NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

THE FIRE SERVICE'S ROLE IN MARITIME HOMELAND SECURITY

by

Paul S. Foerster

March 2011

Thesis Co-Advisors: Nadav Morag
Stan Supinski

Approved for public release; distribution is unlimited

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.			
1. AGENCY USE ONLY ***(Leave blank)***	**2. REPORT DATE** March 2011	**3. REPORT TYPE AND DATES COVERED** Master's Thesis	
4. TITLE AND SUBTITLE The Fire Service's Role in Maritime Homeland Security			**5. FUNDING NUMBERS**
6. AUTHOR(S) Paul S. Foerster			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			**8. PERFORMING ORGANIZATION REPORT NUMBER**
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			**10. SPONSORING/MONITORING AGENCY REPORT NUMBER**
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government. IRB Protocol number n/a.			
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			**12b. DISTRIBUTION CODE**

13. ABSTRACT (maximum 200 words)

Since September 11, 2001, the fire service role as first responders has changed to include acts of terrorism. United States ports and areas in the marine domain provide terrorists with a wide variety of targets to attack. The marine domain presents many difficult and unique problems to homeland security. The open nature of ports with the high volume of goods and services, key infrastructures, and the large number of agencies with jurisdiction create a complex environment to protect. Many fire departments that protect and respond to incidents in the marine domain have little specialized equipment, special knowledge, or training needed to respond to terrorists attacks in this area. This document looks at the roles the fire service has in homeland security in the marine domain. Based on findings from maritime leaders, five roles emerged: Homeland Security Presidential Directive-8, intelligence and information sharing, area maritime security committee, interagency exercises and training and public/private partnerships. This document demonstrates the fire department's role in each of these areas, and provide a framework fire departments can use to enhance maritime homeland security.

14. SUBJECT TERMS Fire Service, Fire Department, Marine Firefighting, Maritime Homeland Security, Interagency Collaboration, Seattle Fire Department, Intelligence and Information Sharing, Public\Private Partnership, Interagency exercises, Area Maritime Security Committee	**15. NUMBER OF PAGES** 115
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	**18. SECURITY CLASSIFICATION OF THIS PAGE**	**19. SECURITY CLASSIFICATION OF ABSTRACT**	**20. LIMITATION OF ABSTRACT**
Unclassified	Unclassified	Unclassified	UU

NSN 7540-01-280-5500 Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

THE FIRE SERVICE'S ROLE IN MARITIME HOMELAND SECURITY

Paul S. Foerster
Captain, Seattle Fire Department
B.S., Humboldt State University, 1980

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF ARTS IN SECURITY STUDIES
(HOMELAND SECURITY AND DEFENSE)

from the

NAVAL POSTGRADUATE SCHOOL
Month Year

Author: Paul S. Foerster

Approved by: Nadov Marag
Thesis Co-Advisor

Stan Stupinski
Thesis Co-Advisor

Harold A. Trinkunas, PhD
Chairman, Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

Since September 11, 2001, the fire service role as first responders has changed to include acts of terrorism. United States ports and areas in the marine domain provide terrorists with a wide variety of targets to attack. The marine domain presents many difficult and unique problems to homeland security. The open nature of ports with the high volume of goods and services, key infrastructures, and the large number of agencies with jurisdiction create a complex environment to protect. Many fire departments that protect and respond to incidents in the marine domain have little specialized equipment, special knowledge, or training needed to respond to terrorists attacks in this area. This document looks at the roles the fire service has in homeland security in the marine domain. Based on findings from maritime leaders, five roles emerged: Homeland Security Presidential Directive-8, intelligence and information sharing, area maritime security committee, interagency exercises and training and public/private partnerships. This document demonstrates the fire department's role in each of these areas, and provide a framework fire departments can use to enhance maritime homeland security.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

LIST OF FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

AMSC	Area Maritime Security Committee
AMSTEP	Area Maritime Security Training and Exercise Program
BIFD	Bainbridge Island Fire Department
CBP	Customs and Border Protection
CBRNE	Chemical Biological Radiation Nuclear Explosive
COTP	Captain of the Port
CSI	Container Security Initiative
C-TPAT	Customs-Trade Partnership against Terrorism
DHS	Department of Homeland Security
DNDO	Domestic Nuclear Detection Office
EMS	Emergency Medical Service
FBI	Federal Bureau of Investigation
FMSC	Federal Maritime Security Coordinator
GAO	Government Accounting Office
HSPD	Homeland Security Presidential Directive
ICE	Immigration and Customs Enforcement
IED	Improvised Explosive Device
ISPS	International Ship and Port Facility Code
JTTF	Joint Terrorism Task Force
LBFD	Long Beach Fire Department
MARSEC	Maritime Security
MLO	Marine Liaison Officer
MSTA	Maritime Transportation Security Act
MTR	Marine Terrorism Response
NIMS	National Incident Management System
PortSTEP	Port Security Training Exercise Program
SFD	Seattle Fire Department
SOLAS	Safety of Life at Sea
TEU	Twenty foot Equivalent Units
TEW	Terrorist Early Warning Groups
TSA	Transportation Security Administration
USCG	United States Coast Guard

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

Most importantly, I would like to thank my family for their love, support and sacrifice throughout this endeavor. To my wife Tricia, thank you for your love, encouragement and faith you have given me not only during this thesis but, throughout our marriage. To my sons Kyle and Brian, thank you your love and joy you bring to me every day.

I would like to thank the Seattle Fire Department for the support, encouragement and belief in the value of this masters program. To Fire Chief Gregory Dean and Assistant Chief A. D. Vickery thank you for your leadership and encouragement. I would also like to thank Battalion Chief Jay Hagen and Lieutenant Christopher Lombard for their encouragement and assistance from the application process to completion of the program.

I would also like to thank my thesis co-advisors Nadav Morag and Stan Supinski for their constant support, encouragement and guidance throughout this thesis. I greatly appreciate your commitment and belief in me.

Lastly, I would like to thank my fellow students, the faculty and staff at the Naval Postgraduate School and the Center of Homeland Defense and Security. To my fellow students from whom I have learned so much, and who made this journey so rewarding: thank you. To the faculty and staff your dedication to your profession makes this program the standard by which others are measured.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

A. PROBLEM STATEMENT

Since September 11, 2001, when 343 members of the Fire Department of New York died in the collapse of the World Trade Center, the fire service role as first responders to terrorist acts has been well published and documented.[1] This tragic event has forever changed life in the United States of America. The fire service has increased its preparedness to respond to terrorist acts with increased training and equipment, much of which has been funded by the federal government. Since 9/11, the Department of Homeland Security Grant Program to assist states and territories to prevent, protect against, respond to, and recover from terrorist attacks and natural disasters has exceeded $11.6 billion through fiscal year 2007.[2]

United States ports and maritime domain provide terrorists with a wide variety of targets to attack.[3] The U.S. has over 350 seaports and thousands of miles of coastline.[4] These ports are vulnerable to terrorist attack due to their open nature, and proximity to transportation and metropolitan areas. Ports also contain many facilities that terrorists could target, such as oil refineries, passenger ferries, military bases and vessels, cruise ships, sports stadiums, factories, power plants and other critical infrastructures. Terrorists have already demonstrated the ability to attack in the maritime domain. For example, the attack on the USS Cole in Yemen on October 12, 2000, and the French oil

---

[1] U.S. Fire Administration, *USFA Releases Preliminary Firefighter Fatality Statistics for 2001* (Washington D.C.: U.S. Fire Administration, 2002) http://www.usfa.dhs.gov/media/press/2002releases/02-004.shtm (accessed January 14, 2007).

[2] The Department Of Homeland Security, *FY 2007 Homeland Security Grant Program* (Washington, D.C.: Department of Homeland Security, 2007), 2 http://www.dhs.gov/xlibrary/assects/grants_st-local_fy07.pdf (accessed March 5, 2008).

[3] Maritime domain is defined as "all areas and things of, on, under, relating to, adjacent to, or bordering on a sea, ocean, or other navigable waterway, including all maritime-related activities; infrastructures, people, cargo and vessels and other conveyances." The White House, *Homeland Security Presidential Directive HSPD-13* (Washington D.C.: The White House, 2004), 2.

[4] Stephen L. Caldwell, *Maritime Security Information – Sharing Efforts are Improving* (Washington D.C.: United States General Accounting Office, 2006), 5.

tanker *Limburg* on October 6, 2002.[5] Stephen E. Flynn, the Jeane J. Kirkpatrick Senior Fellow for National Security Studies, in testimony before the House of Representatives stated, "An attack carried out with a container would likely lead to the shutdown of all U.S. ports. Should the U.S. ports be shut down for a period of three weeks—which is not inconceivable should a terrorist group like al-Qaeda carry out simultaneous attacks using containers arriving in different ports—the entire global trade system would go into gridlock. Since the transportation system has become the warehouses for the just in time retailers and manufacturers, our store shelves would quickly go bare and our factories would be idled."[6]

The marine domain is an area that has been consistently identified as a potential terrorist target. The vulnerability of U.S. ports to a terrorist attack is very high, with oil refineries, ferry systems, large population centers, oil tankers, containerships, yards and cruise ships all located in the marine domain and easily accessible to terrorists. In response to this threat, considerable legislative and policy development has been directed toward reducing this threat. Examples include *Homeland Security Presidential Directive – 13 Maritime Security Policy, The National Strategy for Maritime Security, Port Security Grant Program, Container Security Initiative, Customs Trade Partnership Against Terrorism, Maritime Transportation Security Act of 2002, and the Security and Accountability for Every Port Act of 2006 (SAFE Port Act).* The marine domain continues to be a complex, dynamic environment involving multiple federal, state and local agencies, and private companies. A further complication stems from most of the cargo ships using U.S. ports being foreign owned and operated with foreign crews.

Fire departments are one of the critical elements responding to terrorist attacks in the maritime domain and elsewhere. Many fire departments that protect and respond to incidents in U.S. ports and the marine domain have little specialized equipment, special

---

[5] American Shipper, *Ships as Terrorist Target* (Austin, Texas: American Shipper, 2002), 59.

[6] Stephen E. Flynn, *The Limitations of the Current Cargo Container Targeting* (Washington D.C.: Council on Foreign Relations, 2004) 2 http//:www.cfr.org/publication.html?id=6907 (accessed January 24, 2007).

knowledge, or training to respond to terrorist attacks.[7] Incidents in the marine domain pose significant risk but have a low frequency of occurrence. Marine firefighting requires a separate skills set which are quite different from traditional land-based fire fighting.[8] To assist in preparing for an attack, fire departments preplan response for access, fire protection systems, hazards, water supply and possible modes of terrorist attack. Response to an attack in the marine domain will require coordination of resources from federal, state, local agencies, and the private sector and the fire service will play a key role in the overall response.

A negative impact on response capabilities in the maritime domain stems from the difficulty in getting federal, state, local agencies and the private sector involved in planning and preparation for an attack. This inability to get all participants involved in regular exercises hinders a coordinated response; further complications arise from all levels of government having different areas of responsibility. Fire departments are left out of many maritime security planning efforts, fusion centers and exercises, due to factors including the inability to obtain security clearances, the lack of participation in area maritime security committees and exclusion from multi-jurisdictional exercises. A valuable resource is being excluded from providing insight and assistance.

B. RESEARCH QUESTION

1. Primary Question

What roles should fire departments fulfill in preparedness, response, intelligence and planning for homeland security in the maritime domain?

---

[7] Tom Guldner, *Port* Security – *Are We Missing the Boat?* (New York City, New York: The Marine Firefighting Institute, Newsletter #10,http://www.marinefirefighting.com/Pages/Newsletters/Newsletter10.htm (accessed January 19, 2009).

[8] Joseph Ockershausen, Hollis Stambaugh and Seth Kelly, *Fireboats Then and Now* (Washington, D.C.: Federal Emergency Management Agency, May 2003), 24.

2. Secondary Questions

Do existing policies in the areas of planning, preparedness (training and equipment), response (exercises and logistics), intelligence coordination and information sharing adequately address the role of fire departments in the marine domain?

What assistance can fire departments provide to other agencies in planning, preparedness, response, exercises, logistics, intelligence and incident management in the marine domain?

II. LITERATURE REVIEW

To protect, prevent and respond to potential incidents in the marine domain the fire service needs to be involved in all three phases. The fire service's role is primarily response. A review of literature revealed very little information regarding the fire service role in homeland security within the marine domain. Large amounts of research have focused on prevention and protection of U.S. ports and port security, most of which is directed at the federal level. This literature examines the role of the different federal agencies involved with homeland security in the maritime domain, gaps in current practices and vulnerabilities of port and maritime security. The little research that has been done on response tends to focus on specific response capabilities of a specific area to a specific type of attack.

A. LOCAL RESPONSE

Research into local fire departments' response and role in the marine domain has been, for the most part, non-existent. This is likely due to several factors. First, local fire departments rarely publish response information. Local fire departments policies tend to be internal documents that if disseminated at all, are disseminated within their governing body and perhaps to neighboring fire departments. They are rarely published in journals and periodicals. Secondly, the complexity of the marine domain and its multiple federal agencies (U.S. Coast Guard, Customs and Border Patrol, Immigration and Customs Enforcement, Transportation Security Administration, and Maritime Administration), and multiple state, and local agencies (city and county governments, port governing entity, various law enforcement and fire departments) have produced categories of research that are mainly directed at the federal response and not the local.

There are two documents that address local response in the marine domain and one document that addresses fire departments preparedness. The first is the *Marine Terrorism Response Plan*, funded by a grant from the Office of Domestic Preparedness and produced by the Port of Seattle. The Marine Terrorism Response project's goal was to create a national model for U.S. Port communities to use "to aid the safe and effective

mobilization of local, state, and federal resources in response to an act of terrorism in the marine domain."[9] The plan is in a step-by-step "how to" format with four volumes: 1) Preparedness 2) Response 3) Field Operations Guide and 4) Technology. The plan is a comprehensive model for the maritime domain that can be used for an all-hazards approach to domestic incident management. The plan is designed to assist operations personnel in planning and providing response guidelines in the event of an incident in the maritime domain. Although developed by the Port of Seattle, it was prepared with assistance and review from six other major port regions in the United States. While this document is comprehensive, it lacks critical review due to poor dissemination. The project's web site has not been updated for over a year (as of this writing), apparently due to lack of funds.

The second study was intended to improve emergency response capabilities at the ports of Los Angeles and Long Beach. This document, written by University of California at Los Angeles School of Public Affairs, sought to identify key weaknesses in the ports' security with recommendations for local governments to correct the deficiencies. A follow up document, looking at the progress made to the initial recommendations, revealed the complexity of the marine domain and the difficulty in getting various entities together to compressively address port security issues. In concluding, the author states, "The key problems are the political incentives to focus on other issues, the fragmented power over the port complex, and the relatively low profile port security has received in the public debate."[10] One finding yet to be resolved is, given the complexity of port environments, during a terrorist act or natural disaster incident, which agencies are responsible for what has yet to be clearly defined. The concept of the Area Maritime Security Committee (AMSC), headed by the U.S. Coast Guard's Captain of the Port is a step in the right direction; however, gaps remain in the planning process. Gaps include voluntary participation, no formal protocol for informing

---

9 Port of Seattle, *Marine Terrorism Response Plan*, Puget Sound Edition (Seattle, Washington: Port of Seattle, 2005), A-3.

10 Amy B. Zegart, *Port Security: Improving Emergency Response Capabilities at the Ports of Los Angeles and Long Beach* (Los Angeles: University of California at Los Angeles, 2005), 200 http//:www.spa.ucla.edu/calpolicy/files05/zegartcpotextorigedit.pdf (accessed January 19, 2007).

policy makers of decisions, finally elected officials and public health are not included. The study recommends the ports of Los Angeles and Long Beach create a multi-jurisdictional political oversight committee for the port complex.

The U.S. Fire Administration produced a *Special Report: Fire Departments and Maritime Interface Area Preparedness* in which it examined three case studies. The case studies examined were Houston, Texas, Portland and South Portland, Maine and Portland, Oregon. The document reviewed how three maritime areas have approached preparedness and emergency response planning. The document compared their organization and management, common practices, common obstacles, followed by recommendations. The author states the large number of organizations involved in maritime domain emergency preparedness make efforts problematic.[11] The report found the use of a Unified Command System as a part of the National Incident Management System (NIMS) common among areas that have developed effective maritime interface plans along with a definition of roles and responsibilities for the various agencies. Some of the common practices noted include interoperable communication equipment, familiarity through drills and exercises, the need for cooperative effort and a formal organization. Common obstacles include funding, leaders having difficulty relinquishing control and measuring performance against standards. The report lists eleven recommendations for other jurisdictions to use in preparedness planning.

A concept that started in Los Angeles in 1996 was that of Terrorist Early Warning Groups (TEW). TEWs were a multi-agency group developed "as a way to bridge gaps in traditional intelligence and security structures. The TEW embraced a network approach to intelligence fusion and directed efforts toward intelligence support to regional law enforcement, fire and health agencies involved in the prevention and response to terrorist acts."[12] The concept of TEW or fusion centers has become a model for sharing sensitive information among response agencies. Unfortunately, most fusion centers have become

---

[11] Joseph Laun and Hollis Stambaugh, Special Report: Fire Departments and Maritime Interface Area Preparedness (Emmitsburg, Maryland: U.S. Fire Administration, April 2008), 15.

[12] John P. Sullivan, *Terrorism Early Warning and Co-production of Counterterrorism Intelligence* (Canadian Association for Security and Intelligence Studies 20th Conference, Montreal, Canada, October 21, 2005), 1.

law enforcement centric and have not included fire representatives. John P. Sullivan, one of the founders of the TEW in Los Angeles, is a strong advocate for including the fire community in TEW groups or fusion centers, having seen the value of its inclusion for the last ten years.[13]

B. FEDERAL RESPONSE

Very little research and reporting have been done on the role of first responders in the maritime domain. Most on the research has centered on port and maritime security. A large amount of literature comes from government documents, testimony before congress, and independent research organizations such as the RAND Corporation. Focus areas include government directives and policy, to include *Homeland Security Presidential Directive – 13 Maritime Security Policy, The National Strategy for Maritime Security, Port Security Grant Program, Container Security Initiative, Customs Trade Partnership Against Terrorism, Maritime Transportation Security Act of 2002,* and *the Security and Accountability for Every Port Act of 2006 (SAFE Port Act).* All of these address the different aspects of maritime security, the threat of terrorism to the maritime domain, and set policy and goals for federal agencies to follow and meet. The focus is primarily on policy and the responsibility of federal agencies. *The National Strategy for Maritime Security* has eight Supporting Implementation plans "to achieve a comprehensive and cohesive national effort involving Federal, State, local, and private sector entities."[14] These plans provide the required detail and specificity needed in the maritime domain for maritime security. The creation of the Area Maritime Security Committee (AMSC) in the Maritime Transportation Security Act of 2002[15] with the U.S. Coast Guard Captain of the Port (COTP) as the Federal Maritime Security Coordinator (FMSC) of their COTP area, the authority for establishing and directing the AMSC for their area. This provides local response agencies an avenue to plan and prepare with

---

[13] John P. Sullivan, Los Angeles Sheriff Department, interview with author, December 7, 2006.

