US Coast Guard At Work

Maritime Counternarcotics Operations (U)

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On 25 July 1995, an extensive multi-agency intelligence effort prompted the USS Cape St. George with a Coast Guard law enforcement detachment aboard to intercept the fishing vessel Nataly I that was suspected of trafficking a multiton shipment of cocaine from South America to Mexico. Sending a Coast Guard team to board the vessel was to be the culmination of the cooperative effort, and a record-breaking seizure was anticipated. After a two-day search using all types of inspection techniques, the boarding team discovered the first of what turned out to be more than 12 tons of cocaine in two hidden compartments within the vessel's fuel tanks. Many in the Coast Guard and in the Intelligence Community (IC) wondered why it took so long to find such a large amount of cocaine on a 112-foot fishing vessel.

The case of the Nataly I is just one example of how the use of hidden compartments by maritime narcotics traffickers continues to frustrate counternarcotics efforts by law enforcement agencies. The hidden compartments being used today reflect a higher degree of complexity and intricacy and the application of greater resources. Law enforcement officers search for today's sophisticated hidden compartments with many of the same techniques that have only slightly improved over the past several decades. Rather than simply responding to the traffickers' advances, a new examination is needed to re-engineer the process of detecting hidden compartments.

A Longstanding Problem

For more than 200 years, the Coast Guard and other law enforcement agencies have faced the problem of hidden compartments. The Revenue Cutter Service, as the Coast Guard was known before 1916, was created in 1790 specifically to halt maritime smuggling and to enforce customs laws and regulations. During the 1930s, the Coast Guard was called on to enforce Prohibition in what is commonly called the Rum War. Since 1970, the Coast Guard and other law enforcement agencies have been targeted against all types of smuggling ranging from weapons to luxuries to illegal alcohol. Throughout all these efforts, the Coast Guard repeatedly sought to discover hidden compartments.

In the 1970s, the smuggling of marijuana from South America to the United States greatly increased. Due to lax law enforcement efforts, the traffickers initially smuggled their marijuana in converted fishing vessels, making little attempt to conceal their contraband. As the Coast Guard increased its efforts, the traffickers shifted to smaller loads and instituted better methods of concealment.

The marijuana traffickers' initial concealment efforts appear rudimentary when compared to some of the methods used today. The traffickers first tried to make their fishing vessels appear more legitimate. The marijuana was often wrapped in plastic and hidden under fish and ice in their fish holds. If law enforcement officers boarded their vessel, the traffickers hoped that the boarding teams would not look under the fish and that the fish odor would mask the smell of the marijuana. This method became less effective as the Coast Guard took on more fisheries law enforcement responsibilities and subsequently
became more proficient in inspecting fishing holds and catches during boardings.

**Fishing vessel Nataly I. Photo courtesy of the US Coast Guard. (U)**

With the decrease in the amount of marijuana being smuggled in each individual load, the traffickers also used the construction of hidden compartments within their vessels. They often sectioned off compartments of the vessel or constructed false bulkheads to create dead space.³ for concealing their contraband. The newly constructed bulkhead was then disguised to match the remainder of the compartment. Traffickers often used the dead spaces in living areas such as underneath the crew's berthing and behind closets. The large amount of wood paneling within the living areas on coastal freighters created many opportunities to construct hidden compartments. New carpet, linoleum, and even galley appliances frequently hid the accesses to hidden compartments. The traffickers also used fuel and water tanks to conceal their contraband. Initially, they completely converted tanks to hold marijuana, but, as law enforcement efforts began to "sound" fuel and water tanks and to open their access covers, the traffickers improved their methods to make the tanks look legitimate.

**Cocaine bales seized aboard the Nataly I. Photo courtesy of the US Coast Guard. (U)**

Hidden compartments were also constructed on pleasure craft such as sport fishers, sailing vessels, and cabin cruisers. Because of the large number of similar vessels, they blended in well with normal maritime traffic patterns and were less likely to be boarded. These vessels contained all types of nooks and crannies that could be used as hidden compartments. Once the traffickers stored their contraband within a space, they installed new fiberglass to cover it. They painted the new fiberglass to match its surroundings, and they concealed their work behind the vessel's furnishings or under carpeting. While these hidden compartments concealed less contraband than those on larger vessels, they were much less likely to be detected.

