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In this month's issue of The CIP Report, we take a look at maritime and port security. As the news focuses on the recent events involving Somali pirates taking an American hostage, the importance of maritime security becomes increasingly evident. We present articles that focus on the different aspects of maritime and port security.

The Naval Postgraduate School (NPS) provides an article about the National Security Institute's Maritime Defense and Security Research Programs. The program's research focuses on maritime defense and securing our nation. NPS describes some of the research efforts. The second article, from Old Dominion University, discusses hazardous cargo that comes into U.S. ports and the safety issues involved. The next article provides an overview of the Marine Transportation System and the ongoing efforts to enhance its reliability and resiliency. Another article, from the Commonwealth Homeland Security Foundation (CHSF), explains the importance of port security and the work CHSF is doing in this area. The U.S. Coast Guard (USCG) provides an interesting look at the Hampton Roads Command Center and their role in keeping an important part of our critical infrastructure safe.

This month's Legal Insights discusses the Maritime Transportation Security Act. We also include a reminder of the upcoming 3rd National Conference on Security Analysis and Risk Management that CIP is co-hosting. Lastly, we present the abstract of a regional risk analysis paper recently posted on CIP's website.

We hope you enjoy this issue of The CIP Report as well as find it useful and informative. Thank you for your support and feedback.

Mick Kicklighter
Director, CIP
George Mason University, School of Law

Research Programs Contribute to U.S. Maritime CIP

by Naval Postgraduate School National Security Institute's Maritime Defense and Security

The Naval Postgraduate School (NPS) National Security Institute's Maritime Defense and Security Research Programs (MDSRP) are a community of researchers, practitioners, and policy developers whose focus is dedicated to advancing the maritime defense and security of our nation. Its organizational objective is to conduct and coordinate maritime defense and security research, experimentation, and information exchange between partner universities; federal, state, and local agencies; national laboratories; maritime industry; and international partners through the National Security Institute. Participants and co-sponsors of its diverse programs include the Office of Naval Research, Under Secretary of Defense of Homeland Defense and America Security Affairs, Department of Transportation, Lawrence Livermore National Laboratory, Stevens Institute of Technology, Marina Police Department, Office of Global Maritime Situational Awareness, Department of Justice, Stanford Research Institute, and many others. Contributions to the nation's maritime transportation system critical infrastructure span the scope of the MDSR programs. Specific research programs include multiple at-sea experimentation programs; basic physical, atmospheric, and sensor research; multiple initiatives related to maritime domain awareness; and red cell and education activities. Highlighted in this article are two specific research examples: the SEAWEB network experimentation program and the West Coast Port Operations modeling efforts, followed by a summary of the collaborative Maritime Information Sharing Taskforce (MIST) program.

The first research example, the SEAWEB network experimentation program, evaluates tactical acoustic sensors for port defense. It is applied research that is producing state-of-the-art undersea acoustic networked communication/navigation technology for application to Intelligence, Surveillance, Reconnaissance (ISR) and the Global War on Terrorism (GWOT). During February 2008, NPS led a two-week undersea sensor networking experiment in the Port of Long Beach, CA. This experiment represented the initial field work for a new-start NPS initiative called "SEAWEB Port Surveillance." The experiment confirmed the applicability of NPS through-water acoustic networking technology to support real-time monitoring of vulnerable waterside areas in a major domestic port. It further demonstrated the portability of this technology, as the SEAWEB equipment and personnel were deployed from a medium-size truck. As this project evolves, networked underwater sensors will be integrated with terrestrial and national surveillance systems for environmental measurements, intruder detection, and rapid response by security agencies to facilitate the protection of critical infrastructure.

Experimentation is also underway to develop a capability for SEAWEB networks to self-organize following ad hoc deployment, node failure, and node addition. This work has been undertaken to meet a requirement for unconstrained deployment and automatic networking of SEAWEB nodes in maritime operations, creating a more reliable system for detecting threats to critical infrastructure in or around the maritime environment.

