

COAST GUARDS:

INCREASED IMPORTANCE AGAINST ASYMMETRIC THREATS

The need for having a force – a Coast Guard – other than a Navy, for protecting the nation’s sovereignty and interests in the coastal waters and adjacent parts of the high seas, to ensure smooth functioning and safety of the key elements of maritime trade and marine resources in home waters, seems to be evident. Normally, a Navy should be primarily employed for exercising naval influence in peacetime and for combat in case of a hot conflict at sea, not for policing (constabulary) duties. A Coast Guard (CG) should be neither a fully civilian nor purely military organisation. However, it should be so organised, equipped and trained that it can carry out diverse policing duties, and also if needed provide adequate support to one’s naval forces in combat. A CG can be established as a separate organisation from the Navy as is the case in the United States (US), or it can be an integral part of one’s Navy. Each solution has advantages but also disadvantages. A major advantage of CGs over naval forces is that they can be employed for law enforcement duties against citizens. They are generally much better suited than navies for enforcing the nation’s claim at sea. They can be employed also in case of conflicting claims accompanied with high tensions. Then, seizing or boarding a foreign ship by a naval vessel may be highly provocative but this is usually not the case if a CG’s ships/craft is involved. A CG is also less costly to build and maintain than is a Navy¹. Not to forget: CGs save lives, daily as the agency tasked with search and rescue (SAR), and during major catastrophes like hurricanes.

LEGAL FRAMEWORK FOR COAST GUARDS

The responsibilities of CGs worldwide have been increased steadily both in terms of scope and diversity since the end of WW2. The main reasons for that were numerous changes of the international law of the sea. The extent of the territorial sea was broadened from 3nm to 12nm by the Montego Bay Convention in 1982. Among other things, the Third UN Convention on the Law of the Sea (UNCLOS), also called the Law of the Sea Convention signed in December 1982, extended the coastal state’s jurisdiction to the 200nm exclusive economic zone (EEZ) which came into force in 1994. This multilateral agreement set a trend that the navies concentrated on warfighting missions while the CGs focussed on protecting national sovereignty in home waters. The establishment of the EEZ required increased resources for managing and protecting one’s marine resources, and hence acquiring considerable capabilities for maritime surveillance and enforcement. Another consequence was that the EEZ provided justification for the employment of the navies in



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maritime policing. Obviously, coastal states have greater rights in adjacent waters under UNCLOS but they also have greater responsibilities than they had prior to 1982. Among other things, they have to maintain safety in their waters, protect marine environment, and prevent marine pollution, illegal fishing, and criminal activity at sea, such as piracy and various forms of smuggling². Over the past two decades, the responsibilities of the CGs were exponentially increased in some areas of the world because of the growing threat of maritime terrorism, piracy, illicit trafficking of weapons, and illegal immigration. The potential threat of maritime terrorism has been enormously increased in the aftermath of 9/11.

CG ROLES AND MISSIONS

CGs are capable of carrying out diverse missions, from those dealing purely with maritime



Fig. 1: There is far more to what Coast Guards do than what is always in the lime light, the task of search and rescue (SAR) and life saving, exercised here by a Canadian Coast Guard cutter and helicopter. (Photo: Courtesy of Canadian Forces)

safety and law enforcement to the low-end spectrum of conflict at sea, for which most navies are ill-suited or have no interest. In general, the traditional missions of CGs can be grouped into three interrelated broad categories: safety, security, and protection. Safety missions include marine safety, search and rescue (SAR), ice operations (*see figure 2*), and aids to navigation. Protection missions consist of marine environmental protection and protection of living marine resources. Specifically, marine environmental protection includes containment of pollution, control of domestic fisheries, and inspection of foreign vessels, and coordination for oil and hazardous substance incidents. Over the past few decades the CGs were also tasked to protect sensitive marine habitats, marine mammals, and endangered marine species, enforcing law protection in the nation's waters from the discharge of oil and other hazardous substances and invasive species. They are also responsible for patrolling the 200nm EEZ to uphold the nation's sovereignty and protect marine resources.

