        - a. *M/V Panther*, *M/V Voyager*, and so forth.
        - b. Materials:
          - i. Dredged material
          - ii. Casualties
          - iii. Cargo
          - iv. Collateral damage
          - v. Hazmat
          - vi. Human remains
          - vii. Other
      2. Waste: nonhazardous, hazardous, biological
        - a. Criminal reconstruction (for law enforcement)
 

Obstacle: Breadth of criminal investigation (what is waste?)
        - b. Staging areas (where is evidence sorted and guarded?)
        - c. Disposal offshore
 

Obstacle: Jurisdiction for disposal and criteria for decisions
      3. Recyclable materials
        - a. Obstacle: Process needs to be streamlined. Use of equipment (e.g., barges) that is needed for clearing the port. Contract vehicles for disposal.
        - b. Nonhazardous: Dump at sea (404/103) or place in an upland site (RECRA). Jurisdiction?

c. Concern: Permission to dump at sea is unlikely. What about hazardous or contaminated materials (upland disposal/CERCLA)?

## Lessons Learned

See disposal flowchart (Figure 1).

- Debris field
  - Confine debris field
  - Collect
  - Decontaminate
- Who?
  - First responder (Who is the first responder? police? surveyors? cleanup/containment?)
  - Contractor
  - Lawyers
- Lessons learned
  - Debris disposal processes are in place . . . but.
  - There are many practical issues (because of the amount of debris).
  - Staging areas for site, workers, decontamination, criminal reconstruction, and so forth—need real estate assistance early in response.
  - Oil cleanup is a big issue because of mixed debris field.

- World Trade Center cleanup illustrates the issue of volume of debris created by the blast (scale is immediate survey issue to scope).
- Driven by liability concerns.
- A final dredging/survey is needed to clear port channels for navigation (long process).
- Using alternative routes to terminals relieves pressure on salvage operations.
- Other considerations:
  1. Early containment of oil and debris is needed to keep material out of San Pablo Bay (S-booms could be used—port-supplied “security boom”).
  2. A definition of “wet debris” is needed because of ownership/responsibility issues and funding stream implications.

## Recovery Objectives

1. Reopen port to commercial activities and offset impacts of attack (redirect goods flow and petroleum; 24/7 operations—CPB assistance).
2. Contain, collect, and remove debris and oil.
3. Clear channels and reopen navigation channels.

## SECTION 3: PRESENTATIONS



# Mahan Revisited

## Why Resilient Commercial Seaports Are a National Security Imperative

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Stephen E. Flynn, *Council on Foreign Relations*

More than a century ago, the great naval strategist Alfred Thayer Mahan in his seminal work, *The Influence of Sea Power on History*, warned his readers that “while it is wise to observe things that are alike, it is also wise to look for things that differ; for when the imagination is carried away by the detection of points of resemblance it is apt to be impatient of any divergence in its new-found parallels, and so may overlook or refuse to recognize such.” In perhaps a rather verbose, 19th century way, Mahan was making the point that when it comes to issues of national security, it is always essential to question the conventional wisdom about risk and strategy. The participants at this workshop are doing just that by examining the risk of disruption to America’s most important commercial seaport and identifying options for dealing with a channel closure.

Mahan’s treatise also suggests why the scenario that animates this workshop deserves far more attention than it has been receiving. His thesis was both a simple and a compelling one. The intellectual father of the modern U.S. Navy believed that the pursuit of sea power was fundamentally about protecting the economic foundation of any great nation by assuring that it had unfettered access to global markets. Ironically given our work today, when Mahan wrote *The Influence of Sea Power on History*, he set out to challenge his contemporaries’ preoccupation with protecting America’s coasts and ports by building and maintaining harbor fortifications and investing only in a coastal navy. Mahan argued that hardened coastal defenses had the effect of shifting the battleground offshore. Since harbor forts equipped with land-based armaments could fire weapons at longer distances and with

greater accuracy than vessel-based cannons, a foreign naval force would find it difficult to directly attack or conduct an effective blockade of a U.S. seaport. However, a nation that invested in a large deepwater navy could overcome coastal defenses by disrupting what Mahan called the “sea-lines of communication” (SLOC) that facilitate “the sea commerce upon (which) the wealth and strength of countries” ultimately lies. This is precisely what happened during World War I and World War II when naval power was used to try and deny access to critical raw materials and to attack convoys.

Fast forward to the 21st century and America’s economic dependency on maritime trade has only grown. However, the situation that Mahan diagnosed is nearly completely reversed. The dominance of today’s U.S. Navy has translated into well-protected SLOCs, so there is little prospect of contemporary warfare involving sustained attacks on transoceanic shipping destined for the United States. But now it is our commercial seaports that are our potential Achilles’ heel. The modest port security measures that were still intact after World War II had been largely abandoned by the end of the 20th century. With the exception of the threat posed by intercontinental ballistic missiles, the consensus among defense planners prior to 9/11 was that the territory of the United States was virtually immune from external attacks. By 2000, security in commercial seaports involved little more than a patchwork quilt of minimum-wage private security guards whose mission was to fend off trespassers, thieves, and vandals from port facilities.

Since September 11, 2001, the federal grants and local public and private spending on port security have borne

no relation to their ongoing vulnerability and the consequences should a 9/11-scale attack be directed against them. In the case of Los Angeles, the security for 7,500 acres of facilities that run along 49 miles of waterfront is being provided by a small port police force of 175 officers supplemented by private security guards at the marine facilities. In Long Beach only two dozen full-time police officers are assigned to help patrol its 3,000 acres of facilities. The Coast Guard maintains a few small boats and a force of roughly two dozen sailors to patrol the entire harbor. In the seven years since 9/11, the two cities have received less than \$100 million in federal grants to improve the port's physical security measures. That amount is equivalent to what American taxpayers have been spending every 8 hours for five years on the wars in Iraq and Afghanistan.

The Los Angeles and Long Beach port complex in San Pedro Bay handles nearly one-half of the oil imports for the United States west of the Rocky Mountains. The refineries that ring the port are calibrated to support California's unique environmental regulations and barely keep pace with the demand for their output. In the entire Southern California economy there is often as little as two weeks of refined fuels available to serve a population of 39 million people. This includes the fuels stored at the refineries, being sold at filling stations, and in the car tanks of consumers that are one-half full on average. Further, Southern California is largely isolated from the extensive oil and gas pipeline system east of the Rockies, which accentuates the region's energy dependence on the smooth operation of the port.

Forty percent of all the containerized cargo for the entire nation arrives in the Ports of Los Angeles and Long Beach. The marine terminals have to quickly load and off-load huge container ships using some of the world's largest gantry cranes. The colorful boxes each carry up to 30 tons of goods, which find their way into our economy via 2-mile-long trains and thousands of trucks that service the port complex each day. The concentration of intermodal surface transportation links and logistical distribution centers in Los Angeles County translates into it being impossible for another West Coast port complex to serve as an alternative discharge point for the volume of containerized cargo that is shipped to Southern California. Nowhere in the nation is there as much transportation and logistics infrastructure packed into such a tight geographic space.

In short, by any objective strategic analysis, the Ports of Los Angeles and Long Beach present very seductive targets for an adversary that is intent on disrupting the economy of the United States. America's growing dependency on a small number of large ports as the primary conduits for meeting our energy needs and to support the "just-in-time" supply chains of U.S. manufacturers and retailers only adds to their appeal as asymmetric tar-

gets. Yet national security planners have not seen safeguarding this or other major U.S. commercial seaports as a top strategic priority. This is extraordinary given that the terrorist attacks on 9/11 made clear that the favored battle space for America's current and future adversaries will be in the economic and civil space. Further, our experience in dealing with the insurgency in Iraq has highlighted the extent to which civilian energy and transportation infrastructure are valued as targets.

Perhaps the one upside to this long-standing oversight of the strategic importance of commercial seaports is that it provides an opportunity to think differently about how best to safeguard them. Specifically, seaports need to be recognized first and foremost as critical nodes for the nation's energy, transportation, and logistics infrastructure. As such, it is essential that measures be taken to reduce the risk that these nodes will be disrupted. Should these prevention efforts fail, restoring port operations quickly should be the top priority. In short, when it comes to commercial seaports, the overarching imperative should be building "resilience."

Building resilience increases security by depriving al-Qaeda and other adversaries of the disruptive dividend they hope to reap by carrying out terrorist attacks on critical infrastructure. Such resilience results from a sustained commitment to four factors. First, there is robustness, the ability to keep operating or to stay standing in the face of disaster.

In some cases, it translates into designing and maintaining structures or systems (such as pipelines and bridges) strong enough to take a foreseeable punch. In others, robustness requires devising substitutable or redundant systems such as communications networks that can be brought to bear should something important break or stop working.

Second is resourcefulness, which involves skillfully managing a disaster once it unfolds. It includes identifying options, prioritizing what should be done both to control damage and to begin mitigating it, and communicating decisions to the people who will implement them. Resourcefulness depends primarily on people, not technology. Ensuring that the port community is resourceful means that there is adequate staffing at federal, state, and local levels to support planning, participate in exercises, attend regular stakeholder meetings, and mobilize the necessary resources when disasters strike.

The third element of resilience is rapid recovery, which is the capacity to get things back to normal as quickly as possible after a disaster. Competent emergency operations that ensure that the right people and resources can get to the right places to carry out well-designed contingency plans are crucial. The goal is to ensure that all those who can meaningfully respond to the incident and support the recovery are in a position to pitch in right away.

Finally, resilience means having the means to absorb the new lessons that can be drawn from a catastrophe. It is foolish for a society to go right back to business as usual as soon as the dust clears by, say, failing to resolve communications issues that confound coordination and information sharing among emergency responders. Elected officials and other public- and private-sector leaders must be willing to make pragmatic changes that help to improve their robustness, resourcefulness, and recovery capabilities before the next crisis.

Placing a premium on resilience has several important implications for how best to manage the terrorism risk to commercial seaports. First, it makes clear that planning for port recovery deserves equal billing with efforts to protect the port from acts of sabotage. This is because a port that can bounce back quickly in the aftermath of a terrorist attack makes it a far less attractive terrorist target. Carrying out a successful 9/11-scale attack requires considerable planning and the commitment of limited resources. This translates into terrorist organizations wanting to invest their efforts into actions that will achieve the most serious consequences. If an attack is likely to result in a fizzle instead of a big bang, it becomes less worth the effort. In short, there is deterrence value in having well-honed plans and preparations for port recovery.

A second implication is that building resilience requires a far more open and inclusive process than those typically associated with security. Security tends to emphasize exclusivity; individuals involved are carefully vetted and information is tightly controlled. As such, security measures can actually work against the resourcefulness and recovery components of resilience by excluding key private-sector contributors who have important expertise and capabilities for assessing, mitigating, and responding to a terrorist incident. For instance, knowledge on how to stabilize a sunken wreck, contain pollution, handle hazardous shipboard materials, or deal with the complex legal issues associated with salvage are likely to come primarily from the maritime industry. Many of the top experts actually live outside the United States. In the case of a major marine accident, these experts are quickly contacted and mobilized. However, in the aftermath of a terrorism event, the heightened security imposed by law enforcement may end up delaying or actually preventing experts from gaining access to the incident command center and location. When resilience is the priority, law enforcement should always be assigned a support role to the broader mission of getting the port up and running quickly.

A third implication of emphasizing resilience is that it highlights the need for identifying and investing in resources in advance of an incident that will help to dramatically cut down on the recovery time in event of an incident. For instance, should there be a channel closure in Los Angeles and Long Beach as a result of the sinking

of a large merchant vessel, there will need to be barges with heavy-lift capability to help clear the wreck. Such capability does not currently exist on the West Coast and would have to be contracted and moved from the East or Gulf Coasts of the United States via the Panama Canal or imported from Asia or Northern Europe. Should the vessel's sinking be caused by an improvised maritime explosive device or a sea mine, the harbor will require minesweeping before support vessels will be allowed on scene. These scenarios suggest that funding the pre-positioning of heavy-lift and minesweeping capabilities near Los Angeles and routinely undertaking bottom surveys of San Pedro are prudent measures for improving resilience.

A final implication is that there needs to be greater public awareness of the critical role commercial seaports play in our economy and what the direct and indirect consequences would be of disrupting a major port like Los Angeles and Long Beach for a lengthy period of time. Maritime disasters always draw a great deal of media attention. A maritime disaster that arises from an act of terrorism will consume the 24-hour news cycle, particularly if it takes place on the doorstep of Los Angeles. One consequence of this is that the public is likely to associate ports with danger, generating substantial political pressure to slow or stop maritime activity. This impulse will only be resisted if the public understands in advance that the risks associated with not quickly restoring port operations will almost certainly be far more consequential than the terrorist incident itself. There is clearly a tension at work in advocating for greater public disclosure. The security impulse tends to want to muzzle any discussion of vulnerabilities and consequences out of a concern that this information might be capitalized upon by an adversary. However, this impulse needs to be balanced against the realities that (a) this information is already well known to our more capable adversaries and (b) in a democracy, the only way to muster the requisite political commitment for dealing with a threat is for the public to understand that threat and the stakes involved.

While arguably at least seven years overdue, the focus of this Maritime Disaster Workshop is spot-on. Each of the breakout groups will explore important issues that affect the ability of the Ports of Los Angeles and Long Beach to recover from a channel closure. Environmental issues, particularly those associated with oil pollution, are likely to be the most visible manifestations of the terrorist attacks after the initial vessel fires and sinkings. They will therefore receive a disproportionate amount of media attention, potentially distracting incident commanders away from salvage efforts. The legal, insurance, and cabotage issues present a significant challenge for the salvage efforts, as the owners of the targeted vessels have property interest, fiduciary responsibilities, and insurance issues that complicate undertaking salvage. As mentioned earlier, security and forensics issues can end

up potentially conflicting with the need for a timely incident assessment and the undertaking of emergency actions to stabilize the wrecks. At the same time, there must be adequate security at the incident scene for workers to do their jobs without fear that they might be targeted by a follow-on attack. Identifying the issues associated with logistics, utilities, and hidden infrastructure is indispensable to assuring that all the right stakeholders are involved in managing the incident from the outset. Clearing the sunken wreck of a large modern merchant vessel raises complicated engineering and disposal challenges, particularly in the case of a post-Panamax containership, which will also require removing thousands of containers, some of which will be carrying hazardous materials. Finally, all of this will have to hap-

pen under a glaring political spotlight where the economic and environmental stakes will be rising each day. Effectively managing the public affairs issues associated with this undertaking will be daunting.



