MARITIME TERRORISM

Focusing on the Probable

Richard Farrell

As groups prepare to memorialize the sixth anniversary of 9/11, Americans seem to have forgotten that terrorism has long had a prominent role in American history. Geoffrey Blainey describes American anarchists and assassins in the 1900s who were the equivalent of modern suicide bombers.[1] Blainey reminds us that terrorism killed an American president (William McKinley) in 1901, a hundred years before 9/11.

Currently, there is a great deal of angst about maritime terrorism, but is it justified? Fueling the anxiety is the fact that the world's oceans sustain the global economy. At any given time, forty thousand vessels are chugging across the world's oceans—globalization's superhighway—employing more than a million seafarers of virtually every nationality. Over the last four decades, seaborne trade has nearly quadrupled.[2] The U.S. Maritime Administration reports that more than seven million shipping containers enter American ports each year.[3]

Concerns about maritime security and the vulnerability of maritime assets were reinforced by an incident in October 2001. At the southern Italian port of Gioia Tauro, a suspected al-Qa'ida terrorist was found inside a maritime shipping container, equipped for the duration of the container's intended voyage. Intelligence sources say other containers similarly fitted out were found at the Italian port. This alarming discovery underlined the tension between the needs of international security, economic freedom, and global trade.[4]

Despite the headlines, articles, and books written since 9/11, however, a terrorist attack at sea is not

After graduation from the U.S. Naval Academy, Richard Farrell was a naval flight officer in several Pacific Fleet A-6 Intruder and S-3 Viking squadrons. Following squadron command, he was assigned to the U.S. Northern Command Operations Directorate. He has retired from the U.S. Navy and is now an analyst for Camber Corporation.

Naval War College Review, Summer 2007, Vol. 60, No. 3

necessarily imminent. Various terrorism studies, particularly a RAND Corporation analysis in 1983, argue that terrorism is overwhelmingly a land-based phenomenon.[5] The National Targeting Center documented 651 terrorist attacks in 2004; however, only two were maritime attacks. The first was a suicide attack initially intended for Iraq's Khawr Al Amaya Oil Terminal but actually conducted against a small boat from the coastal patrol ship USS *Firebolt* (PC 10); the second was the bombing of the *Superferry 14* in Manila Bay, in the Philippines.[6] Why were there only two attacks in the seemingly vulnerable maritime domain? Given the small percentage of terrorist acts at sea, is increased attention of limited maritime forces justified?

Several Department of Defense officials and executives in other government agencies believe that tracking all worldwide maritime vessels is the key to defeating terrorism at sea. While having visibility of ship locations is an important piece of the puzzle, however, more focus is needed on a different aspect of terrorism at sea. Maritime counterterrorism and antiterrorism should concentrate on *disrupting the movement of people, terror-related cargo, and financial support* of terror groups. Rather than using ships as weapons or targets, terrorists are using criminal activities at sea to support land-based terrorism.

WHY DOES THIS MATTER?

Because of the requirement to capture headlines, terrorists are under constant pressure to do something new. Terror groups also have access to media reports detailing the economic impact of maritime trade on globalization. Consequently, some maritime experts claim that a single well-aimed terrorist attack could paralyze global maritime commerce.[7] Others observe that most of the world's manufacturing capability is dependent on just-in-time delivery of components; they claim that a major attack on shipping could interrupt just-in-time deliveries and strike a staggering blow to the global economy.[8]

In contrast, this article seeks to show that a major maritime attack is not preordained. Maritime targets are harder to attack than those on land, and most terror groups do not have the experience or expertise to do so successfully. The few terror groups that do have maritime skills are unable to project their power past their home turf and depend enormously upon their relationship with locals to "blend into the crowd" after an attack.

The real issue to be confronted is the conservation of resources. The West has a fixed stock of resources, people, and platforms with which to counter global terrorism. The United States and its partners must focus on land-based terrorism and sever its support rather than invest maritime resources against unlikely terrorist actions at sea.

* * * * * * *

This is not to say that terror groups do not consider seaports, commercial shipping, and international cruise lines attractive targets.[9] Al-Qa'ida initiated a maritime terror campaign several months before 9/11, and many Americans believe that it has the capability to conduct successful attacks on maritime targets today. They assert that the suicide attacks in Yemen and the Persian Gulf demonstrate al-Qa'ida's ability to terrorize global shipping.[10] In January 2000, a U.S. Navy warship made a port call in Yemen as part of a Central Command effort to increase military-to-military contacts and cooperation.[11] The guided-missile destroyer USS *The Sullivans* (DDG 68) found itself in al-Qa'ida's crosshairs: a small boat loaded with explosives was prepared to ram into the destroyer. The would-be suicide bombers pushed the boat down the landing and into the water. However, the explosives weighed too much and sank the boat.[12]