[14] Department of Homeland Security, *The National Strategy for Maritime Security* (Washington, D.C.: DHS, September 2005), ii.

[15] Transportation Security Administration, *Maritime Transportation Security Act of 2002,* https://www.tsa.gov/assets/pdf/MTSA.pdf 19 (accessed September 2, 2007).

federal, state and private sector entities for incidents within their local maritime area. Participation in the AMSC is not mandatory and any policy decision made by the AMSC that effects local governments may require approval from those governments prior to implementation.

C. EXERCISE PROGRAMS

Two programs that do affect the local level responders are the Transportation Security Administration's Port Security Training Exercise Program (PortSTEP) and the U.S. Coast Guard's Area Maritime Security Training and Exercise Program (AMSTEP). The PortSTEP program targets port security regarding intermodal transportation, and partners TSA and the USCG. According to the TSA website, forty ports had security training exercises between August 2005 and October 2007. These exercises were conducted with local Area Maritime Security Committees (AMSC) to fulfill MSTA required exercises. These exercises were a mix of tabletop and functional exercises.[16] To date, none of the completed exercises has publicly published after action reports for local first responders to evaluate, critique, and apply lessons learned. This is likely due to reports containing security sensitive information.

The U.S. Coast Guards AMSTEP program, like PortSTEP, uses tabletop and field exercises to fulfill annual exercise requirements. AMSTEP differs from PortSTEP in that its focus is not on transportation modes. AMSTEP conducted 28 exercises through FY2007, in ports not covered by the PortSTEP program. The AMSTEP office states that "its exercises are designed around Area Maritime Security Committee objectives in individual ports; there are no requirements to conduct exercises under any specific scenario."[17] The U.S. Coast Guard maintains a database of exercise after action reports in its Contingency Preparedness System; however, this database is in a restricted access area of the Coast Guard's website and can only be made available to fire departments

16 Transportation Security Administration, *PortSTEP* (Washington, D.C.: TSA, n.d.) http//:www.tsa.gov/what_we_do/layer/portstep/editorial_with_table_0060.shtm (accessed January 21, 2007).

17 Paul W. Parfomak and John Frittelli, *Maritime Security: Potential Terrorist Attacks and Protection Priorities*, CSR-9 (Washington D.C.: CRS, 2007), 9.

through the Freedom of Information Act after security sensitive information is removed.[18] A Government Accounting Office (GAO) report on the reporting of lessons learned from marine exercises was critical of the timeliness and completeness of the reports submitted by the U.S. Coast Guard. It identified four common problem areas in nearly all of the exercises: "difficulties in sharing or accessing information, inadequate coordination of resources, difficulties in coordinating effectively in a command and control environment, and lack of knowledge about who has jurisdictional or decision-making authority."[19] The national port community and those first responders in the maritime domain would benefit greatly from the lessons learned contained in these after action reports.

The TSA and the U.S. Coast Guard are only now implementing maritime exercises involving first responders and the rest of the maritime domain participants. This is a clear indication that the marine domain has not received timely attention regarding homeland security issues. It has been over ten years since 9/11, and only a handful of ports have had full-scale exercises to test and evaluate response capabilities. Given an unlimited number of terrorist scenarios in the maritime domain, this is clearly unacceptable.

Maritime domain communities must share information from lessons learned in exercises and incidents to improve preparedness, identify gaps and establish response capabilities. Establishing a database of lessons learned and after action reports on maritime homeland security can aid in improving maritime security. DHS has an excellent website for first responders, the Lessons Learned Information Sharing website at https://www.llis.dhs.gov, which includes lessons learned, after action reports and best practices. Incorporating lessons learned from maritime exercises could assist first responders in preparing for maritime incidents.

---

[18] Phone conversation with Lt. Eirik T. Kellogg USCG, Office of Contingency Exercises, December 26, 2007.

[19] Government Accounting Office, *Homeland Security Process for Reporting Lessons Learned from Seaport Exercises Needs Further Attention* (Washington, D.C. January 2005), 1.

A review of literature related to the fire services' role in maritime security reveals a glaring lack of information on the subject. Very little has been written concerning first responders and, in particular, the fire service in maritime homeland security. Existing information gained from exercises needs to shared better between levels of government, as well as clarification of roles and responsibilities of local responders. The fire service must do a better job of publishing lessons learned and standard operating procedures for peer review and shared knowledge. The lack of attention that maritime issues have received has slowed the progress of developing the security necessary to deal with this potential threat.

THIS PAGE INTENTIONALLY LEFT BLANK

III. METHODOLOGY

A. DATA-GATHERING METHODOLOGIES

1. Interviews

The author conducted interviews with leaders from federal and local agencies that have a role in maritime domain. Additionally leaders in the private sector with businesses in the marine domain were interviewed. Interviews by the author with municipal fire department leaders were conducted to get their views on the current role fire departments play in maritime homeland security. In addition, opinions were sought on fire department roles in protection and prevention, response capabilities, interaction and interoperability with homeland security partners, information sharing, planning and ferry/cruise ship response. Leaders from other federal and local agencies that have a role in maritime domain in the Seattle area were also interviewed for their views on the role of fire departments in protection, prevention, response and recovery. Additionally, their views on interagency coordination in the maritime domain between federal agencies, between federal and local agencies, response capabilities, preparedness, and information sharing were sought. Private sector leaders were also interviewed for their view of their role and the fire service's role in maritime homeland security. The survey appears in Appendix B.

2. Internet Survey

A second survey was carried out using Internet-based survey tools, again with selected leaders from fire departments, federal, state and local agencies and the private sector, all having a role in maritime homeland security in the Seattle area and other major port areas throughout the U.S. In an effort to entice participation, respondents were offered a summary of data collected from all respondents. The survey was intended to get an overview of the current role fire departments provide in maritime homeland

security throughout the U.S. Questions sought information on current response roles and capabilities, preparedness, intelligence and information sharing, planning, training, and interoperability.

B. ANALYSIS METHODOLOGIES

The data gathered from interviews and the Internet survey was evaluated using both quantitative and qualitative methods. Quantitatively, the Internet survey responses were measured with a Likert Scale to reflect overall opinions and identify deficiencies and strengths. Respondents were asked to indicate their degree of agreement with a statement. The survey used a seven point scale (strongly agree to strongly disagree), to measure respondents' opinions. Qualitative analysis was done using open-ended questions during interviews that were used to show trends and commonalities, as well as provide anecdotes that identify and exemplify key issues and problem areas.

The data collected was analyzed to provide a view from professionals in maritime domain, as to the status of fire departments' roles in maritime homeland security, successful collaborations, best practices, and lessons learned.

IV. ARGUMENT

The fire service is in a unique position to assist federal, state, local agencies and private sector with homeland security in the maritime domain. The maritime domain is a complex environment with many different agencies, from all levels of government and the private sector, sharing responsibilities for homeland security. The private sector companies are key stakeholders in the operation of U.S. ports, transportation systems and the goods and services that use them. The routine duties of fire departments bring them into contact with many maritime stakeholders (private and government) presenting opportunities to build relationships, foster collaboration, and understand other's response capabilities. While the traditional role of the fire service continues in the maritime domain, many local fire departments are inadequately prepared to respond to terrorist attacks in the maritime domain. Moreover, the fire department's role in prevention and protection has not been properly realized.

The maritime domain poses many hazards that require specialized training and equipment for fire departments to respond effectively. Some of these hazards include: Liquid Petroleum Gas (LPG) tankers, fuel tankers, ferries, cruise ships, oil refineries, container ships, and shore-side facilities to name a few. Many fire departments do not have the necessary training and equipment to handle routine emergencies and are even less likely to be prepared to handle potential acts of terrorism that could take place on a vessel tied up to a pier, on the water, or at a shore-side facility. Ultimately, terrorist attacks or natural disasters start and end as a local response, fire departments must plan and prepare for an event in the marine domain.

To increase fire services ability to protect, prepare and respond to terrorist attacks and natural disasters in the maritime domain, several steps need to be taken.

- First, fire departments have not been an active participant in intelligence; in the past relying on law enforcement to send the intelligence to them as well as not being used as an information source for law enforcement.

- Second, terrorist attacks bring a new dimension to response capabilities in the maritime domain.
- Third, fire departments that protect ports with ferry or cruise ships have a high life-safety hazard on the water impacting first-responder's ability to reach the incident.
- Fourth, the large number of agencies with responsibilities in the marine domain requires better planning, coordination and collaboration.

The fire service is rarely incorporated in state and/or local fusion centers hindering their ability to prepare for and respond to terrorist attacks. Inclusion in fusion centers would provide fire departments with up-to-date information on terrorist activities, potential threats and modes of attack, allowing for the strengthening of relationships with other first responders. Intelligence obtained from the fusion centers regarding terrorist threats in an area provide fire departments with the ability to adjust staffing and initial response levels to meet a given threat. The better-trained and equipped fire fighters are to respond to acts of terrorism, the greater the safety of the public and all responders at the incident. Having fire personnel in a regional fusion center provides an opportunity for the fire departments to assist other agencies working in the same fusion center.

Fire departments offer detailed knowledge of buildings, activities, and access to these within their jurisdiction. They have a different relationship than law enforcement with the community they work in, which provide opportunities to gather information. They are another set of "eyes and ears" that can provide base intelligence back to the fusion center personnel. Working through the fusion center, fire departments can be used to assist in intelligence gathering through building inspections, contacts in the community, and knowledge of normal activities. The reporting of any abnormal activities to the fusion centers should follow predetermined protocols.

The utility of incorporating the fire service into fusion centers has been clearly demonstrated in the case of the Los Angeles County Terrorism Early Warning group (TEW). Local fire departments have found them to be an asset to the group and the

community. The TEW has been operational since 1996, focusing on intelligence support to local law enforcement, fire and health agencies involved in prevention and response.[20]

With the possible exception of New York City, fire departments and other local response agencies do not have the necessary resources to respond to terrorist incidents on the water. Fire departments that have fire boats and/or other water craft may not be able to use their boats to transport fire fighters to an incident on the water due to the fireboats direct involvement in fire fighting or emergency medical treatment. This gap in response capabilities requires planning between first responders and the local maritime community on how they can assist first responders. For example, the planning, coordination and logistics involved in transporting first responders to the incident, and the injured to the shore, needs to be completed prior to an event.

A terrorist attack on the water requires resources beyond what most fire departments can provide. A USS Cole type attack or IED explosion on a cruise ship or ferryboat will require a fire boat, response vessels and specialized training. Currently, the ability of first responders to work with cruise ships is at the discretion of the cruise ship operators as most of these vessels are foreign flagged and local governments have little authority to compel their cooperation. Ports that involve transportation of people via ferry or cruise ships need additional assistance from federal and state governments in protecting, preparing and responding to terrorist attacks against these vessels. Working with cruise ships presents additional obstacles to include, language barriers with crew, non-compatible equipment, difficulty in training and exercises due to tight cruise schedules and lack of authority to mandate participation in exercises and response planning. Due to these factors, first responders need assistance from the federal, state and local governments in working with the cruise industry to plan, prevent and prepare for terrorists attacks against a cruise ship. Responding to terrorist attacks on vessels also requires special training in shipboard fire fighting, ship stability, knowledge of ships systems, water rescue, and emergency medical services. Preparing first responders, to effectively respond to incidents on the water, requires specialized training.

---

[20] John P. Sullivan, *Terrorism Early Warning and Co-production of Counterterrorism Intelligence*, 1.

As one of the key resources of response, fire departments need to be more actively involved with the planning process in the maritime domain. Planning must incorporate all elements of response. It must involve government agencies and the private sector to ensure a coordinated response, to eliminate any duplication of duties, and exercises to test of the system.

The Marine Terrorism Response (MTR) exercise by the Port of Seattle demonstrated the need of extensive planning with federal, state, local, and the private sector for a successful and coordinated response. Many critical infrastructures reside in the maritime domain including transportation, oil refineries, railroads, fuel storage, cargo, etc. Response capabilities needed to protect these infrastructures may require specialized training and equipment, planning and coordination between agencies involved will ensure a more successful response. Fire departments need to be in the planning process to ensure response capabilities are adequate, specialized training and equipment required are available and that security measures do not conflict with response.

In conclusion, the marine domain presents many difficult and unique problems to homeland security. The open nature of ports with the high volume of goods and services, key infrastructures and the large number of agencies with jurisdiction create a complex environment to protect. The fire service interacts with many of these agencies and private stakeholders on a daily basis. This provides an opportunity for fire departments to enhance maritime homeland security through planning, training, exercises, building relationships and sharing information. The next chapter examines the significance of this research and how the role of the fire service can enhance maritime homeland security.

V. SIGNIFICANCE OF RESEARCH

Homeland security in the maritime domain requires a team effort from many federal, state, local, and tribal agencies as well as key private stakeholders. Very little has been written regarding the fire departments role in maritime homeland security. A terrorist attack on a U.S. port could have disastrous effects. With today's "just in time" cargo system any disruptions in shipping would have a profound effect on the U.S. economy. This paper intends to provide a framework for ports to integrate fire departments into protection, prevention, and response to terrorist attacks and natural disasters in the maritime domain. By examining the Port of Seattle, the Seattle Fire Department and other fire departments that protect major ports a model for interagency response in the maritime domain can be developed. The intent is to create a template for other port fire departments can use and adapt this model to fit their missions and operational methods. Federal policymakers will also have a model to use for grant guidance pertaining to equipment and training related to response in the maritime domain.

A. BACKGROUND

The United States is a maritime nation relying on U.S. ports to ship goods and cargo to and from the rest of the world. According to the U.S. Maritime Administration in 2006, the total metric tons passing through U.S. Customs ports approximated 1.38 billion metric tons.[21] The open nature of the oceans and ports creates many security issues for homeland security. Some of the issues affecting maritime homeland security include: Marine Threat, Containers, Economy as a Target, Past Attacks in the Maritime Domain, Past U.S. Maritime Incidents, Cruise Ships and Ferries, Area Maritime Security Committee, PortSTEP, AMSTEP, National Strategy for Maritime Security and National Response Framework.

[21] U.S. Department of Transportation, U.S. Maritime Association U.S. Waterborne Foreign Trade by U.S. Custom Ports, 2006, http://www.marad.dot.gov/MARAD_statistics/index.html (accessed March 8, 2008).

B. MARINE THREAT

The marine environment is dynamic and diverse, challenging fire departments and other first responders to be prepared in the event of a terrorist act or natural disaster. The marine domain, defined by President Bush in HSPD-13 as "all areas and things of, on, relating to, adjacent to or bordering on a sea, ocean, or other navigable waterway, including all maritime related activities, infrastructure, people, cargo, and vessels and other conveyances," is critical for U.S. trade and economy[22]. The U.S. has 361 ports and 95,000 miles of coastline to protect and secure.[23] Waterways and ports by their nature are open and difficult to secure. In addition, many of these ports are located near large metropolitan areas and employ large numbers of people involved in moving goods in and out of the port. In 2006, container trade in the U.S. totaled 27.47 million Twenty-Foot Equivalent Units (TEU), with the top five ports accounting for 19.4 million TEUs[24]. The total U.S. waterborne commerce totaled 2.3 billion metric tons in 2005[25].

C. CONTAINERS

The potential for terrorists to use a container to deliver a nuclear device, dirty bomb or a weapon of mass destruction into the U.S. has been widely discussed. To counter this threat, the U.S. has enacted several measures to push out our borders to prevent a container with a weapon inside from reaching the U.S.

1. The Container Security Initiative (CSI) was announced in January of 2002 and is overseen by U.S. Customs and Border Protection (CBP). The CSI is

---

[22] U.S. President, "National Security Presidential Directive NSPD-41/Homeland Security Presidential Directive HSPD-13 (Maritime Security Policy)," December 21, 2004, https://www.hsdl.org/homesec/docs/whitehouse/nps24-021307-03.pdf&code=932aab2022793a181dc3bd345525e7bc (accessed February 12, 2008).

[23] U.S. Coast Guard, Coast Guard Publication, http://www.uscg.mil/hq/g-cp/comrel/factfile/Factcards/Homeland.htm (accessed February 12, 2008).

[24] Container trade capacity is commonly expressed in TEU or twenty foot equivalent units. A TEU is equivalent to a 20'x8'x8' shipping container. U.S. Department of Transportation Maritime Administration, "U.S. Water Transportation Statistical Snapshot," May 5, 2007, http://marad.dot.gov/documents/US_Water_Transportation_Statistical_snapshot.pdf (accessed February 12, 2008).

[25] Ibid., 4.

designed to push out the threat of terrorist use of a shipping container to deliver a nuclear or other weapon in the U.S. The CSI mandates that U.S. bound containers file a cargo manifest 24 hours prior to being loaded to the U.S. Customs and Border Protection Agency. The CSI aims to identify all containers that pose a risk from terrorism be identified and inspected at a foreign port before the container is loaded on a vessel headed for a U.S. port. Officers from CBP and Immigration and Customs Enforcement (ICE) are stationed overseas and work with foreign governments to target and prescreen containers that may have a nexus to terrorism. The CSI has four main elements:

- Identify high risk containers
- Prescreen and evaluate containers
- Use technology to prescreen high risk containers
- Use smarter, more secure containers[26]

2. Another step is the Customs-Trade Partnership against Terrorism Initiative (C-TPAT).[27] The C-TPAT is a public-private partnership that seeks to get companies involved in the movement of cargo and to secure the supply chain from the point of origin to entry into the U.S. The C-TPAT is a voluntary program in which transportation and import companies self-assess their operations and supply chains for security vulnerabilities and put in place security measures to reduce these vulnerabilities. Companies participating in C-TPAT that are determined to be low risk are granted favorable trade status resulting in fewer physical checks and reduced documentation review.

3. The U.S. and 144 other nations are members of the International Maritime Organization which adopted, in December of 2002, amendments to the 1974 Safety of Life at Sea (SOLAS) convention and the new International Ship and Port

[26] U.S. Custom and Border Protection website, *CSI: Container Security Initiative*, http://www.cbp.gov/xp/cgov/border_security/international_activities/csi/ (accessed March 7, 2008).

[27] U.S. Border and Custom Protection, *Securing Global Supply Chain: Custom-Trade Partnership against Terrorism Strategic Plan* (U.S. Custom and Border Protection, 2004).

Facility Code (ISPS).[28] The ISPS code requires governments, port authorities, and shipping companies detailed security requirements for port facilities. Part A of the code is a mandatory action for all member governments to complete by July 1, 2004, and Part B is a series of guidelines that are non-mandatory but recommended. The U.S. government has required port facilities to meet the ISPS code with the U.S. Coast Guard overseeing the compliance.