Maritime safety and maritime security are closely related but are not mutually exclusive³. Security encompasses diverse missions ranging from ports, waterways, and coastal security, drug interdiction and migrant interception, to defence readiness⁴. Specifically, the mission of port, waterway and coastal security encompasses con-



Fig. 2: The 'old' tasks of Coast Guards include ice breaking, from keeping major inland waterways shippable to research in Polar Regions, like the USCG "Polar Sea" (WAGB 11) seen here during such a mission in the Beaufort Sea Northwest of Prince Patrick Island. (Photo: Courtesy of USCG / Mönch Archive)

ducting harbour patrols, vulnerability assessment, information gathering and intelligence, and preventing or minimising damages from terrorist attacks⁵. CGs are also responsible for the security of ports, waterways and coastal waters against attacks by terrorists or acts of piracy. Other security missions include preventing smuggling of drugs (*see figure 3*), illegal migrants, conventional weapons or illegal transport of key components or precursors of weapons of mass destruction (WMD), illegal exploitation or contamination of the maritime food supply, and crime or violence at sea. CGs are also employed, either independently or in cooperation with the navies, for conducting interception and boarding of ships violating international sanctions. For example, the USCG law enforcement detachments (LEDET) conducted searches of ships suspected of violating UN embargoes. These teams provide the law-enforcement and have search expertise to conduct boarding and detect contraband. They were used on board the US naval vessels in the Persian Gulf conducting maritime intercept operations (MIO)⁶.

In general, three zones of maritime security can be differentiated: (1) domestic zone; (2) border/coastal zone; and (3) international zone. The domestic zone encompasses ports with their facilities/installations while the border/coastal zone contains the territorial sea (usually 12nm wide) plus the 200nm wide EEZ. International zone encompasses the sea/ocean beyond the EEZ boundary and includes also those foreign

ports where cargo for domestic ports originates. The country's jurisdiction is fully exercised over all vessels, facilities, and port security in the domestic and border/coastal zones. Hence, the CG usually has the primary responsibilities to provide protection and guidance for all ships sailing within these two zones. Surveillance, tracking, and possibly interdiction are conducted on the high seas, while interdiction and boarding are carried out in one's territorial sea. Protection and inspections are routinely conducted in one's inshore waters and ports and their approaches.

Not to be overlooked is a vital task of CGs related to SAR, namely humanitarian relief and rescue of lives, as convincingly demonstrated by the USCG during the hurricane KATRINA (*see figure 4*): In-place organisations in the affected area, the ability to tailor ad-hoc setups to the very requirement of the catastrophe, and expertise in effectively working together with non-Governmental organisations tasked with humanitarian assistance and rebuilding of infrastructure is an inherent strength of CGs, a capability not embedded in any other maritime service.

ASYMMETRIC THREATS

In general, one's forces can be employed against an enemy with similar (or symmetric) or dissimilar (or asymmetric) capabilities. The asymmetric threat is posed to one's side by the side that does not adhere to a common set of rules or values, disregards or blatantly violates





Fig. 3: Other security missions include preventing smuggling of drugs, sometimes successful like here where a USCG RHIB has seized drugs, often not because when approached by search and boarding parties or helicopters the drug traffickers quickly throw overboard the evidence. (Photo: Courtesy of USCG / Mönch Archive)

international laws and regulations, and uses illicit methods such as terrorism, WMD and suicide attacks. The asymmetric threat can also be described as a broad and unpredictable spectrum of military, paramilitary or information operations. It can be posed by nations, organisations, or individuals or by indigenous or surrogate forces under their control. In a maritime environment, the principal asymmetric threats are domestic or transnational terrorism, piracy, illicit drug trafficking, illegal migration, human smuggling/ trafficking, and smuggling of conventional weapons and WMD. In contrast to most navies, the CGs dealt for a very long time with asymmetric threats such as preventing drug smuggling, pollution, illegal immigration, illegal fishing and unsafe mariners⁷.