The al-Qa'ida cell involved held a meeting in Malaysia just days after the *Sullivans* failure. Tawfiq bin Attash, an Osama Bin Laden lieutenant and primary maritime planner, flew to Malaysia to attend the meeting and set up another attack on a U.S. warship.[13] That October, having reviewed tactics at the Malaysia meeting, the cell pursued a second attack, in Aden, Yemen. This time it was successful; a small-boat attack against the USS *Cole* (DDG 67) killed seventeen sailors and severely damaged the ship.[14]

Another scheme to attack American warships was discovered in Singapore. The cell planning the Singapore attacks was affiliated with Jemaah Islamiyah, an Islamic terror group with links to al-Qa'ida.[15] Jemaah Islamiyah planned to attack ships steaming along Sembawang, on Singapore's north coast. Mirroring the *Cole* tactics, the markings on a captured Jemaah Islamiyah map identified a strategic kill zone where the channel was narrow. A warship would not have room to avoid a collision with an explosive-filled suicide boat. Still, the attacks were not accomplished, because the Jemaah Islamiyah cell could not implement the plan by itself, lacking maritime capability and expertise. The plot was disrupted shortly after 9/11, along with plans to conduct land-based terrorism against American businessmen.[16]

In October 2002, the *Limburg*, a 299,000-ton oil tanker, was attacked during an approach to the pilot station at Mina Al-Dabah, Yemen.[17] One crew member died, and ninety thousand barrels of crude spilled into the sea. Investigations confirmed that a boat filled with explosives had rammed the vessel after failing to find a U.S. warship.[18] The most recent attack against American ships occurred in August 2005. In it, al-Qa'ida's targets were the amphibious assault ship USS *Kearsarge* (LHD 3) and dock landing ship USS *Ashland* (LSD 48) alongside a pier in Aquaba, Jordan.[19] The terrorists failed, killing a Jordanian guard but no Americans.

MARITIME TERROR GROUPS

One major reason for the small number of maritime attacks is that only a few terror organizations have the capability to conduct them, even in their own areas of influence. However, one terror organization with vigorous maritime expertise is the Liberation Tigers of Tamil Eelam (LTTE). Its maritime branch, the Sea Tigers, has pioneered modern maritime terrorism. LTTE's struggle for an independent Hindu Tamil homeland in northern Sri Lanka has included hundreds of maritime attacks and suicide bombings that have killed more than sixty-four thousand people.[20]

The Sea Tigers have successfully executed small-boat suicide attacks since 1984. The Woodrow Wilson School of Politics and International Affairs declares that the Sea Tigers "have taken on the Sri Lankan Navy with unprecedented success." Its study claims that they have destroyed 30 to 50 percent of Sri Lanka's naval coastal craft, an impressive statistic, as patrol boats are the mainstay of the Sri Lankan navy.[21] The Sea Tigers' maritime terror tactics, wealth of experience, and success with maritime terror have been studied by other terrorist groups, although the LTTE's own terror operations have been confined to Sri Lanka.[22]

Maritime terrorism is a serious regional security concern in Southeast Asia as well. This area is of critical importance to the United States, because of the amount of maritime trade passing through and its significance in its own right to the global economy. Southeast Asia has a terrorist organization that possessed, until recently, robust maritime capabilities, the Abu Sayyaf Group, operating out of the Philippines. It conducted maritime attacks in the region for years. The group followed an effective maritime attack doctrine. It executed well-planned mobile operations and was adept in guerrilla tactics. It had rapport with and support from local fighters. It skillfully dispersed into small groups when pursued and blended in with sympathetic local civilians. Abu Sayyaf demonstrated a gruesome willingness to kill or injure Muslims in urban terror operations designed to divert government attention from its own mountain hideouts. It conducted information operations, including dissemination of false information on VHF radio.[23]

Abu Sayyaf members and followers (regardless of faction) belong to Muslim families with strong, centuries-old seafaring traditions. This is an important distinction, one that separates the organization from al-Qa'ida and other major Islamic terror groups. Its mastery of the maritime domain and support of the local population gave it ample capability to conduct maritime terrorism in Southeast Asia. In May 2001, Abu Sayyaf abducted three American citizens and seventeen Filipinos at the Dos Palmas resort on Palawan. The incident received international coverage because several of the victims, including one of the Americans, were murdered and beheaded.[24] The Dos Palmas incident triggered

BALIKATAN 02-1, a joint operation aimed at destroying Abu Sayyaf. The end result was the neutralization of many Abu Sayyaf members in 2002, including the reported death of one of its main leaders, Abu Sabaya, and the eventual death of the head of the Sulu faction, known as Commander Robot.[25] With their downfall, a great deal of expertise on how to execute maritime terrorist attacks was lost.