D. ECONOMY AS A TARGET

Since the events of 9/11, the vulnerabilities in the marine domain to terrorist attack have been a cause for concern for the United States. Osama Bin Laden stated on a post to Al-Jazeerah site in November of 2004 claiming to have spent only $500,000 on the 9/11 attacks which caused $500 billion in economic losses to the Unites States.[29] Osama Bin Laden stated in a video "It is important to hit the economy (of the U.S.) which is the base of its military power…"[30] Any attack on the maritime domain could have devastating economic impact to the U.S. A labor dispute in the fall of 2002, which shut down the west coast ports, is estimated to have cost 4.7 billion during the first week.[31] The maritime domain provides attractive targets for terrorist: oil refineries, chemical plants, power generation plants, large population centers, cruise ships, passenger and car ferries, naval vessels, fuel tank farms, transportation infrastructure, sports stadiums, business offices and others. Given its complexity, vulnerability and diverse targets, fire departments have a daunting task in preparing to respond to potential terrorist acts or natural disasters in the marine domain.

---

[28] International Maritime Organization, *Guidance Relating to the Implementation of SOLAS Chapter XI-2 and the ISPS Code*, (International Maritime Organization, 2003).

[29] Department Of Homeland Security press release, *Secretary Chertoff's Remarks at the University of Southern California DHS Center of Excellence on Security in the 21st Century*, http://www.dhs.gov/xnews/speeches/sp_1184959845456.shtm (accessed September 11, 2007).

[30] BBC News, Transcripts: Bin Laden video excerpts," http://news.bbc.co.uk/2/hi/middle_east/1729882.stm (accessed February 12, 2008).

[31] Patrick L. Anderson, *Lost Earnings Due to West Coast Shutdown – Preliminary Estimate*, October 2002, http://www.andersoneconomicgroup.com/modules.php?name=Content&pa=display_aeg&doc=859 (accessed September 11, 2007).

E. PAST ATTACKS IN THE MARINE DOMAIN

In the past, terrorists have used the marine domain to carry out strikes against their enemies. Most notably was the small boat suicide attack by al-Qaeda on the U.S.S. Cole in Yemen on October 12, 2000, in which 17 U.S. Navy sailors were killed.[32] A similar attack was carried out against the French oil tanker, *Limburg*, off the coast of Yemen on October 6, 2002 breaching the double-hulled tanker causing a fire and a 90,000-gallon crude oil spill.[33]

The terrorist attack in Mumbai, India on November 26, 2008, demonstrates one way terrorists can use the marine domain to circumvent security measures. The terrorist left Karachi, Pakistan on a cargo vessel, and then hijacked an Indian fishing trawler. The terrorist killed the crew of the fishing boat with the exception of the captain. Once near Mumbai the captain was killed. By entering Mumbai by the sea, the terrorists avoided security checkpoints on roads, airports, and other transportation methods. The use of the fishing trawler did not arouse the suspicion of the local authorities. From the fishing boat the terrorists used two small inflatable boats enter the city. Terrorists have shown in the past to repeat successful attack methods. The potential for a similar attack in the United States must be given strong consideration.

In February 26, 2004, the Muslim terrorist group Abu Sayyaf detonated a bomb on the Super ferry 14 in the Philippines. The blast and fire that ensued killed 116 people.[34] This attack was carried out one hour after the ferry left the dock, creating an access problem for responders; initially, the only access to the Super ferry was by boat. This resulted in increased response time, reduced the number of responders able to get to the vessel and allowed the fire to grow and spread.

---

[32] American Shipper, *Ships as Terrorist Targets*, (Austin, Texas: American Shipper, 2002), 59.

[33] *BBC News*, "Yemen says Tanker Blast was Terrorism" http://news.bbc.co.uk/2/hi/middle_east/2334865.stm (accessed February 13, 2008).

[34] *Time Magazine*, "The return of Abu Sayyaf http://www.time.com/time/magazine/article/0,9171,501040830-686107,00.html (accessed February 13, 2008).

Another terrorist group that has used maritime attacks over the years includes the Liberation Tigers of Tamil Eelam (LTTE, commonly known as Tamil Tigers) who conducted their attacks against Sri Lanka. The Tamil Tigers have carried out hundreds of suicide attacks during their conflict with the Ski Lankan government, several of which have been small attacks using boats full of explosives against oil tankers, navy vessels and cargo ships.[35]

Terrorist have hijacked cruise ships in the past as well. Most notably was the Italian cruise ship Achille Lauro in October of 1985, where an American was killed.[36] Fire departments that have jurisdiction in the marine domain, or mutual aid agreements with other departments that have jurisdiction, must prepare for a potential terrorist attack in their area.

F. PAST U.S. INCIDENTS

The United States has also experienced a number of significant natural disasters in the marine domain, these also have caused considerable damage to the economy and the local area. Some of these include the disasters at Texas City, San Francisco, and Hurricane Katrina on the Gulf Coast. In 1947, Texas City, Texas, a cargo ship with 2,300 tons of ammonium nitrate fertilizer caught fire and exploded, killing over 450 people and destroying one third of Texas City.[37] In 1944, at the naval ammunition facility at Mare Island California, the cargo ship E. A. Bryan exploded killing all 320 workers at the facility. The ship was loaded with 4,600 tons of ammunition and the blast was felt 48 miles away in San Francisco.[38] Hurricane Katrina's devastation was severe and covered a huge area, Louisiana and Mississippi and still recovering from the effects

---

[35] Society for Peace Unity and Human Rights, "Chronology of Suicide Bomb Attacks by Tamil Tigers in Ski Lanka," http://www.spur.asn.au/chronology_of_suicide_bomb_attacks_by_Tamil_Tigers_in_sri_Lanka.htm (accessed February 13, 2008).

[36] Jewish Virtual Library Website, http://www.jewishvirtuallibrary.org/jsource/Terrorism/achille.html (accessed February 14, 2008).

[37] Texas City Fire Department Web Site, http://www.local1259iaff.org/disaster.html (accessed February 13, 2008).

[38] U.S. Navy, Naval Historical Center website, "Port Chicago Naval Magazine Explosion, 1944" http://www.history.navy.mil/faqs/faq80-1.htm (accessed February 13, 2008).

years later. These examples of natural disasters and incidents involving hazardous materials in the marine domain, demonstrate some of the significant incidents that first responders may have to confront. Fire departments must have knowledge of the types of processes and material that pass through their jurisdictions to prepare for potential incidents.

G. CRUISE SHIPS AND FERRIES

The cruise industry in North America has been growing over the last five years, reaching ever-increasing levels in 2006, a total of 4,435 cruises and 9.97 million passengers on the top 17 cruise lines.[39] The RAND Corporation's *Maritime Terrorist, Risk and Liability* discussion regarding cruises ship states

> These vessels constitute an attractive target that directly resonates with the underlying ideological and operational rational of al-Qaeda and the wider international jihadist movement. Not only do cruise ships cater to large numbers of people who are confined to a single geographic space-which makes them ideal venues for carrying out assaults intended to maximize civilian casualties (a hallmark of jihadist terrorism in the post-September 11 era)-they are also highly iconic in nature, reflecting the type of explicit Western materialism, affluence, and discretionary spending to which bin Laden-inspired extremists are opposed.[40]

Cruise ships operate in several urban areas, with the largest areas in Florida (Miami, Fort Lauderdale and Port Canaveral), Los Angeles, and Galveston, Texas.[41] Cruise ships are also popular in the warmer months operating out of Seattle and New York. With the modern design of cruise ships and their safety features, the ability for terrorists to sink this type of vessel is generally considered unlikely. However, an attack could kill and injure many passengers and crew. It would also provide a highly visible image for news

---

[39] U.S. Department of Transportation Maritime Administration, North American Cruises 4th Quarter 2006, 6, http://www.marad.dot.gov/MARAD_statistics/2005%20CRUISE%20UPDATE/cruise%20report%200406.pdf (accessed February 14, 2008).

[40] The RAND Corporation, "Maritime Terrorism, Risk and Liability," Santa Monica, CA, 2006, 75.

[41] U.S. Department of Transportation Maritime Administration, North American Cruises 4th Quarter 2006, 6, http://www.marad.dot.gov/MARAD_statistics/2005%20CRUISE%20UPDATE/cruise%20report%200406.pdf (accessed February 14, 2008).

media to broadcast fulfilling the terrorist's goals of global exposure of their ability to strike the U.S. and the U.S.'s inability of defeat terrorism and protect the homeland. In the RAND study on Maritime Terrorism, the following figure below is used to demonstrate the required capability to carry out six different attack scenarios against a cruise ship and the extent each scenario aligns with terrorist intentions. The six scenarios involve attacks by:

- parasitic bombs (bombs attached to the hull of the ship by swimmers)
- Hijacked ship
- Standoff artillery
- Food/water contamination
- Ram with Improvised Explosive Device (IED)
- On-board bomb

Figure 1 shows that, in terms of terrorist intentions (intent), all six scenarios score in the "high" range. However, the capability needed to carry out the scenarios varies considerably with an on-board bomb having the lowest required capability to a parasitic bomb with a relatively high required capability.[42]

[42] The RAND Corporation, "Maritime Terrorism, Risk and Liability," Santa Monica, CA, 2006, 87

For an explanation on the methodology used to measure intent and required capability see Appendix, 143.

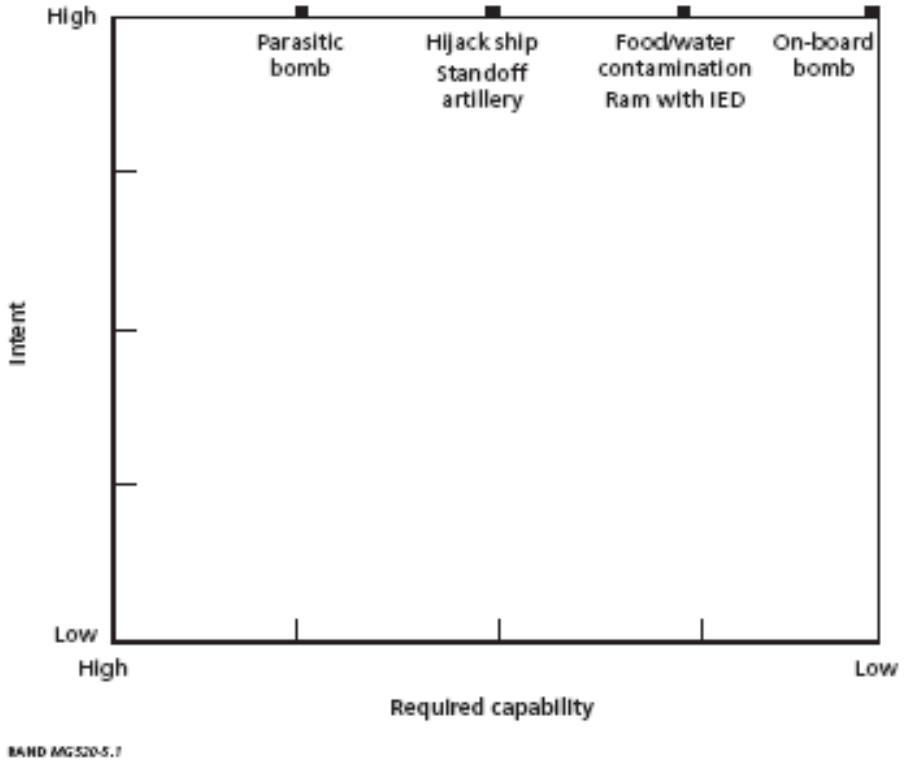

Figure 1. Assessment of the capability required in scenarios involving terrorist attacks on cruise ships and how the scenario aligns with the terrorist group's intentions. From: RAND Corporation, Maritime Terrorism, Risk and Liability

The RAND study compared threat versus vulnerability of a terrorist attack against a cruise ship, as is shown in Figure 2. The figure indicates the highest threat of the six scenarios would likely come from an on-board bomb and the highest vulnerability from standoff artillery. The three most likely attacks involve on-board bombing, food/water contamination and standoff artillery attacks[43].

As fire departments prepare and plan for response to potential attacks in the marine domain, the use of information from the RAND study and other studies will help to prioritize limited resources, identify response capabilities required and focus exercises conducted with response partners on potential attacks scenarios.

[43] RAND Corporation, "Maritime Terrorism, Risk and Liability," Santa Monica, CA, 2006, 88; For an explanation on the methodology used to measure threat and vulnerability see Appendix, 143.

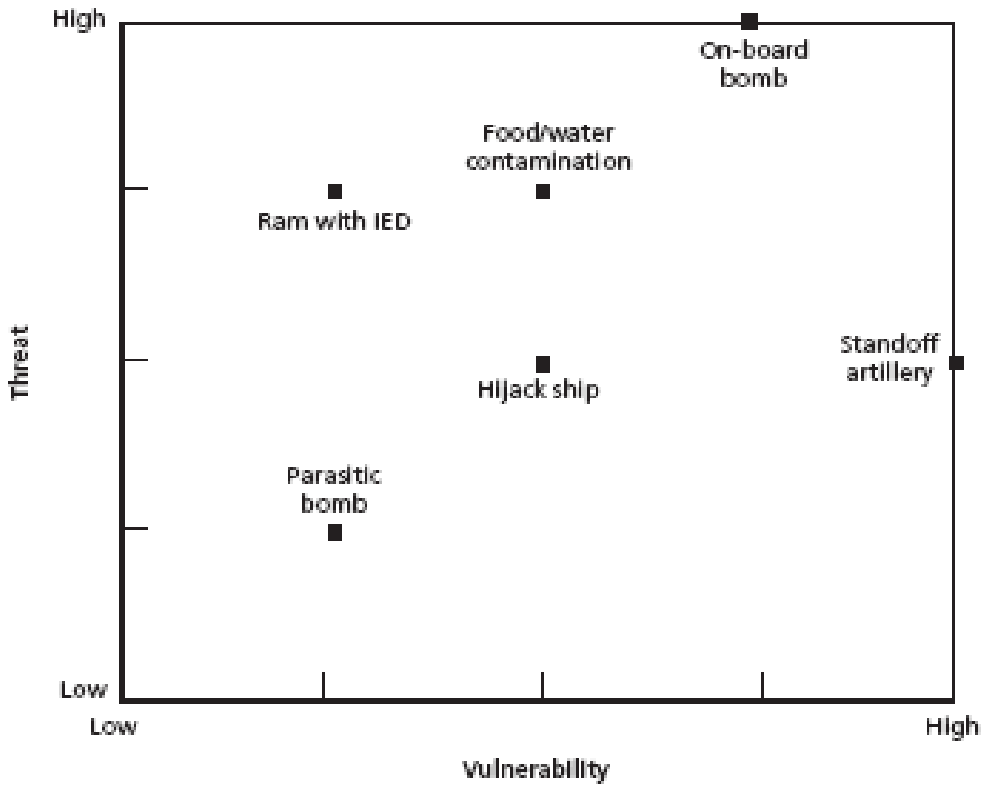

Figure 2. Assessment of the threat of terrorist attacks on cruise ships and the vulnerability of the ships to attack scenarios. From RAND Corporation Maritime Terrorism, Risk and Liability

As with the cruise industry, ferries have the potential for high loss of life do to a terrorist attack. Ferries in the United States carry more than 66 million passengers each year in approximately twenty-five urban areas, with Seattle/Tacoma, New York, Boston, San Francisco Bay, and New Orleans having the greatest number of passengers.[44] United States maritime counter terrorism efforts have mainly focused on port security and cargo containers. Cruise ships and ferries have not received the attention that containers have. However, the possibility of a deadly and economically costly terrorist attack on a cruise ship or ferry exists. "Focusing solely on securing the container supply chain without defending other parts of the maritime environment is like bolting the front door of a

[44] American Public Transportation Association, "Public Transportation Fact Book," 58th Edition, 53, Washington D.C.: American Public Transportation Association, May 2007, http://www.apta.com/research/stats/factbook/documents/factbook07.pdf (accessed February 21, 2008).

house and leaving the back door wide open."[45] Ferries, like cruise ships, present attractive targets for terrorists in which an attack could kill potentially large numbers of people, because highly visible damage, destroy costly property and disrupt commerce. Both passenger and car ferries are vulnerable to terrorists' most common method of attack, improvised explosive devices. Currently there is only minimal screening done at ferry terminals prior to passengers or vehicles boarding the vessels throughout the U.S.

The Washington State Ferry System, the largest in the U.S., does only random screening of vehicles with an explosive-detection trained canine. Passengers, their backpacks, and packages are not subjected to a physical check or scanned through detection equipment. Vehicles are not checked physically or scanning with any detection equipment.[46] Ferries primarily operate in urban areas where they provide a means of transportation to commuters. Another example would include the Staten Island passenger ferry in New York. It operates ferries that have a capacity of up to 6,000 passengers.[47] These factors contribute to both ferries and cruise ships being attractive targets for terrorists to attack.

In 2006, the Seattle Post-Intelligencer newspaper reported that the Washington State Ferry System is the number one target in the United Sates for marine terrorism according to the Justice Department's inspector general.[48] In August of 2007, two males were reported to have acted suspiciously aboard a Washington State Ferry. The reported actions of these men caused enough concern that the Federal Bureau of Investigation (FBI) released a photograph of the two males asking the public for assistance in identifying them.[49]

---

[45] RAND Corporation website, "RAND Study Warns Maritime Terrorism Risk Extends beyond Dangers Posed to Container Shipping" (accessed February 22, 2008).

[46] Washington State Department of Transportation website, "Security Measures," http://www.wsdot.wa.gov/ferries/info_desk/faq/index.cfm?faq_id=139 (accessed February 22, 2008).

[47] American Public Transportation Association, "Public Transportation Fact Book," 58th Edition, 53, Washington D.C.: American Public Transportation Association, May 2007, http://www.apta.com/research/stats/factbook/documents/factbook07.pdf (accessed February 21, 2008).

[48] Seattle Post Intelligencer website, "Ferry Security, the FBI and a tough call" August 21, 2007, http://blog.seattlepi.nwsource.com/thebigblog/archives/120406.asp (accessed February 22, 2008).

[49] Seattle Times, FBI asks, who are these men in this photo from ferry?" August 22, 2007, http://seattletimes.nwsource.com/html/localnews/2003847538_ferries22m.html (accessed February 22, 2008).

This step caused considerable debate in the Seattle media as one of the major newspapers in Seattle refused to print the photograph for the FBI. They stated there was not enough information to run the photograph and impinge on the civil liberties and privacy of the men in the photograph.[50] This example illustrates two points. First, the potential of an attack on a ferry is real. Second the need for fire departments to be included in fusion centers to obtain the most accurate up-to-date information available on current situations. While the debate between public safety and civil liberties will continue, first responders must use all information available to protect, prevent, respond to and recover from terrorist attacks and natural disasters.

H. AREA MARITIME SECURITY COMMITTEE

Prior to 9/11, interagency communication, planning, coordination and cooperation between the agencies with responsibilities in the marine domain were minimal. These agencies operated within their own stovepipes, working on fulfilling their missions with little interaction with the other agencies. The interaction that did take place was mainly at the operations level. When an agency requested assistance from another for a particular operation, such as the USCG assisting CBP with interdiction of a cargo vessel, or USCG and local fire department working together on a rescue operation, agencies worked together. Interagency planning between federal and local agencies, to coordinate response to emergencies, natural disasters and acts of terrorism in the maritime domain, was virtually nonexistent prior to 9/11. The events of 9/11 caused the United States to "think anew" regarding protection, prevention, responding to, mitigating and recovering from acts of terrorism and natural disasters.