Future plans include another SEAWEB experiment, BAYWEB, to be deployed for seven days in the San Francisco bay area around Angel Island in late spring, 2009. This experiment's purpose will be to obtain long-term continuous measurements in a port environment, using through-water networked acoustic

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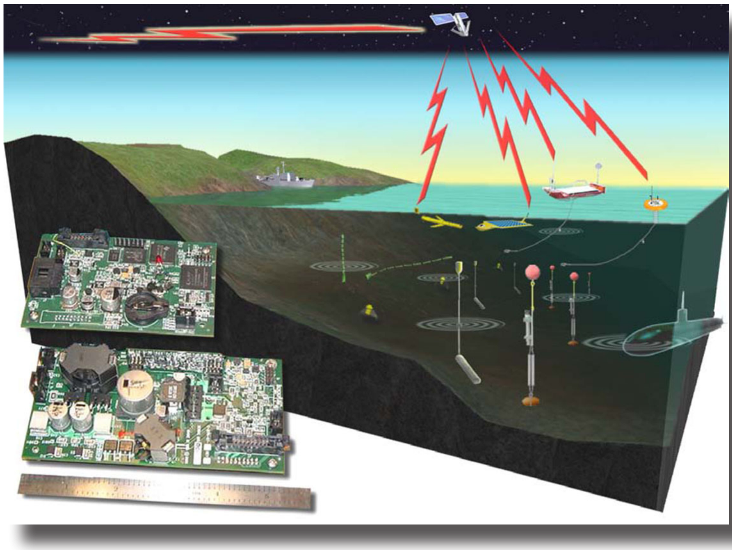
NPS *(Cont. from 2)*

Figure 1. Representation of SEAWEB network experimentation program



communications for sensor telemetry. The goal is to provide near real-time data dissemination and address issues of working in an environment of extreme currents. This experiment will seek to demonstrate collaboration among the scientific, environmental, security, commerce and academic communities to capitalize on capability and perspective to surface and address potential challenges.

The second research example highlights how operation of the major container ports on the U.S. West Coast is critical to ongoing commercial and security activity. The researchers built a simulation model of the seven major west coast container ports to study their productivity, and especially to measure system-wide consequences, were one or more ports to be taken out or degraded due to a natural or human-caused event.

Modeled are individual container vessels starting with their Notice of Arrival 96 hours out in the Pacific. Vessels then travel to their intended port or to an alternate port if the intended port is closed. In the case of closure of the intended port, an alternate is chosen in accordance with the shipper's own economic self-interest, with an eye toward minimizing time and cost to the ultimate destination. Once at a port, either intended or diverted, the vessel unload time is accounted for, and the shipment is broken into ten pieces bound for each one-digit ZIP code in the continental United States. These landside shipments then travel to the destination ZIP code.

Data were collected on all aspects of the model to ensure validity. This includes data on vessel arrival patterns by intended port, unload time, port capacities (berths), landside travel times, and various costs, including demurrage costs for freight.

Alternate versions of the model were built and exercised using or applying the modeling of several different scenarios of port incidents. Researchers built models both with and without the proposed port at Punta Colonet, Mexico, to see how the presence of that port might help maintain operations in the face of U.S. port closures. The model was run for a one-year time span with thousands of replications to establish statistical precision due to the stochastic nature of this model (and of the system it simulates). The model has been streamlined to be general and scalable in the number of ports and an animation was developed to help with model verification and credibility establishment. Figure 2 (on page 15) is a screenshot of the model (done in Arena simulation software) to illustrate both the logic (the flowchart on the top) and the animation at the bottom.

In spite of preventative efforts, it is always possible that one of the West Coast container ports will have to shut down temporarily due to either a natural catastrophe or a deliberate attack. In that event, both incoming and outgoing traffic will have to be rerouted to other ports and delays will inevitably ensue. Research is being conducted to assess the magnitude of that delay and whether it can be reduced by changes in either infrastructure or policy.