Various analysts have examined Abu Sayyaf's historical and financial ties with al-Qa'ida.[26] While connections are clearly documented, not much has come of al-Qa'ida's outreach to Abu Sayyaf. Ramzi Yousef and Khalid Sheikh Muhammad were sent before 9/11 to work with Abu Sayyaf in the Philippines and create an al-Qa'ida spin-off.[27] Yousef, mastermind of the 1993 World Trade Center bombing, began training Abu Sayyaf members, and with his uncle, Khalid Sheikh Muhammad, he helped set up the first al-Qa'ida cell in the Philippines. However, in 1995 an accidental fire in their safe house compromised their plots and plans. Ramzi Yousef was captured, convicted, and incarcerated in 1998;[28] Khalid Sheikh Muhammad was captured in Pakistan in 2003.[29]

MARITIME THREAT SCENARIOS

If few terror groups have expertise at sea, what are the threats to the maritime domain? Concern has been voiced about several scenarios: smuggling terrorists, weapons of mass destruction or WMD components in containers, dangerous cargo ships used as weapons, attacks on oil tankers to disrupt global oil trade, attacks on infrastructure around ports, and terrorist attacks on ferries.[30]

The George W. Bush administration gives WMD top priority, a concern reflected in the *National Strategy for Maritime Security*.[31] The smuggling of a WMD or components in a shipping container into a U.S. port is one of the most specifically and frequently mentioned scenarios by legislators in Washington, D.C.[32] That is in concert with the president's Maritime Security Strategy, but the probability of a WMD attack via a container, though it cannot be reliably estimated, is certainly lower than the probability of any other type of terrorist attack.[33] However, the potential consequences require serious attention, and the United States has taken steps to mitigate the WMD threat.

Experts and legislators are concerned about a WMD smuggled in a container on a truck, ship, or railroad; however, effective response is a double-edged blade. Standardized shipboard containers have revolutionized maritime cargo. Because they can be off-loaded quickly from ships and loaded easily onto trucks or rail cars, standardized containers have become indispensable to world commerce, as well as targets for crime and terrorism.[34] Tracking shipboard containers is complicated by the amount of paperwork and the number of people involved. The movement of each container is part of a transaction that can involve up to twenty-five different parties: buyers, sellers, inland freighters and

shipping lines, customs and cargo brokers, financiers and governments. A single trade can generate thirty to forty documents, and each container can carry cargo for several customers. A typical large containership can carry up to six thousand twenty-foot-equivalent units (TEU),* associated with up to forty thousand documents. Approximately seven million TEUs arrived in America's container ports by sea in 2006, which translates into around seventeen thousand actual boxes a day.[35] To reduce the manpower required to process the numerous documents, U.S. Customs and Border Protection (CBP) has accelerated development of a new information management system, the Automated Commercial Environment. It will enable CBP to automate evaluation of high-risk shipments, including cargo containers, as well as speed up customs filing processes for American importers.[36]

Another major issue is that containers are "intermodal"—they can travel by sea or on land, by road or rail. An intermodal system is difficult to regulate, because it crosses jurisdictional boundaries. On a ship at sea, a container comes under the aegis of the International Maritime Organization (IMO), a United Nations body. On land or in a seaport, these containers pass into the hands of national governments, which may have separate legislation for different transport modes. All this creates a problem in implementing international regulations.[37] Despite these challenges, in December 2002 the IMO adopted more stringent international standards for the security of ports and vessels, the International Ship and Port Facility Security Code; however, some skeptics believe the IMO lacks the resolve to enforce the code.[38]

Augmenting the IMO's international security actions, the U.S. government has taken several steps to keep track of container contents arriving in U.S. ports. Programs such as the Container Security Initiative, the twenty-four-hour rule,† and Customs-Trade Partnership against Terrorism have increased the difficulty of smuggling a WMD or components into American ports.[39] Additionally, Operation SAFE COMMERCE, a pilot project conducted by the Transportation Safety Administration (TSA), verifies the contents of sea containers at their point of loading, ensures their physical security in transit, and tracks them to their final destinations.[40]

Container issues aside, terrorist groups face several technical challenges in obtaining working WMD devices. First, it is difficult for them to get weaponized nuclear, biological, or chemical materials.[41] Additionally, as the North Koreans

* A TEU is a container of standard size: twenty feet long, eight feet wide, and eight feet, six inches high.