The United States government responded with the creation of the Department of Homeland Security (DHS), DHS included the creation of Transportation Security Administration (TSA), along with the USCG and twenty other agencies to combat the threat of terrorism and prepare for natural disasters. The Area Maritime Security Committee (AMSC), as part of The Maritime Transportation Security Act of 2002, was

[50] *Seattle Post Intelligencer* website, "Ferry Security, the FBI and a tough call," August 21, 2007, http://blog.seattlepi.nwsource.com/thebigblog/archives/120406.asp (accessed February 22, 2008).

established to facilitate the development of port security plans. It does this by providing a framework, for all entities with authority and responsibility in the maritime domain, to come together under the leadership of the USCG, to create local port security plans, implement and exercise the plan. AMSC can, and most often do, incorporate more than one port as the USCG Captain of the Port (COTP) often has authority over several ports in their sector. For example, the AMSC for Sector Seattle includes the Port of Seattle, Port of Tacoma, Port of Everett and several other smaller ports).

Some of the federal agencies with responsibility to combat terrorism in the maritime domain include:

- U.S. Coast Guard (USCG) – principle maritime law enforcement authority and lead federal agency for port security and maritime homeland security.
- Customs and Border Protection (CBP) – principal responsibility for inspecting cargo and examination and inspection of ships crews and cruise ship passengers.
- Bureau of Immigration and Customs Enforcement (ICE) – detect and prevent terrorist and criminal acts and dissemination of strategic and tactical intelligence data pertaining to homeland security.
- Transportation Security Administration (TSA) – responsible for security of all modes of transportation, cargo and passengers.
- Federal Bureau of Investigation (FBI) – protect and defend the U.S. against terrorist and foreign intelligence threats and to enforce the criminal codes of the U.S.[51]

Assisting these federal agencies is State, local and tribal agencies that also have jurisdiction in the maritime domain include:

- State, county and municipal governments
- Port Authorities
- State and local law enforcement
- Local fire departments
- Tribal entities

The Maritime Transportation Security Act (MTSA) of 2002 established the AMSC and charged the U.S. Coast Guard with establishing and overseeing the committee.[52] Under the MTSA the U.S. Coast Guard Captain of the Port (COTP), as the Federal Maritime Security Coordinator (FMSC) of their COTP area, has the authority for establishing and directing the AMSC.

Other duties include appointing members to the AMSC, developing the area maritime security plan, implementing, exercising and maintaining the plan, and maintaining appropriate records. Each AMSC has a written charter that is developed by the local AMSC specifically to meet the needs of their area. The charter must include the purpose and area of responsibility, organizational rules of order, rules for membership, guidelines for public access to meetings and records, frequency of meetings, and rules on protecting sensitive security information.

The committee must be made up of at least seven members each with at least five years experience with maritime or port security operations. The committee may include other members, which do not need to meet the experience requirement. Members may come from federal, state, local or tribal governments, local law enforcement, security organizations, maritime industry, port stakeholders affected by security policies, and local emergency response agencies from within the committee's area of responsibility.[53]

The main purpose of each AMSC is to develop, exercise and maintain the maritime security plan for their area of responsibility. To achieve this it must identify critical port infrastructures and operations, identify risks, assist the COTP in developing the maritime security plan and exercise the plan. It must also develop and describe the process for continual evaluation and update of port security vulnerabilities and mitigations, and additional security strategies to meet the current needs. The security plan must be consistent with the National Maritime Transportation Security Plan and it is

---

[51] John F. Frittelli, *Port and Maritime Security: Background and Issues for Congress* (Congressional Research Service, 2003), 10.

[52] Transportation Security Administration, *Maritime Transportation Security Act of 2002*, http://www.tsa.gov/assets/pdf/MTSA.pdf 19 (accessed September 2, 2007).

[53] For a more complete list of potential AMSC membership see Appendix A in National Strategy for Maritime Security: Maritime Infrastructure Recovery Plan.

considered sensitive security information and shall be treated as such. The AMSC may have sub-committees which shall be named and have a designated area of responsibility (for example, intelligence sub-committee, emergency response sub-committee, facilities sub-committee… etc.). At a minimum, the AMSC must meet once a year, but more frequent meetings are allowed and are encouraged.

I. HOMEPORT

The United States Coast Guard has created a website for information sharing with the maritime community called Homeport. It is a publicly accessible website which allows users to access information on a wide range of issues including: local maritime security (MARSEC) level, notice to mariners, safety information, maritime regulations, etc. Homeport provides access to 41 different local sectors with their own webpage, each with additional information specially pertaining to the local area. Homeport also has a member login area, which requires non-Coast Guard individuals to gain approval from the local Coast Guard administrator to become a member. This is designed to share security sensitive information with members of the AMSC, other government agencies, and private stakeholders.

The Captain of the Port, as the Federal Maritime Security Coordinator, has the ability to use Homeport as a communication tool to disseminate information to members of the AMSC and other marine stakeholders regarding current events and issues that affect the local marine community. Members can be automatically notified of current incidents transpiring in their local area, via cell phone and email. More detailed information can be obtained, by stakeholders, by logging in to the local sectors Homeport webpage. Homeport provides marine stakeholders with timely situational awareness pertaining to current incidents in the marine domain.

J. PORTSTEP

The USCG's PortSTEP (**P**ort **S**ecurity **T**raining **E**xercise **P**rogram) works in partnership with the Transportation Security Administration (TSA) to meet the mandates from the MTSA. PortSTEP was a three-year program that worked in conjunction with

the local AMSC to fulfill the requirement to perform exercises at least once a year including public and private stakeholders that are not regulated by MTSA (i.e., highway and rail). From August 2005 through October 2007, forty exercises were conducted on maritime transportation security issues. The exercises included basic and advanced tabletop and functional exercises.[54] A team of USCG and TSA personnel provided strategic planning, support, and technical and analytical services for the exercises.

K. AMSTEP

In addition to PortSTEP the USCG has developed exercises under its Area Maritime Security Training and Exercise Program (AMSTEP). AMSTEP also conducts tabletop and full field exercises to meet the requirements of the MTSA. However, in AMSTEP, the main focus is not transportation focused. The program conducted twenty-eight exercises by the end of FY2007, concentrating on large ports that had not conducted a PortSTEP exercise.[55] AMSTEP also works with the local AMSC to design an exercise to meet the local AMSC objectives and yearly exercise requirements mandated by the MTSA.

L. THE NATIONAL STRATEGY FOR MARITIME SECURITY

The National Strategy for Maritime Security was released in September of 2005. It "aligns all federal government maritime security programs into a comprehensive and cohesive national effort involving appropriate Federal, State, local, and private sector entities."[56] Due to complexity, specific threats and challenges of the marine environment, the Strategy includes eight supporting plans covering more specific areas of maritime security. The supporting plans include:

---

[54] Transportation Security Administration, *PortSTEP Overview*, http://www.tsa.gov/assets/pdf/factsheet_2.pdf 2.

[55] Paul W. Parfomak and John Frittelli, *Maritime Security: Potential Terrorist Attacks and Protection Priorities* (Congressional Research Service, 2007), 9.

[56] The Department of Homeland Security, *The National Strategy for Maritime Security*, ii, http://www.dhs.gov/xlibrary/assets/HSPD13_MaritimeSecurityStrategy.pdf (accessed February 14, 2008).

- **National Plan to Achieve Domain Awareness** lays the foundation for an effective understanding of anything associated with the maritime domain that could impact the security, safety, economy, or environment of the United States, and identifying threats as early and as distant from our shores as possible.
- **Global Maritime Intelligence Integration Plan** uses existing capabilities to integrate all available intelligence regarding potential threats to U.S. interests in the maritime domain.
- **Interim Maritime Operational Threat Response Plan** aims for coordinated United State Government response to threats against the United States and its interests in the maritime domain by establishing roles and responsibilities that enable the government to respond quickly and decisively.
- **International Outreach and Coordination Strategy** provides a framework to coordinate all maritime security initiatives undertaken with foreign governments and international organizations, and solicits international support for enhanced maritime security.
- **Maritime Infrastructure Recovery Plan** recommends procedures and standards for the recovery of the maritime infrastructure following attack or similar disruption.
- **Maritime Transportation System Security Plan** responds to the President's call for recommendations to improve the national and international regulatory framework regarding the maritime domain.
- **Maritime Commerce Security Plan** establishes a comprehensive plan to secure the maritime supply chain.
- **Domestic Outreach Plan** engages non-Federal input to assist with the development and implementation of maritime security policies resulting from NSPD-41/HSPD-13.[57]

[57] The Department of Homeland Security, *The National Strategy for Maritime Security*, September 2005, Appendix A, 27, http://www.dhs.gov/xlibrary/assets/HSPD13_MaritimeSecurityStrategy.pdf (accessed February 14, 2008).

The National Strategy and accompanying plans lay the foundation and framework for maritime security. Local fire departments need to have a solid understanding of the plan in order to fulfill their role in maritime homeland security for their local area. Each local area is unique, presenting fire departments with different challenges to assist in protecting, preparing and recovering from terrorist attacks or natural disasters. Understanding the roles and responsibilities of other agencies in the maritime domain, prior to an incident, is critical for establishing a coordinated response. In addition, it provides an opportunity for fire departments to use their knowledge and expertise in assisting other agencies and the private sector in reaching their maritime homeland security goals.

M. NATIONAL RESPONSE FRAMEWORK

The Department of Homeland Security released the National Response Framework in January of 2008 to supersede the National Response Plan. The Framework is a guide for the U.S. on how to carry out an all hazards response. Given the large number of government agencies (federal, state and local) and the private sector with homeland security and response responsibilities in the marine domain, it is critical for an organized and effective response to have all parties use the Framework. "Effective response hinges upon well-trained leaders and responders who have invested in response preparedness, deployed engaged partnerships, and are able to achieve shared objectives."[58] The Framework is intended to be used by federal, state and local officials with the responsibility to provide for a successful response. The Framework in divided into five chapters covering: Roles and Responsibilities, Response Actions, Response Organization, Planning and Additional Resources.[59] Each chapter describes the actions to be taken at all levels of government as well as the private sector and non-governmental agencies. The Framework uses the "Response Doctrine" to define basic roles and responsibilities, and operational concepts for all levels of government, the private sector and non-governmental agencies. The Response Doctrine has five key principles:

---

[58] The Department of Homeland Security, *National Response Framework*, January 2008, 2.

[59] The Department of Homeland Security, *National Response Framework*, January 2008, 3.

1. Engaged partnerships
2. Tiered response
3. Scalable, flexible, and adaptable operational capabilities
4. Unity of effort through unified command
5. Readiness to act[60]

Using these five key principles of operations can assist fire departments and their response partners as they prepare to respond to terrorist attacks and natural disasters.

In conclusion, the marine domain is a vital asset of the U.S. economy. The open nature of ports presents opportunities for terrorists to strike in the marine domain. Terrorist in the past have targeted the marine domain for attacks as well as use it to launch attacks. The federal government has taken several steps to increase maritime homeland security such as the National Strategy for Homeland Security, Container Security Initiative and Customs-Trade Partnership against Terrorism Initiative. At the local level, the USCG has established Area Maritime Security Committees along with exercise programs to test security plans and bring maritime stakeholders together improve maritime security. The fire services role in maritime homeland security is yet not completely defined. The next chapter will discuss the methods used to collect data to assist in defining fire services role in maritime homeland security.

60 The Department of Homeland Security, *National Response Framework,* January 2008, 8.

THIS PAGE INTENTIONALLY LEFT BLANK

VI. SURVEY AND INTERVIEW METHODOLOGY

A. INTRODUCTION

As part of the process of data gathering, an Internet survey was sent to local first responders, federal, state and local homeland security partners and private stakeholders in the Seattle area. The survey was also sent to fire department personnel in the following port cities: Los Angeles/Long Beach, New York/New Jersey and Seattle/Tacoma. The purpose of the survey was to determine the current situation of maritime homeland security of various agencies, the effectiveness of current preparedness, response capabilities, and the role of fire departments in intelligence, and interagency training and exercises. Respondents were selected based on their knowledge and experience in maritime homeland security and experience working with fire departments on maritime homeland security issues in the past. Respondents were selected from federal agencies, local and port law enforcement, local fire departments both small (less than 100 members) and large (over 500 members), state and local emergency management, the U.S. Coast Guard, Customs and Border Protection, the port authority (security mangers), and the private sector, which included terminal security managers, labor leaders and shippers. The survey was sent out to a total of fifty-seven individuals.

In addition to the survey, data was gathered through interviews with representatives from fire departments in the Puget Sound area and Los Angeles/ Long Beach area, private terminal operators and the U. S. Coast Guard. The open-ended questions asked the interviewee for their perception of fire departments role in the marine domain regarding response, preparation, planning, training, intelligence and information gathering. Additional questions included interagency training and preparedness, private industry's role and National Planning Scenarios preparation.

B. DESIGN OF SURVEY

The Internet survey was constructed with a seven point Likert scale (Strongly Agree (7) to Strongly Disagree (1) with (4) neutral) to measure the respondents' perceptions. The survey was prepared and distributed through "surveymonkey" an online survey tool and included twenty questions in four categories. The survey was designed with five closed statements for each of the categories. The statements required the respondent to answer how strongly he/she agreed or disagreed with it. The categories were:

- Preparedness – Statements related to preparedness were designed to ascertain the level of preparedness of agencies in different levels of government and how effective the Area Maritime Security Committee and the National Planning Scenarios have been.
- Response – In the area of response, the statements were designed to ascertain response capabilities, existence of policies, and public-private collaboration.
- Intelligence and Information Sharing – In the area of intelligence and information-sharing the statements were designed to obtain responses to the level of fire service's involvement in intelligence and satisfaction with the intelligence received.
- Planning and Training – In the field of planning and training, the statements were designed to determine the frequency of training and level of effectiveness in planning.

In addition, three questions were asked at the end of the survey. The first two questions were included in order to ascertain the employment agency (federal, state….etc) and employment field (fire fighter, law enforcement...etc) of each respondent. The third question allowed the respondent to add any comments regarding the fire department's role in maritime homeland security or issues raised in the survey in an essay

format. The survey was distributed to fifty-seven maritime homeland security leaders. Three surveys were unable to be delivered due to the fact that the individuals were no longer working in their respective positions.

Respondents represented fire fighters from large and small departments in the Puget Sound area, Los Angeles/Long Beach, New York/New Jersey, municipal law enforcement, federal law enforcement, government employees from federal, Washington state, and local counties, and private maritime stakeholders. Of the original fifty-seven potential respondents, twenty-nine completed the survey completely, and two partially completed the survey. The respondents were divided as follows: fourteen fire fighters, thirteen law enforcement, eighteen government employees (federal, state and local) and twelve private stakeholders.

C. LIMITATIONS OF SURVEY

The participants of the Internet survey were limited to the author's contacts, homeland security partners in the Puget Sound area and members of the Sector Seattle Area Maritime Security Committee. Due to the high concentration of participants in the Puget Sound area, the survey may or may not reflect the perceptions of other maritime areas in the United States. The potential for a geographical bias exists, however, the Puget Sound area is very diverse in critical infrastructures/key resources and other potential maritime targets, which can be found in maritime areas throughout the United States. For additional data on the survey, see Appendix A.

D. DESIGN OF INTERVIEW QUESTIONS

Interviews were conducted with representatives from agencies of federal, state, and local governments, and the private sector. Interviews were used to collect and capture individuals' perceptions and experience. Respondents were selected based on their knowledge and experience in maritime homeland security and have worked with fire departments on maritime homeland security issues in the past. A total of eight homeland security leaders were interviewed.

The interviews were scheduled by the author after introduction by email or telephone. The email and telephone conversations detailed the basis of the research and that it would be used in a Master's thesis for the Naval Postgraduate School. Interviews were scheduled for one hour (five lasted almost two hours). Seven were conducted face-to-face and one was conducted over the telephone. All were conducted in private. At the beginning of the interview ground rules (responses non-classified, permission to quote and permission to record the interview) was obtained. Recording the interview allowed the author to devote attention to the interview and augmented notes taken during the interview.

The purpose of the interview was to determine the current role of local fire departments in maritime homeland security, obtain viewpoints on additional roles fire departments could contribute in homeland security, and explore any roles interviewees felt were not appropriate for fire departments to undertake. Nineteen open-ended questions were used to illicit the respondents' perceptions of fire service's role in maritime homeland security. Follow-up questions were asked to help clarify responses. The open-ended questions are detailed in Appendix B. Findings from the interviews were transcribed and coded to reveal common topics in a fire department's role in maritime homeland security. Interviews were conducted from September 2007 to January 2008.

VII. SURVEY FINDINGS

A. INTRODUCTION

The data from the survey illustrate fire departments and maritime partners' perceptions regarding the fire department roles in maritime homeland security issues. Given the complexities of the maritime domain, homeland security partners can benefit from this survey to ascertain perceptions to assist in identifying potential gaps in homeland security.

B. PREPAREDNESS

The first statements asked the level of satisfaction each respondent had with the preparedness to respond to a terrorist incident of natural disaster for their agency and the U.S. Coast Guard. The survey indicated respondents were satisfied with the U.S. Coast Guard and their agencies level of preparedness. However, the majority disagreed with the statement that they are satisfied with state or local agencies' level of preparedness. See Figure 3.

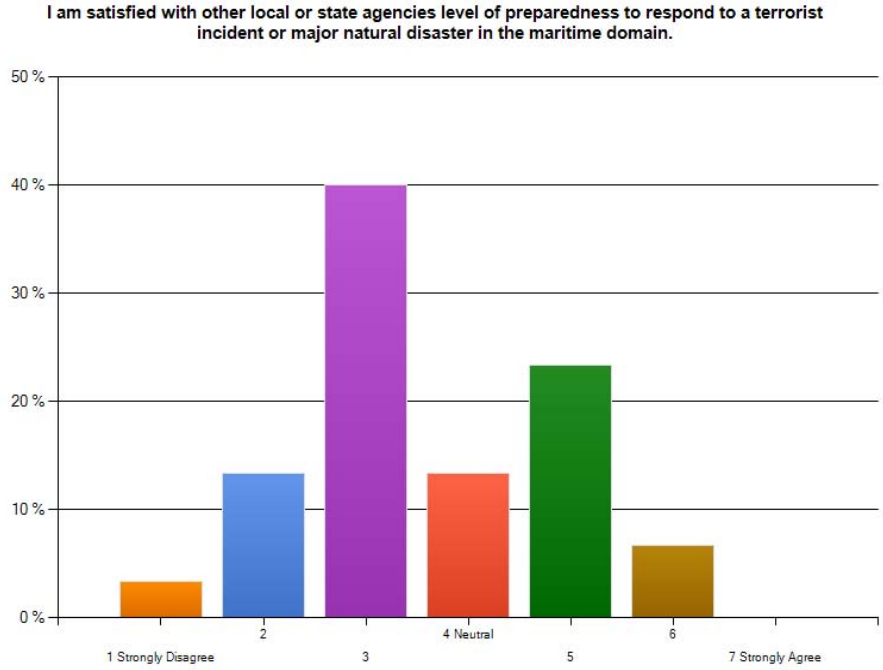

Figure 3. Satisfaction with other agencies level of preparedness to respond to a terrorist incident or major natural disaster in the marine domain. From: Internet Survey.