These efforts follow two directions. The main effort includes a Monte Carlo simulation called WCPORT that incorporates decision rules that imitate the decisions of incoming ship captains when they are informed that their intended port has shut down. Statistics are collected about delays to ships and containers as they wind their way to their original destinations. In the the simulation, each port is essentially a queue with two parameters: the number of container berths and the number of cranes. This simulation

(Continued on Page 15)

Protecting Workers and Infrastructures in Hazardous Cargo Trades

by Sara Russell, Instructor
Maritime and Supply Chain Management, Old Dominion University

Among the many requirements of a seaport terminal manager is the responsibility to protect personnel from injury and protect terminal facilities from damage. Simultaneously, the manager must maintain efficient operations that meet the requirements of all port users. These tasks will become increasingly more complex: the U.S. Department of Transportation (DOT) projects that by 2020, total freight moved through U.S. ports will increase cargo volumes by more than 50 percent from 2001. The terminal operator will be challenged to quickly handle larger volumes of cargo quayside and landside to meet supply chain and time requirements. An important consideration when handling hazardous cargoes is the extreme volume coupled with faster operations that potentially could lead to increased risk for accidents, spills and explosions. Among the two billion tons of cargo handled by U.S. ports, hazardous materials, chemicals, and other products, if spilled or released, would cause delays within and among key maritime infrastructures including navigable channels, terminals, interstate and rail systems, as well as pose terminal safety issues within maritime infrastructures.

Improper stowage onboard vessels, vessel collisions, unsuitable handling and transfer of products quayside, and accidents inside warehouses or transit sheds can potentially lead to spills or explosions at terminals, thus damaging or destroying key components of the maritime infrastructure. Vulnerabilities beyond the terminals' gates include our inland port infrastructure. The Association of American Railroads states that 1.8 million carloads of hazardous materials are moved annually.[1] Safe handling procedures must be adopted and maintained to prevent disastrous consequences of improper handling and subsequent damage to the quay, the yard or rail systems. Without such procedures, the ensuing damage to these infrastructures not only results in excessive repair costs for terminal owners and operators but can also negatively impact U.S. commerce if cargo is delayed or rerouted.

Hazardous chemicals, when mixed with water or come in contact with air, or when combined with other chemicals, can result in fires, creation of toxic vapors and pollution to humans and marine life. To prevent such disasters, unique handling requirements and safety regulations accompany these products during transportation and transfer operations. For example, liquid natural gas (LNG), a primary energy resource, cooled to -260°F and at atmospheric pressure, travels via specially designed and insulated tankers. Eight LNG import terminals in the U.S. receive cargo from Asia, Africa and the Caribbean. In the event of a spill onboard the vessel, the hazards are dependent upon the size and location of a hole in the ship's structure. If spilled, the cargo is vaporized. And with a viable ignition source, the cloud can ignite and burn, thus damaging the vessel and nearby superstructures, and possibly injuring or killing workers. Ultimately, safety is the priority. The Federal Energy Regulatory Commission, the U.S. Coast Guard, the U.S. DOT and state and local governments have combined efforts to assure enforcement of safety transportation and storage processes for LNG cargoes. In addition to agency regulations, the International Ship and Port Security Code (ISPS) addresses safety plans and responses onboard the vessel and quayside. With strict handling requirements, attention to training activities, and monitoring of operations by all organizations, only four LNG accidents have occurred in the U.S. since 1944.

Chlorine represents another potentially dangerous product. In 2006, the U.S. exported 39,481 metric tons of chlorine for product

(Continued on Page 5)

[1] Boyd, J. D. (2009, March 23). Railroads, Shippers Struggle over Chlorine. *Journal of Commerce*.