† Information about an ocean shipment must be transmitted to CBP twenty-four hours before the cargo is loaded in a foreign port onto a U.S.-bound vessel.

showed the world, it is extremely challenging to produce a substantial nuclear yield even in highly controlled conditions.[42] Also, attempting to build or detonate a WMD device for terror attack is fraught with health hazards. If the WMD materials are not assembled and conveyed in secure spaces or behind shielding, the builders will be exposed to lethal doses of biological agents, toxic chemicals, or radiation, or will suffer severe burns.[43] Few nations, much less transnational terror groups, have the facilities to create, assemble, or ship nuclear or biological weapons safely. Finally, a nuclear device would likely require so much shielding that it would be nearly impossible to move or hide from port authorities.[44]

Another container-related smuggling threat is a relatively weak radiological bomb, or "dirty bomb." Radiological bombs, made from less radioactive and more common materials than standard nuclear weapons, are easier to build and deploy. However, they would produce a much smaller physical impact and cause fewer human casualties.[45] They are adequate "fear" weapons but would not inflict the spectacular results that al-Qa'ida seeks. Consequently, most terror attacks are planned and executed with relatively accessible conventional explosives.

Dangerous Cargo Ships

Another hot topic of maritime vulnerability concerns ships carrying dangerous cargo. The Homeland Security Council has specifically included terrorist attacks on ships with flammable and toxic cargos in its national preparedness standards.[46] One author believes that a single LNG tanker exploding in Boston Harbor would wipe out the city's downtown areas. [47] Some maritime experts disagree, acknowledging the security information about LNG tankers provided by several government agencies but believing the concern overstated.[48]

A recent study by the ioMosaic Corporation draws upon field measurements, operational information, and engineering information on LNG vessels gathered over the last sixty years.[49] It takes into account terrorism and other twenty-first-century threats. The overall conclusion is straightforward—that in the highly unlikely event of a very large scale release of liquified natural gas on land or water, significant effects will be felt in the immediate vicinity.[50] However, the zone of impact would not extend anywhere close to the thirty miles predicted by some groups.[51] As long as an LNG vapor cloud is unconfined, it will not explode. A cloud reaching a populated area would quickly find an ignition source and burn back to the spill site before it could cover large numbers of people. If inflicting mass casualties is the terrorist goal, LNG facilities and tankers are not good targets.[52]

Experts believe, however, that other dangerous cargos—such as poisonous gas, ammonium nitrate, and other volatile chemicals—in bulk carriers could pose a serious threat if the ships were seized by terrorists and used as weapons.

Certain dangerous-cargo ships have come under close scrutiny from the Department of Homeland Security, in particular by the Coast Guard. The Coast Guard has created security teams to assess fifty-five militarily and economically strategic ports. It has also completed special assessments of several classes of vessels, including ferries, LNG tankers, certain dangerous-cargo barges, and single-skin tank vessels. Based upon these assessments, the Coast Guard will escort vessels that are potential security threats; further, it has developed a port security risk-assessment tool to establish risk-based profiles of incoming vessels.[53]

Tankers in Port or Offshore Facilities

A common scenario in Department of Defense exercises is an attack on an oil tanker or coastal petroleum facility to disrupt oil trade. According to the *Los Angeles Times* the *Limburg* attack may have been conducted to do just that, by causing consternation among oil tanker operators.[54] The bombing caused insurance rates among Yemeni shippers to rise 300 percent and reduced Yemeni port shipping volumes by 50 percent.[55] Still, while this was bad news for Yemen, it did not bring the global oil economy to its knees.

Contrast the *Limburg* incident with the Tanker War between Iran and Iraq in the Persian Gulf between 1984 and 1987. Lloyd's of London estimates that the Tanker War seriously damaged 546 commercial vessels, killed about 430 civilian mariners, and critically damaged the oil infrastructure in Iraq and Iran.[56] But if the campaign effectively crippled the Iranian oil industry for years, it encouraged oil stock building elsewhere, a rise in industrial production in consumer countries, and an increase in production by the Organization of the Petroleum Exporting Countries (OPEC) to stabilize global oil production and consumption.[57] A study on the five most recent shocks to the oil economy finds, "It is remarkable, looking back at that turbulent period [1980–87] that the major stock market indexes in the U.S. were little affected by the events in the oil market."[58] Given, then, that an all-out war between Iran and Iraq in the Persian Gulf, with nearly indiscriminate attacks on neutral shipping, causing the loss of over five hundred oil tankers, did not cripple the oil economy, it is a stretch to believe that an isolated terror attack against an oil tanker could strangle it today. Certainly, oil prices might spike; however, during the past five years shocks to the global oil economy increased petroleum prices, but in each case market pressures eventually subsided and oil prices slid back to almost preshock values.[59]

Infrastructure around Ports

In the wake of the terrorist attacks on 9/11, the security of ports themselves has emerged as a significant part of the overall debate on homeland security. Many security experts believe ports are vulnerable to terrorist attack because of their

size, their easy accessibility by water and land, and the tremendous amount of cargo they handle.[60]