In responding to statements regarding the level of preparedness of the respondents own agency, 58.6% agreed their agency was prepared. Almost two thirds agreed the U.S. Coast Guard was prepared for a maritime disaster or terrorist attack. When asked about state and local agencies preparedness other than their own agency 56.6% felt these agencies were not prepared. This indicates respondents feel their agency is prepared but others still have work to do. Given the diversity of the respondents the expectation is that the responses would be similar. The survey is unable to determine the reason for this response and further study is warranted to determine why respondents have this perception.

In terms of the AMSC and its effectiveness in improving preparedness, over one-half of respondents agreed it has been effective. A total of 13.3% disagreed with the effectiveness of the AMSC while one third responded neutral. The National Planning

Scenarios were developed to assist agencies in preparing for fifteen terrorist attacks or natural disasters. The survey asked how effective these have been in assisting their agencies in their preparation for an event in the marine domain. The survey results found 36.3% disagreed and 36.7% were neutral, and only 26.6% slightly agreed the scenarios have been effective. The results indicate these scenarios have assisted in preparing slightly more than one quarter of the respondents for events in the marine domain. The large percentages of neutral responses for these two questions indicate respondents are not sure of the effectiveness of the AMSC and the National Planning Scenarios with improving preparedness at this time.

C. RESPONSE

The federal government has adopted National Incident Management System (NIMS) to standardize incident management across the U.S. Almost 90% of the respondents agreed with the statement that their agency regularly uses NIMS on incidents. Survey results demonstrate the efforts to incorporate NIMS as a standard incident management system has been effective. In regards to respondent's knowledge of the response capabilities of other agencies who would respond with them to a major incident in the marine domain showed 83% agreed they were knowledgeable. Almost two-thirds of the respondents agreed their agency have policies and procedures (standard operating procedures) in place for maritime incidents. However, 20.6% disagreed and do not have policies and procedures for a maritime incident. The need for standard operating policies and procedures is necessary for consistent and safe response. This is even more important in the marine domain. With the large number of response agencies with jurisdiction in this area, a coordinated response is critical to be effective. Pre-planning and exercises are needed to establish these standard operating policies and procedures.

Below are the responses to the statement regarding their response capabilities for an incident of national significance in the marine domain. See Figure 4.

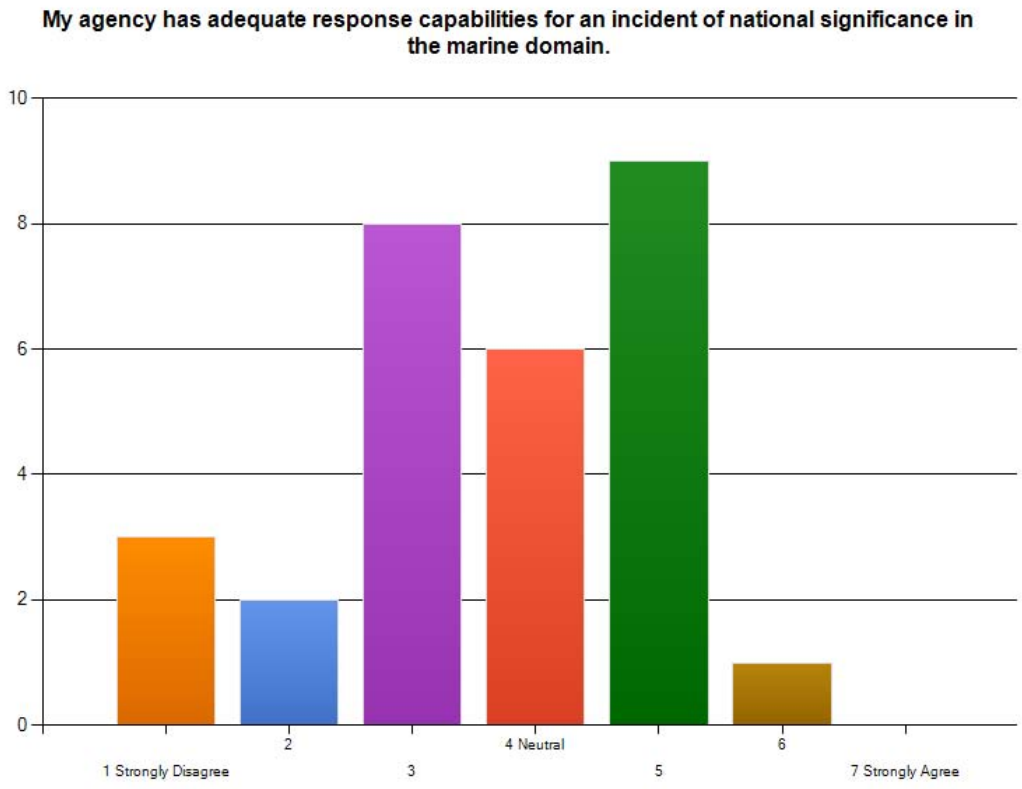

Figure 4. Adequate response capability of your agency for an incident of national significance in the marine domain. From: Internet Survey.

The survey indicates almost one third have adequate capabilities, while one half of the responses disagree and do not have adequate capabilities for a major incident. While strides have been made to improve capabilities, there is still a significant gap. When asked if public/private stakeholder collaborations are needed to improve response efforts in the marine domain, almost 90% agreed, with 70% strongly agreeing. This clearly indicates that respondents strongly believe in the marine domain, public-private collaborations are needed. The statements regarding respondent's response capabilities and private/public collaborations support each other. Respondents feel they have inadequate response capabilities and see a public/private partnership as a means to improve response capabilities in the marine domain.

D. INTELLIGENCE AND INFORMATION SHARING

The survey response to the desirability of fire departments involvement in fusion centers showed overwhelmingly support for this among respondents with almost 90% agreeing. However, when asked about their satisfaction with the intelligence currently received only one-third were satisfied with 58.1% not satisfied. The very high response for fire departments participation in fusion centers and the dissatisfaction of intelligence received are directly related. Currently fire departments are involved in only a few fusion centers. Departments that are not currently directly involved in fusion centers get their intelligence information only when they are notified by law enforcement (local, state or federal). Fire fighters feel the direct participation in fusion centers will lead to better and more timely intelligence. Looking at fire fighter and law enforcement responses only, revealed that 92% of fire fighters agreed they should be actively involved in fusion centers, contrasted with the response that 0.0% fire fighters agreed that they were satisfied with the intelligence their department was receiving. This large percentage difference indicates that fire fighters feel they need to be involved in homeland security intelligence and information sharing. Survey indicates firefighters are not satisfied with the current intelligence their department is receiving. Law enforcement officials who responded on the survey, agreed (71%) that fire departments should be included in fusion centers. In regards to the degree of satisfaction with the intelligence their agency has received, 54% of law enforcement officials agreed they are satisfied. This disparity could be due to the fact that fire departments are "new on the block" in terms of intelligence with little background to judge the quality or quantity of intelligence they receive.

Maritime homeland security leaders also responded to the survey statements regarding fire departments involvement in information gathering. To the statement: "do you agree that fire fighters should be another set of "eyes and ears" for the intelligence community?" respondents clearly agreed with 85.1% answering in the affirmative. The respondents who disagreed with the statement were fire fighters who strongly disagreed (6.9%). This small percentage reflects the belief by a few that fire departments should not be involved in any information gathering at all. This subject has been discussed and debated within the fire service community and the public. The executive director of the

New York Civil Liberties Union (NYCLU), Donna Lieberman, has stated, "When you start recruiting from every government agency for super intelligence, I think we run the risk of lots of false alarms and distracting firefighters from the job at hand"[61]. While an article in Fire Chief magazine Diane Pitts senior fire-intelligence analyst for the Department of Homeland Security states "Does the fire service, or emergency services in general, have a role in the world of intelligence?.....Given that firefighters are among the county's first responders to terrorist incidents, natural disasters, industrial accidents and everyday emergencies, the answer is a resounding yes"[62].

Responses to the use for fire departments ability to gain entry via code enforcement inspections or similar means to obtain information on people or activities inside had a less clear result. See Figure 5.

61 Colin Meyn, In These Times, *FDNY Spies*. February 18, 2008. http://www.inthesetimes.com/main/article/3532/. Accessed September 16, 2009.

62 Diane D. Pitts, Fire Chief, *Getting the 411*, January 1, 2008. http://www.firechief.com/leadership/incident-command/intelligence-community-information-sharing-0101/ accessed September 16, 2009.

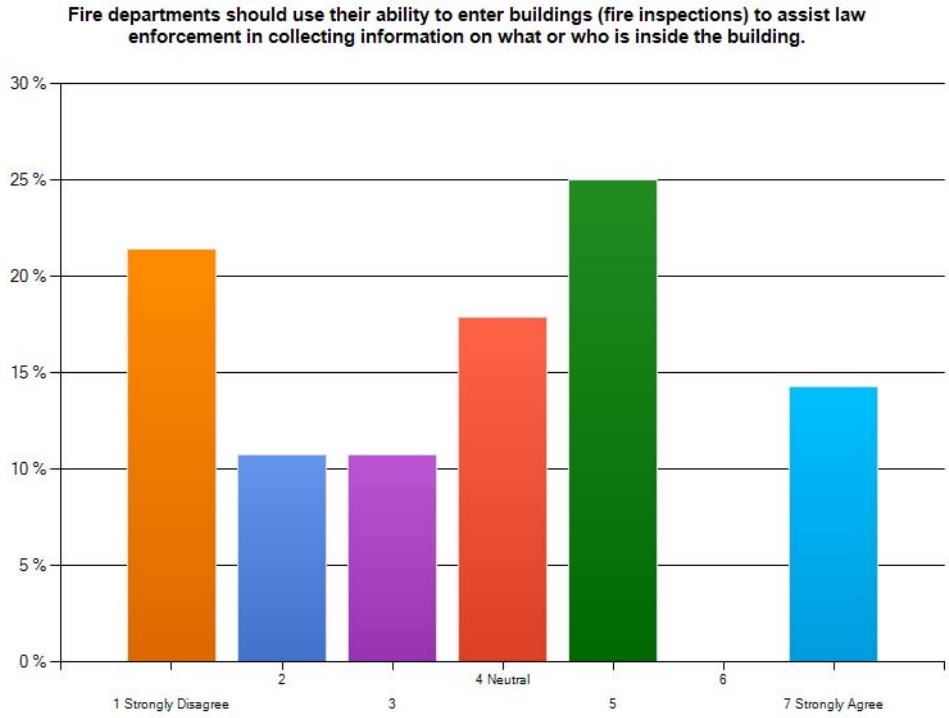

Figure 5. Should fire departments use their ability to enter buildings to assist law enforcement in collecting information. From: Internet Survey.

This response was divided close to 50/50 with 42.8% disagreeing and 39.3% agreeing. Looking at fire fighters only responses shows 15.4% responded slightly agree, 30.1% neutral, and 53.8% disagreed. The survey indicates fire fighters are not comfortable using their ability to do code enforcement inspections for the sole purpose of gaining information on people and their activities. The public trust fire fighter have built up over the years could be jeopardized by this action and many fire fighters do not want to break that trust. Jeff Zack, of the International Association of Fire Fighters stated "Using firefighters to gain access to people's homes. It could potentially undermine what we do everyday".[63] FDNY Battalion Chief Richard J. Blatus, in a survey for his master's thesis, found 84% of firefighters agreed that training firefighters to recognize non-

63 Jeanne Meserve and Mike Ahlers, FDNY anti-terror plans spark fear of which hunts, CNN Politics.com December 5, 2007. http://edition.cnn.com/2007/POLITICS/12/05/firefighter.terrorism.html

traditional forms of terrorist threats would diminish their standing in the community.[64] Law enforcement officers responded opposite of fire fighters, agreeing 2 to 1, suggesting law enforcement would like to use the fire departments ability to get into buildings to gather information on activities and people inside.

To the statement does your agency have policies and procedures in place to report suspicious activities 70% agreed however, 25.9% disagreed. It has been over six years since 9/11 and one quarter of agencies does not have clear guidelines for their members to report suspicious activity. Fire departments and other homeland security agencies should develop guidelines and training for fire fighters on what to look for, what to report, and to whom it should be reported.

E. PLANNING AND TRAINING

This area of the survey asked respondents to state the number of times their agency participated in specific training in the marine domain, jointly with federal agencies and jointly with state and local agencies. The results for training with either federal or state and local were very similar. Respondents stated conducting training once or twice a year 79% of the time with federal agencies and 69% with state and local. When asked how often their agency conducts training specific to incidents in the marine domain per year 46.2% stated one or two times. See Figure 6.

64 Richard J. Blatus, The Training of Firefighters as Intelligence Gatherers, September 2008. Naval Postgraduate School. Monterey, CA.

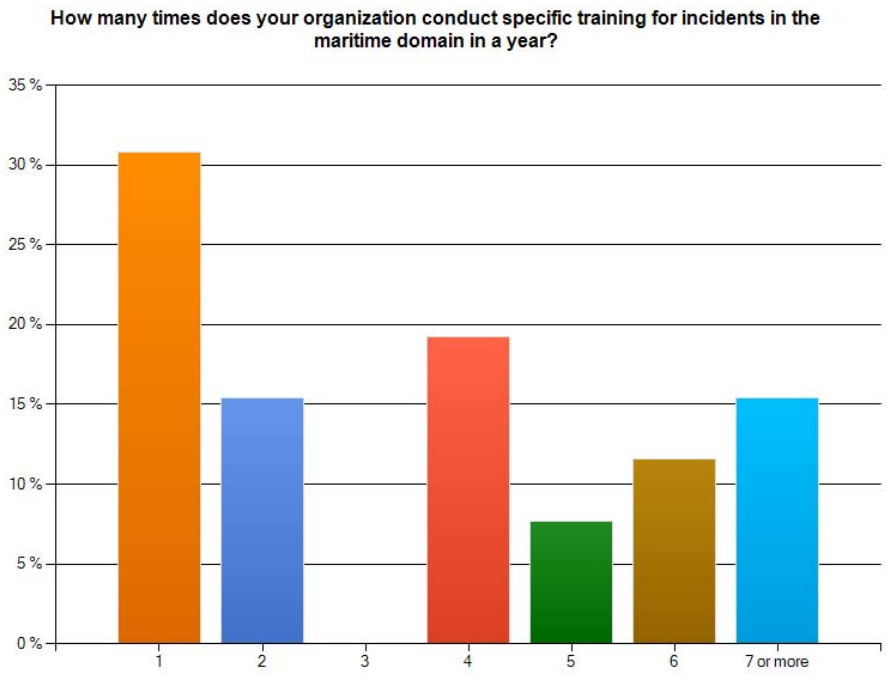

Figure 6. Number of times your organization conducts specific training for incidents in the marine domain in a year. From: Internet Survey.

Comparing the results from all three questions the similar results could indicate training included both federal and state and local in the same training exercise. The survey indicates interagency training is only taking place one or two times a year with almost three-quarters of the respondent's agencies. For effective interagency response, coordination and incident management training should be conducted frequently. The U.S. Fire Administration states differences in organizational objectives, practices and procedures create challenges that can be overcome with extensive drills and exercises.[65] With the complexities of the marine domain and the large number of agencies with homeland security responsibilities training needs to be much more frequently to ensure required response capabilities, find and bridge gaps, increase communication and build an effective incident management structure.

[65] Joseph Laun and Hollis Stambaugh, Special Report: Fire Departments and Maritime Interface Area Preparedness (Emmitsburg, Maryland: U.S. Fire Administration, April 2008), 18.

F. MISCELLANEOUS COMMENTS

At the end of the survey respondents had the opportunity to write additional comments on the survey and/or fire department roles in maritime homeland security. A total of eleven respondents took this opportunity. About half of the responses stated that homeland security in the marine environment takes a "team effort". With the large number of agencies in the marine domain to prevent, respond to or recover from a terrorist incident or natural disaster will require a coordinated effort from all agencies and the private sector.

Two responses stated the relationship between state and local and the private sector is not as good as the relationship between federal and private. This is an area fire departments can impact by reaching out to the private sector (terminal operator, longshoreman, cruise ship operators…) and assisting them with their emergency planning as well as pre-fire plan their facility. Being familiar with location of hazardous materials, access points, fire fighting systems and heavy equipment on the site can all assist in improving preventing, responding to and recovering from an incident.

Two respondents stated that small ports are vulnerable to terrorist activity and are much softer targets then the larger ports making them attractive targets or points of entry for terrorists. Other comments include: collaboration still needs work, individual agencies are more concerned about the money then they about collaboration, local agencies and the USCG have an excellent relationship, and communications still needs improvement. These comments highlight the complexity of maritime homeland security and the need for a joint effort by agencies at all levels of government and the private sector for an effective homeland security. Additionally these comments show there is still much work to be done in many areas of maritime homeland security.

G. SUMMARY

This survey has shown to be beneficial to homeland security leaders to assist in ascertaining the current perception of the target audience. With the large number of

agencies in the marine domain this tool can assist in identifying strengths and weaknesses, gaps and provide input on how to bridge gaps and improve weakness.

The survey found the majority of respondents think the U.S. Coast Guard and their own agencies are prepared for an event in the marine domain. However, the majority feels state and local agencies, other than theirs are not prepared. An in-depth look at this viewpoint could provide insight into what local and state agencies can do to improve preparedness. The AMSC have been effective according to half the respondents. With only one quarter thinking that the National Planning Scenarios have improved preparedness.

The survey provides data that supports the need for increased response capability and strongly states respondents think public/private collaboration can increase response capability. The data shows NIMS is used regularly on incidents and response agencies have a very good understanding for other agencies response capabilities. However, one-half of the respondents think they do not have adequate response capability for an event in the marine domain.

The use of fire fighters in fusion centers was supported in the survey by a large margin. As the intelligence community adjusts to the concept of fusion centers with the inclusion of new agencies so must the fire service adjust to intelligence practices in dealing with sensitive security information. The survey demonstrated a clear line in the fire service's role in information gathering. Respondents supported fire fighters being another set of "eyes and ears" to gather and report information, however the use of the fire service's ability to use inspection powers to gather information on people or activities inside was not supported. Law enforcement officials supported both fire fighters being another set of eyes and ears and using their inspection powers to gather information. Fire departments must meet with their law enforcement counterparts, government officials and community leaders and discuss this issue.