My hunch is that this two-day workshop will not provide actionable guidance for all the challenges associated with a terrorist incident that leads to channel closures. Instead, we will end up doing the more preliminary work of identifying and clarifying those challenges. Accordingly, let us agree that this should not be a one-time event. The stakes for the region and the nation are simply too high. Instead, let us commit ourselves to sharing the fruits of our collective labors with our colleagues and senior managers and doing all we can to raise the public profile of this critical issue.

# Salvage Response Case Study

## Scenario

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Michael Herb, *Office of the Supervisor of Salvage and Diving, U.S. Navy*  
Captain Richard Hooper, *Naval Sea Systems Command*  
Mauricio Garrido, *Titan Salvage*



*NAVSEA 00C*

***Salvage Response Case Study***  
Port of Los Angeles/Long Beach  
**Scenario**

Navy Supervisor of Salvage and Diving  
Naval Sea Systems Command  
[www.supsalv.org](http://www.supsalv.org)



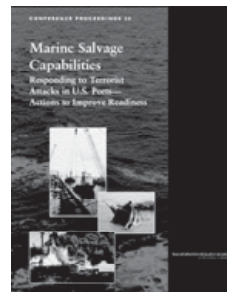


## *LA/LB Port Disaster and Recovery*

### *Background*

**2003: Marine Salvage Workshop held by Transportation Research Board concluded:**

- ❑ ***“Physical salvage capabilities in the U.S. have not been documented and evaluated in sufficient detail to define whether the nation has an adequate readiness posture for responding to terrorist incidents in major seaports.”***



**Other Driving Forces:**

- ❑ **SupSalv’s role as salvage advisor to the National Response Framework requires a quantifiable understanding of nation’s salvage response capability**
- ❑ **Hurricanes Katrina/ Rita highlighted the potential challenges associated with a major port disaster**

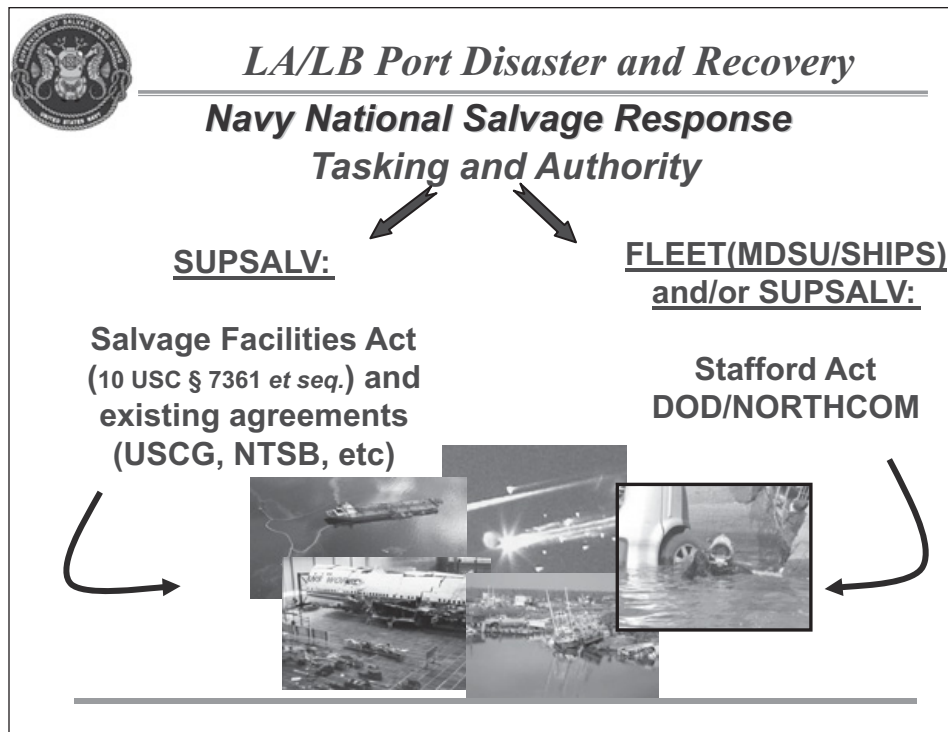


## *LA/LB Port Disaster and Recovery*

### **SupSalv: DoD, SECNAV & CNO Assigned Missions**

- ⚡ ***Authority: 10 U.S.C. §7361-7364 (Salvage Facilities Act) authorizes the Secretary of the Navy to provide necessary salvage facilities.***
- ⚡ ***SECNAVINST 4740.1B delegates Secretarial authority of SFA to SupSalv - “...the Supervisor of Salvage ... is delegated all Secretarial authority in [10 U.S.C. 7361-7364] to provide salvage facilities for public and private vessels, and to acquire and transfer vessels and other salvage equipment.”***
- ⚡ ***OPNAV 4740.2G is Navy’s Salvage Requirement and Policy***

## **SupSalv DOD REP to the NRT**



**LA/LB Port Disaster and Recovery**  
*Case Study*

SupSalv tasked Crowley Marine Services/Titan Salvage (West Coast contract) to perform a salvage response study of a stressing marine casualty scenario in the Ports of Los Angeles and Long Beach, CA

**Objectives:**

- Assess response capability and associated time lines of U.S. salvage industry
- Facilitate more effective planning for a major response effort by identifying:
  - ✓ *potential challenges*
  - ✓ *actions that could enhance progress*

**PORT OF LA/LB**



## LA/LB Port Disaster and Recovery

### Scenario

**Port of LA/LB falls victim to coordinated terrorist attacks against 2 oceangoing vessels (targets)**

- Target 1: Explosives detonated onboard container vessel (M/V VOYAGER) and she quickly sinks, blocking the LA main channel**
- Resulting shock wave causes 3 nearby vessels to collide**
- Immense damage to shore facilities within 1 mile radius of explosion**



Target 1: 1000 ft container vessel  
M/V VOYAGER



## LA/LB Port Disaster and Recovery

### Scenario – Target 1

- 0725 containership M/V VOYAGER, inbound LA channel, takes a sudden shear to port towards the “41” buoy.
- 0728 VOYAGER has picked up sternway and heading about 255 T, gaining slow sternway across the channel towards pier 400
- 0729 powerful explosion port side near amidships; seconds later a second powerful explosion to starboard just forward of the house. Hatch covers, containers and debris blasted away. VOYAGER engulfed in flames.
- Tug MARY ANN; shock wave kills the Master and Mate; OofC careens into the VOYAGER and punctures the starboard side.
- VOYAGER quickly sinks; 84 ft of water on an even keel, heading 242T and blocks main channel.
- Petroleum products, HFO and MGO form a large slick expanding the fire.
- Tug MARY ANN floats free from VOYAGER's side, founders and sinks.







## LA/LB Port Disaster and Recovery

### Scenario – Target 1 (cont.)

- ❑ 0729 **STELLAR ACE**, small heavy-lift ship loaded with militarized vehicles, is just ahead of **VOYAGER** in main channel; shock wave from explosions incapacitates pilot and bridge crew; engine control, thrown to full astern.
- ❑ 0735 **STELLAR ACE** backs into **M/T SUPERIOR** discharging propyl alcohol at the Westways Terminals, berth 70.
- ❑ Impact on **SUPERIOR** punctures tank containing **ETBE** (ethyl tert-butylether, gasoline additive), which explodes into the tank group discharging propyl alcohol; **SUPERIOR** is engulfed in fire. Fire spreads forward to tanks containing acetone and propylene glycol
- ❑ **STELLAR ACE** rolls starboard and sinks in 54 ft of water with about 6 ft of her port hull exposed. Stern rests close to the **SUPERIOR** and bow extends 25 yards into the main channel.



## LA/LB Port Disaster and Recovery

### Scenario – Target 2

- ❑ Target 2: Small private plane intentionally crashes into car carrier (**M/V PANTHER**) and she rolls and sinks, blocking LB entrance channel



Target 2: car carrier  
M/V PANTHER





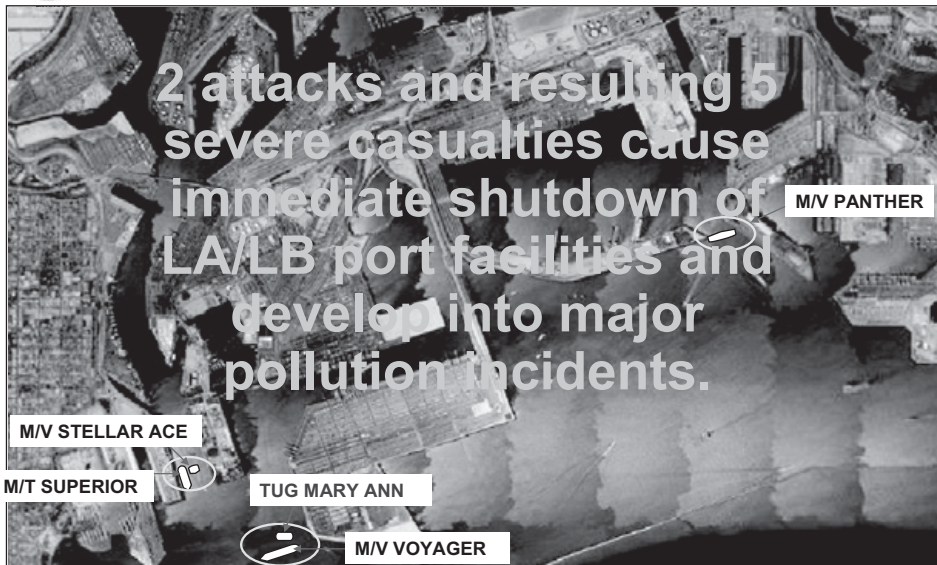
## LA/LB Port Disaster and Recovery

### Scenario – Target 2

- ❑ 0729 - Pilot and Master on car carrier M/V PANTHER hear two immense explosions from Target 1 and observe the rising fireball over the VOYAGER.
- ❑ 0731 - Pilot receives word via VHF that the MARSEC level raised to 3 but committed to the LB entrance channel, continues at 6 kts.
- ❑ 0738 - Small plane into M/V PANTHER low amidships; massive explosion. Pilot attempts to get PANTHER to west basin and clear LB channel
- ❑ 0748 - PANTHER rolls port and sinks; bow of the PANTHER facing the west basin with stern blocking the LB channel. Bow in 45 ft of water and the stern extending into the channel in 78 ft of water; about half the hull is exposed.



## LA/LB Port Disaster and Recovery





## ***LA/LB Port Disaster and Recovery***

### ***Scenario Assumptions***

- California “state of emergency” - Unified Command established
- Search and rescue, security, and law enforcement activities delayed response access to the port area for first 48-72 hours
- Response is “federalized”- SupSalv (NORTHCOM) requested to manage the effort exercising standing regional contract; tap into commercial salvage resources
- Vessels declared constructive total losses; removals essential to regaining port functionality
- Wreck removal beyond any one organic salvage company’s capability and will require collaborative effort
- Time line is a “best-case” forecast based on favorable weather working days with two 12-hour shifts and minimal human obstacles; required EAs, permits, waivers, etc., are in place so as not to impede work progress
- National Defense Waiver approved for foreign flag support vessels as required



NOAA pollution time model → → →

# Salvage Response Case Study

## Response

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Michael Herb, *Office of the Supervisor of Salvage and Diving, U.S. Navy*  
Captain Richard Hooper, *Naval Sea Systems Command*  
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NAVSEA 00C

**Salvage Response Case Study**  
Port of Los Angeles/Long Beach  
**Response**

Navy Supervisor of Salvage and Diving  
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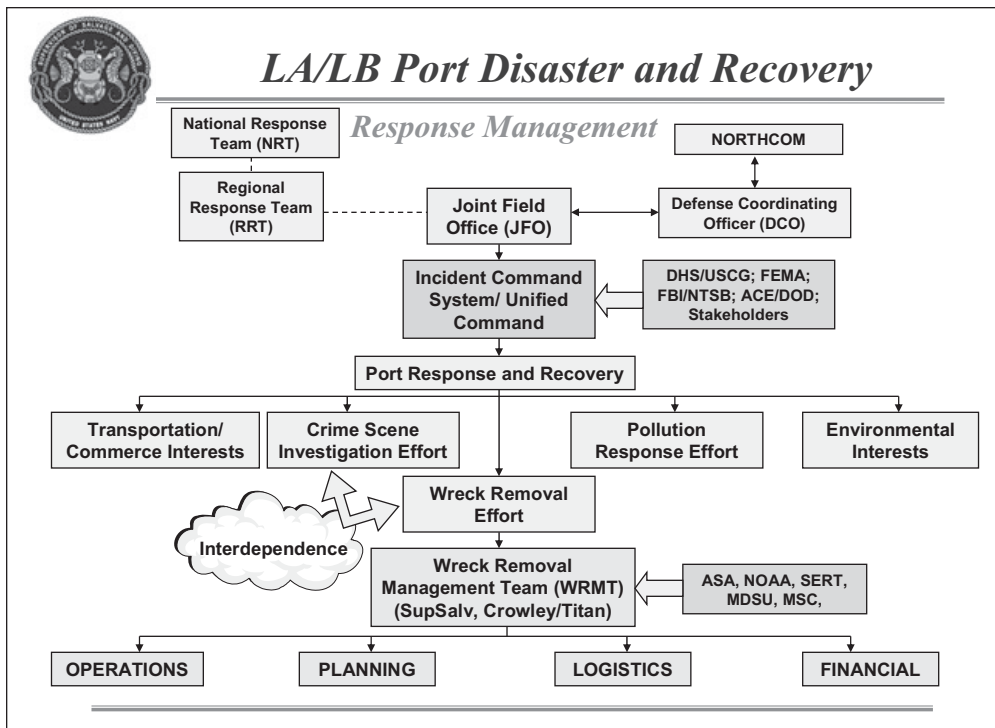




## *LA/LB Port Disaster and Recovery*

### *Response Management*

- ❑ **Response objectives:**
  - ✓ Restore vessel traffic and port operations
  - ✓ Mitigate pollution
- ❑ **Wreck removal management team (WRMT) developed and led by SupSalv and coordinated through existing West Coast emergency salvage contract.**
- ❑ **Individual wreck removals treated as parallel operations led by project managers and salvage masters from salvage companies under central management of WRMT.**
- ❑ **Navy organic diving and salvage/EOD forces assigned by NORTHCOM to support assessment and initial clearance effort.**
- ❑ **After initial on-site assessments, each operation submits wreck removal plans and work commences on fifth day after attacks.**
- ❑ **Mooring plans for crane barges prepared and submitted to the WRMT prior to the commencement of the operation to de-conflict with other response activities in the area.**
- ❑ **Salvage, site safety, pollution removal plans, etc. submitted prior to commencement of operation.**
- ❑ **Security and investigation coordinated under the Unified Command, who facilitates with the WRMT to ensure safety during investigations.**





