

According to Captain Kuba Szymanski, secretary general of InterManager, shipowners are reluctant to invest in onboard security technologies because, as far as they are concerned, they don't need them if they have security guards. "We have seen a lot of different products. I know that some people are trying ultrasonics, and night vision goggles are touted as working miracles. But, the truth is, you can't see more than about 900 yards, and at sea 900 yards is two minutes. Security guards seem to be the preferred solution."

However, the focus on armed guards has distracted the industry from appreciating the full slate of options and the importance of a more strategic approach to risk assessment, says Rick Filon, maritime security director at GAC Maritime Security.

"History shows that the best security solution lies in a system, not a single measure. Whether we are talking about the protection of a castle centuries ago or a ship off the Horn of Africa in 2014, what works best is a combination of defences and procedures, drills and training, prevention and response." In practice, this means investing in crew training and education, pre-voyage preparation, defensive configurations and systems such as the latest citadel door protection, water cannon systems or protective fencing and real-time intelligence alerts on global maritime security threats.

#### WORTHWHILE INVESTMENTS

"A comprehensive, layered maritime security system, built upon training, intelligence and non-lethal security measures, is a worthwhile investment for shipowners and operators. It remains the most cost-effective means of deterring sea crime and protecting your crew, cargoes and vessels. What is more, a non-lethal protection system can be treated as a long-term investment that can be depreciated over several years and even transferred between ships," says Mr Filon.

GAC offers its Sea Crime Defence System. "The principles are old, but the solutions are innovative and new ideas seem to arrive every week. That is why we have formed partnerships with other leading maritime defence experts and combined them with GAC's intelligence-led approach to deliver an integrated service package called Sea Crime Defence System (SCDS)."

All of the SCDS technologies can be used in combination to provide a higher level of vessel protection than any single solution could provide. They include the world's strongest searchlight with a unique reflector, capable of seriously impairing vision from well over a kilometre away. The company also offers the Unifire Seaserpent Anti-Pirate Water Cannon System which is capable of creating a 70m long jet with up to 80 litres/second flow, and the Inferno sound repellent which delivers supersonic sound waves designed to confuse, disorientate and distress intruders.

"To further protect against boarding, vessel owners and operators can consider the P-Trap anti-boarding device, which is a comprehensive system of nylon lines designed to foul the propellers of any boats attempting unauthorised approach. We also offer



All of the GAC's Sea Crime Defence System technologies can be used in combination

## Putting security guards in their place

Security guards have been hailed as one of the best defences against piracy, but technology solutions remain competitive and desirable, says the security industry. By **Wendy Laursen**



SeaDefence anti-grapple razor wire, which is a compact razor-wire defence system that is easy to store and deploy, creating a resilient barricade against would-be boarders."

A properly secured citadel remains a highly effective last line of defence to protect crew and reduce the chances of pirates taking control of the vessel. GAC's SPS Citadel Protection offers a Sandwich Plate system which is a bullet-proof, hammer-proof panel system designed for easy installation across doors and portholes. It is the ideal means to reinforce access ways and deter a sustained attack, says Mr Filon.

Jeff Hilsen, chief operating officer at WatchStander, says the dynamics of piracy are changing. "Pirates are no longer just sticking to their traditional methods of vessel hijacking, kidnapping and ransom. They are increasingly favouring 'smash and grab' style robberies, where stealing cargo, fuel and crews' possessions is seen as a successful result. This is particularly true in locations other than the Gulf of Aden, such as the Gulf of Guinea, the Malacca Straits

and the South China Sea. Even political stability within countries like Somalia will not eliminate piracy, as to make steady earnings, pirates need a minimally stable political environment – such as basic communications and banking – in order to co-ordinate attacks and deposit revenues from their activities."

#### FEARLESS

Recently, pirates have also become more fearless in countering armed guards and engaging in firefights, rather than being immediately repelled, says Hilsen. Pirates are now becoming increasingly familiar with armed guarding and are evolving their own tactics as a result."

Mr Hilsen says that placing armed guards aboard commercial ships is very expensive, and shipping companies are increasingly looking at ways to reduce these costs. This can be accomplished by hiring sub-top-tier private maritime security companies and/or reducing the size of security teams aboard ships. By combining smaller security teams with technology-based security solutions such as WatchStander,

shipping companies can reduce their overall security costs without sacrificing effectiveness, he says.

"We therefore believe that as the dynamics of piracy are changing, so too must the mitigation tactics. And advanced technology is playing an increasingly important role in driving this." WatchStander has launched an anti-piracy system developed by the Applied Research Laboratory (ARL) at Pennsylvania State University – a US Navy-affiliated research facility. "WatchStander's world-leading threat identification software uses patented, proven algorithms originally developed by ARL for the US Navy. Our proprietary technology, for which we have an exclusive global agreement with ARL, provides ship owners with the ability to strip would-be attackers of the element of surprise, and defend themselves with a range of fully automated non-lethal countermeasures which escalate in proportion to the threat."