The survey indicates that exercises and training between agencies from different levels of government is occurring for the most part only one to two times a year. As stated in Federal Emergency Management Agency (FEMA) website, "exercises assess

and validate the speed, effectiveness and efficiency of capabilities, and test the adequacy of policies, plans, procedures, and protocols in a risk-free environment."[66] Given the large number of agencies and the large number of different potential scenarios in the marine domain conducting exercises one or two times a year appears on the low side. Further study in this area is warranted to ensure interagency preparation and response will be successful.

In addition to the Internet survey, maritime homeland security leaders were interviewed by the author to gather data on the fire service's role in maritime homeland security. The next chapter analyzes the data and discusses the results from these interviews.

[66] FEMA website, http://www.fema.gov/prepared/exercise.shtm. Accessed September 21, 2009.

VIII. INTERVIEW ANALYSIS AND RESULTS

A. INTRODUCTION

The analysis process began by having the interview tapes transcribed and compared to notes taken during the interview. The transcribed data was studied for general themes. A more detailed analysis of the content, looking for themes present across respondents, was subsequently performed. During analysis, efforts were taken not to take statements out of context, but to analyze a given statements as a whole. The following five primary topics emerged from the interviews:

- Homeland Security Presidential Directive (HSPD)-8,
- Intelligence and information sharing,
- Area Maritime Security Committee (AMSC),
- Interagency exercises and training,
- Public private partnerships.

Within each of the topics are several sub-topics, which make up the overarching theme. A table was developed to indicate which sub-topics were discussed during the interview. The depth of the discussion varied between interviewee and subject. Discussion of the topics, for the most part, supported the fire service's involvement in maritime homeland security. However, this was not true in all the cases. This chapter will examine the topics developed from interviews of maritime homeland security subject matter experts. The results of the analysis and clarification of participant's perceptions of the sub-topics is discussed in this chapter.

B. HOMELAND SECURITY PRESIDENTIAL DIRECTIVE-8

The purpose of Homeland Security Presidential Directive-8 National Preparedness(HSPD-8) states, "This directive establishes policies to strengthen the preparedness of the United States to prevent, protect against, respond to and recover from threatened or actual domestic terrorist attacks, major disasters, and other

emergencies."…[67] For fire departments that provide these services in the marine domain, what is their role to meet this directive? Fire departments have historically been one of the first response agencies on the scene of an incident, be it a fire, explosion, building collapse, hazardous material spill, provided emergency medical services, search and rescue or technical rescue and other support operations. Fire departments are a reactionary service, responding to incidents, quickly sizing them up, and then resolving the emergency.[68] The fire service's main role in public safety is response and the same is true of its role in homeland security. At all incidents, fire departments focus on life safety, stabilizing the incident, property conservation and, when possible, evidence preservation. The priorities are the same for a terrorist attack or a natural disaster. However, suspected terrorist attacks present the possibility of a number of additional hazardous possibilities (i.e., Chemical, Biological, Radiation, Nuclear, Explosive, [CBRNE] or secondary device). The respondents generally related their role in terms of the four areas of HSPD-8, prevention, protection, response and recovery.

Table 1. Homeland Security Presidential Directive – 8

Participants	Protection	Prevention	Response	Recovery
1			X	X
2	X	X	X	X
3		X	X	X
4	X	X	X	X
5	X	X	X	X
6		X	X	X
7			X	
8		X	X	
Total	3	6	8	6
Percentage	37.5%	75%	100%	75%

[67] Department of Homeland Security, Homeland Security Presidential Directive – 8 (Washington D.C., December 2003), 1.

[68] Size-up is a fire service term that describes the gathering of information quickly to make decisions on actions to be taken at an emergency. The size-up starts as soon as the alarm comes in and includes weather conditions, location of incident, time of day, occupancy of building, type of building (ship, area...) involved, severity of fire (building collapse, explosion…), other hazards and initiating the incident command system. This process continues throughout the incident, constantly assessing the situation and adjusting priorities as warranted.

Table 1 provides a frequency count of the sub-topics discussed by the maritime leaders interviewed under the theme HSPD-8. Across the top of the table, each sub-topic is identified. On the left side of the table are the participants who were assigned a number to help track their responses. At the bottom of each column shows the total number of participants discussing the sub-topic and the percentage of the participants. This is the same for the tables of the other topics that follow.

1. Prevention

The role of fire departments in terrorism prevention is not readily apparent. Prior to 9/11 and continuing today fire departments conduct fire prevention, which include fire and life safety code enforcement, fire and life safety programs and public education.

One could argue that these traditional duties of fire prevention do cross over to homeland security prevention. The fact that fire fighters are out inspecting terminals, piers, wharves, and maritime businesses provides a visible presence in the marine domain. Deputy Fire Chief Jeff Reeb of Long Beach Fire Department (interview with author) stated the time a fire engine spends along the landside of the waterfront or patrolling the water in a fire boat is a physical deterrent; just like the police car that patrols the streets can be a deterrent.[69] This statement was echoed by 50% of the interviewees. Chief Reeb also stated the more time firefighters are out of the station whether it is performing fire prevention inspections, checking access points to maritime businesses, patrolling the water or just driving their district, all has the added benefit of enhancing situational awareness of the firefighters. They are more aware of the day–to-day normal activities of the port and potential hazards in their area.[70]

Detection of CBRNE hazards prior to the release or explosion is another area the fire service is involved in terms of potential prevention. The Domestic Nuclear Detection Office (DNDO) of DHS currently has a pilot program for maritime nuclear and

---

[69] Jeff Reeb (Deputy Fire Chief Long Beach Fire Department, CA), interview with the author by phone, December 17, 2007.

[70] Jeff Reeb (Deputy Fire Chief Long Beach Fire Department, CA), interview with the author by phone, December 17, 2007.

radiological detection. The pilot program is taking place in Seattle and San Diego. Several interviewees discussed this program, which seeks to put radiological and nuclear detection equipment on vessels of homeland security partners including fire boats and vessels of other first responders. The purpose of the pilot program is to test the applicability of using these detectors in the marine environment. Seattle and San Diego were chosen due to their proximity to international borders, the large number of small vessels in the area and the large military presence both have.[71] The ability of fire departments to perform detection monitoring while patrolling the water or driving down the street was seen by 75% of the interview participants as a role in prevention fire departments should be involved in.

2. Protection

When ask about what role the fire department plays in protection, interviewees focused on force protection, stating that this is a Department of Defense or law enforcement function and that the fire service should not have a role. However, HSPD-7, Critical Infrastructure Identification, Prioritization and Protection, states, "The terms protect and secure mean reducing vulnerabilities of critical infrastructure or key resources in order to deter, mitigate, or neutralize terrorist attacks.[72] Many of America's critical infrastructures and key resources are located in the marine domain and form a network of systems that that are vital to economic and national security. In the marine domain, as in the rest of the country, the vast majority of these critical infrastructures are owned by private industry. A total of three interviewees stated fire departments need to be more involved in protection through working with the private sector via exercises, training, increased awareness, plans, and information sharing. Fire departments have interacted with private infrastructure owners and operators through normal duties for many years. Fire departments have an opportunity to reach out and work together to prepare for a

[71] Homeland Security Watch, *Nuclear Defense Reaches out to Small Boats*, September 5, 2007 http://www.hlswatch.com/category/radiological-nuclear-threats/ (accessed March 14, 2008).

[72] The White House, Homeland Security Presidential Directive 7, *Critical Infrastructure Identification, Prioritization and Protection* (Washington, D.C., December 17, 2003).

terrorist attack or natural disaster with the private sector stated Marvin Ferrriera Security Manager for APM Terminals (interview with author).

3. Response

The entire maritime officials interviewed stated fire departments response role for homeland security is similar to the normal daily duties. They described the following activities fire departments would perform during a homeland security response:

- Life safety
- Search and rescue (including technical rescue and water rescue)
- Incident stabilization
- Fire suppression
- Emergency Medical Services
- Initiating the National Incident Management System (NIMS)
- Hazardous materials detection and identification (including CBRNE)
- Decontamination
- Evidence preservation
- Vessel stabilization[73]

These duties are very similar to the ones fire departments protecting ports and port facilities do every day. Chief Randy Hanson of Seattle Fire Department (interview with author) stated all responses to terrorist attacks or natural disasters start off as a local event with the local fire department often being the first on the scene. They are responsible for initiating the National Incident Management System (NIMS) and beginning to address the consequences of the event. Six of the participants interviewed stated fire departments' use and familiarity with the incident command system is a key asset in maritime incidents. All participants interviewed stated that response has been and will remain the primary function of fire departments in maritime homeland security.

[73] Interviews by the author, conducted between September 2007 and December 2007.

4. Recovery

Recovery is an area that the fire service has not traditionally been involved in, once the fire is out or the hazardous material leak stopped, the fire department's job is done. However, in the event of a terrorist attack or natural disaster the fire department does have a role. Chief Luke Carpenter Assistant Chief of Bainbridge Island Fire Department (interview with author) stated "getting the port back up and running is related to how well we (fire department) responded to the incident."[74] Five of the interviewees stated that the time to think about recovery is very early in the incident. They expressed that the sooner the plans section and logistics section start to work on recovery, the more smoothly and quickly it can occur. Two of the interviewees stated that agencies and private sector entities involved in recovery need to be in a unified command established for an event as early as possible to improve recovery efforts. Chief Reeb LBFD (interview with author) stated in the event of a CBNRE attack, fire departments' recovery role would include perimeter monitoring and telling the public when it is safe to go back into the incident area. He stressed that the public and organized labor both trust the fire department to provide reliable information concerning public safety and the fire service should be prepared to deliver it. Four of the interviewees stated the fire service has assisted in recovery of terrorist attacks and natural disasters, namely with the use of fire boats; in New York City after 9/11 the fire boats provided water for fire protection to lower Manhattan, and in San Francisco following the earthquake in 1989.

C. INTELLIGENCE AND INFORMATION SHARING

Prior to the attacks of 9/11 most fire departments in the United States had only limited involvement with intelligence, many relying on law enforcement to provide intelligence to them. Following the events of 9/11, the fire service and other first responders realized the need to have a greater involvement with intelligence.

[74] Luke Carpenter (Assistant Fire Chief, Bainbridge Island Fire Department, WA), interview by author, Seattle, WA, December 28, 2007.

Table 2. Intelligence and Information Sharing

Participants	"Eyes and Ears"	Enter buildings to obtain info	Information sharing	Fusion center
1		X	X	X
2	X	X	X	X
3	X		X	X
4	X		X	X
5	X		X	X
6	X	X	X	X
7	X	X	X	
8	X	X		X
Total	6	5	7	7
Percentage	87.5%	62.5%	87.5%	87.5%

Table 2 provides a frequency count of the sub-topics discussed by the maritime leaders interviewed regarding Intelligence and Information Sharing.

In the maritime domain, AMSC have established an intelligence sub-committee to specifically address maritime issues. This sub-committee, like the AMSC, is made up of stakeholders from all levels of government. The intelligence sub-committee works on area specific threats, tactical responses, improving the collection and dissemination of intelligence, establishment of notification procedures and brief the AMSC. In addition, to address the maritime issue of intelligence and information sharing, the U.S. Coast Guard has established Interagency Operational Centers. "These centers provide intelligence information and real time operational data from sensors, radars, and cameras at one location to federal and non-federal participants 24 hours a day."[75] Captain Metruck Sector Seattle Captain of the Port (interview with author) stated he sees the operational centers as "pushing information out both horizontally and vertically as an event unfolds. I would like people here (operational center) to collect information as it develops, to make sure people at the scene have all the information they need."[76] A total

[75] U.S. Government Accounting Office, *Maritime Security: New Structures Have Improved Information Sharing, but Security Clearance Processing Requires Further Attention*, (GAO, 2005), 10.

[76] Stephen Metruck (Captain, U.S. Coast Guard, Sector Seattle), interview by author, September 25, 2007.

of four participants interviewed stated that fire departments should have access to these maritime operational centers. This data may be skewed based on the large number of interviewees from the Puget Sound, which has one of the few up and running operational centers.

Some of the operational centers have restricted areas requiring a secret level clearance to enter. These maritime specific centers allow homeland security partners to co-locate, build relationships and trust. It also provides an opportunity to understand each other's intelligence and information needs, and information gathering capabilities. This can best be obtained by fire departments staffing the operational centers on a regular basis.

At the present time, there are a very limited number of Joint Harbor Operation Centers in operation. For fire departments in maritime areas that do not have an operational center, being a part of their local or state homeland security fusion center or Joint Terrorism Task Force (JTTF) can aid in obtaining and share information. Fusion centers have been successful in bringing together agencies to gather information, analyze it and disseminate it. Seven participants stated fire departments should be involved in fusion centers.

Information sharing was discussed by seven of the participants. However, not all the participants were satisfied with the current state of information sharing. Chief Carpenter BIFD (interview with author) stated the first responder community has come a long way in sharing information since 9/11; however, we (first responders) still do not share information well. He related an incident where the Washington State Bomb Squad responded past his fire station to the Washington State Ferry. He called the State Patrol inquiring on the response and was told there is a bomb threat to the ferry. The local police and fire department had not been notified. The state bomb squad has at least a 20-minute response to the ferry terminal.[77] Two other participants relayed similar incidents where information was not shared with other first responders. As first responders work

[77] Luke Carpenter (Assistant Chief, Bainbridge Island Fire Department, WA), interview by author, December 28, 2007.

to improve information sharing, whether within a fusion center or at an incident, other agencies that could be affected by the information should be notified.

Not everyone thinks that the fire service should jump into the intelligence field. Over half of the participants that discussed using fire departments authority to enter buildings for information collection purposes as something fire departments should not engage in. Chief Randy Hansen Seattle Fire Department Battalion Chief (interview with author) echoed the sentiments of three other participants regarding the fire department role in intelligence, fire departments need intelligence to increase situational awareness, be prepared for response, and to be aware of threat potentials. Training on what to look for and notify law enforcement is "a fine line that could undermine our relationship with the public." He related the Seattle Fire Department's experience with the World Trade Organization meeting in Seattle in 1999, with massive protests and the streets clogged with people, many fighting with law enforcement. The fire department was able to get in and out of areas to treat the injured without any major difficulty because we are not viewed by the public as law enforcement.[78] Captain Metruck USCG (interview with author) stated that he did not think intelligence, information collection and analysis was part of the "fire department culture."[79]

Of the maritime homeland security leaders interviewed, six support fire departments being another set of "eyes and ears" during normal duties. However, the use of fire departments' ability to gain entry for information gathering remains divided and undecided.

D. AREA MARITIME SECURITY COMMITTEE

The AMSC provides a framework for all entities with authority and responsibility in the maritime domain, to come together under the leadership of the USCG, to create local port security plans, to implement and continually exercise the plan. The membership of the committee consists of federal, state, and local agencies with homeland

[78]Randy Hansen (Battalion Chief, Seattle Fire Department), interview by author, December 28, 2007.

[79] Stephen Metruck (Captain, U.S. Coast Guard, Sector Seattle), interview by author, September 25, 2007.

security responsibilities in the marine domain, tribal entities, and private stakeholders. Fire departments participation in AMSC has provided opportunities to increase situational awareness in the maritime domain. Most of the participants interviewed discussed the positive aspect of networking with other maritime partners that the AMSC has created, in addition to the increased awareness of each stakeholder's role in the port complex. It has also improved the exchange of information with stakeholders, allowing the fire department to have a source of information.

Table 3. Area Maritime Security Committee

Participants	All hazard	Networking	Situational Awareness	Capabilities
1	X	X	X	X
2		X	X	
3	X	X		X
4	X	X	X	X
5	X	X		
6		X	X	X
7	X	X	X	X
8	X	X	X	
Total	6	X	6	5
Percentage	75%	100%	75%	62.5%

Table 3 provides a frequency count of the sub-themes discussed by the maritime leaders interviewed under the theme AMSC.

Many maritime areas have several fire departments with overlapping responsibility. Since the AMSC may not be able to accommodate all fire departments having jurisdiction in the marine domain as members, fire departments need to share pertinent information with one another. Chief Carpenter BIFD (interview with author) stated there is no mechanism in place for fire departments to share information from the AMSC; the coordination and information sharing from one fire department to another needs improvement.[80] With much of the focus today on communication between agencies from different levels of government (federal, state, and local), fire departments

[80] Luke Carpenter (Assistant Chief, Bainbridge Island Fire Department, WA), interview by author, December 28, 2007.

need to be reminded to share information with other departments who could be affected by the information. Creating a mechanism to facilitate information sharing between fire departments at a larger, regional level would provide an increased situational awareness in the marine domain.

One of the main functions of the AMSC is to develop a security plan for the port. Of the leaders interviewed, six stated the AMSC provides a framework for maritime stakeholders to broaden the scope of the committee to include all hazards. Many of the security plans developed for ports can be used as the basis for all hazards plans. Marvin Ferreira, APM Terminals (interview with author) stated the evacuation plan for a terrorist CBRNE attack and an evacuation plan for a tsunami have many common elements and could be used by different agencies to prevent duplication of work.[81] Fire departments have been preparing for natural disasters long before 9/11 and have the experience to assist their local AMSC in expanding existing plans and developing new ones.

E. INTERAGENCY TRAINING AND EXERCISE

One of the main purposes of AMSCs was to create security plans for the ports and test those plans through exercises. Fire departments involvement with the plans process and with exercises is critical to identifying response capabilities, gaps, and facilitating interagency coordination. Exercises mandated by the MTSA, AMSTEP and PortSTEP have assisted in increasing the coordination and collaboration between maritime partners. With the large number of critical infrastructures and key resources in the marine domain, interagency training and exercises become essential for identifying response capabilities and gaps. Exercises in the marine domain have included a variety of types, to include functional, tabletop and full scale. Of the homeland security leaders interviewed, all agreed that interagency exercises have improved coordination, collaboration and preparedness. However, all stated there is room for improvement. All the interviewees stated participation in exercises is very important to improve maritime homeland security.

[81] Marvin Ferreira (Security Manager, APM Terminals Tacoma, WA) interview by author November 28, 2007.

Table 4. Interagency Training and Exercises

Participants	Exercise participation	Marine Terrorism Response	Unified Command	Integration
1	X	X	X	X
2	X	X	X	
3	X	X	X	X
4	X			X
5	X		X	X
6	X	X	X	
7	X	X	X	X
8	X	X		X
Total	8	6	6	6
Percentage	100%	75%	75%	75%

Table 8.4 provides a frequency count of the sub-themes discussed by the maritime leaders interviewed under the theme Interagency Training and Exercises

One concern stated by six of the maritime leaders was the lack of exercising done on different aspects of unified command. In the marine domain, to physically setup a unified command post and be able to congregate all the leaders in one location without prior notification and/or pre-staging is perceived to be a problem. In addition, the large number of agencies that are involved in an event in the marine domain adds to this problem. The interviewees make numerous relevant comments concerning exercises and unified commands. Chief Hansen SFD (interview with author) stated exercises should not try to be everything to all participants; most of the problems at exercises are at the unified command, reduce full-scale exercises and focus on command and control elements.[82] Captain Metruck USCG (interview with author) stated that as situation develops where is the command post going to be. How is it going to transition to unified command? How are all the agencies going to get the leaders to unified command? At the Marine Terrorism Response exercise all leaders were pre-positioned; what about the next tier up?[83] Chief Reeb LBFD (interview with author) stated there is too much

[82] Randy Hansen (Battalion Fire Chief, Seattle Fire Department), December 22, 2007.