As a result of all this attention, U.S. ports have taken enormous strides to reduce their vulnerabilities. The Coast Guard has provided for each a "captain of the port," the lead federal official for the security and safety of the vessels and waterways in his or her geographic zone;[61] the arrangement would streamline the command and control of any federal response. The Coast Guard and CBP have improved the quality and timing of information to be provided by shippers and carriers with which the vulnerability of ports and the terrorist risk to ships are evaluated.[62] In addition to Operation SAFE COMMERCE the TSA has fielded the Transportation Worker Identification Credential (TWIC), a tamper-resistant biometric badge for workers requiring unescorted access to secure areas of port facilities, outer continental shelf facilities, or vessels.[63] The TWIC is currently on track with an initial enrollment at a select few ports in March 2007. The Transportation Safety Administration predicts that it will be operational in 2007.[64]

Enforcement resources cannot be everywhere at all times. Security forces must be enduring, sustainable, and able to accommodate both local and regional requirements. On top of this, they must be flexible enough to adjust to changing security levels. The post-9/11 environment has produced marine enforcement units with a special operations flavor, as opposed to merely patrolling. For example, the Coast Guard has created active-duty, multimission, mobile teams with specialized capabilities to close critical security gaps in the nation's strategic seaports.[65]

Despite the progress that has been made in strengthening port security, many officials still describe seaports as "wide open" and "very vulnerable" to a terrorist attack.[66] In contrast to this claim is the fact that Congress provided over $650 million through fiscal year 2005 in direct federal grants to ports to improve operational and physical security. This "plus-up" was in addition to the budgets of the Coast Guard, CBP, TSA, and other federal agencies involved in port security.[67] Efforts by the U.S. government and the international community to improve port security are proceeding at an unprecedented pace.[68]

Ferry Attacks

Policy makers and government officials frequently cite passenger ferries as a key maritime security concern. In 2005, a congressman declared, "There is a serious security gap in our ferry systems and we need to ensure that passengers on our nation's waterways are protected."[69] A RAND study in 2006 argued that attacks on passenger ferries in the United States might be highly attractive to terrorists, since they would be easy to execute, could kill many people, would likely draw

significant media attention, and could demonstrate a terrorist group's salience and vibrancy.[70]

In a 2006 report, the Department of Justice identified ferry bombing as among the most likely types of maritime terror attacks.[71] It reached this conclusion largely on the basis of the number of suspicious incidents reported at marine facilities in the Seattle area. However, the Seattle office of the Federal Bureau of Investigation has suggested that the Justice Department's high ranking of the passenger ferry threat arises from more aggressive reporting of suspicious incidents in that region than elsewhere in the country.[72] FBI officials stated that they have never been able to tie a specific suspicious incident to a terrorist group or plan in the United States.[73] While there appears to be a logical case for ferries as a terrorist target, then, questions remain about actual terrorist activities related to American ferries.[74] Two positive by-products of all this attention are that it has caused law enforcement to focus on ferries and that it has raised citizen awareness with respect to out-of-the-ordinary activities on and near ferries. These two trends will reduce the ability of terrorists to carry out a surprise attack on a ferry.

The fundamental implication of the attention and money being spent on the previous scenarios is best summed up by a recent Congressional Research Service report: "An accurate assessment of the current nature and scope of the global maritime threat should be driven by what is probable rather than what is merely possible. Sober analysis of the issue has been clouded amid anxiety created by the global security climate with much of the discussion based on the notion that maritime terrorists can strike any target with virtually any means available."[75]

Specifically—ships are being used as vectors for smuggling people and cargo and laundering money to support *land*-based terrorism. Terrorist organizations, finding maritime attacks beyond their capability, are using maritime cargo and ships as conveyances rather than as floating weapons. Like drug smugglers, terrorists are trying to blend in with the environment and not draw attention to their human cargo, containers, and financial support.

RECOMMENDATIONS

Thus, efforts to combat terrorism at sea should be focused on interdicting terrorists attempting to sneak into the United States via a ship and on intercepting terror-related materials aboard ships. By tracking people, cargo, and money, we can disrupt a plan to use a small boat laden with explosives rather than simply react to the attack.

Robert Bonner, former head of the Customs Service, has proposed that America create a new "electronic" (rather than physical), border, profiling the contents of

containers in sophisticated data banks that collect and combine electronic documents existing in both government and commercial sources.[76] He wants to concentrate on the top ten container ports; focusing on a few key ports and making shipping companies face expensive delays unless they can validate cargo security, he argues, are critical steps if the United States is to control containers.[77]

A great deal of information analysis on smuggled terrorists is still manpower intensive. We need to leverage information technology and automate all sources of maritime intelligence, freeing maritime analysts and operators to analyze the bits of information that trickle in rather than having first to find the data and package it in a usable format. As we share more information, we will have to automate its products in order to give everyone involved the ability to see the big picture and find previously hidden patterns or suspicious activities. We need to automate our intelligence and operational inputs to enable peer-group review of all source information.

