

DETERRING PIRACY IN HIGH-RISK WATERS ©

LONG RANGE ACOUSTIC DEVICES PROVING EFFECTIVE IN MARITIME SAFETY

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Over the past decade, international shipping has been continually threatened by pirate activity off the coast of East Africa and in the Strait of Malacca. The threat has been particularly concentrated in the waters off Somalia and has escalated significantly since 2005. Heavily armed pirates, violent attacks, and ship seizures dominate maritime news, along with increased, but often unsuccessful government-led efforts to patrol and enforce maritime safety for cargo vessels traveling in these high-risk waters. Somali pirates carried out a record number of attacks in 2009 despite the best efforts of international warships to monitor and curtail pirate activity. Though security experts and senior military officers have recommended that ships can and should take measures to protect themselves from pirates and armed robbers, many disagree on the response and the level of escalation of force that should be taken.

In the past, commercial shipping companies have not typically armed crewmen. According to the IMO (International Maritime Organization), flag States should strongly discourage carrying and the use of firearms by seafarers for personal and ship protection. Their concerns focus on the potential for minimally trained personnel escalating an already dangerous situation to one that becomes deadly.

Comprehensive anti-piracy plans must include methods of detection, assessment or determination of intent, and execution of pre-planned reaction procedures that include the use of non-lethal, and if required, lethal force. Technology advances support the development of this layered defense strategy, allowing ships to equip themselves with pirate deterrent options that may avoid implementing lethal defensive measures. The Long Range Acoustic Device™ (LRAD®), developed and innovated by American Technology Corporation, is an important and proven tool in this effort, demonstrating effectiveness in a wide range of vessel safety and security applications. In particular, commercial vessels using LRAD can effectively address two key issues in maritime safety and anti-piracy defense – determining intent of nearby vessels and influencing or shaping their behavior.

Lessons Learned

LRAD was developed to assist U.S. Navy security personnel in their mission to prevent another USS Cole-style terrorist attack and safeguard against the loss of lives and critical operational assets. In response to the growing threat to maritime security, American Technology Corporation has worked closely with military, commercial shipping and security firms over the past seven years to make LRAD a highly effective long-range communication and deterrence system. The U.S. Navy has contracted for 270 LRAD 1000X® units for its large surface combatant vessels to support escalation of force decisions and prevent terrorist incidents. Additionally, more than 60 cruise ships and many merchant and commercial vessels currently sail with LRAD aboard.

Whether or not ship security personnel employ lethal or non-lethal capabilities, response strategies against armed threats require a carefully thought-out “detect, assess and engage” process. Shipping companies must supply the necessary tools to ensure expedient progression through this process, ensuring enough time to safely and effectively react to any threat. LRAD extends the engagement envelope and provides critical time and distance for teams to assess threats, safely directing civilians and their vessels away from potential threats, or identifying, assessing and deterring targets with hostile intent. LRAD provides the tactical decision time and distance that may be the difference in successfully deterring or defeating a threat. Following the Cole Commission Report, ADM Gehman made this statement: “Deterrence, the ability to deter an opponent, is a rather sophisticated capability. ... It involves vigilance, it involves the visible appearance of readiness and resoluteness and the impression that you are able to react to the terrorist.” LRAD answers this requirement providing an undeniable appearance of readiness through loud, clear and directed communication.

Proven Performance

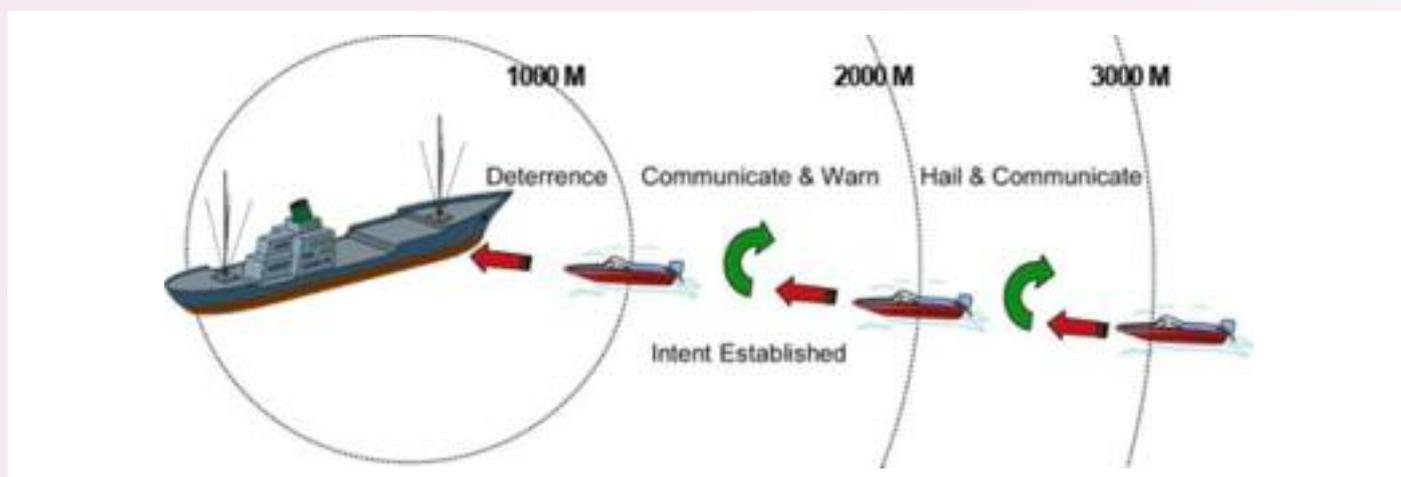
LRAD systems are easy to use through a simple, familiar, and standardized interface. Manual or autonomous systems are designed for around the clock operation in harsh maritime conditions. Working in conjunction with state-of-the-art remote sensing and detection systems,

LRAD provides communication and deterrence with no disruption to the crew, navigation or other on-board equipment.