[83] Stephen Metruck (Captain, U.S. Coast Guard, Sector Seattle), September 25, 2007.

emphasis on large scale exercises, the deliverables that come out of the large scale exercises have not been worthy of the effort. More focus is required on what he called medium scale exercises which involving fewer participants.[84]

F. PUBLIC/PRIVATE PARTNERSHIPS

In the marine domain, the vast majority of critical infrastructure and key resources are owned and operated by the private sector. For homeland security to be effective, it must rely on both government and the private sector to do their respective parts.

Table 5. Public/Private Partnership

Participants	Increase response capability	Training	Planning
1	X	X	
2	X		
3	X	X	X
4	X		
5		X	X
6	X	X	X
7		X	X
8	X		
Total	6	5	4
Percentage	75%	62.5%	50%

Table 8.5 provides a frequency count of the sub-themes discussed by the maritime leaders interviewed under the theme "Public/Private Partnership."

Six of the interviewees discussed how a public/private partnership could increase response capabilities in the marine domain. Chief Carpenter, BIFD (interview with author) stated that events in the marine environment can create complex issues for responders especially events that take place on the water. In the event of a terrorist incident involving a vessel on the water, first responders must be prepared to have a means to reach the incident site. Fire departments and law enforcement agencies who protect port and maritime areas have limited assets for use in response. If the vessel is

[84] Jeff Reeb (Deputy Fire Chief, Long Beach Fire Department, CA), December 17, 2007.

disabled or otherwise unable to reach the shore, access to the scene is unavailable for the vast majority of first responders. Fire boats and law enforcement boats will immediately respond to the scene but how will the rest of the fire fighters, emergency medical personnel and law enforcement officers reach the scene?[85] As the Marine Terrorism Response exercise demonstrated (USS Cole type of attack on a Washington State ferry), local response capability to events on the water is severely limited. [86] Fire departments that have staffed fire boats and rescue boats available to respond immediately can only perform a small number of the activities needed. If the vessel is able to get to a shore-side location, the rest of the responding units will be able to access the vessel and perform their duties. Two interviewees stated fire departments should do response planning with other marine partners, including the private sector, to fill gaps in response capabilities. Chief Sodeman of Seattle Fire Department (interview with author) stated the marine domain has a large concentration of industries and business that use hazardous materials in their operations. Fire departments need to conduct pre-fire inspections of these hazardous sites to increase their situational awareness, which can improve response.[87]

Also mentioned in public/private partnership discussions was training. Of the five participants that discussed training, four of them described how each would benefit from training together. Benefits would be gained in areas included the public agencies assisting private industry in areas such as NIMS, special equipment training (self contained breathing apparatus) and response procedures. Items discussed where government would benefit from the private sector included specialized equipment operations (cranes, heavy equipment, and vessel operations) and hazardous industrial processes.

The third sub-theme discussed by four of the participants was planning. All of the participants that mentioned public/private planning did so in the context of the AMSC.

---

85 Luke Carpenter (Assistant Chief, Bainbridge Island Fire Department, WA), interview by author, December 28, 2007.

86 Port of Seattle, *Marine Terrorism Response Plan*, vol. II (December 2005), H-3.

87 Earl Sodeman (Deputy Chief, Seattle Fire Department Seattle, WA), interview by author, December 28, 2007.

One of the initial requirements of the AMSC was to develop port security plans which involved both the public and private sectors. Participants stated that the planning process must help establish cooperation and build relationships in the maritime community between private industry and public agencies.

G. CONCLUSION

The interviews of maritime homeland security leaders helped provided valuable information on the fire service's role in maritime homeland security. In addition the fire service traditional role of response, leaders see the fire service has the potential to assist in maritime homeland security in other less traditional areas. One area that was clearly divided is the role of the fire service in intelligence and information gathering. This is a subject that public leaders and fire service leaders need to discuss to determine the extent of involvement it is to have.

The large number of stakeholders in the marine domain, both governmental and private, demonstrates the need for these stakeholders to work together to enhance maritime homeland security. Fire departments have the opportunity to become involved in several programs already in place to achieve this. Participation in their local AMSC, interagency exercises, and the USCG Homeport are a few of these. Working with the private sector provides the opportunity to reduce resource and response gaps, build partnerships and increase situational awareness.

The open nature of ports coupled with the dependence of the U.S. economy on the goods and services that go through them creates a challenging environment for homeland security. Fire departments with jurisdiction in the marine domain need to be prepared to meet this challenge. The next chapter draws conclusions from the research regarding the fire services role in maritime homeland security.

THIS PAGE INTENTIONALLY LEFT BLANK

IX. CONCLUSION

The United States is a marine nation relying on the oceans and U.S. ports to ship and deliver goods and cargo to and from the rest of the world. The U.S. has 361 ports and 95,000 miles of coastline to protect and secure.[88] Waterways and ports by their nature are open and ensuring security is a challenge. In addition, many of these ports are located near large metropolitan areas and employ large numbers of people involved in moving goods in and out of the port. These ports are vulnerable to terrorist attack due to their open nature and proximity to transportation and metropolitan areas. Ports also contain many facilities that terrorists could target such as oil refineries, passenger ferries, military bases and vessels, cruise ships, sports stadiums, factories, power plants and other critical infrastructures. In response to a potential terrorist attack or natural disaster the U.S. Government has issued several policies designed to strengthen the security of the maritime domain, *Homeland Security Presidential Directive – 13 Maritime Security Policy, The National Strategy for Maritime Security, Port Security Grant Program, Container Security Initiative, Customs Trade Partnership Against Terrorism, Maritime Transportation Security Act of 2002, and the Security and Accountability for Every Port Act of 2006 (SAFE Port Act)*. If a terrorist attack or natural disaster occurs it will start as a local event. During 9/11 the consequences of the terrorist attacks were initially dealt with by the first responders of the Washington DC area and the New York City area. The same will be true to an event in the marine domain, fire departments and other first responders must be prepared to protect, prevent, respond to and recover from a terrorist attack or natural disaster.

Terrorism, in particular the potential for new terrorist attacks, has caused the United States to increase its preparedness and response capabilities. The marine domain presents a complex environment, with multiple federal, state and local agencies having authority and responsibilities for homeland security, a high concentration of critical infrastructure and key resources, large population centers and an open, difficult to secure

[88] U.S. Coast Guard, Coast Guard Publication, http://www.uscg.mil/hq/g-cp/comrel/factfile/Factcards/Homeland.htm (accessed February 12, 2008).

environment. Terrorists have demonstrated a history of attacking vessels including the USS Cole, the French oil tanker Limburg, and the Mumbai terrorist attack used the marine domain to enter the city and avoid security checkpoints. Maritime homeland security presents many challenges for the fire service as it strives to be prepared for the next attack. What is the role of the fire service in maritime homeland security? The fire service has historically been one of the key agencies in responding to emergencies and natural disasters, performing incident and consequence management. However, in the maritime/port environment, with multiple agencies having homeland security responsibilities, the majority of critical infrastructures owned and operated by private stakeholders, the fire service is one agency that works with these entities on a daily basis and is a position to assist in maritime homeland security beyond its traditional duties. This thesis examined the current role the fire service has in maritime homeland security and examined roles not traditionally performed by the fire service, which could enhance maritime homeland security.

To determine fire departments role in maritime homeland security, maritime homeland security leaders were interviewed and an Internet survey was conducted with maritime stakeholders from federal, state, local agencies and the private sector. The Internet survey results were tabulated and analyzed. The data from the interviews was coded and the aggregate results revealed five main topics. From the data, five areas emerge where fire departments should be involved to enhance maritime homeland security: HSPD-8 National Preparedness, intelligence and information sharing, Area Maritime Security Committee (AMSC), interagency exercises and training, and public/private partnerships.

A. HOMELAND SECURITY PRESIDENTIAL DIRECTIVE-8

Homeland Security Presidential Directive-8 National Preparedness establishes policies to strengthen the preparedness of the United States to prevent, respond to and

recover from terrorist attacks, natural disasters and other emergencies.[89] The fire service has a role in all three of these areas of HSPD-8. In prevention, the fire service can act as a deterrent to terrorist by being visible and aware of their normal activities in their response areas. Several leaders interviewed stated the fire engine on the street or the fire boats on the water is just like a police car patrolling the streets and are a deterrent to terrorists. Fire departments also have specialized detection equipment and have partnered with other agencies for new applications of detection equipment to enhance prevention capabilities such as the DNDO pilot project for radiological/nuclear detection in the marine domain currently underway in Seattle and San Diego. Several of those interviewed stated fire's role in homeland security response is very similar to the duties they perform every day: life safety, incident stabilization, and initiating the incident command system. The survey indicated responders view their agency better prepared than other response agencies. This could be due to the lack of understanding between agencies of their response capabilities, equipment and training. Some of the leaders interviewed stated recovery should be a consideration early in an incident, and agencies involved in recovery need to be part of the unified command as soon as possible to improve recovery and reduce down time. The research from this thesis indicates that recovery needs to be addressed very early in the incident to minimize the impact, and reduce the time until marine and port operation can be resumed.

B. INTELLIGENCE AND INFORMATION SHARING

The area of intelligence and information sharing is relatively new to the fire service. In the maritime domain, joint operational centers bring together homeland security partners housed under one roof with capabilities to monitor the local marine domain and provide an overview of the marine environment, however, at this time there is only a limited number of these centers in the U.S. The survey strongly supported these operational centers and fire department participation in local fusion centers and/or local JTTF. Participation in these is critical for the most up to date information and

[89] The White House, Homeland Security Presidential Directive 8 National Preparedness (Washington, D.C., December 17, 2003). http://www.whitehouse.gov/news/releases/2003/12/20031217-6.html (accessed February 22, 2008).

intelligence on potential terrorist activities in their local area. In the survey both fire fighters and law enforcement officers overwhelmingly stated fire departments should be a part of fusion centers. Interviewers stated working in an intelligence center will provide fire departments with the ability to better understand the information needs of law enforcement and, at the same time, the intelligence analysts will better understand fire department needs. Fire departments have the ability to be another set of "eyes and ears" in the community to provide information to the fusion centers. To accomplish this, several interviewers stated that fire departments need to be trained by law enforcement on information collection and reporting. Going beyond another set of "eyes and ears"—and the use of the fire departments' authority to enter buildings to collect information—was overwhelming and not well received by fire fighters surveyed or interviewed. One fire chief noted that "the fear of breaking the public's trust, something the fire service has built up through the years and values, is something fire fighters are not willing to risk." To participate in intelligence, fire departments must obtain necessary security clearances.

C. AREA MARITIME SECURITY COMMITTEE

The AMSC is a committee of maritime stakeholders from all levels of government (federal, state, local, and tribal), private sector industry and labor organizations. Fire department involvement with the AMSC is central to understanding maritime homeland security in your local area. Several leaders interviewed felt this committee has done more for maritime interagency coordination than thing else. The committee addresses maritime homeland security issues, identifies critical infrastructures, and develops port security plans, exercises, and tactical units to respond in the event of a terrorist attack. Several AMSCs have included exercises and plans to address recovery and all hazards in addition to security exercises and plans. Maritime domain fire departments participation in the AMSC allows them to become actively involved in all aspects of maritime homeland security and provides opportunities to build relationships and collaboration. One interviewer stated that not all fire departments are part of the AMSC, member departments need to disseminate information to other fire departments in the marine domain to increase situational awareness of all fire departments in the area.

The AMSC has tactical work groups (some are interagency) to address local vulnerabilities and threats. Fire departments have assets to contribute to these groups and can benefit from participating with increased response capability and interagency coordination.

D. INTERAGENCY EXERCISES AND TRAINING

Interagency exercises and training has greatly enhanced maritime homeland security. The AMSTEP and PortSTEP programs have increased the awareness of maritime issues, fostered interagency coordination and collaboration, and brought maritime partners both public and private together. Interviewers stated the large number of agencies from federal, state and local governments and the private sector that have responsibility in the marine domain requires interagency planning and participation in exercises to test security plans and find response gaps. These exercises have also provided agencies with an understanding of each other's roles and responsibilities, and their response capabilities. Maritime leaders interviewed stated there are still areas to improve on for an effective response; some of these include unified command, information sharing and logistics. The Internet survey demonstrated the current number of times for interagency exercises and training is infrequent. With the large number of agencies involved, exercises and training should be conducted more frequently to achieve an effective response. The Marine Terrorism Response exercise was discussed by several maritime leaders who stated the regional aspect to maritime fire fighting can improve response to many port and maritime locations. Training and exercises present an opportunity for the fire service to work with the private sector in increasing response capability.

E. PUBLIC/PRIVATE PARTNERSHIPS

In the marine domain, the vast majority of critical infrastructures are owned and operated by private industry. Both the Internet survey and interviews with maritime leaders stated partnerships with the private sector would enhance maritime homeland security. Private sector leaders interviewed stated they had a better relationship with

federal partners than with state and local. Federal partners have made the effort to develop relationships where the state and locals have not. Fire department involvement in maritime homeland security provides an opportunity to become better informed and improve situational awareness of the marine domain. Leaders interviewed stated fire departments should build relationships with the maritime community and understand areas where private industry and the fire department can work together to improve homeland security.

The majority of respondents to the Internet survey stated the private sector and fire departments can assist one another in responding to incidents, where the private sector has the potential to fill gaps in response capabilities. Similar to when heavy equipment operators assisted rescue efforts at ground zero following 9/11, the marine domain has specialized equipment requiring skilled operators that could be needed. These include: crane operators, longshoreman, cruise ships, tugboat operators, terminal operators, salvagers, and others that may be required to assist in rescue efforts.

X. RECOMMENDATIONS

The maritime domain presents much vulnerability to homeland security. Fire departments that have jurisdiction in the marine domain have the opportunity to expand their role in homeland security and contribute to increasing the level of preparedness in the marine domain. The following are seven recommendations that fire departments should implement beyond their traditional roles to increase cooperation, coordination, response capabilities, and preparedness in the marine domain:

- *Public/private partnerships*: Many fire departments in the marine domain do not have the response capability required to respond to events on the water or other areas of the marine domain. The private sector has assets, both physical and human, that can fill local response gaps, increasing response capabilities. Fire departments must identify areas where the private sector can assist, seek their assistance, and sign memorandums of understanding detailing requirements for response, staffing, training, and funding. Skilled laborers' abilities may be required on maritime responses to terrorist attacks or natural disasters. Fire departments should train with these workers to understand each other's knowledge, skills, and abilities. Fire fighters can assist in training these workers so they will be able to work in hazardous environments. To build relationships with key members of the maritime community, fire departments should participate in maritime organizations such as the Area Maritime Security Committee and the Harbor Safety Committee.
- *Area Maritime Security Committee*: The AMSC brings together federal, state, and local agencies and private maritime stakeholders to address maritime homeland security issues in the local area. The AMSC develops port security plans, and plans and leads exercises. Fire department participation is vital for situational awareness on local maritime homeland security issues, developing and updating security plans, planning exercises and improving preparedness. Fire departments should develop an information sharing system to inform other area fire departments of developments learned through the AMSC.

- *Intelligence and Information Sharing*: Fire departments involvement in fusion centers and/or JTTF will benefit both the intelligence community and the fire service. Fire departments must have policies and procedures in place on intelligence reporting, storing, disseminating, safeguarding, and sharing. Once policies and procedures are in place department members must be trained on the use of intelligence and handling of sensitive information. To work in fusion centers fire departments must obtain the necessary security clearances, departments need to plan ahead to make sure significant members have the required clearances for 24/7 coverage. In addition, fire departments should contact the FBI to determine is there is a marine liaison officer assigned to the area and discuss ways to assist one another. Fire departments need to develop a formal information sharing system between departments to keep one another informed on fire service related issues, close existing gaps and maintain security of information.
- *U.S. Coast Guard's Homeport*: The U.S. Coast Guard "Homeport" webpage takes advantage of technology to increase the situational awareness in the marine domain. This technology allows for real time notification of on-going incidents in the marine environments, sharing of information and provides the Captain of the Port a means to quickly communicate to all homeland security stakeholders. Fire departments must register through their local Coast Guard administrator to be able to access the secure side of Homeport to obtain information on local maritime issues.
- *Training with the Private Sector*: Homeland security incidents in the marine domain may require private industry to assist in response. Fire departments need to train together with the private sector to understand each other's strengths and weaknesses, knowledge, skills, and abilities, and how best to assist one another as well as each other's response capabilities. Fire departments can also assist the private sector in understanding the incident command system and National Incident Management System.

- *Regional Response*: Many fire departments that respond to maritime incidents do not have the staffing or specialized training and equipment required for maritime incidents. Forming a regional fire-fighting asset similar to the Puget Sound Marine Fire Fighting Consortium with a pool of specially trained and equipped fire fighters can augment any single fire departments resources at a maritime incident.
- *Interagency exercises and training*: The interagency exercises and training conducted to date have improving response to maritime incidents and knowledge of other agencies response capabilities. Continued participation in exercises (functional, tabletop or full scale) is necessary to build upon the integration and cooperation already achieved. Fire departments can take the lead and conduct interagency exercises and training more frequently to improve response and incident management. In addition, the lack of access to after action reports for exercises across the country prevents the lessons learned from being shared among the maritime community. After action reports could be made available on a secure website, such as the USCG's Homeport, for responders to view and learn from.