Another issue absorbing a great deal of manpower is the attempt to find anomalous behaviors. Terror groups, as we have seen, are interested in smuggling their operatives and terror-related materials and protecting their financial backing, not in disrupting their primary method of transport. Like drug smugglers, they want to act in as normal and outwardly law-abiding a way as possible, in order not to draw attention from authorities. Therefore, spending precious capital on finding overt anomalies distracts from the war on terror and will likely find only errant fishing vessels.

The war against terrorism is primarily a war of information. Interagency and international cooperation is critical to putting together the pieces of the intelligence puzzle. Progress has been made in breaking down the "stovepipes," but much more cooperation and free flow of information need to occur. The new threat environment requires that the government not keep its security cards close to its chest.[78] Cooperation between credentialed agencies would help solve a key problem—the inability of law enforcement officials and investigators in the field to share their information with one another or other nations.[79] Overclassification also requires attention. It is easy to stamp documents with high classifications, to be "safe rather than sorry"; however, in doing so we cheat ourselves out of the benefit of another organization's analysis and viewpoint. We need to move from a mind-set of "need to know" to one of "need to share."

Another area requiring consistent American support is international collaboration of maritime forces. U.S. maritime forces cannot be everywhere; they must rely on partnerships for presence, information, and infrastructure. An example of successful American outreach involves the Yemeni coast guard. Modeling itself on the U.S. Coast Guard, Yemen's coast guard has established district bases in the ports of Hodeidah and Aden. The three-year-old fleet has had a string of

interdiction successes and has gained a regional reputation for tough law enforcement, particularly among those transporting undocumented workers.[80]

The United States must continue to take advantage of maritime forces offered by international partnerships. For example, NATO ships are patrolling throughout the Mediterranean, monitoring shipping and providing escorts to nonmilitary traffic through the Strait of Gibraltar to help detect, deter, and protect against terrorist activity. The operation, called ACTIVE ENDEAVOUR, has evolved out of NATO's immediate response to 9/11.[81] The alliance deployed its Standing Naval Force to the eastern Mediterranean on 6 October 2001 in a demonstration of resolve and solidarity in the wake of the attacks, following the invocation of Article 5, the collective-defense provision of the North Atlantic Treaty.[82]

Recognizing critical gaps in their ability to identify and prioritize maritime threats in the Malacca Straits, a zone of worldwide importance, several U.S. combatant commands have partnered with the Republic of Singapore in an initiative called Comprehensive Maritime Awareness. The project utilizes technology and information sharing to enhance maritime domain awareness in one of the world's busiest shipping lanes.[83] Singapore's involvement is critical; it is astride major shipping lanes adjacent to the Strait of Malacca. This kind of international program for information sharing, technology, and maritime partnership will help close the seams in Southeast Asia. If this initiative works, it will need to be exported to all global shipping choke points.

We have made great strides in force protection, port security measures, and multiagency cooperation, but we have accomplished only the easiest tasks. Agencies, governments, and businesses in the maritime environment need to reach out to each other and collaborate effectively. They need also to recognize that disruption of criminal enterprises at sea is a lynchpin of security. Terrorists use smuggling, covert financial mechanisms, and other criminal enterprises to support their land-based activities.[84] Turning a ship into a floating bomb may appear to be attractive to a terror organization, but actually doing it is much more difficult than attacking a land target. We must focus antiterror and counterterror efforts on what is most probable—criminal activities at sea that support terrorism on land—rather than on such a long-shot terror option as using a ship as a weapon.

NOTES

1. "Turn of the Century Terror," *Wilson Quarterly* (Autumn 2006), p. 13.
2. "Perils at Sea," *Canada and the World* (January 2005), available at Findarticles.com.
3. Emanuel Levy, "A World of Risk on Land, Sea and Inland Waterways," *Rough Notes* (November 2005), available at Findarticles.com.