Hazardous Cargo *(Cont. from 4)*

use including poly vinyl chloride (PVC) plastics, water treatment, paper bleaching, and various consumer products including detergent, dyes, and insecticides. Fires and explosions result if chlorine, transported as a liquid gas or in a gaseous state, is spilled and reacts with other chemicals. These noxious fumes irritate human skin, eyes and respiratory systems, causing burns, frostbite, and ulcerations. If chlorine is stored on terminal premises, it should be sealed in appropriately labeled containers and separated from combustible products such as gasoline, alcohols and ammonia. The U.S. Occupational Health and Safety Administration (OSHA) recommends personnel handling chlorine be trained in compressed gas handling and safety operations and be equipped with personal safety gear which can include safety suits and respirators.[2] And in the instance of a spill, marine terminals require immediate evacuation to prevent the inhalation of fumes and vapors by workers and residents of surrounding communities.[3]

Chlorine spills are damaging as evidenced by the 2005 Norfolk Southern (NS) train wreck in Graniteville, SC. On January 6, 2005, a train heading towards Columbia carrying tanks of chlorine, liquid sodium hydroxide and liquid cresol missed a switch and collided with a stationary locomotive, spilling 40 tons of chlorine and creating a cloud of chlorine within a one mile radius. Evacuation and cleanup measures were implemented. Nine people died from vapor inhalation and hundreds more sought medical care for respiratory irritations. After 24 days, NS resumed train operations.[4] Not only does this accident demonstrate the effects of hazardous cargo spills and the need for evacuation measures, but it highlights the need for improved supply chain management and alternative cargo routes when infrastructures are disrupted.

Hazmat safety is important whether cargoes are onboard vessels, quayside or landside. Following the 2006 explosions on board the Hyundai Fortune, mis-declaration of hazardous cargo and consequent improper stowage became important issues for shippers, transportation providers, and terminal operators. The International Maritime Organization (IMO) Secretariat published the results of a year-long study involving 25,284 containers of dangerous goods in Belgium, Canada, Chile, Italy, South Korea, Sweden and the United States. Analysts found that 27% of the boxes were improperly placarded and marked, 19% had structural deficiencies, 15% had documentation problems, and 7% had deficiencies in stowage and securing.[5] In an attempt to lower insurance and shipping costs, many importers and exporters fail to take the required safety precautions to ensure safe handling procedures. Not only during the ocean voyage might these shipments be at risk, but once the cargoes reach land, are stored on terminal, and move throughout our maritime infrastructures, they pose a potential hazard.

Various safety protocols exist to facilitate proper transportation procedures. The IMO's Formal Safety Assessment (FSA) is one tool available for facilities proactively instituting safety measures to protect maritime infrastructure and superstructures. FSA, a five-step process, can be used to establish safety regulations or to analyze and update existing regulations. First, organizations must identify hazards by analyzing the types and volumes of cargoes and the transport vessels that access their facilities. Next, they assess damages resulting from these hazards, including the potential for cargo spills. Third, they create plans[6] to control the hazards;

(Continued on Page 12)

[2] *Chlorine.* (n.d.). Retrieved April 2, 2009, from U.S. Department of Labor, Occupational Health and Safety Administration: http://www.osha.gov/SLTC/healthguidelines/chlorine/recognition.html.

[3] Fingas, R. L. (2001). Perspectives on Specific Substances: Chlorine. In M. Fingas, *The Handbook of Hazardous Materials Spills Technology*, p. 19. New York: McGraw-Hill.

[4] Jerry T. Mitchell, A. S. (2005). *Evacuation Behavior in Response to the Graniteville, South Carolina, Chlorine Spill*. University of South Carolina.

[5] Bonney, J. (2007, February 5). What's in the Box? *Journal of Commerce*, p. 1.

[6] *Formal Safety Assessment*. (n.d.). Retrieved April 1, 2009, from International Maritime Organization: www.imo.org/Safety/mainframe.asp?topic_id=351.