In the early 1980s, the dramatic increase in cocaine trafficking from South America brought new challenges in the efforts to detect hidden compartments. Cocaine has a much greater value, and a much smaller amount of cocaine than marijuana could be smuggled while still achieving a similar, if not greater, amount of profit. Small compartments and parasitic containers that previously could not be used to conceal marijuana profitably could now be used to hide cocaine. In addition, cocaine could also be concealed in areas not previously considered, such as inside compressed air and propane tanks.

**Creative Concealment**

To further disguise their hidden compartments, traffickers have often used imaginative ploys to make the search as inconveniend as possible. For example, Haitian narcotic traffickers commonly place Santeria-based⁴ religious displays near their hidden compartments. These displays typically contain crucifixes, voodoo altars and dolls, candles, incense, spices, and herbs. The traffickers believe these displays will protect their contraband, and they also know that boarding teams hesitate to tamper with religious objects.⁵

In addition, the areas to be searched are often made as distasteful as possible. Staterooms are covered with dirty laundry, foul-smelling (and seasick-inducing) foods are cooked in the galley, and engineering spaces are hot and filthy. The bilges of an engine room usually contain several feet of murky oil and water mixtures. Fish holds often contain thousands of pounds of fish that have to be moved to inspect the compartment fully. Even sewage tanks have been found to contain hidden compartments or to conceal the access to hidden compartments.⁶

**Checking Measurements and Using Dogs**

One of the most effective tools for locating hidden compartments is the process of conducting a complete space accountability ² of the vessel. False bulkheads and hidden compartments within paneling are best discovered through the process of admeasurement. The internal measurements of a compartment
are taken and compared with the external measurements to determine discrepancies. On smaller vessels, this process can be conducted quickly.

This process can become more complicated, depending on the size of the vessel, the number of levels and compartments it contains, and the amount of cargo that interferes with the measurement. A thorough space accountability inspection of a 150-foot coastal freighter can take days. When boarding teams determine there is a possible discrepancy in the measurements, often the only way to resolve the discrepancy is to conduct an intrusive search and access the bulkhead. This usually involves drilling a hole with a power drill and inserting a bore scope to inspect the space.

Law enforcement agencies often have also used dogs to locate narcotics. Although often successful on land, the dogs do not always adapt well to the marine environment, and the logistics of transporting the dog to a suspect vessel can be difficult. As a result, canine units are used primarily on suspect vessels brought into ports for more in-depth inspections. Even then, their effectiveness is decreased by the traffickers' use of airtight packaging and the planting of false scents such as coffee grounds, fabric softener sheets, diesel fuel, and commercially available dog repellents.

Current Challenges

Recent trends show that talented craftsmen are constructing hidden compartments and disguising the possible indicators. A better constructed hidden compartment often leaves less space missing during the admeasurement process. While a foot or more of missing space may quickly arouse suspicion, the boarding officer may attribute only 3 or 4 inches of unaccounted for space to insulation within the bulkheads. Depending on the height and width of a bulkhead, a discrepancy in the depth of a compartment of as little as a few inches can conceal a large amount of contraband.

Currently, the most challenging hidden compartments to locate are those concealed within fuel tanks. Because of the size of the tanks and difficulty in accessing them, it is hard to locate the hidden compartment without bringing the vessel into a port and emptying the tanks. The fuel has to be pumped from the tanks, and the space has to be certified to be gas free before the boarding team enters the space to inspect it. While the tactics for inspecting tanks are facilitated by smaller tanks or those with a large amount of contraband, they are often impractical when a small amount of contraband is hidden within a large tank.

The tanks on coastal freighters are normally irregular in shape, subdivided with baffles, and contain several thousand gallons of fuel, thereby making volume calculations extremely difficult. In addition, a compartment with 50 to 100 kilograms of cocaine will often displace only a small amount of the fluid in the tank. In this case, the only practical way to discover the compartment is to empty the tank and visually inspect its interior.