4. "When Trade and Security Clash," *Economist,* 4 June 2002, p. 59.
5. Bonnie Cordes et al., *A Chronology of Terrorist Attacks and Other Criminal Actions against Maritime Targets,* DTIC AD-A145 248 (Santa Monica, Calif.: RAND, 1983), p. 1.
6. James Pelkofski [Capt., USN], "Before the Storm: Al Qaeda's Coming Maritime Campaign," U.S. Naval Institute *Proceedings* (December 2005), p. 21.
7. John Frittelli, *Maritime Security: Overview of Issues,* CRS Report RS21079 (Washington, D.C.: Congressional Research Service, 5 December 2003), p. 1, available at www.fas.org/sgp/crs/RS21079.pdf.
8. David Wood, "Experts Look Warily at U.S. Vulnerability to Terrorism at Sea," Free Republic.com, 1 January 2003, p. 3.
9. Rommel C. Banlaoi, "Maritime Terrorism in Southeast Asia: The Abu Sayyaf Threat," *Naval War College Review* 58, no. 4 (Autumn 2005), p. 64.
10. Banlaoi, "Maritime Terrorism in Southeast Asia," p. 65.
11. Sue A. Lackey, "Yemen after the *Cole,*" *Sea Power* (March 2005), p. 28.
12. Richard A. Clarke, *Against All Enemies: Inside America's War on Terror* (New York: Free Press, 2004), p. 212.
13. Maria A. Ressa, *Seeds of Terror: An Eyewitness Account of Al-Qaeda's Newest Center of Operations in Southeast Asia* (New York: Free Press, 2003), p. 79.
14. Clarke, *Against All Enemies,* p. 222.
15. Ressa, *Seeds of Terror,* p. 157.
16. Ibid.
17. Richard Miniter, "Terror at Sea," in *Shadow War: The Untold Story of How Bush Is Winning the War on Terror* (Washington, D.C.: Regnery, 2004), pp. 103–25.
18. Jayant Abhyankar, "Piracy and Armed Terrorism at Sea," Observer Research Foundation Workshop on Maritime Counter Terrorism, New Delhi, India, 29 November 2004, p. 10, available at www.observerindia.com/reports/maritime/PAbhyankar.pdf.
19. Pelkofski, "Before the Storm," p. 20.
20. Aaron Mannes, "Catch a Tiger by the Toe: The Conflict in Sri Lanka Presents the U.S. with a Rare, Low-Cost Opportunity for Leadership in the Region," *Weekly Standard,* 6 August 2006, available at Findarticles.com.
21. Jeremy Barnicle et al., *Securing Peace: An Action Strategy for Sri Lanka* (draft), January 2004, prepared for the Workshop on Post-Conflict Reconstruction, Woodrow Wilson School of Politics and International Affairs, Princeton, N.J., and the Center for Strategic and International Studies, p. 5, available at www.wws.princeton.edu/research/PWReports/F03/wws591c.pdf.
22. Martin Murphy, "Maritime Threat: Tactics and Technology of the Sea Tigers," *Jane's Intelligence Review,* 12 May 2006.
23. Banlaoi, "Maritime Terrorism in Southeast Asia," pp. 70–71.
24. Ibid., p. 73.
25. Ibid.
26. Ressa, *Seeds of Terror,* p. 127.
27. Clarke, *Against All Enemies,* p. 127.
28. Ressa, *Seeds of Terror,* p. 220.
29. Kelli Arena et al., "Khalid Shaikh Mohammed: Life of Terror," 23 September 2003, Edition.cnn.com.
30. John Frittelli and Paul W. Parformak, *Maritime Security: Potential Terrorist Attacks and Protection Priorities,* CRS Report RL 33787 (Washington, D.C.: Congressional Research Service, 9 January 2007), p. 5, available at fas.org/sgp/crs/homesec/RL33787.pdf.
31. *The National Strategy for Maritime Security* (Washington, D.C.: White House, 20 September 2005), p. 4.
32. Frittelli and Parformak, *Maritime Security,* p. 18.
33. Ibid., p. 16.
34. "When Trade and Security Clash," p. 60.
35. Ibid., p. 61.
36. John Frittelli, *Port and Maritime Security: Background and Issues for Congress,* CRS Report RL31733 (Washington, D.C.: Congressional Research Service, 27 May 2005), p. 5, available at fas.org/sgp/crs/homesec/RL31733.pdf.
37. "When Trade and Security Clash," p. 61.