Preface to the National Strategy for the Marine Transportation System

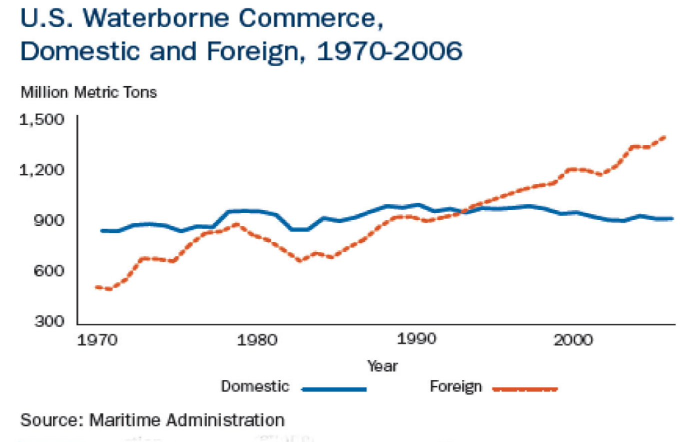
by Mary E. Peters, Former Secretary of Transportation

"As one of the world's leading maritime and trading nations, the United States relies on an effective and efficient Marine Transportation System (MTS) to facilitate commerce and protect our national security."

Introduction

America's Marine Transportation System (MTS) is critical to our national security and economic prosperity. Each year this robust system is responsible for providing the transportation network access to 95% of the goods (by weight) imported or exported from our country resulting in enormous national economic impacts. According to a study based upon data from 2006 the maritime industry contributes nearly $2 trillion annually to the economy and accounts for more than 8 million American jobs[1]. The accompanying graphic, shown in a recent Maritime Administration report[2], demonstrates the extent to which waterborne commerce originating abroad has increased over the past four decades.

The U.S. Marine Transportation System's importance requires all levels of Government and marine industry to focus on insuring its reliability under all hazards and resilience during disruptions. This article summarizes ongoing efforts to further enhance the reliability and resilience of the MTS. Three 2008 major marine disruptions - two hurricanes and a marine collision - are described to highlight the vulnerability of the MTS and to highlight the U.S. Coast Guard's role in responding to them. It briefly describes ongoing Department of Homeland Security efforts to further enhance MTS resiliency and reliability. Finally, it highlights the experience of the Ports of the Lower Mississippi River and the trade resumption and resiliency planning process to address future disruptive events as an example of how our nation's ports are actively improving its capabilities to deal with potential threats and vulnerabilities.



Section I: Waterway Disruptions

Hurricanes IKE and GUSTAV - 2008

Two major category-2 hurricanes struck the United States Gulf Coast in 2008. On September 1st the center of Hurricane GUSTAV made landfall in the United States along the Louisiana coast near Cocodrie. Just two weeks later, on September 13th, Hurricane IKE made landfall on Galveston Island. IKE's enormous size and 12 foot storm surge wreaked havoc from Galveston Island eastward into southern Louisiana. These two storms destroyed many of the Aids to Navigation (ATON) markers used to guide ships through the channels to the ports. With the

(Continued on Page 7)

[1] Martin Associates (n.d), *United States Port-Sector Economic Impacts*, retrieved from: http://aapa.files.cms-plus.com/PDFs/Port%20 Sector%20Economic%20Impacts%20Chart.pdf.

[2] U.S. Department of Transportation, Maritime Administration, *America's Ports and Intermodal Transportation System – January 2009.*

Transportation *(Cont. from 6)*

navigation system effectively destroyed, combined with other critical infrastructure issues, the Coast Guard Captain of the Port closed the channel to all vessel traffic pending the repair of these vital services.

Following their planning doctrine the Coast Guard began to surge assets toward the affected area even before the storm's landfall to be positioned to quickly respond to the potential damage and environmental issues, and to provide for assistance to mariners. A primary component of this surge included the entire gulf-coast fleet of six Coast Guard Inland Construction Tenders, which are used to drive piles used for fixed ATON structures[3]. These two storms caused more than 1,200 ATON failures in the waterways along the inland and coastal areas. And of these discrepancies, 334 occurred to fixed ATON structures where only Coast Guard Inland Construction Tenders had the inherent capabilities and supplies to immediately effect repairs.