More Sophistication

Several seizures in the past few years show that the traffickers have taken the construction of hidden compartments to an even higher level of sophistication. The Coast Guard seized the coastal freighter Phoenix in December 1993 after an extensive dockside search ultimately located 1,031 kilograms of cocaine in a void constructed underneath and between two fuel and water tanks. The boarding team did not locate the hidden compartment until the water tank was emptied and a person was able to enter the tank. The boarding officer then used a pole to bang on the adjacent bulkhead in the fuel tank. When the crew member in the water tank could not hear the pole or feel the vibrations, it was determined there was a void between the two tanks not represented on an available set of the ship's drawings.

Once the boarding team believed there was unaccountable space, they found a narrow shaft leading down between the two tanks. A well-disguised weld was found at the top of the shaft exposing the compartments. At the bottom of the shaft, another welded plate was disguised with paint and an oily water mixture. This weld eventually led to the void containing the cocaine. The entire compartment required extensive modifications to the vessel; without prior intelligence, it would have been extremely
difficult to detect.

The seizure of the sailing vessel Michael Angelo in November 1995 is another example of the current high quality of workmanship. The 50-foot-long catamaran contained four hidden compartments that held more than 2.5 metric tons of cocaine. Two of the hidden compartments were in the forward portions of the hulls, and they were disguised to look like floatation chambers with the fiberglass coating identical to the fiberglass in the rest of the compartment. When the Coast Guard boarding team grew suspicious and used a power drill to access the space, it initially discovered only foam, which bolstered the master's claim that the compartment was designed to improve the vessel's buoyancy. Fortunately, the boarding team had a long drill bit that went through 4 inches of the foam to reach what ultimately was determined to be cocaine.

The boarding team discovered the other two hidden compartments on the Michael Angelo behind the woodwork in two of the vessel's staterooms. The intricateness of the woodwork and the lack of any apparent access disguised the hidden compartment. In addition, the interior of the compartments was covered with carpet to lead anyone drilling from above to believe that they had drilled into a living space.

In November 1992, the sailing vessel Vigil was seized for smuggling 417 kilograms of cocaine in a series of hidden compartments created within a second hull constructed outside the original hull. The double hull went undetected until the vessel was directed into the US Naval Station at Guantanamo Bay, Cuba, and pulled from the water. The traffickers had installed the hidden compartments on both sides of the vessel, with each adding only 5 inches to the beam of the vessel and running 38 inches down the hull. The fiberglass coating on the second hull matched the original hull, and it completely hid where the two sections of the hull met under the water line. On the deck of the sailing vessel, the accesses to the hidden compartments were covered with aluminum plates and concealed with rubber decking. Further disguising the hidden compartment, the vessel's lifeline supports were attached above the rubber matting.

Improving Intelligence Cuing

As traditional boarding procedures locate fewer hidden compartments, intelligence cuing becomes more crucial to the success of maritime counternarcotics efforts. With the fusing of information from a variety of sources, the boarding officer charged with searching for contraband can begin with several clues. To assist the boarding officer, these improvements can best be accomplished by educating intelligence professionals concerning hidden compartments and the ways their intelligence reporting can be expanded. More specific intelligence cuing can be a valuable tool for overcoming the growing complexities of hidden compartments.

Sketch of sailing vessel Vigil. Photo courtesy of the US Coast Guard. (U)

Intelligence reporting that states precisely where the contraband is located is rare. Typically, intelligence concerning a suspect vessel merely states that the vessel is believed to be carrying contraband, but it gives no specific location. While this information helps to locate the vessel, it contributes little once a boarding team is on board and begins its search. As the Nataky I case demonstrates, it still took the boarding team two days to find the 12 tons of cocaine--an unusually large amount. Typically, the amount of contraband is several hundred pounds.

Knowing that contraband is on board does not provide enough information to ensure that a seizure will be made. Without an exact location, intelligence that helps to narrow the focus of the boarding team's search is vital.

Helpful Information

There are various types of information about the concealment of contraband, other than its actual
location, that can narrow the search. If it is known whether the contraband was loaded at sea or is scheduled to be transferred to another vessel at sea, it could be easier to discover and seize the contraband. This information can help rule out a hidden compartment that could only be detected in a shipyard. If the contraband was brought on board first, the contraband probably would be hidden in a compartment under the cargo or in a fuel tank. If the contraband was brought on board afterward, it makes it physically more difficult to hide it in such compartments.

