

Tony Kingham argues that, with the continuing terrorist threat to international ports and shipping and a growing array of defensive technologies, there is no excuse for poor maritime security

TERROR FROM THE DEEP

There are many examples in recent history of how a small group of lightly-armed specialists can quickly and easily exploit the vulnerability of ports and waterways to devastating effect. One of the most spectacular took place in 1942 in the form of Operation Frankton, in which ten British Commandos in five two-man canoes paddled 75 miles up the Gironde River and raided occupied Bordeaux harbour. With only limpet mines they succeeded in sinking one ship, severely damaging four others and doing enough damage to greatly disrupt the use of the harbour for months to come. Their daring and courage is legendary but they paid a heavy price – eight of the ten Commando's lost their lives. But it shows what a low-tech waterborne operation can do, even in a heavily defended and patrolled wartime port. The al-Qaeda attack on the Destroyer USS Cole in October 2000 while the ship was refuelling in Aden Harbour, Yemen, killed 17 and injured 39 American sailors. In this case it was a suicide bombing; a vessel packed with explosives was drawn up alongside the USS Cole and detonated. While the modus operandi was different it

illustrates that even a modern warship packed with the most up-to-date weapons and systems is vulnerable to attack while in or around ports.

Another al-Qaeda method of attack was perpetrated on the French tanker Limburg which, while several miles off the shores of Yemen, was rammed on the starboard side by a small vessel packed with explosives. The attacking boat pierced both of the tanker's skins and detonated, killing one crew-member and spilling approximately 90,000 barrels of oil into the Gulf of Aden.

The latter two attacks show us that the terrorist has the luxury of being able to switch target and method at will, making it all the harder to anticipate when, where and how the next attack will be made. The Frankton method has yet to be successfully perpetrated by terrorists (as far as I know), although in June 2010 Israeli forces killed four alleged terrorists dressed in diving gear in a boat, and there are intelligence reports from the Philippines have indicated al-Qaeda terrorists have undergone training for just such an attack. Clearly, with civilian scuba equipment and training readily available and so many ports and

harbours as yet unprotected, it is only a question of when and how the next attempt will be made.

Stationary vessels in and around the dockside are particularly vulnerable, but of course the threat does not stop there. Out in the estuaries and the littoral approaches vessels slow down and become vulnerable targets to mines, suicide bombers or boarders, as they are channelled in towards their destination.

Over the years we have also developed a whole range of new high-value targets for the terrorist to choose from. The environmental and economic damage, publicity and political fall-out caused by the Deepwater Horizon disaster in the Gulf of Mexico cannot have gone unnoticed by terrorist groups. Oil and gas rigs are high-value, numerous, isolated and largely undefended. We have also developed massive oil and gas terminals to bring in vital oil and gas supplies by sea, some of which are very close to urban areas and if damaged could cause terrible loss of life and economic chaos.

Another increasingly popular method of transporting fuel is in the form of liquefied natural gas (LNG). Many believe these vessels and the associated

terminals are particularly vulnerable to small-scale attacks. Charles Faddis, the retired head of CIA's Weapons of Mass Destruction Terrorism Unit, has warned an urban LNG operation creates two targets: the LNG plant itself and the enormous LNG tankers bringing in the frozen gas. He is warning the explosive power of a liquefied natural gas operation may be too good a target for terrorists to pass up. Other potential targets include chemical plants and vessels, nuclear facilities with exposed water intakes; the list goes on. The problem, as with all transport hubs and facilities, is the need to maintain the free flow of vital economic goods and traffic while protecting against the possible risk of a terrorist attack.

Broadly speaking we can break down potential waterborne threats into surface and sub-surface. To combat surface threats such as explosive suicide

boats and hostile boarding attempts, the best option is to keep them at a distance by the use of exclusion zones using floating barriers, booms or mobile patrols. This is particularly useful in dedicated terminals such as oil, gas, LNG and nuclear facilities. Obviously this is widely used by the military that has the personnel and equipment to enforce them. It is not, however, practical in busy commercial ports for merchantmen.

Identifying the potential threat

is key, so surveillance systems such as radar, CCTV, electro-optics, and thermal imaging for target identification and tracking night and day should be widely employed. These systems need to be integrated through a command and control centre either within the port facility or as an integral part of a ships bridge.