As a result of this massive surge of operational resources, the Coast Guard rapidly restored the most critical components of ATON system. Working in conjunction with other federal agencies and local port partners, all major waterways were reopened to vessel traffic within just four days of the hurricanes' landfall. Restoring the navigation system leading to the port of Houston was a critical first step in this recovery. As the nation's second largest port area, the ports of Houston-Galveston are responsible for moving 212 million short-tons of commerce each year. The economic impact of a single day of closure for this port has been estimated at $322M[4].

Mississippi River Oil Spill - 2008

This U.S. Coast Guard photo shows some of the more than 100 vessels anchored waiting to enter the port of Houston-Galveston.

On July 24th, 2008, the tugboat *Mel Oliver* pushing a loaded fuel barge collided with the tank vessel *Tintomara*, resulting in an oil spill that closed a 100-mile stretch of the Mississippi River near the port of New Orleans. The collision was so severe it broke the barge in half, causing about 276,000 gallons of fuel oil to be spilled, about 60% of the cargo carried at the time of accident. Cut nearly completely in half, the stern section of the barge sank 100 feet to the river's bottom, significantly complicating recovery operations. As the oil proceeded downriver it involved over 1,000 vessels. Oil product was found throughout the water column, and with the river's height falling, oil clung to many vessels and local infrastructure.

In response to this accident the Coast Guard Captain of the Port of New Orleans restricted all river traffic to ensure marine safety by focusing on the simultaneous challenges of both responding to the sunken barge and ensuring that vessels would not spread contamination throughout the river system. Part of the recovery strategy included establishing cleaning stations that removed oil from vessels within the contaminated zone. Additionally, concerns about exacerbating ongoing cleanup efforts were addressed through the implementation of a safety zone in the vicinity of the sunken barge.

The four day river closure to address the spill caused a back-up of more than 200 ships waiting to enter port. Although this closure was temporary, it still had significant impact on the local, national, and

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[3] The ATON system generally consists of floating buoys and fixed structures marking channel limits and obstructions.

[4] http://www.portofhouston.com/busdev/tradedevelopment/economicimpact.html, accessed on March 28, 2009.

Port Security in an All-Hazards World

by L. Scott Lingamfelter*

The Vulnerability of Critical Infrastructure

When the United States was attacked on September 11, 2001 by al-Qaeda-inspired terrorists, Americans and our allies around the world witnessed first-hand the vulnerability that is inherent in an open and free society, two critical attributes necessary for the vital free enterprise environment that many citizens take for granted. Since that attack, the United States has made progress in better coordinating national and international efforts to combat terrorism. However, the critical infrastructure of the Nation — 80 percent of which is in private hands — is largely unprotected against coordinated and well-placed attacks by terrorists who seek to disrupt our way of life and weaken our will to resist.

A Compelling Economic Need to Secure Our Vulnerable Ports

Our critical infrastructure is arguably the economic "center of gravity" in the United States. A key component of that center of gravity and our economic system is the commercial and military maritime port infrastructure across the Nation and throughout the world as well as the critical supply chain that links maritime centers to the heartland. Eighty percent of the world's trade travels by water, making ports the linchpin to our national commerce. The U.S. and world economy depend on commercial shipping as the most reliable, cost efficient method of transporting goods. Currently, U.S. ports handle approximately 20 percent of the maritime trade worldwide. Shipping through American ports generates $8.7 billion each day for the U.S. economy, or about 29 percent of the daily gross domestic product. Our ports are irreplaceable in the movement and performance of a critical supply chain that, if interrupted, will cripple the economy of our Nation and much of the free world. Some recent examples clearly illustrate how a disruption impacts the economy.

- In 1995, the earthquake in the Kobe, Japan had a major impact on the world economy, requiring the diversion of more than 100 ships that were en route to other ports in Japan and an economic loss approaching $50 billion.

