Strategy Research Project

COUNTERING 21ST CENTURY PIRACY IN THE HORN OF AFRICA

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The recent resurgence of high seas piracy reflects a variety of socio-economic factors in the regions of highest occurrence. While the underlying causes of piracy require long-term global investment in governance and infrastructure, the maritime nations of the world share a common responsibility to provide security in the maritime domain as outlined in the 1982 United Nations Conventions on the Law of the Sea (UNCLOS). The unique challenges of countering 21st century pirates can be overcome through enhanced cooperation between security forces and the maritime shipping community and the application of 21st century information sharing technology. This paper proposes a multinational strategy at the theater/operational level designed to reduce and eliminate the incidence of successful pirate attacks in the Horn of Africa.

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COUNTERING 21ST CENTURY PIRACY IN THE HORN OF AFRICA

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ABSTRACT

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COUNTERING 21ST CENTURY PIRACY IN THE HORN OF AFRICA

Piracy in the twenty-first century - the concept inspires romantic thoughts of swashbuckling 18th century rogues pillaging the Spanish Main and chasing terrified merchants across the Caribbean. Modern concepts of piracy owe their images, myths and lore to the works of literary giants like Robert Louis Stevenson (*Treasure Island*, 1883) and popular mass media like *The Pirates of the Caribbean* movie series. However, piracy in the twenty-first century has a distinctly different character, and countering piracy in the twenty-first century will require distinctly twenty-first century solutions.

The term "piracy" is used in the twenty-first century as a catchall for a variety of criminal behaviors, only a few of which occur at sea. Intellectual property, entertainment media and internet resources can all be victims of crimes labeled "piracy." However, for the purposes of this paper, the term "piracy" will be used to describe maritime crimes involving the illicit detainment of lawful maritime traffic for ransom or plunder.[1]

Modern piracy occurs around the world from the Gulf of Guinea to the coast of Peru, in the Straits of Malacca and in the Horn of Africa. A survey of the International Maritime Bureau (IMB) website provides an up-to-date log of piracy events and attempts as reported by lawful maritime traffic. During the month of November, 2009 over one dozen piracy events were logged, and the IMB reported that by September, 2009 attacks had already exceeded the total number of attacks for 2008.

While piracy is a crime occurring on a global level, popular perception is that piracy is a "Somalia issue." The reasons for this perception are diverse including media

coverage and international naval deployments and are based in some fact; an examination of the local incidence of piracy events confirms the majority of recent events have occurred in the seas surrounding Somalia. The inset map (figure 1), produced by the International Maritime Bureau, displays the distribution of piracy events by location, and reinforces this conclusion.

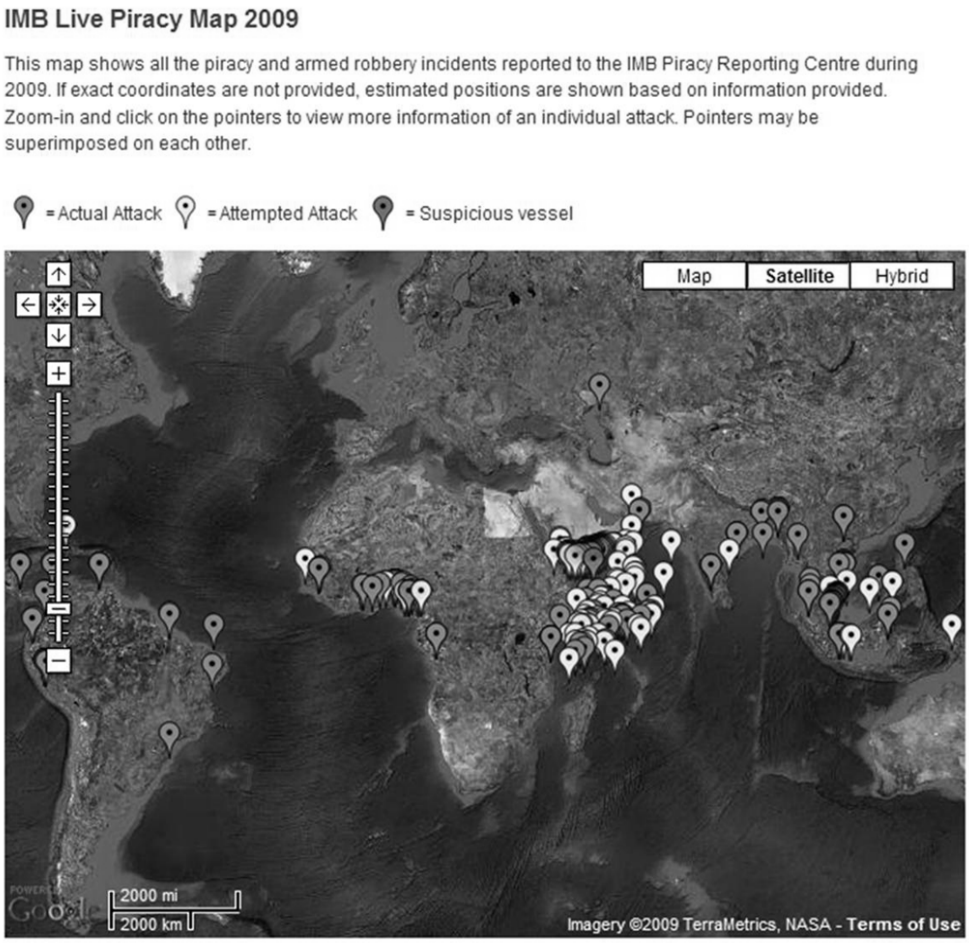

Figure 1.