38. Frittelli, *Port and Maritime Security,* p. 6.
39. U.S. Homeland Security Dept., *CSI Inbrief* (Washington, D.C.: Customs and Border Protection, Office of International Affairs, 15 February 2006), p. 1, available at www.cbp.gov/xp/cgov/.
40. Frittelli, *Maritime Security,* p. 4.
41. Matthew Bunn and Anthony Weir, *Securing the Bomb 2006* (Cambridge, Mass.: John F. Kennedy School of Government, July 2006), p. 29.
42. Graham P. Collins, "Kim's Big Fizzle: The Physics behind a Nuclear Dud," *Scientific American* (January 2007), pp. 18–20.
43. "Dirty Bomb Fact Sheet," *Center for International Security and Cooperation,* Stanford University, October 2006, p. 1, iis-db.stanford.edu/pubs/20769/dirty_bomb_facts.pdf.
44. Ibid.
45. Frittelli and Parformak, *Maritime Security,* p. 17.
46. Ibid., p. 5.
47. Clarke, *Against All Enemies,* p. 15.
48. J. McLaughlin, "LNG Is Nowhere Near as Dangerous as People Are Making It Out to Be," *Lloyd's List,* 8 February 2005, p. 5.
49. S. A. Kalelkar et al., *Managing LNG Risks: Separating the Facts from the Myths,* ioMosaic Corporation, 2005, pp. 6–7, available at archives1.iomosaic.com/whitepapers/Managing%20LNG%20Risks.pdf.
50. According to Kalelkar et al. (p. 4), available data and explosion dynamics indicate that it is not possible to detonate LNG vapors, even with an explosive charge on a storage tank, unless the LNG vapors contain high fractions of ethane and propane (more than 20 percent). They claim that the likelihood of this scenario is equivalent to winning the Powerball or Megabucks lottery several times simultaneously. For impact, p. 22.
51. On 20 October 1944 a 1.1-million-gallon cylindrical LNG storage tank in Cleveland, Ohio, failed. The liquid rushed over the short dam around the tank and was ignited. Blast damage to buildings extended out a third to a half of a mile, and second-degree burns were reported at one mile.
52. Kalelkar et al., p. 22.
53. U.S. Coast Guard, *Fact Sheet: The U.S. Coast Guard since September 11, 2001* (Washington, D.C.: Office of Public Affairs, 1 September 2006), p. 1, available at https://www.piersystem.com/go/doc/786/131107.
54. Warren Vieth, "Owners of Oil Tankers Jittery," *Los Angeles Times,* 25 November 2003, p. 1.
55. Frittelli and Parformak, *Maritime Security,* p. 3.
56. James H. Rand, "Tankers at War, 1984–1987," *International Association of Independent Tanker Owners,* 12 January 2001, pp. 1–2, www.intertanko.com/templates/Page.aspx?id=1077.
57. Ibid., p. 2.
58. Roger Kubarych, "How Oil Shocks Affect Markets: Consider the Five Most Recent Scenarios," *International Economy* (Summer 2005), pp. 33–35. The five most recent shocks to the oil market are listed by Kubarych: (1) 1973–75, OPEC squeezes the West; (2) 1979–81, the Iranian Revolution and the Iran-Iraq War; (3) 1990–91, Iraqi invasion of Kuwait and the First Gulf War; (4) 1996–99, demand-induced price rises; and (5) 2002–2005, Operation IRAQI Freedom and surging oil demand.
59. Ibid., p. 4.
60. Frittelli, *Maritime Security,* p. 1.
61. Frittelli, *Port and Maritime Security,* p. 10.
62. Ibid.
63. Ibid.
64. Chris Corum, "TWIC Cards Hit the Road in March but Readers to Check Them Remain Stuck in Neutral," *SecureIDNews,* 22 January 2007, p. 1, available at www.secureidnews.com/library/2007/01/22.
65. Tony Blanda and Cole Maxwell, "Terror by Sea: The Unique Challenges of Port Security," *FBI Law Enforcement Bulletin* (September 2005), available at Findarticles.com.
66. "Safe Harbors?" *Wall Street Journal,* 21 April 2003, p. B1.
67. Frittelli, *Port and Maritime Security,* p. 16.
68. Ibid., p. 15.
69. Frank Pallone, Jr. [Congressman (D-N.J.)], "Pallone Calls for Increased Funding for Ferry Security," Washington, D.C., press

release, 15 July 2005, available at www.house.gov/list/press.

70. Frittelli and Parformak, *Maritime Security,* p. 22.
71. U.S. Justice Dept., *The Federal Bureau of Investigation's Efforts to Protect the Nation's Seaports,* FBI Audit Report 06-26 (Washington, D.C.: Office of the Inspector General, March 2006), p. 52, available at www.usdoj.gov/oig/reports/FBI/a0626/app6.htm.
72. Frittelli and Parformak, *Maritime Security,* p. 22.
73. Paul Shukovsky and Mike Barber, "Ferries a Top Terror Target, FBI Cautions," *Seattle Post-Intelligencer,* 21 April 2006, p. A1, available at Seattlepi.nwsource.com.
74. Frittelli and Parformak, *Maritime Security,* p. 22.
75. Ibid., p. 7.
76. "When Trade and Security Clash," p. 62.
77. Ibid.
78. Stephan Flynn, *America the Vulnerable: How Our Government Is Failing to Protect Us from Terrorism* (New York: HarperCollins, 2004), p. 160.
79. Ressa, *Seeds of Terror,* p. 79; Clarke, *Against All Enemies,* p. 5.
80. Lackey, "Yemen after the *Cole,*" p. 30.
81. "Combating Terrorism at Sea," *NATO Briefing* (April 2004), p. 1, available at www.nato.int.
82. Ibid.
83. U.S. Navy Dept., *Comprehensive Maritime Awareness Implementation Directive* (Washington, D.C.: Office of Naval Research, January 2006), p. 3, available www.onr.navy.mil.
84. U.S. Government Accounting Office, *Terrorist Financing: U.S. Agencies Should Systematically Assess Terrorists' Use of Alternative Financing Mechanisms,* Report GAO 04-163 (Washington, D.C.: Government Accounting Office, November 2003), p. 1, available at www.gao.gov/new.items/d04163.pdf.