- In the fall of 2002, a port strike on the West Coast resulted in an 11-day disruption in the movement of goods. Ships were left at anchor from Los Angeles to Taipei with a $19 billion loss of revenue to the U.S. economy.

- In July of 2008, the Port of New Orleans was shut down for six days following an oil spill that stranded 200 ships.

The impact of an attack on a major maritime port facility and the critical supply chain is hard to exaggerate. If the Mississippi River were blocked for an extended period of time, the cost to the Nation could approach $275 million per day. While the examples above were not caused by terrorists, an attack resulting in the disruption of the critical supply chain associated with the maritime system (mainly major ports) can severely hamper trade and potentially cripple the global economy by hundreds of billions, if not trillions, of dollars. We must take effective action to better secure our port facilities.

Consider the facts. The two largest container ports in the world, Hong Kong and Singapore, together handle more than one million 40-foot ocean containers each month. A large container ship can discharge over six million pounds of freight in an hour. Daily, more than 15 million containers are moving by sea, rail, or road around the world. In 2002 eight million containers and 59,995 vessels entered 3,700 terminals and 301 ports in the United States. Today, it is estimated that 9 to 11 million containers move through our Nation in a year. Indeed, close to 90 percent of the world's general cargo moves by containers. When they cease to move, the effects impact the core operations of Wal-Mart, Lowes, Home Depot, Ford, General Motors, and Chrysler, not to

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Port Security *(Cont. from 8)*

mention the millions of small businesses that form the backbone of the American economy. The movement of products from ports is impressive. Yearly, 310 million tons of raw materials and agriculture products are transported on the Mississippi River. An excess of 90 percent of America's imported and exported goods are sent to South America, Europe, Africa, and Asia by sealift.

Likewise, the Hampton Roads port region is a vital commercial center for Virginia and the Nation. One of the world's largest harbors, our port region sits only 18 miles from the open ocean and is easily accessible to shipping lines and shippers alike while serving as the home to the Virginia Port Authority (VPA) and AMP/Maersk. For example, the VPA alone affects 345,000 jobs in Virginia while generating $41 billion in business revenues and $1.2 billion in State and local taxes per year. Moreover, with the future development (beginning in 2017) of the Craney Island Marine Terminal by the Port of Virginia, the capacity of the Hampton Roads region to service cargo will increase by 1.5 million TEUs (twenty-foot equivalent unit) while making Virginia home to the most modern deep water terminal on the East Coast. Currently such companies as Wal-Mart, Target, Home Depot, Family Dollar, QVC Network, Cost Plus, Dollar General, Kohls, Sysco, as well as a wide range of food producers and energy providers transit the port facilities in the Hampton Roads region. All of them depend on uninterrupted access to the port to sustain their critical supply chain. An extended closure of the port region by a man-made or natural disaster would devastate these industries and countless jobs.

The Real Threats That We Confront

The ideological and terrorist forces that seek to disrupt and destroy our way of life understand that our economic viability is an essential component to maintaining that way of life. Ports, their infrastructure, and the intermodal connectivity to them are obvious targets. Port terminals and the millions of cargo containers they handle can be exploited to carry out terrorists' plans. Shipping containers provide a vehicle for terrorists to smuggle destructive devices into the United States, including nuclear, chemical, or biological material that could be configured as a "dirty bomb" ready to explode at the port or elsewhere.

Terrorists know the potential of improvised explosive devices (IED) in combat and may be contemplating a new generation of IEDs to attach to ships as they enter ports and terminal facilities. Refineries, ship building and maintenance facilities, power plants, and sensitive national defense-related sites are routinely found in our major ports and specifically in Hampton Roads. They are all targets for our enemies who are determined to deploy the next generation of IEDs, some of which may use nuclear material to create a dirty bomb.

Likewise, terrorists know that a well-timed sinking of a major commercial ship in a critical channel could halt shipping for an extended period of time. Similarly, rail and road networks are vulnerable to dirty bombs that when detonated could destroy tunnels, bridges, and rail yards, bottling up economic activities at a port.