Maritime terrorism is described as the deliberate creation and exploitation of fear through violence or the threat of violence in the pursuit of political change, in the maritime domain. It is the organised use of violence by non-state actors against civilian targets on or from the sea⁸. Maritime terrorism can take place at sea, on

inland waterways, or against places bordering on the water, such as ports and coastal infrastructure⁹. The scope of the terrorist threat changed enormously after 9/11 when the tracking and intercept of merchant vessels on the high seas and especially within the 200nm EEZ became a critically important component of homeland security. The objective of maritime terrorists can be to cause human casualties, economic losses, or damages to the environment. Physical destruction by a terrorist act is unlikely to cause a large loss of life or property except if WMD are used¹⁰. A major terrorist attack might disrupt mass transit, interrupt delivery of goods and services, or require evacuation of the local population¹¹. Its secondary effects might cause a drastic but temporary reduction of maritime trade in a certain area or lead to a considerable increase in maritime insurance rates. Yet the real objective of maritime terrorists is to create psychological effects of fear, apprehension, and uncertainty. Indirect costs of a terrorist act at sea might often be much greater than direct costs.



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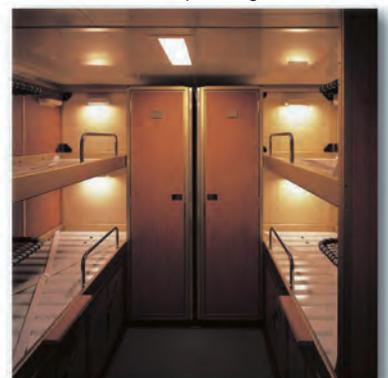
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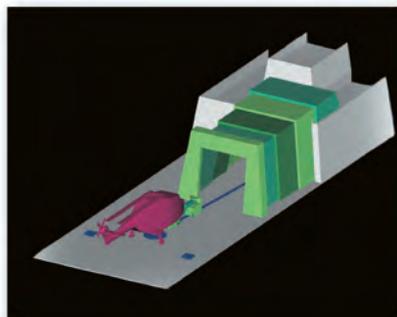
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Fig. 4: Not to be overlooked is a vital task of CGs related to SAR, namely humanitarian relief and rescue of lives, as convincingly demonstrated by the USCG during the hurricane KATRINA, using alerted in-place organisations and setting up ad-hoc operation centres tailored to the catastrophe. (Photo: Courtesy of USCG / Mönch Archive)

cargo containers¹⁶. More than 20 million containers make over 354 million moves each year. They carry over 971 million tons of cargo¹⁷. About 12 million to 15 million containers are estimated to be on the world's ocean at any time¹⁸.

Potential targets of maritime terrorists are commercial ships transiting a strait/narrows, sailing close to the coast and in waterways at the approaches to a port, at a pier/at anchor, ports with their facilities/installations, critical installations ashore, and oil/gas rigs located the country's EEZ. Some 75 percent of the world's maritime trade and half of the oil trade pass through a handful of international straits and artificial canals¹⁹. Many important choke points of maritime trade are quite narrow and often shallow. Commercial vessels and especially large tankers transiting a strait or narrows are extremely vulnerable to attacks by maritime terrorists and pirates (see figure 5). Merchant ships transiting a strait or narrows must usually reduce their speed, thereby becoming more vulnerable to attack by terrorists or pirates. Oil tankers are usually very large, relatively slow, and cumbersome in avoiding attacks by small and fast boats laden with explosives. The closure of a major international strait for any length of time would result in substantial damages to the international oil trade. The use of alternate routes by land or by the sea would greatly increase delivery time and cost of transport of oil products. Some 40 percent of the world's oil flows through pipelines. They are very vulnerable to terrorist attack because they cannot be adequately protected along their entire extension. Merchant vessels are generally more vulnerable in port or in the approach-