The marine domain presents many challenges for fire departments that have jurisdiction in the marine domain. By adopting these recommendations, fire departments will be better prepared to assist in maritime homeland security. These recommendations will increase a fire department's ability to interact with other agencies in the marine domain, leverage private industry to increase response capabilities, participate in exercises, share information, and provide opportunities for fire departments to increase their role in maritime homeland security.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A. SURVEYS

1. I am satisfied with my agencies level of preparedness to respond to a terrorist incident or major natural disaster in the maritime domain.
Response Percent, Response Count

1 Strongly Disagree 6.9% 2
2 10.3% 3
3 17.2% 5
4 Neutral 6.9% 2
5 41.4% 12
6 17.2% 5
7 Strongly Agree 0.0% 0

2. I am satisfied with the U.S. Coast Guard's level of preparedness to respond to a terrorist incident or major natural disaster in the maritime domain.
Response Percent, Response Count

1 Strongly Disagree 0.0% 0
2 0.0% 0
3 20.0% 6
4 Neutral 16.7% 5
5 30.0% 9
6 33.3% 10
7 Strongly Agree 0.0% 0

3. I am satisfied with other local or state agencies level of preparedness to respond to a terrorist incident or major natural disaster in the maritime domain.
Response Percent, Response Count

1 Strongly Disagree 3.3% 1
2 13.3% 4
3 40.0% 12
4 Neutral 13.3% 4
5 23.3% 7
6 6.7% 2
7 Strongly Agree 0. % 0

4. The Area Maritime Security Committee has been very effective in improving preparedness in my area.

Response Percent, Response Count

1 Strongly Disagree 3.3% 1
2 3.3% 1
3 6.7% 2
4 Neutral 33.3% 10
5 20.0% 6
6 23.3% 7
7 Strongly Agree 10.0% 3

5. The 15 National Planning Scenarios has been effective in assisting my agency in preparing for an incident in the marine domain.
Response Percent, Response Count

1 Strongly Disagree 3.3% 1
2 20.0% 6
3 13.3% 4
4 Neutral 36.7% 11
5 23.3% 7
6 3.3% 1
7 Strongly Agree 0.0% 0

6. My agency uses the National Incident Management System (NIMS) regularly on incidents.
Response Percent, Response Count

1 Strongly Disagree 0.0% 0
2 0.0% 0
3 3.4% 1
4 Neutral 6.9% 2
5 13.8% 4
6 17.2% 5
7 Strongly Agree 58.6% 17

7. My agency has adequate response capabilities for an incident of national significance in the marine domain.
Response Percent, Response Count

1 Strongly Disagree 10.3% 3
2 6.9% 2
3 27.6% 8
4 Neutral 20.7% 6

5 31.0% 9
6 3.4% 1
7 Strongly Agree 0.0% 0

8. My agency has policies and procedures (standard operating procedures) in place for potential incidents in the marine domain.
Response Percent, Response Count

1 Strongly Disagree 3.4% 1
2 6.9% 2
3 10.3% 3
4 Neutral 13.8% 4
5 20.7% 6
6 37.9% 11
7 Strongly Agree 6.9% 2

9. I believe public/private stakeholder collaborations are needed to improve response efforts in the marine domain.
Response Percent, Response Count

1 Strongly Disagree 3.3% 1
2 0.0% 0
3 0.0% 0
4 Neutral 6.7% 2
5 3.3% 1
6 16.7% 5
7 Strongly Agree 70.0% 21

10. Members of my agency are knowledgeable of the response capabilities of the other agencies that would respond to a major incident in the marine domain.
Response Percent, Response Count

1 Strongly Disagree 3.3% 1
2 0.0% 0
3 6.7% 2
4 Neutral 6.7% 2
5 43.3% 13
6 36.7% 11
7 Strongly Agree 3.3% 1

11. Fire departments should participate in intelligence (fusion) centers.

Response Percent, Response Count

1 Strongly Disagree 0.0% 0
2 3.4% 1
3 0.0% 0
4 Neutral 6.9% 2
5 31.0% 9
6 24.1% 7
7 Strongly Agree 34.5% 10

12. I am satisfied with the intelligence information my agency receives.
Response Percent, Response Count

1 Strongly Disagree 7.1% 2
2 21.4% 6
3 17.9% 5
4 Neutral 17.9% 5
5 17.9% 5
6 14.3% 4
7 Strongly Agree 3.6% 1

13. My agency has policies and procedures on how to report suspicious activity.
Response Percent, Response Count

1 Strongly Disagree 14.3% 4
2 3.6% 1
3 7.1% 2
4 Neutral 3.6% 1
5 14.3% 4
6 17.9% 5
7 Strongly Agree 39.3% 11

14. Fire departments should be trained to be another set of eyes and ears as they participate in their normal duties (fire calls, EMS calls, code inspections, pre-fires).
Response Percent, Response Count

1 Strongly Disagree 7.1% 2
2 0.0% 0
3 0.0% 0
4 Neutral 7.1% 2
5 17.9% 5
6 32.1% 9

7 Strongly Agree 35.7% 10

15. Fire departments should use their ability to enter buildings (fire inspections) to assist law enforcement in collecting information on what or who is inside the building.
Response Percent, Response Count

1 Strongly Disagree 21.4% 6
2 10.7% 3
3 10.7% 3
4 Neutral 17.9% 5
5 25.0% 7
6 0.0% 0
7 Strongly Agree 14.3% 4

16. How many times does your organization conduct specific training for incidents in the maritime domain in a year?
Response Percent, Response Count

1 30.8% 8
2 15.4% 4
3 0.0% 0
4 19.2% 5
5 7.7% 2
6 11.5% 3
7 or more 15.4% 4

17. How many times does your organization conduct specific training for incidents in the maritime domain with federal agencies in a year?
Response Percent, Response Count

1 42.3% 11
2 26.9% 7
3 3.8% 1
4 11.5% 3
5 11.5% 3
6 0.0% 0
7 or more 3.8% 1

18. How many times does your organization conduct specific training for incidents in the maritime domain with local and state agencies in a year?

Response Percent, Response Count
1 46.2% 12
2 23.1% 6
3 11.5% 3
4 0.0% 0
5 7.7% 2
6 0.0% 0
7 or more 11.5% 3

19. How effective is planning and collaboration between our organization and federal agencies?
Response Percent, Response Count

1 Strongly Disagree 0.0% 0
2 11.5% 3
3 19.2% 5
4 30.8% 8
5 15.4% 4
6 15.4% 4
7 or more 7.7% 2

20. How effective is planning and collaboration between our organization and local agencies?
Response Percent, Response Count

1 0.0% 0
2 8.0% 2
3 12.0% 3
4 28.0% 7
5 24.0% 6
6 20.0% 5
7 or more 8.0% 2

21. I am primary employed by:
Response Percent, Response Count

Municipal 57.1% 16
County 3.6% 1
State 3.6% 1
Federal 25.0% 7
Private 3.6% 1
Other 7.1% 2

22. My current occupation is best described as:
Response Percent, Response Count

Fire Fighter 48.1% 13
Law Enforcement 25.9% 7
Government 18.5% 5
Maritime Private Stakeholder 3.7% 1
Other 3.7% 1

23. Is there anything you would like to add?
Response
Count
10

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B. INTERVIEW QUESTIONS

1. What do you see as the fire departments role in homeland security in the marine domain?

2. Other than response how can the fire department assist in prevention? Recovery? Protection?

3. How effective has the interagency training between federal agencies been? Local agencies?

4. Is there anything that is hindering interagency training?

5. How can interagency training be improved?

6. In relation to the marine domain what kinds of exercises work well? What kinds do not work well?

7. How satisfied are you with the level of preparedness of your agency? How can it be improved? What if anything is hindering it?

8. How satisfied are you with the level of preparedness of other agencies who would respond to a major incident in the marine domain?

9. Does your agency have plans in place for the 15 National Planning Scenarios?

10. Which agencies do you collaborate with in planning?

11. What role do fire departments have in intelligence?

12. To what degree should fire departments be involved in information gathering?

13. Should fire departments have a permanent position in fusion (intelligence centers)?

14. Concerning the Joint Harbor Operations Center, what federal, state and local agencies need to staff it? Why?

15. How successful has the Area Maritime Security Committee been in meeting its goals? Why? Why not?

16. Given the interagency and private stakeholder makeup of the Area Maritime Security Committee, are there other areas it could assist in improving homeland security?

17. How can private stakeholders assist in the response? Recovery?

18. In relation to the marine domain what kinds of exercises work well? What kinds do not work well?

19. Is there anything you would like to add?

LIST OF REFERENCES

American Public Transportation Association. Public Transportation Fact Book, 58th Edition. Washington D.C.: American Public Transportation Association, May 2007. http://www.apta.com/research/stats/factbook/documents/factbook07.pdf (accessed February 21, 2008).

American Shipper, Ships as Terrorist Targets (Austin, Texas: American Shipper, 2002), 59.

Bald, Gary M. Covering the Waterfront– A Review of Seaport Security since September 11, 2001. Testimony before the Senate Judiciary Committee, Subcommittee on Technology and Homeland Security. Congress 108, Session 2, 2004. http:www.globalsecurity.org/security/library/congress/2004_h/040127-bald.htm (accessed January 22, 2007).

Bard, Mitchell G. Terror Aboard the Achille Lauro. Jewish Virtual Library Website. http://www.jewishvirtuallibrary.org/jsource/Terrorism/achille.html (accessed February 14, 2008).

BBC News website. Transcripts: Bin Laden video excerpts. http://news.bbc.co.uk/2/hi/middle_east/1729882.stm (accessed February 12, 2008).

BBC News website. Yemen says Tanker Blast was Terrorism. http://news.bbc.co.uk/2/hi/middle_east/2334865.stm (accessed February 13, 2008).

Caldwell, Stephen L. Maritime Security: Information – Sharing Efforts are Improving. Testimony before the Subcommittee on Government Management, Finance, and Accountability, Committee on Government Reform, House of Representatives. Congress 109, Session 2, 2006.

Collins, Thomas H. Transportation Security. Statement before the Committee on Commerce, Science, and Transportation U.S. Senate. Congress 108, Session 1, September 9, 2003.

Congress. Washington, D.C.: Congressional Research Service, 2006.

Department of Homeland Security press release. Secretary Chertoff's Remarks at the University of Southern California DHS Center of Excellence on Security in the 21st Century. Washington D.C.: July 20, 2007. http://www.dhs.gov/xnews/speeches/sp_1184959845456.shtm (accessed September 11, 2007).

Department of Homeland Security, Homeland Security Presidential Directive – 8, (Washington D.C., December 2003), 1.

Department of Homeland Security, National Response Framework, January 2008, 2.

Department of Homeland Security, The National Infrastructure Protection Plan, (Washington D.C., 2006), 7.

Department of Homeland Security, The National Strategy for Maritime Security, ii, http://www.dhs.gov/xlibrary/assets/HSPD13_MaritimeSecurityStrategy.pdf (accessed February 14, 2008).

Department of Homeland Security, The National Strategy for Maritime Security, September 2005, Appendix A, 27, http://www.dhs.gov/xlibrary/assets/HSPD13_MaritimeSecurityStrategy.pdf (accessed February 14, 2008).

Department of Homeland Security, The National Strategy for Maritime Security, (Washington D.C., September 2005), 10.

Department Of Homeland Security. FY 2007 Homeland Security Grant Program. Washington, D.C.: Department of Homeland Security, 2007. http://www.dhs.gov/xlibrary/assects/grants_st-local_fy07.pdf. (accessed March 5, 2008).

Department of Homeland Security. The National Strategy for Maritime Security. Washington, D.C. Department of Homeland Security. September 2005.

Elegant, Simon. "The return of Abu Sayyaf." *Time Magazine*, August 23, 2004. http://www.time.com/time/magazine/article/0,9171,501040830-686107,00.html (accessed February 13, 2008).

Emergency Response Capabilities at the Ports of Los Angeles and Long Beach.

Flynn, Stephen E. The Limitation of the Current Cargo Container Targeting. Written Testimony before a Hearing of the Subcommittee on Oversight and Investigations, Committee on Energy and Commerce U.S. House of Representatives Congress 108, Session 2, http//:www.cfr.org/publication.html?id=6907 (accessed January 24, 2007).

———. The Neglected Home Front. *Foreign Affairs* 83, no. 5 (September/October. 2004): 20–33. http//:www.foreignaffairs.org/20040901faessay83504/Stephen-e-flynn/the neglected-home-front.html (accessed January 24, 2007).

Frittelli, and Martin R. Lee, Jonathan Medalia, Ronald O'Rouke and Raphael Perl. Port and Maritime Security: Background and Issues. New York: Novinka Books. 2003.

Frittelli, and Jennifer E. Lake. Terminal Operators and Their Role in U.S. Port and Maritime Security. CRS Report to Congress. Washington, D.C.: Congressional Research Service, 2006.

Godges, John (editor). *Maritime Terrorism Risk Involves More Than Just Container Shipping.* Rand Review (Fall 2006): 5.

Government Accounting Office. Homeland Security Process for Reporting Lessons Learned from Seaport Exercises Needs Further Attention. Washington, D.C. January 2005.

Greenberg, Michael D., Peter Chalk, Henry H. Willis, Ivan Khilko and David S. Ortiz. Maritime Terrorism, Risk and Liability. Santa Monica, CA: RAND Corporation, 2006.

Homeland Security Watch, Nuclear Defense Reaches out to Small Boats, September 5, 2007 http://www.hlswatch.com/category/radiological-nuclear-threats/ (accessed March 14, 2008).

International Maritime Organization. Guidance Relating to the Implementation of Los Angeles: University of California at Los Angeles, 2005.

Marvin Ferreira (Security Manager AMP Terminals), interview with the author, Tacoma, WA, November 11, 2007.

Medalia, Jonathan. Port and Maritime Security: Potential for Terrorist Nuclear Attack Using Oil Tankers. CRS Report to Congress. Washington, D.C.: Congressional Research Service, 2006.

Nunez-Neto, Blas. Border Security: Key Agencies and Their Missions. CRS Report to

Parfomak, Paul W. and John F. Frittelli. Maritime Security: Potential Terrorist Attacks and Protection Priorities. CRS Report to Congress. Washington, D.C.: Congressional Research Service, 2007.

Patrick L. Anderson. Lost Earnings Due to West Coast Shutdown – Preliminary Estimate. Anderson Economic Group website, October 2002. http://www.andersoneconomicgroup.com/modules.php?name=Content&pa=display_aeg&doc=859 (accessed September 11, 2007).

Port of Seattle. Marine Terrorism Response Plan. Seattle, Washington: Port of Seattle. 2005. http//:www.marineresponse.org (accessed January 11, 2007).

Riley, K. Jack. Border Control. Santa Monica, CA: RAND Corporation, 2006. http//:www.rand.org/pubs/reprints/2006/RAND_RP1216.pdf (accessed January 19, 2007).

Seattle Post Intelligencer website, "Ferry Security, the FBI and a tough call," August 21, 2007, http://blog.seattlepi.nwsource.com/thebigblog/archives/120406.asp (accessed February 22, 2008).

Seattle Times, FBI asks, who are these men in this photo from ferry?" August 22, 2007, http://seattletimes.nwsource.com/html/localnews/2003847538_ferries22m.html (accessed February 22, 2008).

Seghetti, Lisa M., Jennifer E. Lake and William H. Robinson. Border and Transportation Security: Selected Programs and Policies. CRS Report to Congress. Washington, D.C.: Congressional Research Service, 2005.

Society for Peace Unity and Human Rights website. Chronology of Suicide Bomb Attacks by Tamil Tigers in Ski Lanka. http://www.spur.asn.au/chronology_of_suicide_bomb_attacks_by_Tamil_Tigers_in_sri_Lanka.htm (accessed February 13, 2008).

SOLAS Chapter XI-2 and the ISPS Code. London: International Maritime Organization, 2004.

Stephen Metruck (Captain U.S. Coast Guard, Sector Seattle), interview with the author, Seattle, WA, September 25, 2007.

Sullivan, John P. Terrorism Early Warning and Co-Production of Counterterrorism Intelligence. Lecture, Canadian Association for Security and Intelligence Studies International Conference, Montreal, Canada: 2005.

Texas City Fire Department Web Site. The Texas City Disaster April 16, 1947. http://www.local1259iaff.org/disaster.html (accessed February 13, 2008).

Transportation Security Administration, Maritime Transportation Security Act of 2002, http://www.tsa.gov/assets/pdf/MTSA.pdf 19. (accessed September 2, 2007).

Transportation Security Administration, PortSTEP Overview, http://www.tsa.gov/assets/pdf/factsheet_2.pdf 2.

Transportation Security Administration. PortSTEP. Washington, D.C.: Transportation Security Administration. n.d. http//:www.tsa.gov/what_we_do/layer/portstep/editorial_with_table_0060.shtm (accessed January 21, 2007).

U.S. Border and Custom Protection. Securing Global Supply Chain: Custom-Trade Partnership against Terrorism Strategic Plan. Washington D.C.: U.S. Custom and Border Protection, 2004).

U.S. Coast Guard. Coast Guard Publication. Washington D.C. n.d. http://www.uscg.mil/hq/g-cp/comrel/factfile/Factcards/Homeland.htm (accessed February 12, 2008).

U.S. Custom and Border Protection website. CSI: Container Security Initiative. http://www.cbp.gov/xp/cgov/border_security/international_activities/csi/ (accessed March 7, 2008).

U.S. Department of Transportation Maritime Administration. U.S. Water Transportation Statistical Snapshot. Washington D.C. May 5, 2007. http://marad.dot.gov/MARAD_statistics/2007%20STATISTICS/USWTSR%20bOOKLET.pdf (accessed February 12, 2008).

U.S. Department of Transportation Maritime Administration. North American Cruises 4th Quarter 2006. Washington, D.C.: 2007. http://www.marad.dot.gov/MARAD_statistics/2005%20CRUISE%20UPDATE/cruise%20report%200406.pdf (accessed February 14, 2008).

U.S. Department of Transportation. U.S. Maritime Association U.S. Waterborne Foreign Trade by U.S. Custom Ports. Washington D.C. 2006. http://www.marad.dot.gov/MARAD_statistics/index.html (accessed March 8, 2008).

U.S. Fire Administration. USFA Releases Preliminary Firefighter Fatality Statistics for 2001. Washington D.C.: U.S. Fire Administration, 2002. http://www.usfa.dhs.gov/media/press/2002releases/02-004.shtm (accessed January 14, 2007).

U.S. Government Accounting Office, Maritime Security: New Structures Have Improved Information Sharing, but Security Clearance Processing Requires Further Attention (GAO, 2005), 10.

U.S. Navy, Naval Historical Center website. Port Chicago Naval Magazine Explosion, 1944. http://www.history.navy.mil/faqs/faq80-1.htm (accessed February 13, 2008).

U.S. President. National Security Presidential Directive NSPD-41/Homeland Security Presidential Directive HSPD-13 (Maritime Security Policy). December 21, 2004. https://www.hsdl.org/homesec/docs/whitehouse/nps24-021307-03.pdf&code=932aab2022793a181dc3bd345525e7bc (accessed February 12, 2008).

Washington State Department of Transportation website. Security Measures. http://www.wsdot.wa.gov/ferries/info_desk/faq/index.cfm?faq_id=139 (accessed February 22, 2008).

The White House, Homeland Security Presidential Directive 7, Critical Infrastructure Identification, Prioritization and Protection (Washington, D.C., December 17, 2003).

The White House. Homeland Security Presidential Directive HSPD-13. Washington D.C.: The White House, 2004.

Willis, Henry H. and David Ortiz. Securing Americas Ports. Santa Monica, CA: RAND Corporation. 2006. http//:www.rand.org/commentary/032606SDUT.html (accessed January 24, 2007).

Zegart, Amy B., Matthew C. Hipp and Seth K. Jacobsen. Port Security: Improving *Emergency Response Capabilities at the Ports of Los Angeles and Long Beach* (Los Angeles: University of California at Los Angeles, 2005), 200 http//:www.spa.ucla.edu/calpolicy/files05/zegartcpotextorigedit.pdf (accessed January 19, 2007).

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Ft. Belvoir, Virginia

2. Dudley Knox Library
   Naval Postgraduate School
   Monterey, California

3 Chief Gregory Dean
   Seattle Fire Department
   Seattle, Washington

4. Assistant Chief A. D. Vickery
   Seattle Fire Department
   Seattle, Washington