The use of large buoys or fenders positioned along-side vessels in port would prevent terrorist suicide vessels placing themselves in direct physical contact with the vessel, thus reducing the effectiveness of the blast and making it less



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Direct hit: the French supertanker Limburg was struck by an explosive-packed boat in 2002

► likely to penetrate the hull. Foam-filled fenders of the type produced by companies like Fendercare (Hippo Fenders) and Marine Fenders International (Ocean Guard) should be of particular use as long as the foam is not of a combustible nature.

Clearly the use of lethal force against aggressors is a last resort and is not always available to civilian security or maritime personnel. The increasing problems with pirates upon the world's oceans has, however, led to the development of a range of non-lethal weapons that can similarly be used to stop to enforce exclusion zones and protect shipping. Companies such as BCB have developed the Buccaneer Ship-Borne Shore Launcher (SBSL) which uses either compressed gas from cylinders or the ship's compressed air system to launch anything from netting to solid projectiles up to a range of 300 metres. Significant kinetic energy is produced without resort to dangerous or volatile explosives, so the system offers a genuine non-lethal response and deterrent to attack. Other companies have developed the trusty water cannon already in use for fire-fighting for use in protection roles, such as the Anti-Pirate Water Cannon System (APWCS) from Unifire AB of Sweden. This system was designed specifically to protect ships, yachts and

all types of marine vessels against pirate attack, but could equally be of use on rigs or in terminals. The system can be fully automated and so operated from the relative safety of the control centre or bridge.

Sub-surface threats are an altogether trickier problem to detect. The main threats at present are from divers and mines, and to a lesser extent submersibles, semi-submersibles and remotely operated vehicles (ROVs). In order to mitigate these risks, a hydrographic survey of the port, estuary and littoral area should be carried out to map the underwater environment in detail. Without this basic information it is impossible to identify foreign bodies and potential risks like mines. Surveying must therefore become a routine function of the security/port staff, making sure that any new and suspicious objects can be quickly detected and investigated using divers or ROVs. For surveying and detection, systems like the RESON SeaBat range are tried and tested and already in operation around the world. Their products include the SeaBat 7112 which can be permanently mounted on the sea floor or may be mounted on a pole or a vessel. It is designed to detect small targets such as divers with closed circuit re-breather equipment; the systems will then track them and alert

operators of their presence on a geo-referenced map of the area.

Other offerings like Seabat 7128 offer a forward-looking sonar system that provides detection and high-resolution images of intruders, allowing rapid and accurate classification. Seabat operates at 200 or 400Hz and illuminates a 128-degree horizontal sector. It can be mounted on a surface vessel, ROV or AUV platform, and operates in either shallow water or up to 6,000-metre depths. Sources tell us that this system has been selling very well worldwide in recent months. An important feature of these types of systems is they use an open architecture that can easily be integrated with other equipment such as UUVs and command and control systems.

Other manufacturers include: Kongsberg with their multiband diver detection sonar, the DDS 9000 series; Marport with the CSDS-85 surveillance sonar; the Sonardyne Sentinel mounted either on a seabed frame looking upwards or on a permanent harbour wall; and the Saab DD90 and DD360 sonar diver detection systems.

UUVs, AUVs and ROVs are important tools in securing the underwater environment. In combination with sonar and underwater cameras, these systems can be used on routine patrolling and surveying or on reactive investigation of suspicious activity or objects. Some of the systems available in this role include the Atlas Sea Otter and SeaWolf, the Saab Seaeeye and Double Eagle SAROV, BAE Talisman, ECA's INSPECTOR and ROVINGBAT and the Seabotix range.

It is a fact that our ports and waterways are cluttered, busy places; our economies depend upon it. Security in such an environment is an enormously difficult task and it is also true that ports will never be fully secure against such attacks. But what is equally clear is that we cannot afford to let down our guard, or claim cost-savings as an excuse for not investing in defensive systems; the terrorists are waiting for just such an opportunity. **i**

Tony Kingham is publisher of *World Security Report* and www.worldsecurity-index.com, specialising in information products and public relations within the defence and security markets. He is also Media Director for Borderpol.

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