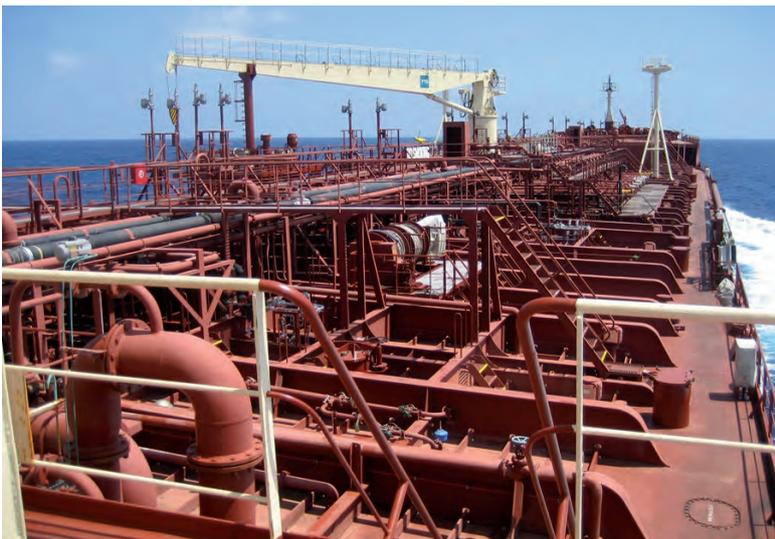


Fig. 5: Bulky commercial vessels transiting a strait or narrows are extremely vulnerable to attacks by maritime terrorists and pirates, often forced to slow down due to navigational hazards. (Photo: Courtesy of US Navy)

WEAKNESSES AGAINST ASYMMETRIC THREATS

The global and local maritime transportation system is most vulnerable to terrorist attacks. Currently about 80 percent of the entire world's trade is conducted by the sea¹². In 2009, about 184,000 ships larger than 100 gross register tons (GRT) were involved in maritime trade worldwide¹³. In 2007, about 43 million barrels per day, or some 50 percent of the world's oil production were carried by the sea¹⁴. About 4,000 tankers are in service worldwide¹⁵. About 90 percent of the world's trade is transported in

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Fig. 6: This aerial view of the container port of Qingdao is evidence of the magnitude of the problem: Every single container can be used by terrorists to smuggle in weapons, drugs, or hazardous materials – hence the efforts necessary for documentation, tagging and screening. (Photo: Courtesy of Eimskipcoldstore / Internet)

es to a port than on the high seas. They are generally safe in the open waters due to their size and if they sail at speed higher than 14 knots²⁰.

About 6,600 ports exist in the world today²¹. The major part of the world's maritime trade depends on the functioning of about 30 so-called mega ports in Europe and North America²². Ports have become centres of highly technical, well-integrated infrastructure designed for rapid load-

ing and unloading of cargo. Port cargo operations are also highly dependent on networked operations, making the disruption simpler and thereby making them more attractive for would-be attackers. A successful attack on a major port could incur serious economic and military damage and can have a long-term detrimental effect on the nation's economy. A successful attack on a major port most likely would have a cascad-

ing effect on other ports, and increased security measures would be applied nationwide. Resulting delays in shipping movements and loading/unloading cargo would be very costly²³.

Port authorities worldwide are increasingly concerned about growing threats to ships at ports/anchorages, waterways, and port facilities/installations posed by diverse individuals and groups using advanced platforms and

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advanced weapons. Currently the greatest threat to the security of major ports is from terrorists, operating individually or in groups. Other threats include criminals, piracy, and contraband smuggling. Threats to the security of major ports can come from the sea surface and subsurface, from the land side, and from the air. Surface threats include hostile powerboats with low radar cross section (RCS), sailing boats, rubber inflatables, and jet-ski type vehicles. Terrorists can attack commercial vessels by using short-range missiles and rocket-propelled grenades (RPG). They might try to seize control of a large commercial cargo ship and then ram an important bridge or an oil refinery near the waterfront. They might also try to sink a large commercial ship in a waterway to block all traffic to and from the port. They can attack a very large crude carrier (VLCC) or liquefied natural gas (LNG) tanker to cause a massive in-port explosion. Terrorists might also try to seize control of a large ferry or cruise ship, at sea or in port, and then threaten to kill all or some passengers if demands are not met. Subsurface threats to ports are posed by