Other important pieces of information include the manner in which a hidden compartment is constructed, the craftsmen who constructed it, and the materials used. While it may not be possible to know exactly where a hidden compartment is located, this type of information helps to focus the boarding team's search. This information could include whether the vessel was recently in a shipyard undergoing modifications or whether a craftsman suspected of modifying other suspect vessels worked on the vessel. In addition, merely knowing what materials were used to construct the hidden compartment can give the boarding team important indicators to look for while conducting its search.

Cocaine discovered during search of s/v Vigil. Photo courtesy of the US Coast Guard. (U)

One of the greatest obstacles to improve intelligence cuing is the fact that a large majority of the intelligence professionals who work maritime narcotics trafficking issues are not fully aware of the complexities involved with hidden compartments. A better knowledge of what constitutes a hidden compartment, combined with knowing what information law enforcement officers want, ideally will lead to more specific and helpful intelligence cuing. In many cases, more specific information is available, but it is not recognized as important. Intelligence that narrows the search can come from archival research, previous boardings and seizures, related cases, and confidential informants. The key is for intelligence professionals to understand the hidden compartment problem, appreciate the types of cuing that would assist boarding teams, and know which sources of information are available.

Not Enough Expertise

One reason that intelligence professionals do not report more specifically on maritime trafficking is that there is a lack of knowledge concerning specific smuggling techniques and the intelligence cuing that could help detect them. These professionals, outside the other law enforcement agencies, usually do not have prior experience with narcotics-related intelligence. If the law enforcement agencies want better and more specific intelligence, they need to do a better job of educating the intelligence professionals concerning their needs.11

While education concerning the intricacies of hidden compartments is crucial, the analysts also have to understand the vast array of information available concerning suspected vessels and their crewmembers. Most vessels have a past history of being used to traffic narcotics. In fact, there are many vessels that have been repeatedly seized over the past 20 years only to be sold at auction or returned to their owners after paying a fine.

In addition, intelligence professionals need to look for connections between vessels suspected of smuggling narcotics. Vessels controlled by the same organizations often will have similar hidden compartments. If the craftsmen who constructed a hidden compartment can be identified, additional vessels they have worked on can be potentially identified and tracked. An example of this type of linkage is the Michael Angelo and a similar catamaran, Maria del Mar, which had hidden compartments in the same locations. Both vessels were owned by the same organization, and the same shipyard made their modifications. It was a case of combining the available information and then looking for connections between the different suspect vessels.12

A significant problem with accessing this array of archival information is that it is spread over many databases with no one person or agency able to access all of them. These databases contain a wide assortment of information from the Federal, state, and local levels; they include historical case files, message traffic, criminal records, commercial information, and registration files.
Tracking Vessel Modifications

When hidden compartments are constructed, no matter how well the installation was done, the structure of the vessel has been altered. The key is to determine the original structure of the vessel, track the modifications made to the vessel over time, and then be able to present this information to the boarding team.

Coastal freighter undergoing a weeklong search at the US Navel Station, Guantanamo Bay, Cuba. Photo courtesy of the US Coast Guard. (U)

The best picture that can be given to the boarding team is a copy of the ship's plans, which are the blueprint for the vessel and provide an important map for the boarding team to follow. Most plans are presented in several views and give a spatial view of the entire ship that allows a better look at the relationships between compartments. Plans often include measurements that can be checked against the current layout of the vessel. While many of the suspect vessels can be more than 40 years old and have been modified many times over the years, the blueprints provide a good place for the boarding team to begin.

The seizure of the coastal freighter Phoenix demonstrates the advantage that a copy of the ship's plans brings to a search. After approximately a day of searching for the suspected hidden compartment, the Customs Service agents working with the Coast Guard received a copy of the Phoenix's plans from one of their offices. The plans were instrumental in the space accountability inspection that led to the discovery of two hidden compartments under and between the fuel and water tanks.13

A long-term objective should be to create a library of ships' plans for suspect vessels. This would require an extensive effort to collect these plans from routine boardings, various databases, and previous seizures. During the postseizure collection and analysis, a trained intelligence officer searches the entire vessel for important clues. The vessel's blueprints are often located during these searches, and the blueprints are added to the postseizure case file. Once collected, these plans would need to be digitized and electronically entered into a database to allow the plans to be pulled by teams preparing to board a suspect vessel.14