## *LA/LB Port Disaster and Recovery*

### *Salvage Team and Equipment*

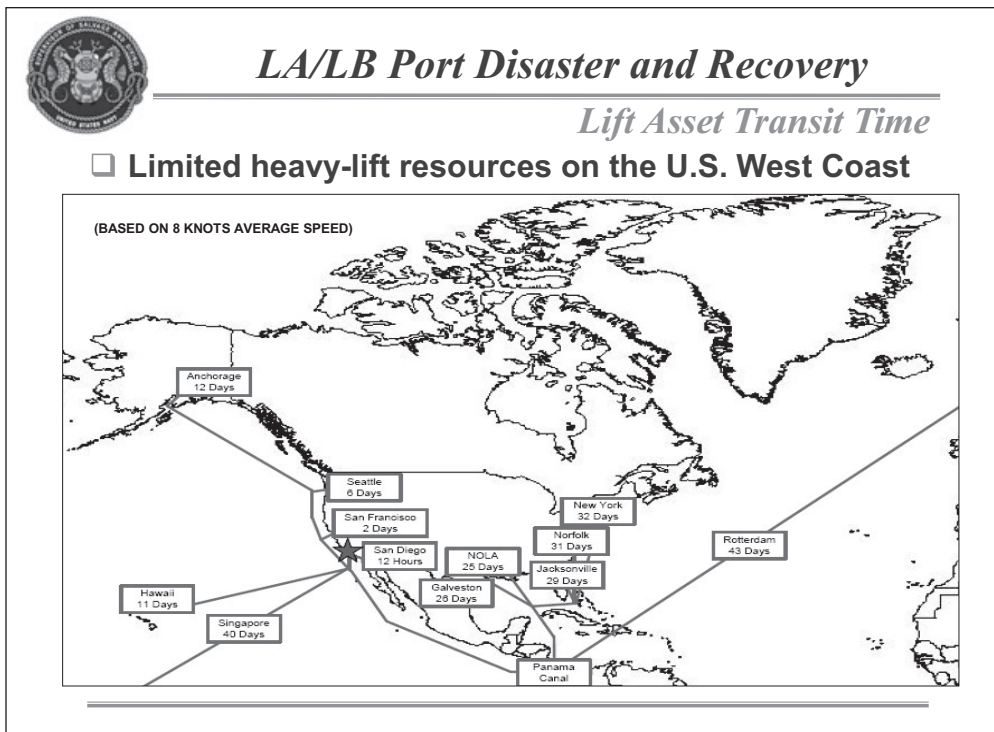
- Salvage personnel:** SupSalv and Titan Salvage mobilized advance team to Los Angeles within 4 hours and initiated contacts with potential manpower and equipment resources.
  - ✓ *ASA member companies offered their support and proceeded to mobilize advance personnel*
  - ✓ *Second-tier personnel mobilized by the individual contractors 24 hours after advance teams*
  - ✓ *Two Navy MDSU companies available in 48 hours*
  - ✓ *All first- and second-tier response personnel arrived in Los Angeles within 48 hours*
  
- Portable salvage equipment:** Contractors began staging/loading portable salvage equipment at respective facilities for trucking to designated central staging area determined by WRMT. Transport time lines based on a two-driver schedule:
  - ✓ *East Coast – 5 days*
  - ✓ *Gulf Coast – 3 days*
  - ✓ *Seattle – 1 day*
  - ✓ *San Francisco – 8 hours*



## *LA/LB Port Disaster and Recovery*

### *Salvage Team and Equipment (cont.)*

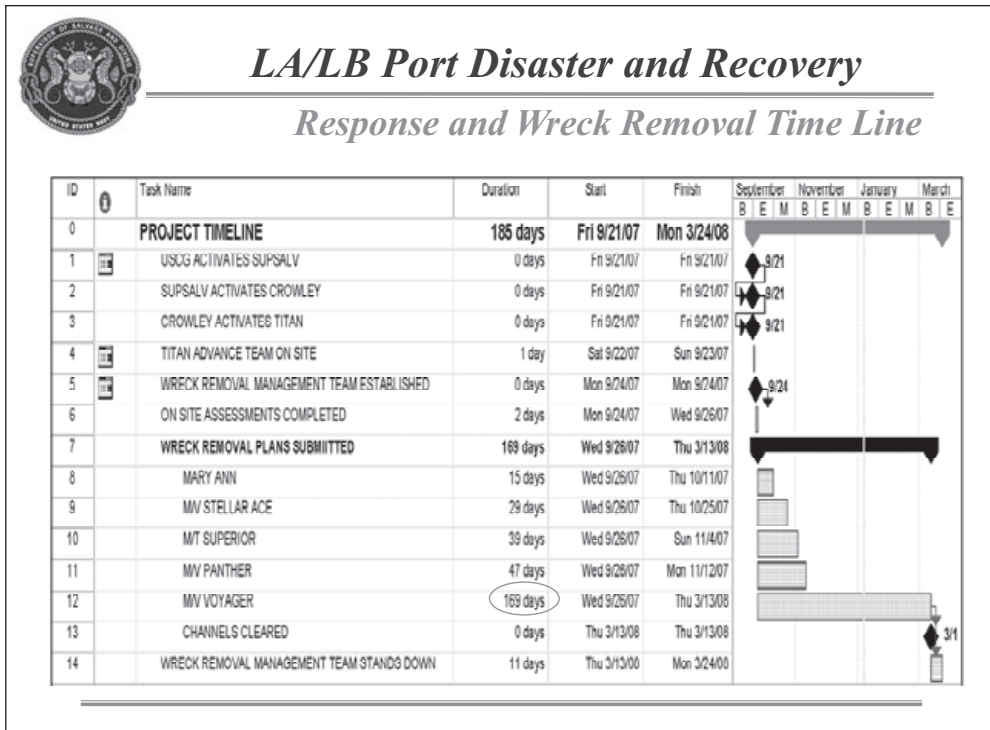
- Floating equipment:** Area U.S. flag equipment (deck and heavy-lift barges, etc.) and U.S. West, Gulf, and East Coasts assets identified.
  - ✓ *Most contractors initiated towage preps, but not prepared to commence mobilization without a contractual commitment*
  - ✓ *Some assets were present in Long Beach at the time of the incident*
  - ✓ *Local assets were engaged by Crowley-Titan during the on-site assessment phase to support both underwater and topside operations*
  - ✓ *Each lead contractor chartered equipment necessary for its specific project directly (centrally managed) considering estimated transit times for floating assets*
  - ✓ *Based on the salvage plans, the WRMT was able to forecast the “best case” total project on-site time line (slide 17)*
  - ✓ *Salvage plan assumes use of all U.S. flag lift derricks*
  - ✓ *WRMT to balance operational/economic considerations of cutting more/smaller pieces versus waiting for larger (foreign flag) lift assets*



**LA/LB Port Disaster and Recovery**  
*Lift Asset Matrix*

	TUG MARY ANN	M/T SUPERIOR	M/V STELLAR ACE	M/V PANTHER	M/V VOYAGER				
	Sunk	Partial Sinking at Berth	Sunk	Exploded and Sunk	Partially Sunk in Channel				
	US West Coast based 700 ton Derrick Barge	US West Coast based 300x100 Barge with US Gulf based 300 ton Pullers(12)	(2) US Gulf Derricks w/ 1,400 ton capacity	(2) OCONUS Derricks w/1,800 ton capacity	(1) US Gulf 700 ton Derrick	(1) OCONUS 1100 ton Derrick	(3) US Gulf Derricks w/ 2,500 ton capacity	(1) US West Coast + (2) US Gulf + (1) + US East Coast Derricks total 3,300 ton capacity	OCONUS Derrick Barge w/ 4,000 ton capacity
<b>HEAVY LIFT MOBILIZATION PHASES:</b>									
ASSET CHARTERING PERIOD	1	2	2	4	2	4	2	2	7
TOWAGE CONTRACTING PERIOD	1	1	2	3	2	3	4	4	4
TRANSIT TIME	2	5	25	43	25	43	26	32	32
<b>TOTAL MOBILIZATION PERIOD</b>	<b>4</b>	<b>8</b>	<b>29</b>	<b>50</b>	<b>29</b>	<b>50</b>	<b>32</b>	<b>38</b>	<b>43</b>
<b>HEAVY LIFT DELAY FACTORS:</b>									
ACCESS/SECURITY RESTRICTIONS	2	2	0	0	0	0	0	0	0
OIL SPILL RESPONSE INTERFERENCE	2	2	1	1	1	1	1	1	1
STATE & LOCAL REGULATIONS	1	1	1	1	1	1	1	1	1
TWIC/IMMIGRATION RESTRICTIONS	0	3	0	0	0	0	0	0	0
PANAMA CANAL TRAFFIC	0	0	2	1	2	1	2	1	0
<b>TOTAL ESTIMATED DELAYS</b>	<b>5</b>	<b>8</b>	<b>4</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>2</b>
OPERATIONAL EFFICIENCY GAIN	N/A	N/A	0	-3	0	-3	0	-10	-17

> Salvage plan assumes U.S. flag derricks  
 > Operational efficiency: days gained using foreign flag derricks (greater capacity=fewer cuts/rigging/lifts, less refloat prep, etc.)



VESSEL	TYPE	CASUALTY TYPE	LOCATION	WATER DEPTH	ON SITE DURATION
CONTRADER	CEMENT CARRIER	SINKING	Bahamas	30'	15 days
VANGUARD	TUG	SINKING	Scotland	25'	20 days
CLIPPER CHEYENNE	MULTIPURPOSE	SINKING	Ireland	30'	30 days
SABINE D	GENERAL CARGO	CAPSIZING & SINKING	Germany	40'	30 days
BOWSTRING	SURVEY VESSEL	SINKING	United States	35'	36 days
SPABUNKER IV	COASTAL TANKER	SINKING	Spain	160'	42 days
TASMAN SPIRIT	OIL TANKER	GROUNDING & BREAK UP	Pakistan	40'	90days
SUPERFERRY 14	ROPAX FERRY	EXPLOSION & SINKING	Philippines	45'	120 days
ROYAL PACIFIC	PASSENGER SHIP	CAPSIZING & SINKING	Taiwan	40'	120 days
REPUBLICA di GENOVA	RO/RO-CONTAINER	CAPSIZING & SINKING	Antwerp	45'	120 days
AN TAI	GENERAL CARGO	SINKING	Malaysia	40'	150 days
VICUNA	TANKER	EXPLOSION & BREAK UP	Brazil	36'	180 days
MIGHTY SERVANT 3	HEAVY LIFT	SINKING	Angola	160'	180 days
TWIN STAR	GENERAL CARGO	BREAK UP & SINKING	Peru	75'	210 days
TRICOLOR	CAR CARRIER	SINKING	English Channel	110'	300 days





## LA/LB Port Disaster and Recovery

### Tug MARY ANN Wreck Removal

**Assessment:** On bottom, her port side in 84 ft. The bow is set-in and punctured. About 8 ft of the forward bottom has various tears. For the most part, the hull appears intact. DO is slowly rising from the vents and house.

**Plan:**

- ✓ Primary lift by 700-ton derrick barge currently located in San Francisco.
- ✓ 150-ton crane barge as a support platform; divers identify rigging points and rig wreck in a basket configuration.
- ✓ Upright tug on the slings and the subsequent lift to the surface.
- ✓ Once tug breaks the surface, patched, dewatered, and stabilized. Once stabilized, the tug towed to designated lay-berth.

ID	Task Name	Duration	Start	Finish
0	TUG MARY ANN	16 days	Wed 9/26/07	Thu 10/11/07
1	Stage Personnel & Equipment at Loading Dock	1 day	Wed 9/26/07	Thu 9/27/07
2	Load Personnel & Equipment Aboard 150-ton Crane Barge	2 days	Thu 9/27/07	Sat 9/29/07
3	Shift and Moor Crane Barge on Site	2 days	Sat 9/29/07	Mon 10/1/07
4	Conduct Dive Surveys	2 days	Mon 10/1/07	Wed 10/3/07
5	Order Lifting Slings	2 days	Wed 10/3/07	Fri 10/5/07
6	Connect Lifting Slings & Lift	3 days	Fri 10/5/07	Mon 10/8/07
7	Tug at the Surface	0 days	Mon 10/8/07	Mon 10/8/07
8	Dewater, Stabilize and Shift	1 day	Mon 10/8/07	Tue 10/9/07
9	Remove Fuel	1 day	Tue 10/9/07	Wed 10/10/07
10	Demobilize Personnel and Equipment	1 day	Wed 10/10/07	Thu 10/11/07



## LA/LB Port Disaster and Recovery


### M/V VOYAGER Wreck Removal

**Assessment:** The M/V VOYAGER is resting upright in 84 ft of water. The vessel lightship weight is 22,000 tons.

- Of about 1,073 metric tons of HFO/MGO, only 200 of HFO confirmed remaining in a starboard forward fuel storage tank.
- Of load of 3,150 total containers, deck load was 1,068. Deck load of containers and the cells have been heavily damaged by the explosions and subsequent fires.
- Dangerous Cargo Manifest (DCM) has been transmitted by owners and indicates that there were 42 containers containing dangerous cargoes. It appears that only 5 of those containers are intact on deck above #1 and #2 hold.
- Of 384 20-ft containers, 96 were reefers containing fruit and meat; unknown how many are intact but cargo is spoiling and causing a health hazard to salvage workers.

