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Technology Update

Core^3 Yacht Security - Today's Topical Technology

Yacht security has become a topical subject of conversation following recent widely-publicised occurrences of piracy in and around the Horn of Africa, and particularly off the coast of Somalia. This follows a steady increase in the number of attacks on yachts during the past few years.

Although certain areas are known to be notorious for attacks by modern-day pirates, and most yachts venturing into these waters are aware of the dangers, an attack off the coast of Corsica at the end of August has brought this danger far too close to home.

Tiara, the 54m luxury sailing yacht, was boarded by four armed men in the bay of Porto Novo, off Porto Vecchio, in the south of Corsica late at night on 24th August 2008. The attackers arrived in an inflatable, armed with guns and other weapons, and quickly overpowered the crew.

The attackers left with €138,000 taken from the safe. The ten crew and nine passengers, who had sailed from Porto Cervo in Sardinia, were shocked but unhurt. The pirates disappeared into the night, and French police are investigating.

The new super sailing yacht Red Dragon had a piracy scare on her maiden voyage to the Med from New Zealand just recently. Whilst transiting through the Gulf of Aden they had three people on watch at all times, as they were aware that there had been a lot of pirate activity off the coast of Somalia during the past few weeks. They saw a large dhow change course at eight miles away towards them. At four miles off, the dhow stopped and launched six fast boats with about three people in each.

On arriving alongside Red Dragon, the pirates were taken aback to discover eight people in flak jackets with guns awaiting their arrival. The pirates fled, realising that they would do better to wait for an easier, less prepared target.

On 11th April this year, pirates seized control of a French luxury yacht carrying 30 crew members in the Gulf of Aden. Attackers stormed the 288-foot Le Ponant as it returned without passengers from the Seychelles towards the Med. It was then moored near the port of Eyl in the northern Somali semi-autonomous Puntland region, while the pirates held negotiations with its owners, French charter company CMA-CGM.

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Somali officials and sources close to the negotiations said the owner of the yacht had paid a €1.3million ransom for the crew's release. The following day French commandos carried out a helicopter raid against a group of Somali pirates soon after they released the 30 crew. Six of the pirates were arrested and some of the ransom was recovered.

So, as you can see, piracy is a growing problem, and it is affecting yachts and crew that we know. So what can technology do to help? What can be clearly seen from the Tiara and Red Dragon incidents is that Red Dragon had warning to prepare for the attack, but unfortunately Tiara did not.

Employing layered situational awareness from detection to response

Technology can be used to automatically create an awareness of the yacht's current situation by initial detection of a potential threat whatever the conditions whether at night, in bad visibility and even from under the water. The potential threat can then be tracked and, if deemed serious, the warning time provided will allow for a prepared response.

Core Security - Structured Security Layers

Most yachts will have existing technology that we call their existing security layer. The existing security layer usually takes the shape of sensors such as radar, CCTV and possibly a night vision camera. Depending on the yacht's security needs, an analysis of the existing capabilities should take place and an expanded security layer should be considered to lift the yacht's security cover. Security is scalable depending on the quantity of technology you employ.

Sensors for detection – Layer 1

Radar

Good medium- to long-range detection. Limited at close range. A smaller bow, stern, port or starboard radar may be considered for closer range detection.

Water line sensor

Very low cost and wide coverage to allow for multiple units to cover entire yacht. Short range coverage (waterline area). Detection against surface swimmers and boarding. Detects people/objects overboard from yachts.

Sonar

Detects underwater intruders, divers and submersible vehicles, within a radius of 900m. Aids in detecting surface intruders in limited visibility but can only be used when stationary or at anchor. Can also be used as a friendly diver tracker.

Sensors for tracking – Layer 2

Radar, Sonar, Daylight and Night Vision cameras will track a potential threat.

Sensors for identification – Layer 3
Daylight camera
A yacht can support multiple units at low cost for 360° coverage. Good long range identification with zoom lenses. Of limited use near the yachts waterline. Automatically tracks targets while identification is in process. Monitors water and dock areas.
Night Vision camera
Provides detection and identification at night. Good short- to medium-range identification. Automatically tracks targets while identification is in process. Of limited use near yachts waterline. Monitors water and dock areas. Works with spot lights that are not visible to human eyes.

Effectors – Layer 4
Audio – LRAD (Long Range Acoustic Device)
Medium-range warning device. Flexible (alarms sounds, verbal warnings, multiple languages). Directional. Non- lethal.
Light – Powerful searchlight
Long range warning. Can be used to hinder vision of potential intruders without physical harm. Can operate in visible or above visible spectrum in restricted areas.
Water Cannon
Physical method to disrupt or deter intruders. Short-range effect. Non-lethal and generally non-injuring.
Patrol Boat or USV (Unmanned Surface Vehicle)
Small patrol boats can be deployed for remote monitoring and interception. Boats can have video linked to ship and shore-based security stations. Boats can be tracked and directed from ship and shore-based stations.

Automated Control and view of all Security Layers
An IBS (Integrated Bridge System) such as the Sperry Visionmaster FT Series has a ShipSentry facility to control and view the security activities. It will provide complete situational awareness and response control. This is typically a large yacht system on yachts above 30m and is scalable to suit any yachts requirements.

A typical Detect-to-Engage cycle

1. The radar automatically detects target, acquires it and initiates the track.
2. The System Console on the IBS automatically displays correlated track information. The watch keeper is automatically alerted when the target meets the user defined parameters.
3. The ID Sensors, cameras, automatically slew to track or are manually pointed.
4. Integrated Blast Hailer/ Spotlight automatically slews to track.
5. The LRAD non lethal system automatically slews to track.
6. Non-Lethal engagement is initiated

Conclusion

The threat from pirates is growing and is getting closer to home. A planned and structured use of technology can provide much improved situational awareness and thus heightened readiness. It provides for defence in depth by extending your decision-making timescale and supports the use of defence measures. This is an effective solution.

This solution would have been very helpful for S/Y Tiara, even in a location where pirates are not expected.

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