Broadcasting a focused, directional audio beam, LRAD can transmit in the language of choice and offer a loud, firm and highly intelligible communication. LRAD provides security teams with a powerful, penetrating warning tone that can be followed by clear voice transmissions in host nation languages to warn and shape the behavior of potential hostile entities. LRAD employs directed sound technology to move the security engagement envelope from 50 meters (without LRAD), to excess of 3000 meters. Once nearby vessels are hailed, ship and crew can more effectively determine the vessel's intent and any associated threat level. This advance in early guaranteed communication is critical in defining next steps -- commercial vessels can either com-

LRAD provides vessel/platform operators the ability to determine the intent of a potential threat at the earliest possible moment and at the greatest distance.

By deploying LRAD's long distance warning tone, ship-masters can change pirate behavior and create safety zones for the entry of law enforcement personnel. Powerful deterrent tones are projected directly to the threat target, initiating behavior change that preserves time and distance for crewmen to scale their response and prepare for additional escalation by law enforcement. Furthermore, LRAD provides a multi-spectral deterrent effect when complemented with optional integrated high powered white lights and lasers. By employing consecutive hailing and warning messages beyond 3000 meters, by the time a threat is within 500 meters, security personnel can be sure that the target has heard and clearly understood the warnings.



fortably stand down, or deploy LRAD's powerful warning tone as an option to lethal responses.

Once a commercial vessel deploys LRAD, most attackers conclude that the ship is prepared to defend itself and a warning has been sent to coalition patrols in the surrounding area. Pirates are made aware they have lost the advantage of surprise and the commercial vessel they are approaching is prepared to make their attack as difficult as possible.



LRAD in Action

In May of 2009 LRAD was used by the Military Sealift Command ship (MSC) USNS Lewis and Clark as part of its successful avoidance of a pirate attack. Shipboard lookouts spotted two pirate skiffs approximately two nautical miles away. The crew immediately began evasive maneuvers including increasing the ship's speed. Embarked security teams also deployed verbal warnings via LRAD, and the pirates abandoned their pursuit. According to news released by the US Navy, "The actions taken by Lewis and Clark were exactly what the US Navy has been recommending to prevent piracy attacks – for both commercial and military vessels," said Captain Steve Kelley, Commander, Task Force 53, to which Lewis and Clark is operationally assigned. "Merchant mariners can and should use Lewis and Clark's actions as an unequivocal example of how to prevent a successful attack from occurring."



Military Sealift Command ship (MSC) USNS Lewis and Clark (T-AKE-1) was approached by suspected pirates off the eastern coast of Somalia and took evasive action to prevent a successful attack. Source: United States Navy website (www.navy.mil)

In 2009 additional high profile attacks were thwarted using LRAD on the MV Green Ridge, Maersk Alabama and several cable-laying vessels and oil tankers. LRAD are currently deployed with naval forces from Portugal, Norway, Sweden, Australia, Korea, Singapore and the Netherlands as well as the Japanese Maritime Self Defense Force.

Moving Forward

In a May 2009 Senate Subcommittee Hearing on Piracy on the High Seas, Captain Richard Phillips of the M/V Maersk Alabama called for LRADs as an element in a "...comprehensive, multi-faceted plan to combat...". He was proven correct when the M/V Maersk Alabama successfully deployed LRAD along with other defensive measures to deter a pirate attack off the northeast coast of Somalia in November 2009.

In the same Senate meeting, the U.S. Coast Guard announced it was requiring U.S.-flagged ships to post guards and submit anti-piracy security plans for review and approval. Ship owners will ultimately be allowed to determine whether or not those embarked security forces will be armed or unarmed, making LRAD an even more critical component in determining intent and threat levels.

Successfully deployed on both commercial and

military vessels around the world, LRAD has proven invaluable as part of a multi-faceted approach to fight piracy. Determining potential threats quickly and at a safe distance provides vigilant crews with the time and distance required to react, scale their defensive re

sponse and communicate with maritime law enforcement agencies and coalition forces. With piracy attacks continuing to escalate, and heavily armed pirates remaining elusive at sea, LRAD is quickly becoming an essential capability in maritime security's fight against 21st century pirates.

Mr. **Scott Stuckey** has been with American Technology Corporation for more than five years helping to deploy LRAD on military and commercial vessels. He is a retired Commander from the US Navy and has earned a Bachelor of Science from Rensselaer Polytechnic Institute and a Masters in Business Administration.