**Plan:**


- ✓ Remove remaining petroleum products and damaged containers on deck
- ✓ Hull removed by cutting (total of seven cuts) into sections; mid-body cut into five separate sections; aft section in way of holds 7, 8, and 9 and fwd section in way of hold 1 will be refloated.
- ✓ Heavy lift using 3 U.S. Gulf/East Coast derricks with 2,500-ton total capacity



## *LA/LB Port Disaster and Recovery*

### *M/V VOYAGER Wreck Removal (cont.)*

ID	Task Name	Duration	Start
0	<b>M/V VOYAGER</b>	<b>169 days</b>	<b>Wed 9/26/07</b>
1	Mobilize Cargo & Oil Removal Equipment to Loading Dock	2 days	Wed 9/26/07
2	Shift Barges to Dock	2 days	Wed 9/26/07
3	Loading Equipment aboard Barges	5 days	Fri 9/28/07
4	Mobilize Barges to Site and Moor	2 days	Wed 10/3/07
5	Remove Deck Cargo	26 days	Fri 10/5/07
6	Remove Heavy Fuel & Diesel Oil	10 days	Fri 10/5/07
7	Pollutants Removed	0 days	Mon 10/15/07
8	Mobilize & Position Jack Up Barges	3 days	Fri 11/2/07
9	Cut Aft Section	10 days	Mon 11/5/07
10	Shift Floating Aft Section and Anchor	2 days	Thu 11/15/07
11	Cut Forward Section	10 days	Sat 11/17/07
12	Shift Floating Forward Section and Anchor	2 days	Tue 11/27/07
13	Cut Hull Section 3	7 days	Thu 11/29/07
14	Rig, Lift and Shift Section 3	10 days	Thu 12/6/07
15	Cut Hull Section 4	7 days	Sun 12/16/07
16	Rig, Lift and Shift Section 4	10 days	Sun 12/23/07
17	Cut Hull Section 5	7 days	Wed 1/2/08
18	Rig, Lift and Shift Section 5	10 days	Wed 1/9/08
19	Cut Hull Section 6	7 days	Sat 1/19/08
20	Rig, Lift and Shift Section 6	10 days	Sat 1/26/08
21	Cut Hull Section 7	7 days	Tue 2/5/08
22	Dismantle Superstructure	10 days	Tue 2/12/08
23	Rig, Lift and Shift Section 7	10 days	Fri 2/22/08
24	Survey and Remove Sunken Debris	3 days	Mon 3/3/08
25	Demobilize Personnel and Equipment	7 days	Thu 3/6/08



## *LA/LB Port Disaster and Recovery*


### *M/V STELLAR ACE Wreck Removal*

**Assessment:** *The M/V STELLAR ACE is lying on starboard side in 54 ft of water with 6 ft of her port side exposed. The lightship weight is 2,800 tons but vessel is fully flooded.*

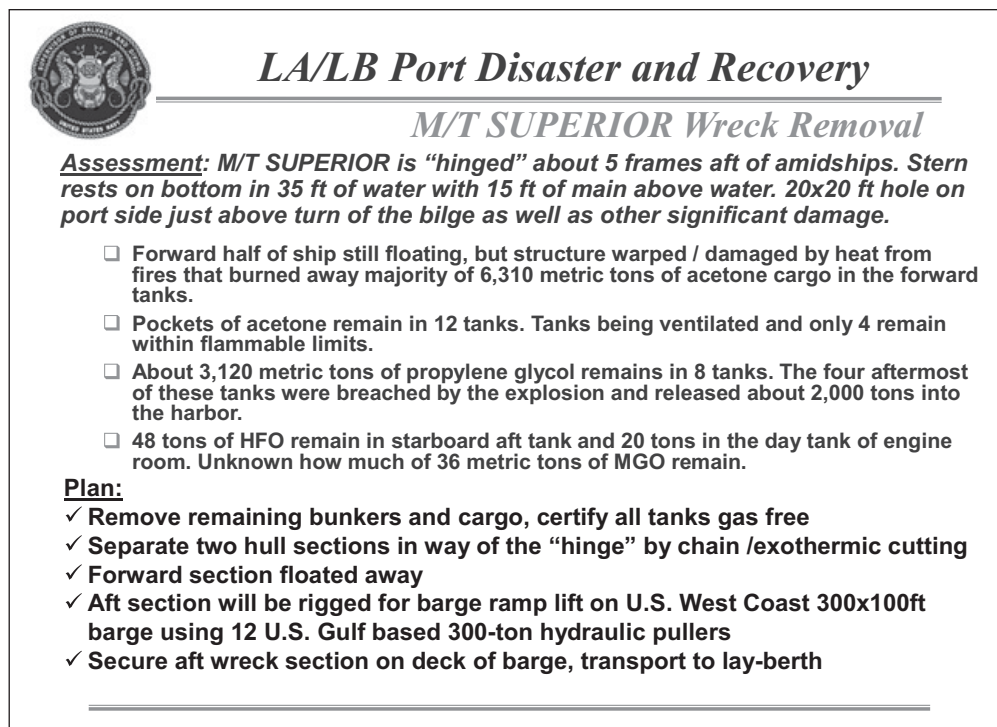
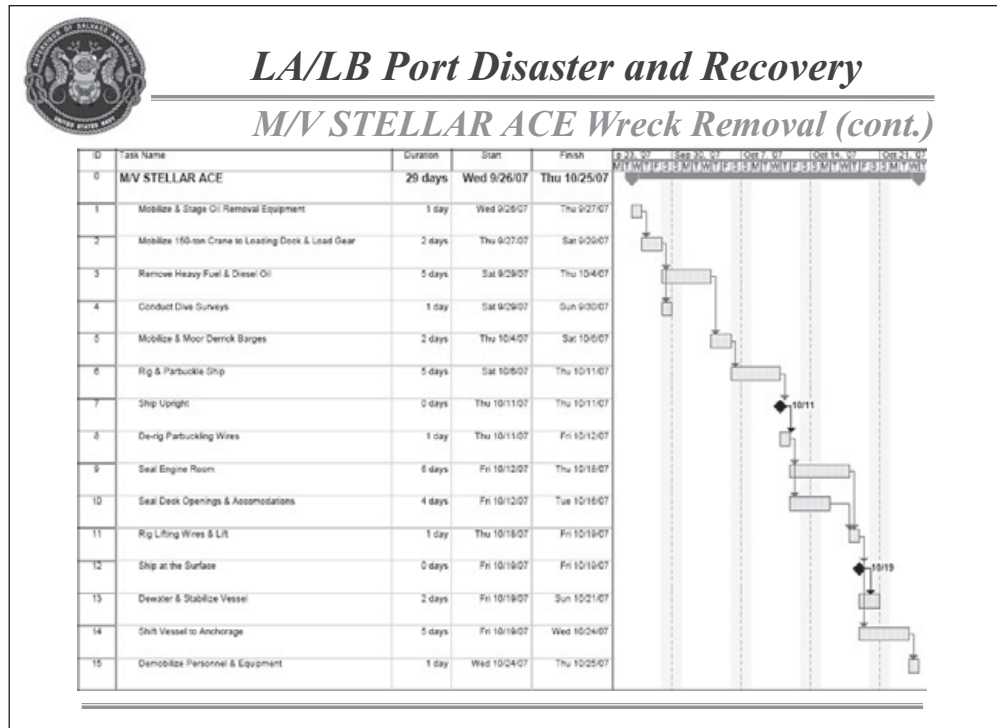
- Of 387 metric tons of IFO 180, 98 tons of HFO and 10 tons of miscellaneous pollutants, it is likely that nearly half has leaked into the harbor.
- 48 militarized vehicles, trucks and humvees remain in cargo hold and 18 on deck with approx. 5 gal. of engine oil and 5 gal. of antifreeze each.
- No penetration of the cargo hold has been made due to safety concerns.

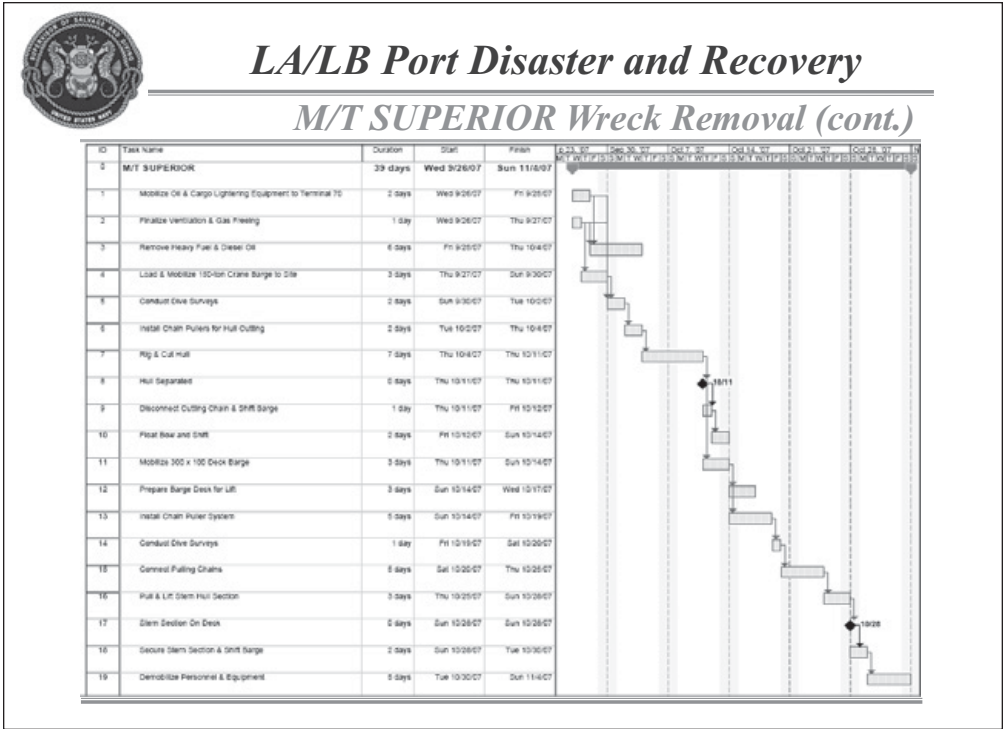
**Plan:**

- ✓ Remove remaining petroleum products
- ✓ Vessel will be parbuckled and overturned upright using 2 derricks from U.S. Gulf with 1400-ton total capacity
- ✓ Once righted, heavy lift and dewatering required to bring vessel to surface and stabilize
- ✓ Shift vessel to anchorage



M/V STELLAR ACE





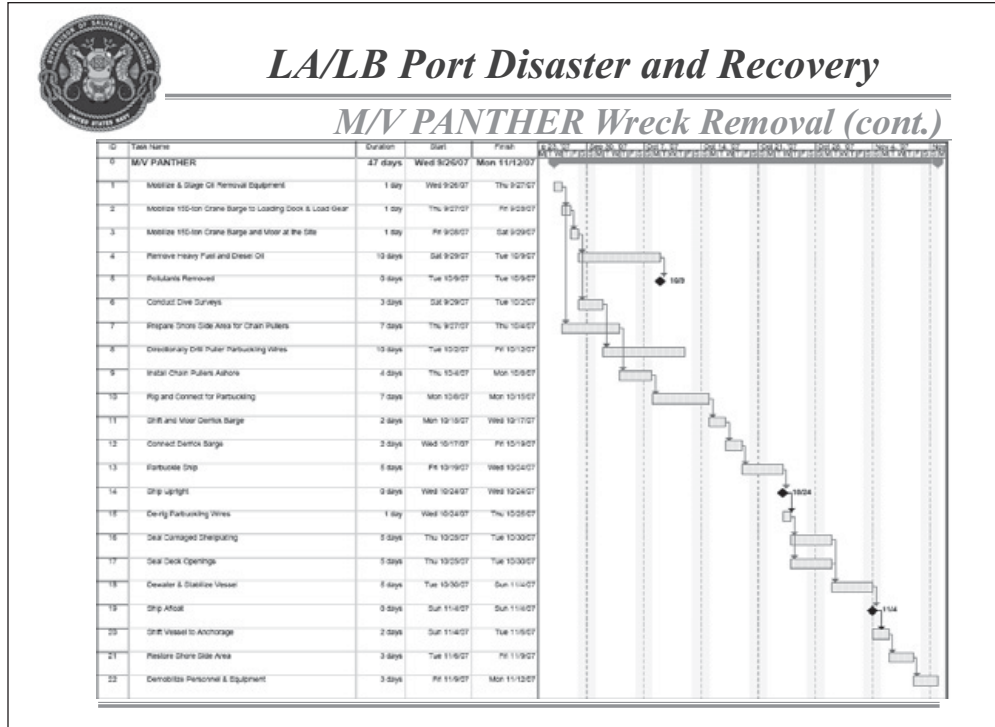
**LA/LB Port Disaster and Recovery**  
**M/V PANTHER Wreck Removal**

**Assessment:** PANTHER resting on port side with bow in 45 ft of water just off FI G "9" Naval Base Mole Long Beach and the stern in 78 ft of water extending into the main ship channel.

- Sideshell damage on port side identified and determined that it can be patched/sealed at least temporarily
- Crew reports indicate approx. 705 metric tons of petroleum products remain
- 4,123 vehicles on 14 different decks remain and discharged about 8 metric tons of gasoline, 11 metric tons of oil and 23 metric tons of anti-freeze dispersed throughout the hold

**Plan:**

- ✓ Remove remaining petroleum products
- ✓ Parbuckle using 20 pullers/winches and a U.S. Gulf based 700-ton derrick barge to apply approx. 4,500 tons of force required
- ✓ As the port sideshell is exposed, patch damage
- ✓ Seal other hull openings, refloat, and shift to predesignated anchorage



**LA/LB Port Disaster and Recovery**  
*Cost Projection*

The removal of sunken oceangoing vessels requires multimonth periods and considerable funding to accomplish.

TOTAL PROJECT COST	~\$330 M
--------------------	----------

Estimated direct economic impact to the state of California due to loss of imports and exports from Port of LA/LB is \$18.3 billion/month

\* J.Y. Park, University of Southern California; 2007; "The Economic Impacts of Dirty Bomb Attacks of the LA/LB Ports: Applying the Supply-Driven NIEMO (National Interstate Economic Model)"



## *LA/LB Port Disaster and Recovery*

### *Conclusions*

- The U.S.-based salvage industry is capable of responding to and handling a major port incident.
- U.S. Navy Salvage and EOD capability are critical to expediting response to worst case marine casualties inflicted by terrorist acts.
- Leadership and prioritization conflicts can create significant delays at the onset of a major marine casualty caused by terrorist attacks.
- Threat of potential third-party liability exposure may dilute the response to a major marine casualty.
- Strict enforcement of local government regulations may be detrimental to response objectives.



## *LA/LB Port Disaster and Recovery*

### *Challenges Encountered*

- Initial casualty assessments delayed by law enforcement and crime scene investigative activities.
- Containment booming and skimming coordinated by California OSPR and certain terminals resulted in delays to underwater surveys and vent plugging by on-site assessment phase.
- Conflicts between vessel underwriter representatives and the Unified Command prevented a smooth start of operations, insurers initially insisted on handling their respective casualties.
- Individual interests of multiple RP-appointed qualified individuals (QI) and spill management companies created conflict as each tried to take the lead.
- Inter-company contracting was problematic due to variety of formats and clauses, particularly those dealing with third-party liabilities.
- With more than 50 contractors involved, each with individual tariffs for its personnel and equipment, it was difficult to determine acceptable daily rates and prevent opportunistic pricing.
- Concerns over responder immunity prevented several contractors from supporting the response.
- Port of Los Angeles and Port of Long Beach Police diver permit requirements created delays.