Even vessels that have not been seized before have likely been boarded many times by the Coast Guard and Customs Service in the past 25 years. Frequently, individual vessels are boarded multiple times during a one-year period. During each of these boardings, the team has the opportunity to inspect the vessel and report any suspicious activities. Often, a hidden compartment may be located, but, because the vessel was not carrying contraband on that particular voyage, the vessel was not seized. While it is a violation of US law for a US-registered vessel to possess a hidden compartment, even if empty, the United States is unable to enforce these laws on foreign-flagged vessels on the high seas. These suspicions can be documented only in Intelligence Information Reports to allow future boarding teams to learn from the previous discovery.

Using Scientific and Technical Intelligence

As hidden compartments become more difficult to locate, the use of scientific and technical intelligence to find them and the contraband they contain becomes more important. And new technology is being applied to locating narcotics concealed in hidden compartments. The deception used in hidden compartments primarily involves visual deception that can be countered with scientific and technical intelligence applications. These technologies either detect abnormalities in the ship's construction or actually detect the contraband. With legal and operational constraints limiting the scope of boardings at sea, the use of new technologies allows portions of a vessel to be inspected without harming the vessel and decreasing the duration of the boarding. The challenge is to identify these new technologies and apply them in ways that can be upheld in courts of law.

Much of the scientific and technical intelligence being used to aid in finding contraband was not
originally designed for the maritime counternarcotics mission. There are many constraining factors that have to be considered when a certain type of technology is considered. The maritime counternarcotics mission is a unique effort and is not always compatible with the uses found in other parts of the government or in the commercial sector. The technology has to be portable, able to withstand the harsh maritime environment, and be cost effective. Such serious obstacles often limit promising ideas.

**Technological Tools**

Two general devices are used to locate hidden contraband. They first look for the contraband and its residue that may be scattered throughout the vessel. They are comparable to a drug-sniffing dog in that they seek to locate the actual contraband. The second type of device helps look through objects to determine what is inside. They can allow the inspector to determine what is in the interior of areas such as fuel tanks and bulkheads without resorting to intrusive searches. The results of these tests narrow the scope of the search to those areas of the vessel that are most likely to contain contraband.

One promising new innovation is the IONSCAN, which is a highly precise piece of test equipment originally designed to detect explosives. Once it was identified as a potential tool, the Coast Guard Research and Development Center reconfigured it to detect trace amounts of illegal narcotics within vessels, automobiles, and cargo containers. Narcotics leave an invisible but measurable amount of residue on every surface with which they come in contact. Swatches of test paper are used to sample surfaces and people’s skin that may have narcotic residue. When the swatch is tested using the IONSCAN, a reading is given on a computer terminal that indicates the concentration of the sample. The higher the concentration, the more recently the object or person was in contact with the narcotic. The IONSCAN has been shown to be more sensitive than canine detection units, and it is not affected by scents planted to confuse dogs.15

Random IONSCAN test samples can be taken in large numbers during the inspection of merchant vessels suspected of smuggling narcotics. The samples are taken from areas throughout the vessel, and the locations are recorded. Once the samples are tested using the IONSCAN, the results are noted on a sketch of the vessel corresponding to the location where they were taken. Using the diagram of the different concentrations of contraband as a map, the boarding team can better focus its search. The areas with the highest concentrations are most likely to be near where the contraband is hidden or along the contraband’s on-load route. This technique has allowed boarding teams to reduce the number of areas of the vessel needed to be closely scrutinized, and it has led to the discovery of the contraband concealed in elaborate hidden compartments.16

The IONSCAN is also used to connect suspected traffickers to the seized contraband. When a hidden compartment is located and the contraband is seized, it frequently is difficult to determine legally which of the vessel’s crew were involved in smuggling. Routinely after a seizure, some or all of the vessel’s crew are acquitted at trial because the defendants denied any knowledge of the smuggling, and the government could not legally demonstrate each individual’s connection to the contraband. Positive IONSCAN test results taken from the suspects’ skin can now be used to identify which members of the crew handled the contraband.