mini submarines, mines, swimmer delivery vehicles (SDV), frogmen (with open or closed circuit breathing apparatus), and bottom-crawling vehicles. Other threats include limpet mines and underwater improvised explosive devices (IED), attached to a ship's hull or a pier's structure, bottom-placed, or suspended underwater. A major port has very large landside perimeters to secure, offering terrorists many potential landside points of entry. Some ports are located immediately adjacent to built-up urban areas, thereby giving terrorists places to hide while approaching or escaping from the port area. Terrorists can potentially use any of the many trucks that move into a large port and thereby avoid landside checkpoints. They can infiltrate a port from the land side and then try to destroy or damage a ship at the pier, a major port installation, or a bridge or refinery near the waterfront²⁴. Potential threats to port security from the air are low-flying small aircraft, helicopters, and unmanned aerial vehicles (UAV).

Commercial cargo containers can possibly be used to smuggle terrorists; nuclear, biological,

or chemical weapons; or other dangerous materials. Containerships tend to carry higher-value cargo than other types of ships. The complexity of the process for completing containerised shipments makes it more difficult to ensure the integrity of the container cargo. Containerships carry cargo from hundreds of companies. The containers are loaded away from the port at individual company warehouses. A typical single container shipment may involve a multitude of parties and generate 30 to 40 documents. A single container could also carry cargo for several customers, thereby multiplying the number of parties and documents involved²⁵ (see figure 6).

Maritime terrorism also includes weapons smuggling and so-called narco-terrorism. Terrorist groups often use ships to smuggle weapons and carry out their attacks on land. Narco-terrorism refers to the involvement of various insurgent groups in the production and/or trans-shipment of narcotics to finance their operations. Drug traffickers use terrorism as the tactics to keep Government security and law enforcement forces from interfering with their activities.

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PORT SECURITY

The CG and the Navy play the key role in ensuring security of ports and their approaches. However, they alone cannot be successful without close cooperation with other agencies and maritime industry. The main components of port security are: coastal surveillance; waterside security (WSS); landside security; and Vessel Traffic Service (VTS). The principal means of monitoring, detecting, tracking, and then engaging hostile ships/craft and aircraft in the coastal waters and EEZ are coastal surveillance radars complemented by surveillance aircraft and patrols ashore.

WSS includes the protection of port facilities and merchant vessels from potential incursions from the surface, the subsurface, and the air. Water perimeter is most difficult to protect because it often offers the widest access to a port. Waterfront has no physical barriers for the entry or exit of ships, divers, swimmers, or underwater vehicles or for boats transiting from other parts of the port. WSS requires a seamless integration of sensors and the human element to ensure effective surveillance of the surface and subsurface of a port and its approaches, reliable detection and tracking, and then timely response to preclude attacks against ships and port facilities/installations. The problem of effective port security is very complicated in the case of a large port because of the sheer volume of ship traffic and the almost continuous activity ashore. Very often Naval Bases are collocated with a large port. Hence, naval and commercial vessels use the same traffic channels and often share the same anchorage. In addition, any large port is used by numerous small coastal vessels, fuelling

barges, pump-out boats, tugboats, and recreational craft.

Landside perimeter security pertains to diverse measures aimed to deter and prevent intrusion into the port from land. Specifically, it includes gate access control, dockside and perimeter monitoring, intruder detection, incident reporting, alarms, automatic notification, and gate radiation detection units. Gate access control is established by checking the identity of people entering the port and issuing temporary access passes.

Both the security of a port and its commercial health depend on the smooth and accident-free flow of shipping. One of the common problems in large ports is frequent congestion of ships at anchorages, quays, and piers and in waterways. Numerous pleasure craft, fishing boats, and workboats compound the problem. Many of these craft also do not have the required communications on board – hence the need for establishing and operating an efficient VTS (see figure 7). The main purpose of VTS is to provide active monitoring, information services, organisation of shipping traffic, and navigational assistance for vessels in confined and busy waterways and to relay relevant information to waterway users. The VTS encompasses a number of Vessel Traffic Centres (VTC) established in large ports. The ships participating in VTS report their position and intentions to the VTC, from where they are continuously tracked and monitored. These centres, in turn, receive vessel movement data from automatic identification system (AIS) surveillance sensors and other sources, or directly from commercial vessels. AIS is intended to monitor the location and movement of all transponder-equipped vessels.