## *LA/LB Port Disaster and Recovery*

### *Challenges Encountered (cont.)*

- High-volume, fast boat traffic operated by police, Fish and Game, etc., required space management (safety hazards for diving operations).
- Designated nesting areas (approx. 15 acres) for the endangered California least tern prevented the staging of salvage equipment at certain locations.
- The TWIC requirements became a major obstacle during the response phase of the operation as out-of-state salvage workers were prevented from entering the port.
- Some salvage specialists employed by foreign affiliates of U.S.-based companies were delayed or prevented from entering the United States.
- Regulatory intervention by the South Coast Air Quality Management District (SCAQMD) halted operations due to volume of diesel-driven equipment.
- Local labor unions offered their support but insisted in payment of prevailing wages (Appendix IV) resulting on an average 250% increase in labor rates for divers.
- Funding delays created adverse cash flow strain during the peak periods of the operation.
- The LA/LB Area Contingency Plan (ACP) was comprehensive but focused on response to major oil spills and not harbor clearance operations. (Being worked.)

### BACKUP SLIDES



## *LA/LB Port Disaster and Recovery*

### *Recommendations*

- SupSalv coordinate with federal/state agencies, oil spill response community, and salvage industry to plan and hold salvage-specific exercises and awareness briefs in major ports.
- Initiate a study to investigate feasibility of developing pre-positioned portable heavy-lift assets in vulnerable regions, to include consideration of legal/funding/maintenance mechanisms.
- Establish a working committee (with members from marine insurance, vessel operators, salvage community, state/federal government) to develop an integrated funding strategy for national-level salvage/wreck removal incidents.
- In support of an integrated response, enhance communications between DoD/Navy salvage capability and the salvage industry to share knowledge, ascertain equipment compatibility, and pre-establish mutual aid protocols.



## *LA/LB Port Disaster and Recovery*

### *Recommendations (cont.)*

- Explore possible methods (legislation, regulations, MOUs, etc.) at federal/state levels to more clearly establish “responder immunity” for salvors.
- Explore possible methods (legislation, regulations, MOUs, etc.) at federal/state levels to facilitate rapid and temporary waiver of regulations/permitting requirements that pose an undue risk of delay to critical salvage operations in the national interest.
- Invite International Salvage Union (ISU) to prescreen Transportation Worker Identification Credential (TWIC) for ISU personnel.



## *LA/LB Port Disaster and Recovery*

### *Heavy-Lift Assets- U.S. Flag*

<b>ASA Heavy Lift Assets (400-1000 ton)</b>					
Name	Type	Owner	Location	Flag	Main Lift (tons)
Big T	Derrick Barge	T and T Marine	Galveston	USA	450
Columbia, New York	Crane Barge	DonJon LA	Wilmington, NC	USA	400
Chesapeake	Derrick Barge	DonJon LA	Port Newark, NJ	USA	1000
D/B BOAZ	Derrick Barge	Bisso Marine	GOM	USA	250
D/B BIG CHIEF	Derrick Barge	Bisso Marine	GOM	USA	100
D/B CAPPY	Derrick Barge	Bisso Marine	GOM	USA	700

<b>Non-ASA Heavy Lift Assets (400-1000 ton)</b>					
Name	Type	Owner	Location	Flag	Main Lift (tons)
Valhalla	Crane Barge	Manson	West Coast	USA	250
DB 24	Crane Barge	Manson	West Coast	USA	400
Haakon	Crane Barge	Manson	West Coast	USA	400
DB Pacific	Crane Barge	General	West Coast	USA	200 revolving
DB General	Derrick Barge	General	West Coast	USA	700
DB Los Angeles	Crane Barge	General	West Coast	USA	350 revolving
DB 5	Crane Barge	Traylor	West Coast	USA	400 revolving
DB Long Beach	Crane Barge	Connolly-Pacific	West Coast	USA	350
Atlantic Horizon	Derrick Barge	Horizon	US Gulf	USA	453 revolving
Arapaho	Derrick Barge	Tetra	US Gulf	USA	589 revolving
Pacific Horizon	Derrick Barge	Horizon	US Gulf	USA	635 revolving
Wotan	Crane Barge	Manson Gulf	US Gulf	USA	453 revolving
Mr Two Hooks	Stiff leg DB	Laredo	US Gulf	USA	800
Illuminator	Stiff leg DB	Laredo	US Gulf	USA	408
IOS 800	A-Frame	International	US Gulf	USA	800

➤ SMIT in ASA but Foreign Flag





## LA/LB Port Disaster and Recovery

### Heavy-Lift Assets – Foreign Flag

FOREIGN FLAG HEAVY LIFT ASSETS (1000 ton +)					
Name	Owner / Manager	Flag	DP	Mooring	Max Lift (tons)
<b>DERRICK LAY BARGES</b>					
Huasteco	Ductos Marinos	Mexico	n/a	8-point	2032 static
Castoro Otto	Saipem	Bahamas	n/a	12-point	1814 revolving
Hyundai 60 (ex-DB 60)	HHI	Panama	n/a	14-point	1578 revolving
Mixteco	Mexicanos				
	Construccion (CMM)	Mexico	n/a	8-point	812 revolving
Abouzar 1200	Kito (NITC)	Iran	n/a	10-point	1088 overbow
Saipem FDS	Saipem	Bahamas	DP3	na	600
Lan Jiang	CNOOC	China	?	12 point	3800
Balder	Heerema	Panama	DP3	12-point	2000 revolving
McDermott Derrick Barge No 50	McDermott	Panama	DP	8-point	3199 revolving
Sapura 3000	Acergy/Sapura	Unknown	DP2	?	3000
Jascon 18	Sea Trucks	St V&G	DPS3	10-point	1600
DB Hercules	Global	Vanuatu	DPS3	8-point	1814 overstem
Crawler	Saipem	Panama	n/a	12-point	540 revolving
Kuroshio	Nippon Steel	Panama	n/a	10-point	1818 revolving
Lewek Champion	EMAS	Singapore	DP2	8-point	800
Kuroshio II	Nippon Steel	Panama	n/a	10-point	725
DLB - KP 1	McDermott	Panama	n/a	10-point	544 revolving
Acergy Polaris	Acergy	Panama	DP3	10-point	1500
Castoro II	Saipem	Bahamas	n/a	8-point	825 revolving
Hyundai 2500	HHI	Korea	n/a	10-point	1451 revolving
Global Seminole	Global	Vanuatu	n/a	8-point	725 fixed
McDermott Derrick Barge No 27	McDermott	Panama	n/a	12-point	1270 revolving
McDermott Derrick Barge No 30	McDermott	Panama	n/a	12-point	2086 revolving
<b>DERRICK BARGES</b>					
Tolteca	Constructora Mexico	Mexico	None	10-point	1451 revolving
Thialf	Heerema	Panama	DP3	12-point	7100 revolving
SHL Newbuild TBC	SHL	Cyprus	DP3	8-point	5000 revolving
Stanislav Yudin	SHL	Russia	None	8-point	2500 revolving
HLS-2000	NPCC	UAE	None	8-point	1500 revolving
Saipem 3000	Saipem	Bahamas	DP3	8-point	2400 tonnes
Hermod	Heerema	Panama	None	12-point	2721 revolving
DB-101	McDermott	Panama	None	10-point	2449 revolving
DB William Kallop	CSFI	Vanuatu	None	8-point	1624
Da Li Hao	COESS	China	n/a	Unknown	2500 fixed

# Incident Command and Response

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Captain Paul Wiedenhoeft, *U.S. Coast Guard, Sector Los Angeles/Long Beach*




# United States Coast Guard

**Motto: *Semper Paratus***


**Vision: All Threats. All Hazards. Always Ready.**

**Core Values: Honor, Respect, Devotion to Duty**

**Enduring Roles: Maritime Safety, Security, Stewardship**



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# United States Coast Guard

- Military Service - involved in every major U.S. conflict
- Maritime Service - oldest continuous sea service (1790)
- Multimission:
  - Search and Rescue
  - Maritime Mobility
  - Law Enforcement
  - Marine Safety / Environmental Protection
  - Homeland Security
  - National Defense










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## A Typical Day

- 15 lives saved
- 114 people in distress assisted
- \$4.9 million in property protected
- 26 illegal aliens interdicted
- 82 SAR cases conducted
- \$12.4 million of illegal drugs seized
- 122 security boardings conducted
- 202 law enforcement boardings conducted
- 2,557 ships guided in and out of port








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## District 11 Major Unit Areas of Responsibility





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## Sector LA-LB Area of Responsibility

San Luis Obispo,  
Santa Barbara, Ventura,  
Los Angeles, and  
Orange Counties.



Monterey/San Luis  
Obispo County line

Orange/San Diego  
County line





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## Ports of Los Angeles and Long Beach

- Nation's largest port complex
- World's 5th largest container port complex
- Over \$235 billion in annual trade
- 15.7 million TEU annually
- 5800 vessel arrivals annually
- 44.5% of containers entering U.S.
- 235 million metric tons of cargo
- 1 million passengers
- 400,000 autos
- 50% of California's oil (370M BBLs/YR)
- 3 million jobs nationwide impacted







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## Facilities

- MTSA-Regulated Facilities
  - 14 Container Terminals
  - 17 Bulk Liquid Terminals
  - 2 Cruise Ship Terminals
  - 3 RO/RO Terminals
  - 1 Break Bulk
  - ~21 Other Terminals (Chemical, Lumber, etc.)







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## A Typical Day Los Angeles and Long Beach Seaports

- 16 vessel arrivals
- 13,000 containers
- 33 million gallons energy products
- \$520 million worth of cargo
- 2,800 cruise / ferry passengers

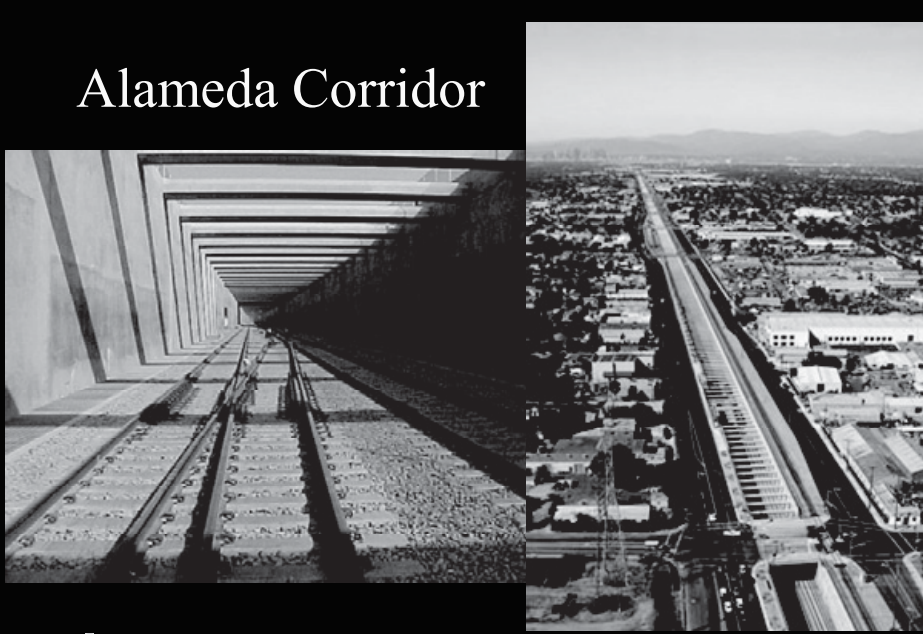








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## Alameda Corridor





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## Statutory Titles

- Captain of the Port (COTP)
- Federal Maritime Security Coordinator (FMSC)
- Federal On-Scene Coordinator (FOSC)
- Officer in Charge, Marine Inspection (OCMI)
- SAR Mission Coordinator (SMC)



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## HSPD-5

# “Management of Domestic Incidents”

Directed DHS to develop and administer

### 1. National Incident Management System (NIMS)

- Consistent nationwide approach...
- Core set of concepts, principles, and terminology for incident command and multiagency coordination

### 2. National Response Plan (NRP)

- An all-discipline, all-hazards plan
- (2008 - the NRF)



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## National Incident Management System

### NIMS

“...a consistent nationwide approach for Federal, State, tribal, and local governments to work effectively and efficiently together to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity...”



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## Incident Command System

- Proven on-scene, all hazard concept
- Used to manage emergency and nonemergency events
- Works for small and large incidents
- Interdisciplinary and organizationally flexible



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## Incident Command or Unified Command?

- Incident Command (IC)
  - Single jurisdiction
  - No jurisdictional or functional agency overlaps
  - IC is solely responsible for objectives and strategies
- Unified Command (UC)
  - Multijurisdictional and/or multiagency event
  - Includes all agencies with jurisdictional authority or functional responsibilities
  - Members represent different legal authorities and functional areas of responsibility
  - Single planning process; single management structure
  - Individuals designated by their jurisdictional authorities jointly determine objectives, plans, and strategies and work together to execute integrated operations




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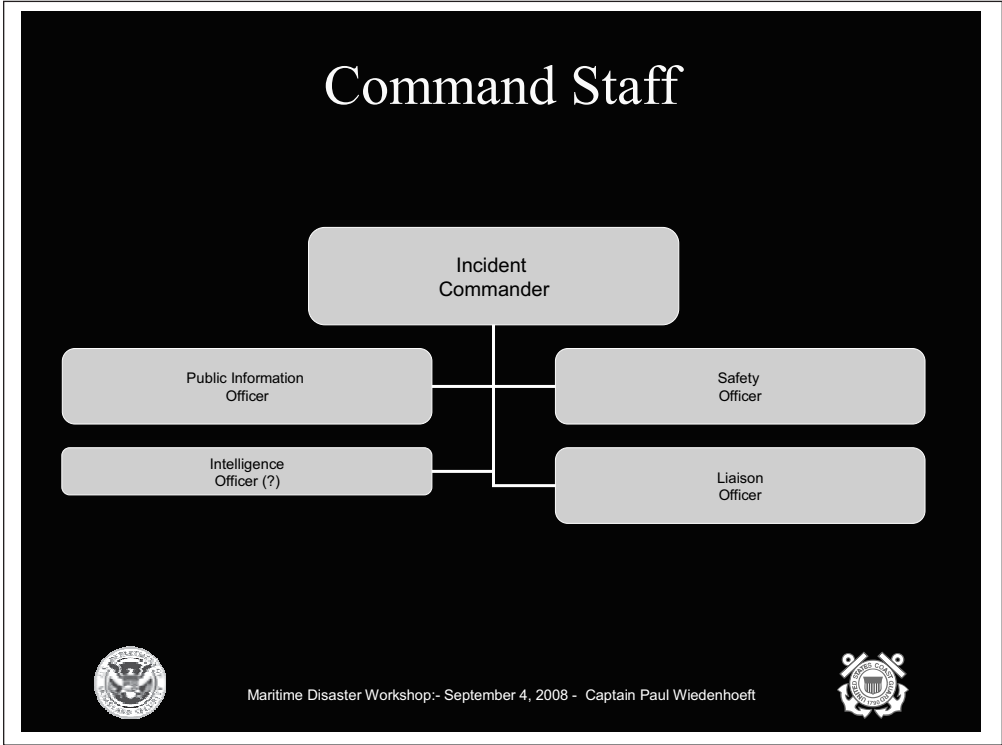