Density meters are the most common type of technology used to inspect objects or structures that could contain hidden compartments. They are hand-held devices that emit radiated gamma energy into the object over which they are passed. The greater the density of the material within the object, the higher the amount of gamma energy that will be reflected back into the device. The measured density is displayed on an LCD display. The resulting density measurements are then studied to determine if there are abnormalities that would indicate whether the object being inspected has been modified. Contraband concealed within a bulkhead would give a different density than the normal construction of a bulkhead.

**Use of X-rays**

The X-ray devices commonly used in airports and at cargo ports are similar to density meters. The
Customs Service uses X-ray devices in their cargo inspections to allow an inspector to examine the interior of an object without opening it. Large boxes, crates, and even bins of fruit are forklifted onto X-ray machines allowing their interior contents to be inspected. The Customs Service has installed a large X-ray machine in Arizona that can X-ray an entire cargo container.

While these X-ray machines are only used ashore with bulk cargo, they demonstrate the potential for portable shipboard use. The challenge is to design portable X-ray devices that can be carried on boardings and be used to inspect areas that otherwise cannot be inspected without a destructive search.

**Countermeasures**

Once these devices are mass-marketed, the traffickers will likely purchase the devices and test them to discover their limitations and to develop countermeasures. While the technology eventually might be defeated, it does require the traffickers to react constantly and to try to conceal their contraband in smaller amounts and in more expensive locations. And there is another serious obstacle to applying new technology. While a promising technology may be available within other parts of the government, the program's classification may be so sensitive that its employment restricts its use. Procedures used during a search have to be openly disclosed to the defense during the criminal prosecution. If these devices cannot be demonstrated in court and adequate legal protections cannot conceal their use, then the device will not be able to be widely used. This in turn makes it unlikely that the devices will be distributed to operational units.

**New Approach Needed**

Today's narcotics traffickers are engaged in a multibillion-dollar trade that knows no limit as to the amount of money and technology dedicated to concealing their contraband. Their efforts cannot be solely countered with the same techniques that have slowly evolved over the past several decades. The IC's experience with camouflage, concealment, and deception theory provides a framework for examining the problem of hidden compartments with a more appropriate perspective and offers methods for countering hidden compartments. A reengineered strategy, well grounded in tactical deception theory, would allow the United States to improve its intelligence cueing, refine its ability to track modifications made to suspect vessels, and make better use of scientific and technical intelligence to locate hidden compartments. The implementation of such a strategy would go a long way toward ensuring that even the most advanced hidden compartments are located.

**Notes**

1 Hidden compartments are portions of a vessel constructed or modified for the purpose of illegally smuggling something into or out of a country.

2 Coast Guard Intelligence Coordination Center, Washington, DC, to Defense Intelligence Agency and others, IR 4 112 0003 95, subject: "Post-Seizure Analysis of Seized Narcotic Vessel Nataly I, FDIN 95-069933," 111323Z September 1995.

3 Dead space is unused space within bulkheads and decks that usually cannot be accessed. It can be a product of the vessel's design in which a use could not be found for the space. An example of this type of dead space is where a perpendicular bulkhead meets the curvature of the vessel's hull. The space between the hull and the bulkhead is unusable and simply sealed off. Dead space can also be purposely created with false bulkheads or decks.

4 Santeria is a Caribbean religion that combines elements of Roman Catholicism with African voodoo.


7 Space accountability is the process of verifying the content of all the space within a vessel to ensure there are no hidden compartments. One-hundred percent space accountability is usually not possible unless the vessel is brought pier-side for a several-day-long comprehensive search.


9 S/V Michael Angelo, produced by Coast Guard Law Enforcement Detachment (LEDET) 5D, 16 minutes, 22 November 1995, videocassette.


12 "Authorities Detain Cali Cartel's Jose Castrillon Henao" (text), PA 1904020596 Panama City Circuito RPC Television, 18 April 1996.

13 Lt. Christopher J. Tomney, USCG, Chief, Coast Guard Operational Intelligence School, interview by author, 22 March 1996.

14 Capt. Thomas Brown, USN, Director, J-3, Joint Inter-Agency Task Force (JIATF) East, interview by author, 5 June 1996.


16 Ibid., pp. 33-34.

Lt. M. W. Raymond is a member of the US Coast Guard.

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