Our inability to effectively and reliably detect, deter, and disrupt such threats in a layered and sophisticated way could result in extended closure of a maritime facility until the port and region could be rendered safe. This inability is well known by our enemies and we must address it.

Innovative Solutions to Mitigate Risks

While no solution will ever make our ports and the critical supply chain immune from attack, we must devise effective strategies that will mitigate the risk of disruption to an acceptable level while planning for sufficient resiliency in port infrastructure to help those facilities resume normal operation as soon as possible in the wake of a man-made or natural disaster. The key to success is not an impenetrable cordon around our ports and its infrastructure, but rather a balanced and risk-focused strategy that incorporates the best practices and necessary technologies to detect, deter, and disrupt hostile acts against the most likely vulnerabilities before they happen, while also — in the event of an

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United States Coast Guard Sector Hampton Roads Command Center Joint - The Living and Breathing Port of Hampton Roads

by Brittani Lashaway, LTJG, USCG

The Port of Hampton Roads can be described as the commercial heartbeat of the Mid-Atlantic. Like every form of life, the Port of Hampton Roads continues to grow and become more efficient with every passing year. According to the Port of Virginia port statistics, in 2007, the Port of Hampton Roads had over 3,000 vessel calls and was the third largest U.S. East Coast container and general cargo port[1]. In 2008, the port handled approximately 1.2 million containers. Virginia's sheltered, ice-free harbor encompasses 25 square miles of easily accessible waterways and is located just 18 nautical miles from the open sea. It offers ships carrying the heaviest cargoes the ease of steaming in and out of 50-foot-deep, obstruction-free channels. With these opportunities come challenging situations, such as drug trafficking, terrorist threats, and the need for environmental protection. The port security challenges force the Coast Guard and its Federal, State, and private industry partners to work together to maintain "life" within the port.

The basis for every DNA strand in a port is the definition of the Captain of the Port (COTP) found in Title 33 of the Code of Federal Regulation (CFR) Part 6. The COTP regulates all law enforcement activity. A few of the responsibilities listed in 33 CFR 6 for the COTP are as follows: guarantee all commercial vessels coming into the port are screened; protection and security of vessels, harbors, and waterfront facilities; possession and control of vessels while in the port; and the issuance of documents and employment of persons aboard U.S. vessels. The COTP Zone for Hampton Roads is found in Title 33 CFR 3.25-10 and has these boundaries: the southern border is the Virginia/North Carolina state line; the northern border is the Chesapeake Bay of the Virginia/ Maryland state line; the northern border for the Atlantic side of the Eastern shore is the Maryland/ Delaware state line; the western boundary is the western portion of the Virginia state line; and the eastern boundary is out 200 nautical miles from the baseline (see Figure 1). Another important strand of the DNA is the Regulated Navigation Area (RNA) found in Title 33 CFR 165. This area defines the navigational equipment required onboard commercial vessels to protect the port from what the U.S. believes to be possible shortfalls that other foreign countries might have in regards to navigational equipment. The RNA begins 12 nautical miles seaward with the remainder of its perimeter defined by the James River Bridge, the West Norfolk, I-64 High-rise, and Campostella Bridges which cross various tributaries of the Elizabeth River, and an imaginary line from Hampton, Virginia across the Chesapeake Bay to Cape Charles, Virginia on the eastern shore. The final and most important strand of the DNA is the Coast Guard's Notice of Arrival (NOA) requirement. It requires commercial vessels to submit an electronic notice to the National Vessel Movement Center (NVMC). This notice is put into a database to inform U.S. ports of the vessel's last ports of call, size, cargo, flag, and crewmembers' names and nationalities.

Figure 1. Sector Hampton Roads Area of Response is defined by the red line.

(Continued on Page 11)

[1] http://www.portofvirginia.com/development/port-stats.aspx.