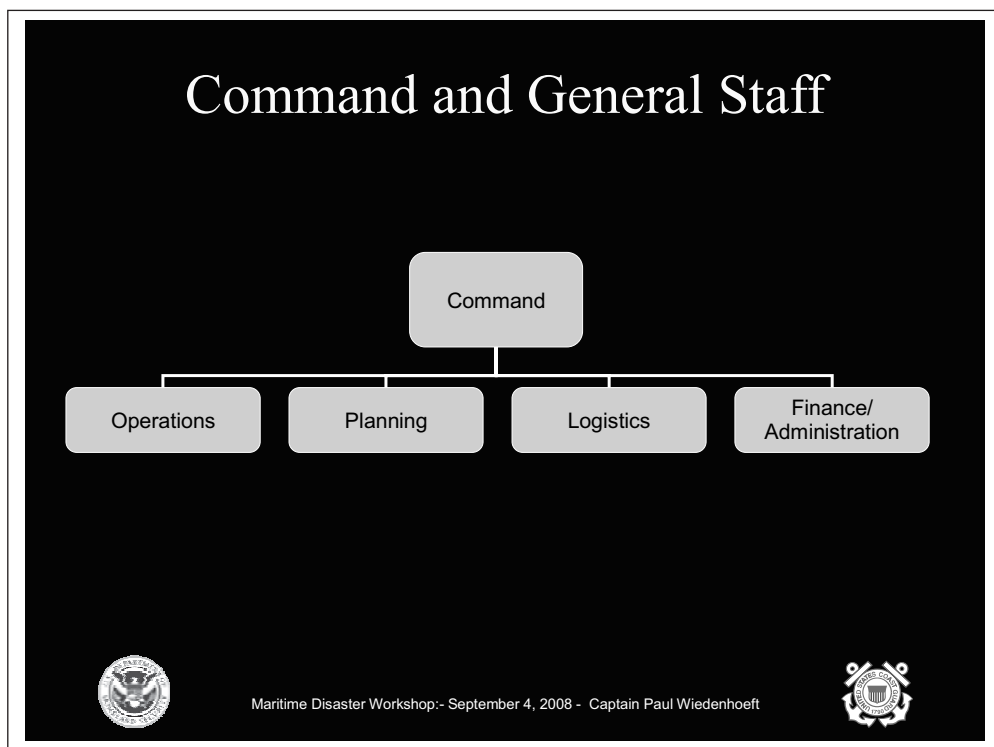
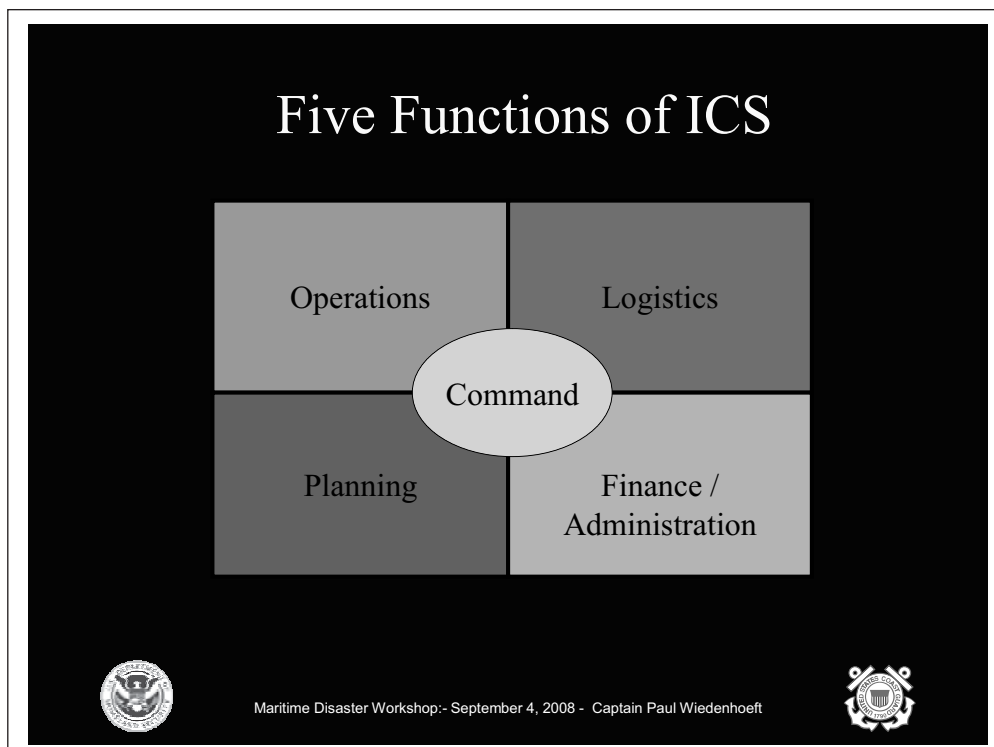
# Command Staff

- Incident Commander/Unified Command
- Information Officer
- Safety Officer
- Liaison Officer
- Intelligence Officer (?)




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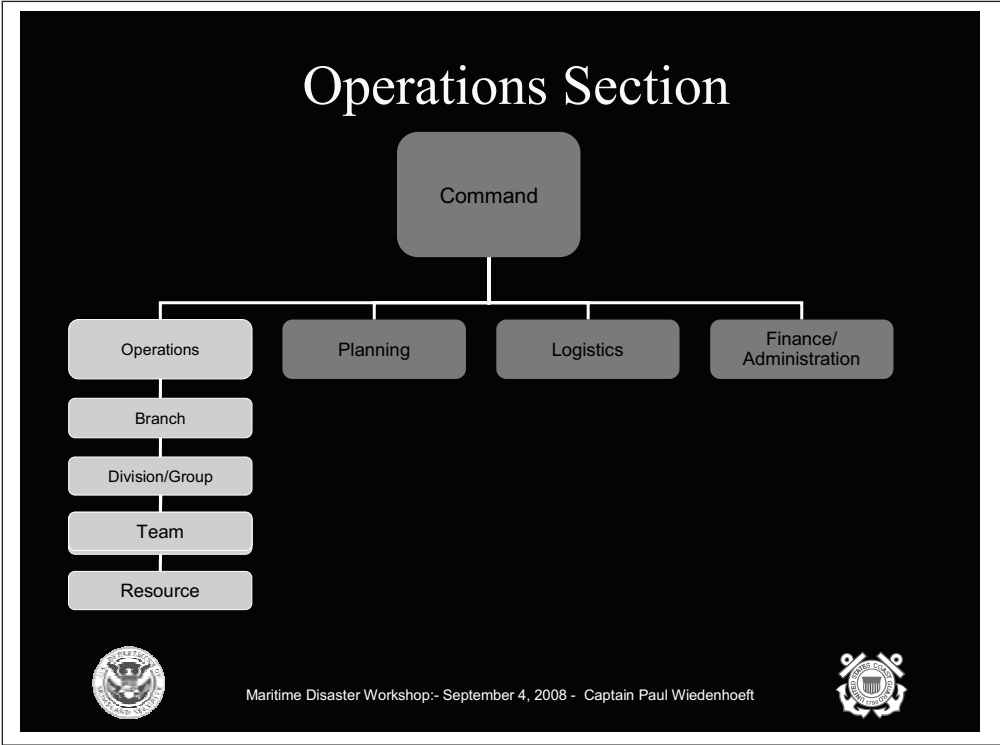



# Operations Section

- Participates in the planning process
- Executes the Incident Action Plan
- Accomplishes the Incident Objectives




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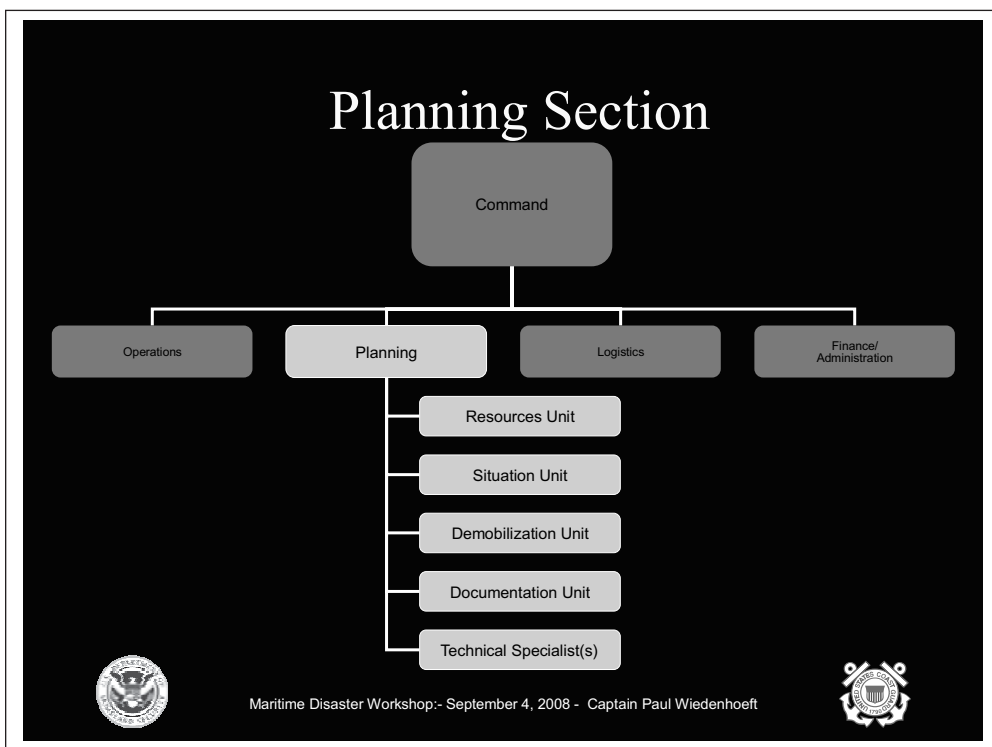
# Planning Section

- Determines resource needs, assesses the situation
- Gathers and analyzes data
  - Surveillance, data collection
- Provides situational information
  - Geographic Information System (GIS), mapping, graphs
- Estimates future probabilities
  - Modeling
- Prepares alternative strategies
  - What's next?



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# Logistics Section

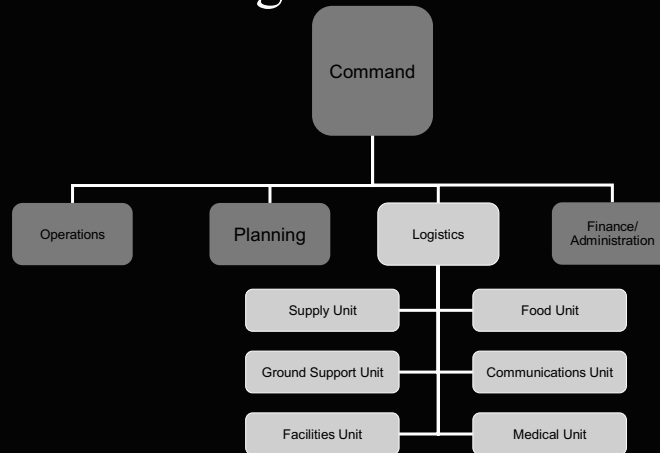
- Acquires resources (personnel, equipment, services, and support)
- Obtains supplies (food, water)
- Manages internal communications equipment
- Maintains equipment



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# Logistics Section



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## Finance/Administration Section

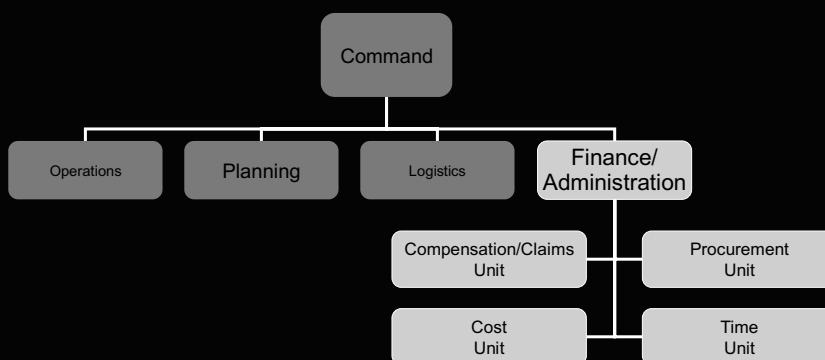
- Provides financial management and accountability
- Authorizes expenditures
- Maintains reimbursement records
- Maintains injury, death, and damage documentation
- Negotiates contracts with vendors
- Tracks cost associated with mutual aid agreements with other agencies



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## Finance/Administration Section




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## Salvage Components of ICS


- “When salvage issues become the focal point of a response effort, it is important that the UC have access to correct salvage support and information.”

