

Maritime Domain Awareness: The Key to Security

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Maritime transportation is a hodgepodge of interconnecting, often disparate policies supported by incompatible systems. We need to address history and politics to develop a shared awareness and the process to back it up.

Maritime security is burdened by thousands of years of history and tradition. In the Coast Guard, we are reminded of this daily. One particularly poignant reminder came in October 2002, a scant 13 months after the 9/11 attacks. In the middle of a weekday afternoon, a 50-foot-long boat pulled up near the Rickenbacker Causeway in Miami, Florida, and offloaded 220 illegal aliens directly into the heart of downtown. Naturally a news helicopter was overhead, and the event was almost instantly broadcast nationwide.

The U.S. Coast Guard is supposed to play a leading role in preventing these kinds of incidents, and the Commandant of the Coast Guard at the time, Admiral Thomas H. Collins, briefed the Secretary of Transportation. Amazed, the secretary said, "How in the world did they get through?" The admiral replied, "Sir, with all due respect, how did they get through—what?"

A Vulnerable System

This is an amusing anecdote to many in the maritime community, because we have long known and accepted the openness and vulnerabilities of many port and coastal areas. But it should also be an instructive story for the problems it highlights:

- Crucial parts of our transportation and economic systems are vulnerable. Our ports, essential transshipment nodes, are responsible for 95 percent of our trade. Many are highly specialized; all have high concentrations of expensive, difficult-to-replace infrastructure. Most are population centers, and all are economic engines. Yet security is often seen as an expensive obstacle rather than an essential contributor to the long-term, uninterrupted free flow of commerce.
- Maritime professionals and the maritime system fall short of expectations. The great majority of our leaders and citizenry are landmen with no maritime experience at all. They are familiar with air travel; many have traveled at least once by airplane. They know from television and film that aircraft, airports, and the skies are monitored by radar operators, and that aircraft off course or in trouble can be quickly identified and assisted. Their experience at airports tells them that the flow is orderly, efficient, fairly secure, and pretty much the same from one place to the next.

Because few have experience with maritime transportation, they assume—and expect—that the kind of orderliness and security they see in aviation also exists at seaports and on the ocean. When they discover to the contrary, they are disappointed and wonder what the maritime community has been up to.

Aviation sprang to life in less than a hundred years and has a coherent, relatively complete architecture of policies and supporting systems. But the maritime world has evolved over centuries, and our policies and support systems have been developed ad hoc.

In aviation, transparency has been the hallmark of safety and has been further improved for security. Maritime has a tradition of secrecy that now works against both individual community members and society as a whole. All of this shows how maritime security is burdened by its history.

Policy and Systems Architectures

The world's aviation is supported by a well-developed systems architecture designed to monitor compliance and aid enforcement. Maritime transportation, although there are local exceptions, has generally evolved into a hodgepodge of interconnecting, often disparate policies supported by semi- or incompatible sensor and information systems.

In the United States, the maritime domain is made even more complex by highly fragmented—some might say near chaotic—governance. A National Academy of Sciences study discovered 17 federal agencies that have responsibility for regulating some aspect of U.S. maritime transportation.

Add to these federal agencies those from the states, coastal cities, specially commissioned port authorities, marine exchanges, private facility operators, and so on, and you have a dizzying picture. It explains the old saying that if you've seen one port, you've just seen one port.

We have 361 commercial seaports in the United States, and all have different combinations of geography, governance, sensors, operating rules, ownership, mix of activities, and more. This is not a situation that lends itself easily to improvements in safety, security, or the efficient flow of commerce.

After the attacks of 9/11, preexisting systems and policy architectures allowed for an exceptionally rapid and coordinated response. Near-real time visibility and communication throughout the system meant that the threat could rapidly be contained. More than 5,000 aircraft were safely landed in less than two hours.

Those same architectures then provided forensics and made it easy to insert policy changes and systems modifications to prevent further attacks. We can debate whether those changes were the right ones, but once decided they were quickly and effectively implemented.