The largest occurrence of incidents is in the Somali Basin and Gulf of Aden with an increasing number of events stretching out into the Arabian Sea.[2] Given the regional upsurge in piracy events, this paper will focus on the issue of piracy in the regions surrounding Somalia, the Arabian Peninsula, and the Gulf of Aden, hereafter referred to as the Horn of Africa (HOA).

This recent resurgence of high seas piracy in the Horn of Africa reflects a variety of socio-economic factors which will require long-term international intervention and investment in governance, infrastructure and economic development. In the meantime, the maritime nations of the world share a common responsibility to provide security in the maritime domain as outlined in the 1982 United Nations Conventions on the Law of the Sea (UNCLOS). The unique challenges of countering 21st century pirates can be overcome through enhanced cooperation between security forces and the maritime shipping community and the application of 21st century information sharing technology. A multinational strategy of government and industry cooperation is required to reduce and eliminate the incidence of successful pirate attacks in the Horn of Africa.

Background

Modern piracy in Somalia bears no resemblance to the romantic notions of 18th century swashbucklers. Typical modern pirate vessels are small, fiberglass and wood, motorized skiffs. These skiffs are typically powered by outboard engines and have relatively poor sea-keeping characteristics. Although capable of short duration "sprints" during a chase, their low fuel capacity and poor sea keeping characteristics typically limit them to much slower speeds. The typical modus operandi for the modern Somali pirate is to take his vessel, perhaps in company with a mother ship or other pirate craft, to an area where commercial vessels are expected. Patiently lying in wait, these criminals will pounce upon passing merchant vessels, using small arms and threats to intimidate masters and crews to slow or stop their vessels for boarding. Some of the more daring and adventurous pirates will actually come alongside a vessel at transit speed and board either by jumping across a low freeboard or by use of a caving ladder or other climbing equipment. Captured ships are then anchored in Somali territorial

seas to await ransom negotiations. Due to the high value of the ships and their cargos, until recently, the merchant captains have been reluctant to risk actual confrontation with pirates, preferring to comply with demands to ensure crew and ship safety.

The Somali government, following a checkered history of failed attempts at central governance, finally collapsed in the early 1990's. Despite a variety of internal and international relief and reconstruction efforts, Somalia remains, for all intents and purposes, a failed state without legitimate government. International efforts to rebuild Somalia have included two United Nations sponsored peacekeeping missions, UNOSOM I and UNOSOM II, that were abandoned in the mid-1990's.[3] Subsequent attempts to build a stable government have ended in futility. Currently, the African Union is conducting a UN sanctioned stability mission in Somalia (AMISOM).

With no functioning Coast Guard or other maritime law enforcement agency, Somalia was unable to assert control over its territorial seas and exclusive economic zones. The Somali territorial seas quickly became prey to illegal commercial fishing expeditions. Subsequent encroachment on the traditional fishing waters of the Somalis eroded the economic base of local fishermen. The first reported incidents of "piracy" in this area are alleged to have been related to traditional coastal fishermen attempting to "defend" their economic interests. The Somali fishermen captured some of the violators, extracting a ransom for the lost economic activity. In order to avoid international scrutiny of their fishing practices, the violators paid quickly. These initial successes encouraged the growth of a rudimentary form of piracy whose early continued successes developed into the wider clan/warlord based piracy now rampant in the Horn of Africa (HOA).[4]

As conditions in Somalia continued to deteriorate, the United Nations Security Council responded by issuing a series of resolutions. One of the most troubled places on earth, Somalia has been the subject of dozens of United Nations Security Council Resolutions (UNSCR) since the collapse of the Somali Government in 1991.[5] Among these are an arms embargo (UNSCR 733) and a series of resolutions concerning the growth of maritime piracy (UNSCR 1814, 1816, 1838, 1844, 1846, 1851, and 1897). These resolutions emphasize the concern the international community has over the situation in Somalia and demonstrates its resolve to find a solution to the growing issue of piracy in the region.

The actual impact of HOA piracy, in terms of raw numbers of ships pirated (of over 61,000 registered vessels[6], 294 attacks had been report to the IMB by September 2009 with 34 successes[7]) appears inconsequential as the annual rate of successful piracy events at .00055 or about one in two thousand. Additionally, the dollar values of the ransoms paid (although exceeding millions of dollars) is relatively low compared to the trillions of dollars of global shipping traffic annually. Despite the apparently low impact of piracy on current global commerce, the risk associated with the growth of this criminal activity includes damaged and lost cargos and ships, inflated insurance rates, and disruption to the global shipping system, all of which pose a significant threat to the stability of the global economy.