-NRT ICS/UC  
Technical Assistance  
Document





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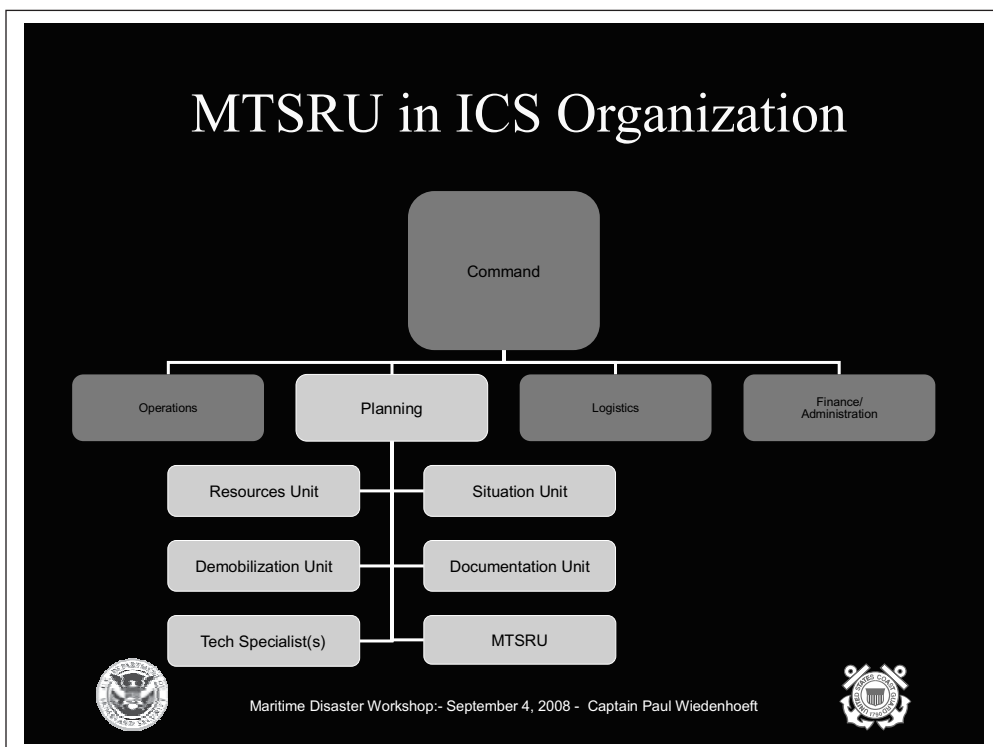
## Marine Transportation System Recovery Unit (MTSRU)

- Within the Planning Section of IC/UC organization
- Specially qualified personnel
- Report on status of MTS
- Understand critical recovery pathways
- Recommend courses of action
- Provide stakeholders with an input avenue
- Provide recommended priorities for MTS recovery



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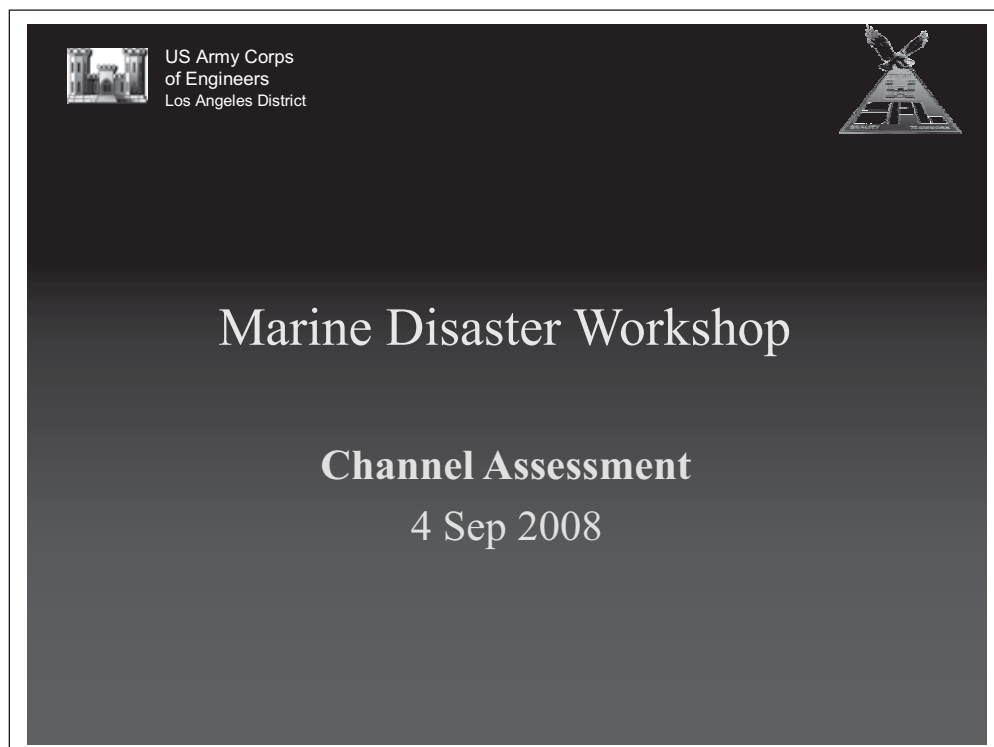


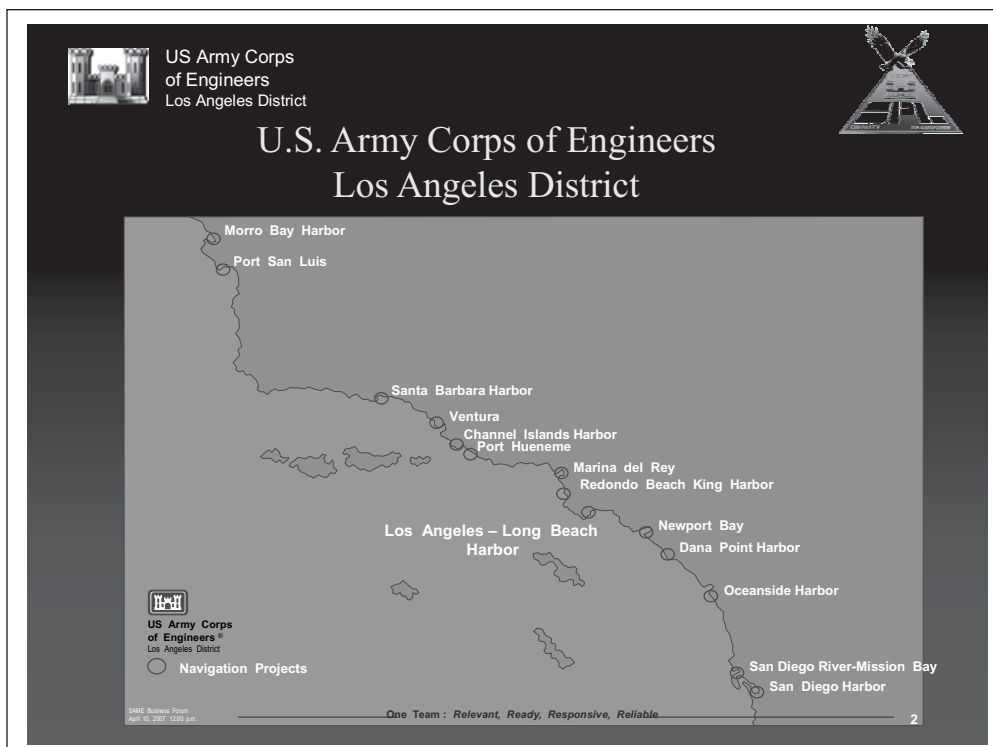


# Channel Assessment

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Mohammed Chang, *U.S. Army Corps of Engineers, Los Angeles District*







US Army Corps of Engineers  
Los Angeles District

U.S. Army Corps of Engineers  
Marine Disaster Workshop  
Types of Surveys

- Bathymetric
  - Single beam
  - Multibeam
- Side-Scan Sonar
  - Object location
- Subbottom Profiling
  - Subsurface object location



US Army Corps  
of Engineers  
Los Angeles District



## U.S. Army Corps of Engineers Marine Disaster Workshop Capabilities Los Angeles District


- Bathymetric Surveys
- Side-Scan Sonar

### Ports of LA/LB


- Bathymetric Surveys

### Local Vendors


- Established Contracts for
- Bathymetric Surveys
- Side-Scan Sonar
- Subbottom Profile
- Ride Along to See or Quick Turnaround

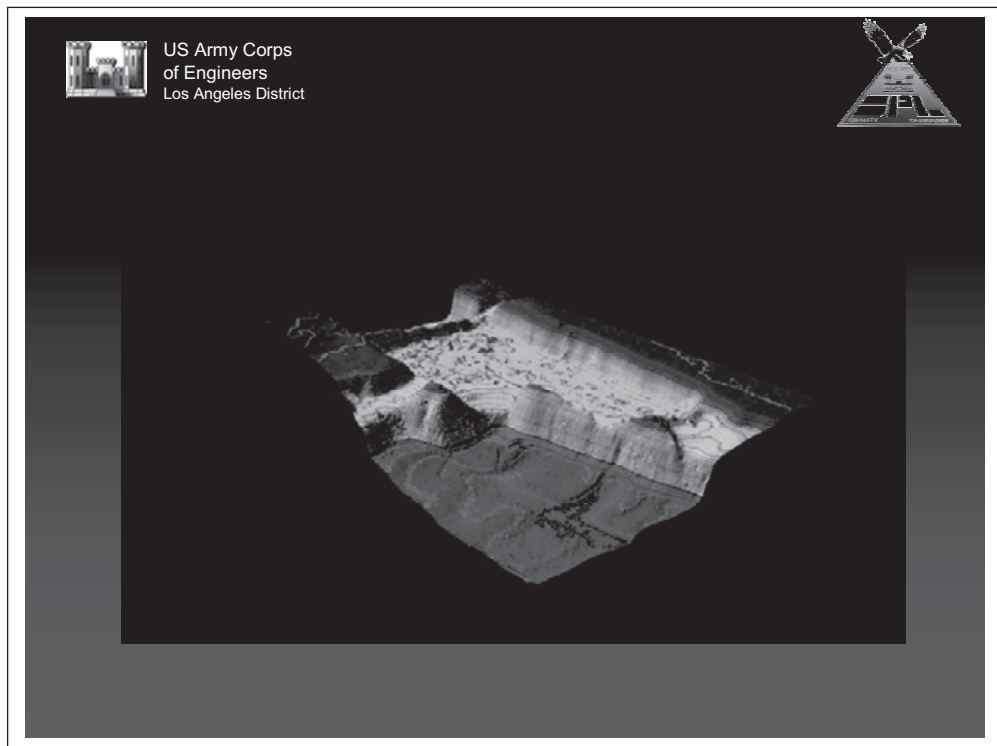
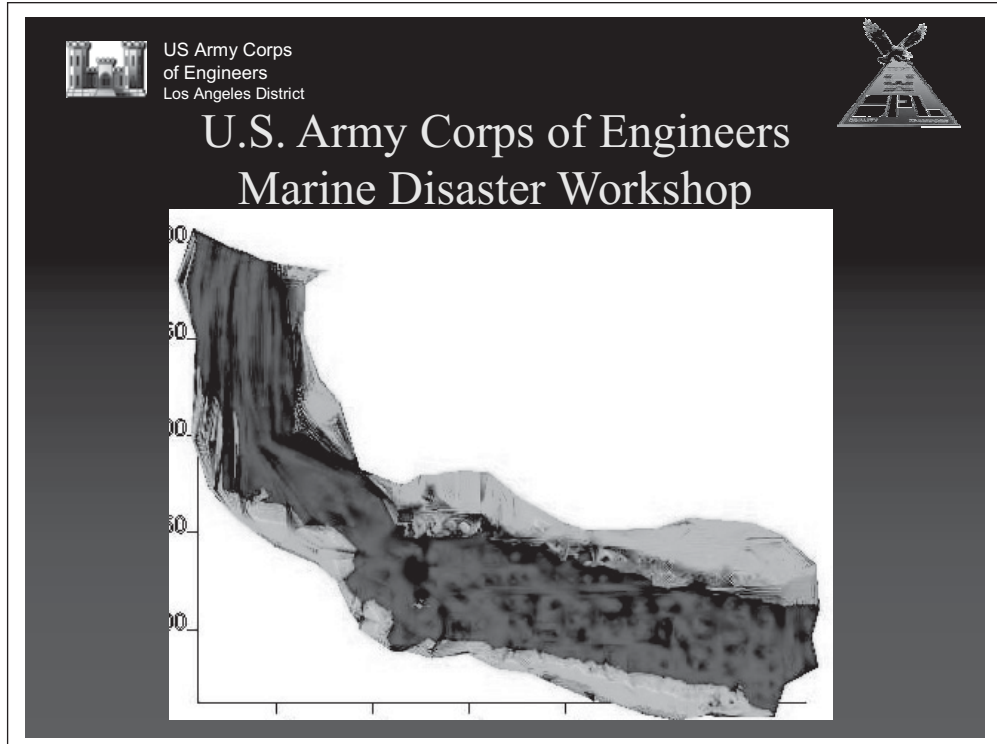


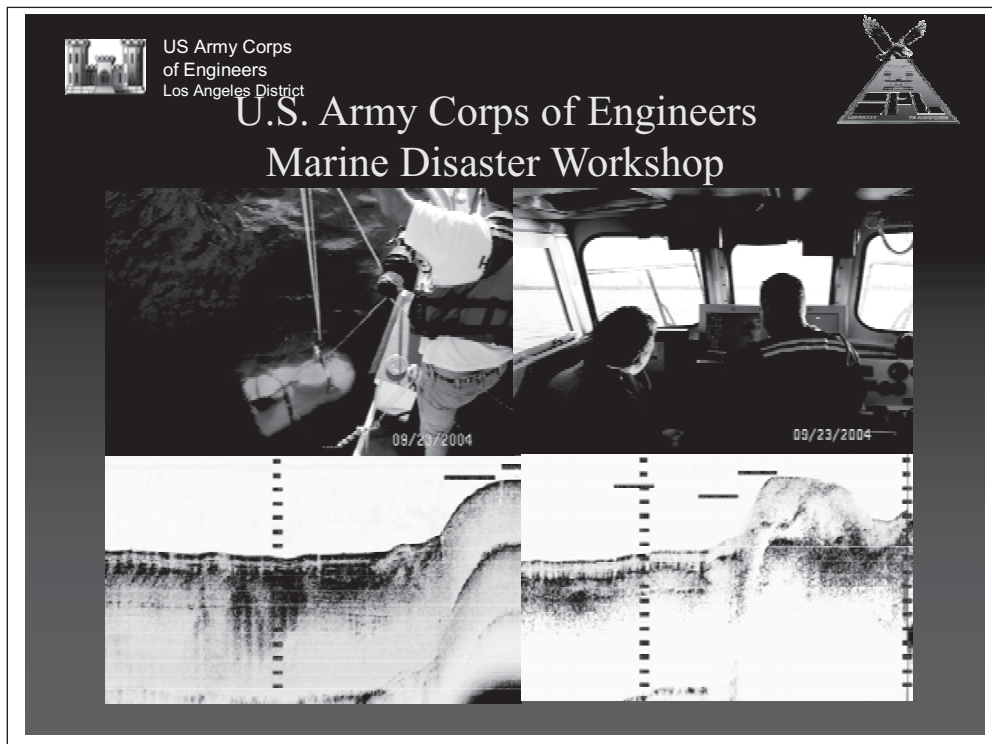
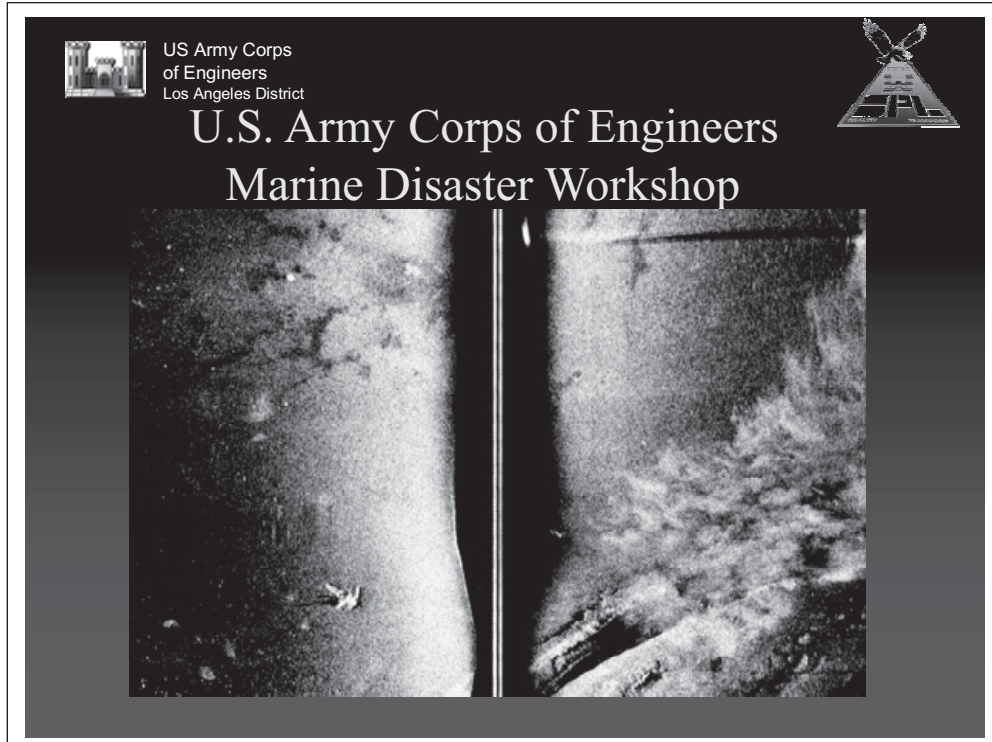
US Army Corps  
of Engineers  
Los Angeles District