We do not have the same advantages in the maritime domain. There is no maritime equivalent of the National Airspace System Plan, which details parts of the system and how they are supposed to work together, and ensures that each is appropriately considered in governance.

Maritime system policies have no unified structure and, in aggregate, have huge gaps. As one example, more than 13 million recreational craft have virtually unfettered access to the nation's commercial and military harbors. States require that these boats be registered, but most admit there is limited enforcement to ensure registrations are kept current and transferred from state to state when the boat is relocated.

Further—and most important—few boaters are required to know how to safely operate their vessels and understand maritime rules and regulations. Most states do not even require that a boat operator carry personal identification. If automobile drivers were not only untrained and unlicensed but not even required to carry a photo ID, imagine the impact on highway safety and law enforcement.

Compounding the lack of a complete, coherent policy structure, we have no systems to enforce the policies we do have. Several years ago, a pair of Cuban border guards decided they didn't want to work for Castro anymore. One night they drove their small patrol boat north until, at about 0300, they found the Hilton Hotel marina in Key West. They strolled around town for a couple hours until they located a patrolling sheriff's deputy and surrendered.

One imagines them handing over their sidearms and explaining that their AK47s were still in the boat. In spite of laws specifying strict requirements for international maritime arrivals, our lack of maritime surveillance results in an average of 14 successful, illegal, malicious incursions per week into the United States. We can only hope the damage is limited to landing illegal migrants, tons of narcotics, and the occasional well-armed Cuban border patrolman. Our lax tradition has become a great burden.

The Culture of Secrecy

An important part of this burden is the maritime culture of secrecy referred to earlier. This pertains to commerce. Dealers in commodities don't want competitors knowing the sources and destinations of their cargos. Fishermen don't want others to discover their favorite spots. Ownership of commercial vessels is often concealed through a network of contracts and paper corporations. And on the vast, largely ungoverned and unpoliced global commons that are the world's oceans, being difficult to find has been key to protection from pirates, the navies of hostile nations, and others that would do a vessel harm.

This tradition of secrecy, along with the nature of the sea and ships, has led to maritime transportation being the preferred vector for some of the world's most infamous and evil cargos. Slaves, contraband, narcotics, conventional weapons to start new wars, or weapons of mass destruction to inflict terror—all these and more can be transported by sea in greater quantities and often with greater secrecy than any other mode. Maritime commerce brings near-limitless good to the world, but its culture of secrecy has allowed it to bring a significant slice of evil as well.

We have always struggled to maximize the good and minimize the evil. We want to take advantage of the sea's bounty to feed our children, but don't want to destroy the fishing grounds and starve our grandchildren. We want to ensure the free flow of commerce, but don't want illegal substances and people smuggled ashore.

We want freedom of navigation, but are concerned that a vessel carrying thousands of tons of explosive cargo can sail mere miles off our coast, en route from one foreign port to another, without any obligation to report its position or course or obey our directions. We are concerned that someday, such a vessel will pass by one of our ports or

perhaps a defense facility—and suddenly turn toward shore and strike.

In an information age, security lies not in secrecy but in transparency. The time has come for us to begin shedding our burden of maritime history and tradition.

But how? Improving governance with a more coherent and systematic approach to maritime regimes is certainly required. This will mean at least a few new policies, rules, regulations, statutes. We must also ensure that sufficient patrol and enforcement assets are deployed to deter and respond to violations of these policies.

First and foremost, though, we must understand the maritime domain and what is going on within it, so that we can formulate good policy, effectively deploy assets, and ensure the uninterrupted free flow of commerce.

See, Understand, Share

Maritime domain awareness (MDA) is defined in the National Strategy for Maritime Security as “an effective understanding of anything in the maritime environment that can affect the safety, security, economy, or environment of the United States.” To achieve it, maritime activities and actors must become more transparent. What is seen must be properly understood, and this visibility and understanding must be shared as widely as possible among members of the maritime community.