Commercial vessels transmitting AIS can also be linked with the radar track data to provide vessel names and other ship data. Those vessels that are not transmitting AIS can easily be identified as suspicious. Meteorological and hydrographic data is also received at the VTC and made available to the users as needed.

ANTI-PIRACY OPERATIONS

CGs are also increasingly involved in anti-piracy. This is especially the case with the CGs in some countries of Southeast Asia and East/West Africa where piracy is on the rise. Piracy and maritime terrorism might involve a similar *modus operandi* by the attackers. However, their purposes and underlying causes are very different. Piracy is conducted for private ends while terrorism has political motives²⁶. Piracy is dependent on thriving global maritime trade and is aimed to make a profit (see figure 8). In contrast, terrorists are seeking the destruction of the global maritime trade network as part of their self-defined economic war against the West²⁷.

In legal terms, pirates need to use a ship to attack another ship. Hence, mutiny and privateering are not considered as acts of piracy. There is also significant difference between anti-piracy and counter piracy. The first encompasses mainly passive measures combined with some defensive actions against acts of piracy. Specifically, anti-piracy measures include issuing reports on acts of piracy and armed robbery by national Governments and international organisations, issuing guidance and providing advice to ship owners and ship operators and crews on measures that can be taken onboard to prevent attacks or, when they occur, to minimise the danger to crew and ship. Only naval forces controlled by a legally recognised Government have the authority under international law to conduct counter piracy activities, specifically boarding and seizure of pirate vessels²⁸. Areas most favourable for piracy are waterways because they are quite narrow and congested and thereby make it fairly easy for a pirate vessel to hide among other ships, because of an abundance of bays and natural harbours accessible to pirates, and because the archipelagic nature of the area means an enormous length of coastline, providing pirates with plenty of shelter. Most acts of piracy occur in Southeast Asia, South Asia, and



Fig. 7: Port security (the San Francisco Vessel Traffic Centre seen here, with the inset showing additional sensors exploited during harbour security trials conducted by NATO) is a major task, for which the Automatic Identification System (AIS), radar, electro-optical surveillance systems and underwater sensors are exploited. (Photo: Courtesy of USCG, inset NURC NATO)



Fig. 8: Searching a suspect ship can be a demanding operation, given the status of the suspect ships and the uncertainty of reaction by the suspects. Here the suspect crew gave in, convinced by the helicopter covering from the air and a second RHIB standing by with weapons ready. (Photo: Courtesy of CENTCOM)

off the east and west coast of Africa. All attacks off Somalia's coast were launched against steaming ships, while the majority of attacks elsewhere occurred against ships that were berthed or anchored²⁹. A pirate attack may involve the use of weapons. Most Somali pirates do not want to harm captives, because they are primarily motivated to obtain ransom. They also have a sanctuary on land in Somalia and in its territorial waters from which they can launch attacks and conduct ransom negotiations. In oth-

er parts of the world, pirates are more likely to kill their captives, because they lack sanctuaries³⁰.

CONCLUSION

CGs have many advantages over navies in maritime law enforcement and also in purely protective missions. Regardless whether they exist as separate organisation or are an integral part of the Navy, they are irreplaceable for conducting their traditional missions of safety, secu-

rity, and protection. However, many of their missions such as security of ports, waterways and coastal waters cannot be successful without close cooperation with the Navy and other Government agencies and maritime industry. The problem of piracy cannot be resolved by the Navy alone but in cooperation with the CG and other agencies. The CGs are far better suited for anti-piracy while only the Navy can be effective in counter piracy missions. With the proper force composition, doctrine and training, the CGs can provide substantial assistance to the navies in case of a national emergency and war. **NAFO**

Notes: List of endnotes is available on request.

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