## U.S. Army Corps of Engineers Marine Disaster Workshop








# Dangers to Navigation


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Gerald E. Wheaton, *Office of Coast Survey, National Oceanic and Atmospheric Administration*





NOAA'S NATIONAL OCEAN SERVICE


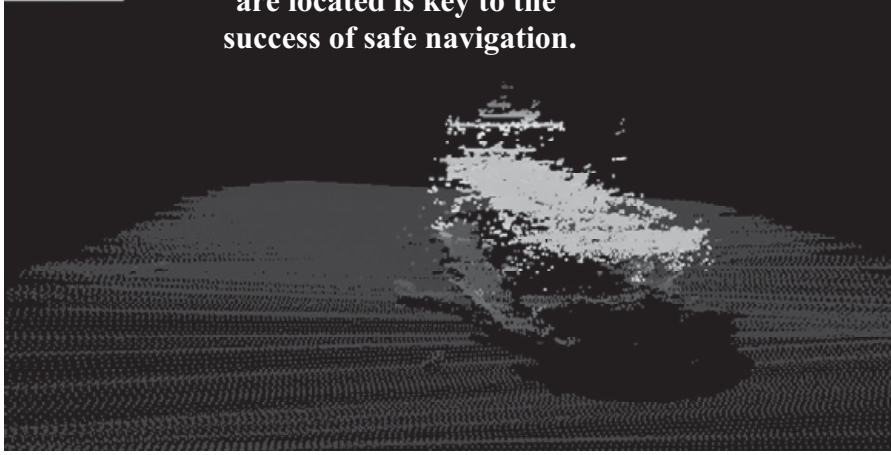
MARITIME DISASTER WORKSHOP  
Gerry Wheaton  
Navigation Manager for California  
Office of Coast Survey, NOAA




NOAA'S NATIONAL OCEAN SERVICE



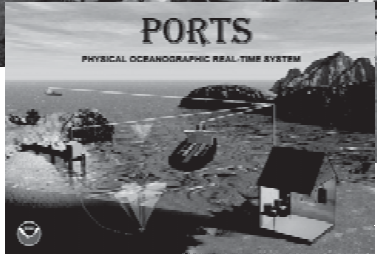

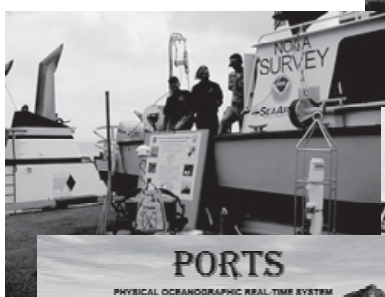

Knowing where dangers to navigation are located is key to the success of safe navigation.



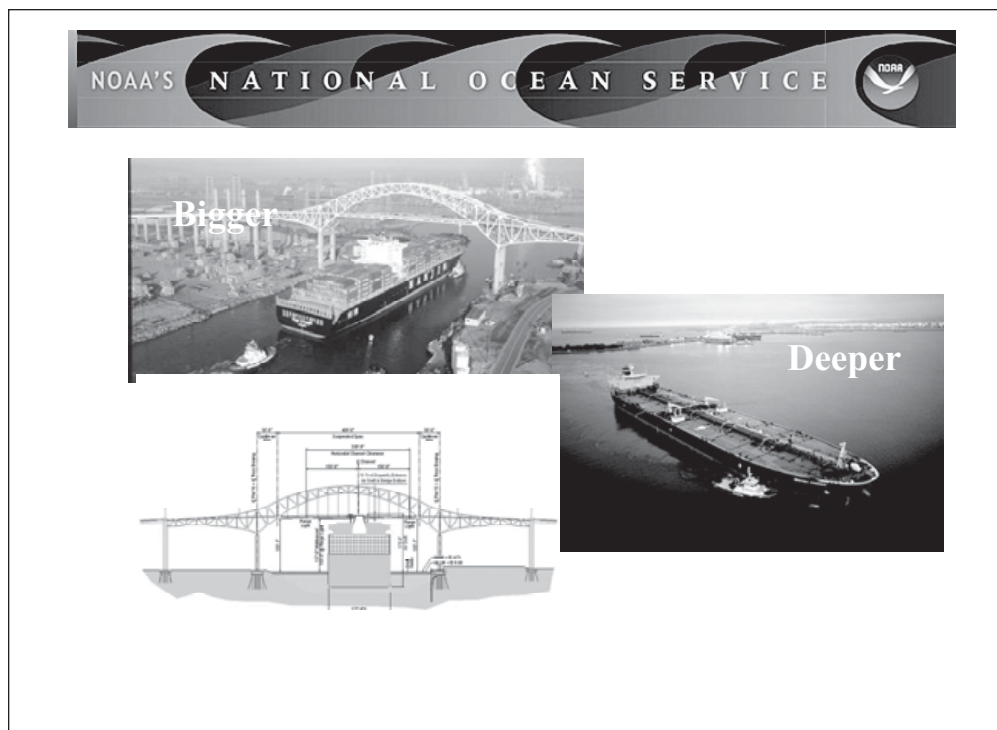
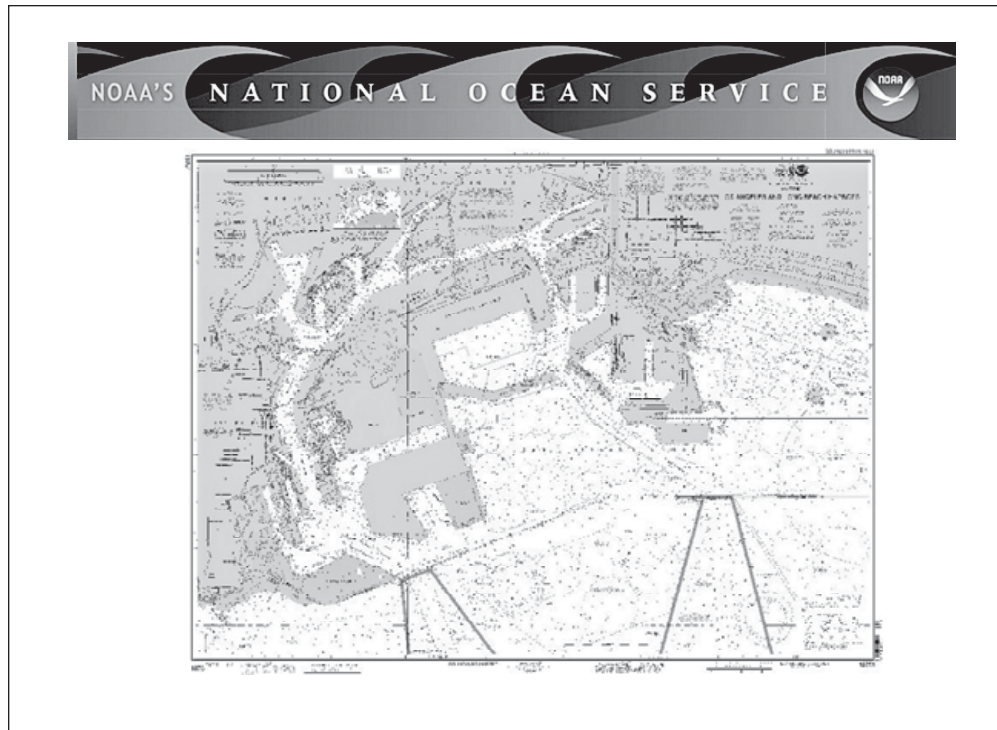
NOAA'S NATIONAL OCEAN SERVICE



NOAA Response Teams and PORTS







APPENDIX A

## Statement of Task for the Workshop

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An ad hoc committee will plan and conduct a public workshop that will examine the legal, regulatory, economic, transportation, and political issues likely to pose significant hurdles to an effective and timely marine salvage response to a major marine disaster in a critical West Coast port. The workshop will feature invited presentations and discussions. The event's key objective is to promote robust and candid discussion among federal, state, and local government officials, industry representatives, and other experts and stakeholders concerning the issues involved with and the time frame required for responsible recovery from a major marine disaster (i.e., natural disaster, accident, or terrorist attack) that essentially closes a critical U.S. port. Conceptually, the catalyst for dialogue among workshop participants will be a dynamic terrorist incident

scenario involving a containership, a tractor tug, a heavy-lift vessel, a tanker ship, and a car carrier that, for all practical purposes, shuts down both the Port of Los Angeles and the Port of Long Beach, California. A consultant-developed report prepared for SupSalv will frame the initial discussion; that report is intended to provide realistic assumptions regarding the availability of suitable marine salvage assets, their costs, and the time required for various stages of planning and operations. The intent is to draw on the expertise of the participants—from a wide range of disciplines, sectors, and institutions—to scope out and clearly identify potential issues and areas of conflict or delay that could seriously impede a salvage/recovery effort that is of vital strategic and economic interest to the region and the nation.

APPENDIX B

# Workshop Agenda

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**THURSDAY, SEPTEMBER 4, 2008**

- 7:15–8:00 a.m. Registration  
Breakfast buffet
- 8:00–8:45 a.m. **Plenary Session**  
Welcome and introduction of the keynote speaker, RADM Malcolm MacKinnon (U.S. Navy, retired), Vice Chair of the Marine Board
- Setting the Stage**  
Keynote speaker: *Stephen Flynn, Council on Foreign Relations*  
All-Hazards Vulnerability of the Nation's Ports and Channels
- 8:45–9:15 a.m. **Disaster Scenario**  
Major event closes down the channels of the ports of Los Angeles and Long Beach and the steps to recovery and resumption of port operations  
*Capt. Richard Hooper, SupSalv/Naval Sea Systems Command (NAVSEA)*  
*Michael Herb, SupSalv/NAVSEA*  
*Mauricio Garrido, Titan Salvage*
- 9:15–9:45 a.m. **Incident Command and Response**  
Response Management Structures  
*Capt. Paul Wiedenhoeft, U.S. Coast Guard*
- 9:45–10:00 a.m. Break
- 10:00–11:00 a.m. **Recovery Steps**  
A. Prosecute channel clearance: focus on clearing and reopening the channels  
*Michael Herb, SupSalv/NAVSEA*  
*Mauricio Garrido, Titan Salvage*
- 11:00–11:45 a.m. B. Hazards to navigation: how to manage the removal and disposal of debris  
*Michael Kidby, U.S. Army Corps of Engineers*
- 11:45 a.m.–12:15 p.m. C. Channel assessment: surveying, mapping, restoring aids to navigation  
*Mohammed Chang and James Field, U.S. Army Corps of Engineers*  
*Gerry Wheaton, National Oceanic and Atmospheric Administration*  
*LCDR John Hennigan, U.S. Coast Guard*
- 12:15–12:30 p.m. **Charge to the Breakout Groups**  
*Malcolm MacKinnon, Marine Board, Planning Committee Chair*
- 12:30–1:30 p.m. Lunch

1:30–4:30 p.m.	<p><b>Breakout Group Discussions</b></p> <ol style="list-style-type: none"> <li>1. Environmental and Response Safety Issues <i>Facilitator, Ron Kiss; Rapporteur, Beverly Huey</i></li> <li>2. Legal, Insurance, and Cabotage Issues <i>Facilitator, Reginald McKamie; Rapporteur, Joedy Cambridge</i></li> <li>3. Security, Incident Scene, and Forensics Issues <i>Facilitator, Jeff Stettler; Rapporteur, Jill Wilson</i></li> <li>4. Logistics, Utilities, Hidden Infrastructures <i>Facilitator, Judith Harris; Rapporteur, Brie Schwartz</i></li> <li>5. Communications, Economics, Political Factors <i>Facilitator, Malcolm MacKinnon; Rapporteur, Pete Johnson</i></li> <li>6. Debris Staging, Dredging, and Disposal <i>Facilitator, Tom Wakeman; Rapporteur, Susan Garbini</i></li> </ol>
4:45–5:30 p.m.	<p><b>Plenary Session: Quick Group Report-Outs</b></p>
5:30–7:30 p.m.	<p>Reception and Dinner <b>Continuation of Breakout Group Discussions</b></p>
<b>FRIDAY, SEPTEMBER 5, 2008</b>	
7:15–8:00 a.m.	Breakfast buffet
8:00–9:30 a.m.	<b>Breakout Group Discussions</b>
9:30–9:45 a.m.	Break
9:45 a.m.–Noon	<p><b>Plenary Session: Detailed Report-Outs from Breakout Group Discussions</b></p>
Noon–1:00 p.m.	Lunch
1:30–3:00 p.m.	<p><b>Plenary Session: Wrap-Up and Highlights of Key Issues</b></p>
3:30 p.m.	Adjournment

# Participants

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R. J. Acosta, *Los Angeles Police Department*

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