- *See*: We must overcome the traditional culture of secrecy. Evil can dwell only in hidden places. Transparency leads to self-correcting behavior by exposing bad actors and reinforcing the ethic of good ones. It levels the playing field and improves safety and commerce by better informing users of hazards, conditions, and routes. And it helps us focus scarce enforcement resources in the most important areas.
- *Understand*: Watching the flow of maritime activities and actors is of little use unless what is being seen can also be understood. Decision-makers must be able to differentiate between a normal, innocent scene and one containing anomalies that deserve investigation. Intelligence, analysis, and pattern recognition must be integrated into a context of broad situational awareness to understand motives and intent. The goal is to deter and prevent all threats and all hazards. Without understanding, the best surveillance system in the world will only be able to document adverse events as they unfold.
- *Share*: If we are to be successful in our maritime safety, security, and stewardship efforts, we need to harness the abilities, authorities, time, and efforts of all stakeholders. Unity of command among various levels of federal, state, and local governments; agencies of foreign governments; industry partners; and others is unachievable and undesirable.

Rather, we must foster unity of effort in pursuit of our mutual goals and interests through proactive, aggressive information exchange. Broad sharing of data, analysis, operating pictures and the like (given appropriate security and permissions) will help with at least two significant problems:

First, we don't know what we know. Information needed to make critical decisions often exists—but is not available and correlated by those who might use it. On the morning of 9/11, there was data showing that multiple men of foreign origin with no luggage had purchased airline tickets shortly before flight time on four different airlines. Had this information been shared widely in an aviation safety and security community of interest, the world might be different today.

Second, the maritime world is highly complex. The pursuit of maritime safety, security, and stewardship involves widely diverse players with far different sets of authorities, responsibilities, and capabilities. These players operate in unique, varied geographic and maritime locations. Shared awareness empowers each player and fosters unity of effort in dozens of ways, from better informing individual missions and avoiding “blue on blue” conflict to drawing on the unconscious knowledge of local experts.

Achieved properly, this awareness enables members of the maritime community to use shared data and knowledge to create a unique picture in support of their individual needs and missions. This enables all to bring the full force of their authorities, experience, and expertise to the overall effort.

The Way Ahead

In the abstract, MDA is a state of being, a goal that will never be completely attained as we strive for ever-greater

understanding. More concretely, mariners have been achieving it, in degrees, since the first dugout was launched and people felt the pull of the current and the pressure of the wind. Our MDA is better today than at any point in history. Much progress has been made since 9/11. We now require major vessels in international trade to carry Automatic Identification System transmitters so that we can track their movements. Customs and Border Protection's National Targeting Center has made advances in understanding the supply chain and tracking cargoes. The International Maritime Organization has agreed to a fundamental change in the world's view of innocent passage, stating for the first time that coastal states have the right to know about ships passing up to 1,000 nautical miles offshore.

Yet our understanding of the sea and activities therein remains highly fragmented and contains huge gaps. To use an aviation comparison from 9/11, maritime still has a lot of unreinforced cockpit doors. We have a duty to do better.

The National Plan to Achieve Maritime Domain Awareness, approved by the White House in October 2005, envisions a community-wide effort and provides the first tentative steps on what will be a continuing journey. Carrying out the plan is an implementation team co-led by flag officers from the Department of Defense (joint staff) and the Department of Homeland Security (Coast Guard). This team is developing proposals for how the federal government can provide the appropriate encouragement and support for MDA as a national priority.

The proposals will address how federal agencies should organize, interact, and share responsibilities in pursuit of MDA. As a parallel effort, the Coast Guard and Northern Command, with technical advice from the Defense Department CIO's office, have sponsored an MDA Data Sharing Community of Interest. This project illustrates a publish-and-subscribe, network-centric environment that accommodates members as diverse as local harbor police and national intelligence analysts. More important, it proves once again that technology is the easy part; addressing the issues of politics, process, and people is more difficult.

MDA is the key to maritime security. Our current awareness capabilities fall far short of where we could and should be, given available technologies and a reasonable willingness to work together. Our national security depends on the leadership of the MDA Implementation Team and the eager participation of all partners in the establishment of an ongoing effort. We should already be there. We should make best speed to meet—and then exceed—the public's expectations.

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