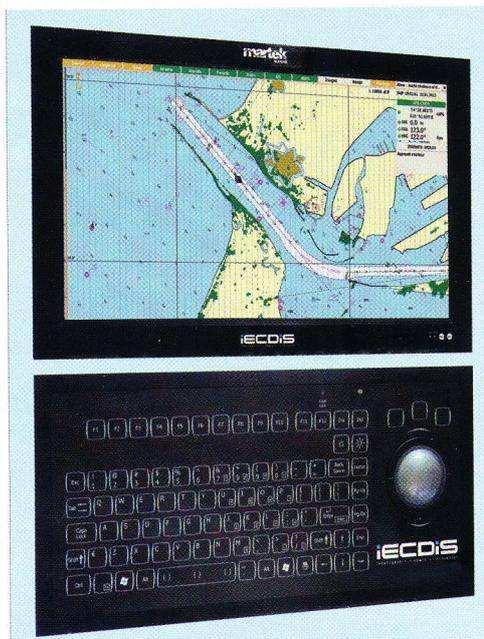
#### COUNTERMEASURES

The company's long range, high resolution radar system detects surrounding vessels and assesses their behaviour to identify which targets are hostile. If WatchStander identifies a threat, the system automatically triggers non-lethal countermeasures in response if the attacking vessel continues to approach the ship.

"Technology and innovation will play a hugely significant role in the future of piracy mitigation, and there needs to be far more awareness within the industry of high-tech solutions," says Mr Hilsgen. "For example, technologically-driven anti-piracy and vessel protection solutions are largely ignored in industry best practice guidance and guidelines, such as BMP4, where only the most rudimentary products and techniques such as razor wire or water hoses are referenced.

"In the main, the industry debate on piracy and the guidance given on mitigating this threat is disproportionately dominated by a focus on armed guards and the use of private maritime security companies. The reality is that the nature of piracy is changing. It is only sensible that the nature of the deterrent must also evolve."

The security industry is evolving its own specialist systems. Black Pearl Maritime Security Management has developed a bespoke software system that enhances the way the company's security guards provide their four-hourly reports and emergency alerts while at sea. Rather than the individual email reports that are typically sent, Black Pearl has developed a standardised questionnaire that can be sent via a number of technology platforms including smart phones. These are received by the CEO as a matter of course, but the system can automatically trigger alerts to any number of other organisations including the shipowners. This saves time and reduces the potential for error. Everyone is kept informed immediately via their choice of communication method. Mark Crone, spokesman for Black Pearl, says the system may in time be offered as a service across the industry.



Martek Marine's iECDIS system has an optional overlay to display piracy information

Electronics developments are also focusing on piracy. Some ECDIS equipment, such as Martek Marine's iECDIS system, has an optional overlay to display piracy information. This enables the navigator to make more informed decisions when route planning by being able to identify, understand and manage the risks associated with piracy with features including recent and historical pirate attack locations displayed on the screen. Martek has also made its BNWAS system password protected. There have been a lot of accidents recently relating to BNWAS being turned off, says the company, so this feature gives added security.

Steven Jones, maritime director for the Security Association for the Maritime Industry (SAMI), looks to vessel design changes in the future. A number of barriers currently exist which preclude naval architects, shipbuilders and owners from really tackling the issue of building in security. Uppermost in these barriers to progress is the construction cost, naturally the more complex or material intensive a design, the higher the price, says Mr Jones.



WatchStander has launched an anti-piracy system developed by the Applied Research Laboratory

The problems do not stop with the price tag, but also applicability. Often ships are not designed for specific areas of operation. As such a vessel which is destined for the North Atlantic routes is not likely to encounter too many pirates. The most simple and cost-effective changes, therefore, that can be introduced to allow merchant vessels to comply, even with small crew complements, more easily with legislation, such as the International Ship and Port Facility Security (ISPS) Code are changes in the ergonomics and layout of vessels.

By taking a root and branch review of the way in which commercial vessels are designed it would be possible to make it easier and safer to monitor, manage and respond to security breaches across an entire vessel. However, it is perhaps difficult to see who will take the lead in implementing this change towards ergonomic design.

Despite their increasing involvement in naval vessels, classification societies are not thought likely to set new design standards for vessels based on security alone. It is also unlikely that IMO will force any design changes with regards to security, as it simply adopts the standards with which naval architects and designers need to comply.

#### QUANDARY

This leaves the shipping industry in something of a quandary. The ISPS Code is difficult to apply across today's traditionally designed vessels, and it is hard to easily protect and deter against pirate boarders.

"The vast majority of the world fleet is built with safety and commerce as its basic functions. The industry therefore needs some radical re-thinking and the development of simple and cost-effective solutions that owners can accept and that will assist personnel to improve the security of their vessels."

The traditional approach of low freeboard, open railings, outside accommodation staircases and open decks is a boon to those posing a threat and makes it very difficult to lock vessels down. It seems a rethink is needed to ensure that vessels are built that are able to combine the demands of business, comfort, safety, environmental concerns and security, says Mr Jones.

"Looking at vessels that have been readied as per BMP for transit of piracy high risk areas, a significant amount of razor wire is required to safeguard access to the vessel and, once onboard, around it.

This strongly suggests that security has not been a consideration in the design stage," says Jones. "Just as the latest technical, communications and navigation equipment must look to counter maritime cyber threats. The challenge is clear with regards to hardware too.

"The next generation of merchant vessels should be designed and constructed in such a way as to maximise the protection against a range of security threats – whether the pirates, terrorists, smugglers and stowaways of today, or the myriad threats which could emerge into tomorrow."