International Response

The international community has responded to this growing threat to lawful maritime commerce in a number of ways, the most visible response has been the establishment of an international maritime coalition (known as Combined Task Force 151) to patrol the maritime domain in the vicinity of the Arabian Peninsula and Somalia.

Both the European Union (EU) and The North Atlantic Treaty Organization (NATO) have also established separate operations to address the growing HOA piracy problem.

The international commercial shipping community has responded to this upsurge in piracy by rerouting commercial shipping traffic to minimize exposure to threat areas and creating de facto convoys (with the exception of World Food Program deliveries to Somalia[8], there are no formally organized military protection convoys established) along shipping lanes known to be patrolled by coalition vessels. Additionally, merchant ship Captains have begun to take a less passive approach to security, increasingly exercising evasive maneuvers (increase in speed, course changes) and implementing additional physical security measures to deter pirate attacks.[9]

Despite these efforts, incidence of Horn of Africa piracy continues to rise. The reasons behind this continued trend are many and varied and include economic conditions in Somalia, the "failed state" nature of Somali government, the relative vulnerability of commercial maritime traffic, consistent ransom payments, and a lack of legal or physical consequences. With no viable government to prevent the growth of maritime crime cartels ashore and impose punishment on those engaged in criminal maritime activities, Somalia has become an incubator for Horn of Africa piracy.

Ending Piracy in the Horn of Africa

As is pointed out in a wide variety of reports and analyses of the situation, the growth of maritime piracy is merely a symptom of the larger problem of failed governance in Somalia. A fractured central government with two autonomous regions and large territories under control of clan warlords has created an environment which has allowed the enterprise to not only thrive, but in some cases, become the sole

support of local economies. Solving the problem of piracy in the Horn of Africa requires solving the problems of governance and economy in Somalia.

The first step to implementing a permanent solution requires establishment of effective central governance in Somalia. UNOSOM-II failed in 1995 despite a mandate for over 20,000 peacekeepers. Although recent United Nations actions have authorized an African Union Mission to Somalia (AMISOM), the current transitional federal government (TFG) remains powerless to act on behalf of its people or the global community to control piracy. A new UN stabilization and development effort will require an investment in troops and materiel an order of magnitude greater than the preceding missions. The resulting mission will likely require decades to eliminate the clan, ethnic and warlord cultures which have characterized Somali politics for more than a generation. Secondly, the UN mission will need to build (not rebuild) an economic system that is robust enough to provide for the Somali people's needs and remove the perceived economic advantage of piracy. Lastly, effective control of the Somali territorial seas and exclusive economic zone needs to be established not only to prevent pirate expeditions and eliminate safe havens, but also to protect and develop legitimate Somali economic interests in their adjacent seas. Final solutions to the conditions which have created this environment will only be realized when the international community successfully intervenes ashore, creating a viable Somali central government and an economy which supports the population without the risks and uncertainties associated with piracy.

This permanent solution to the myriad crises that face Somalia carries an inestimable price tag and a long-term commitment to sustain a very large ground force.

Just restoring order and establishing any semblance of peace will require a nearly permanent presence of tens of thousands of troops. Infrastructure will need to be constructed from the ground up. Agriculture will need to be modernized and reorganized to create some margin of Somali self-sufficiency. Industry and legitimate alternative economies will need to be created against insurmountable odds in a resource-poor region. Finally, social systems will take decades to adapt to a western-style, law-based culture. Already faced with monumental tasks in Afghanistan, Iraq, Rwanda, and other trouble spots around the world, and in light of the previous negative experience in Somalia, international support for the size, nature and duration of the commitment needed to eradicate the conditions that have spawned Somali piracy is not likely in the foreseeable future.

Cooperation, Avoidance, and Escort/Interdiction

Due to the strategic nature of the waters surrounding the Horn of Africa (the Red Sea, Gulf of Aden and the Arabian Sea), as the only approach to the southern end of the Suez Canal, a preponderance of the globe's commercial shipping traffic must pass through the region. The economic and logistic consequences of shifting all commercial shipping through alternate routes (Cape of Good Hope to the Southwest or Panama Canal to the East) rule out avoiding the area altogether.

The military branches of the maritime powers, specifically the navies of the developed nations, are charged with providing the security necessary to protect sea going commerce. In the HOA, this is no small task. The Somali coastline is over two thousand miles long and the Gulf of Aden and the Arabian Sea include over four hundred thousand square miles in the area of greatest threat (out to 200 nautical miles - where most of the piracy events have occurred).

The maritime nations' roles in countering piracy are broadly defined in the United Nations Convention of the Law of the Sea (UNCLOS – 1982) and refined by the applicable UNSCRs.[10] These authorities empower the maritime nations of the world to take action within reasonable constraints to secure the seas from pirate aggression.

To bound the problem within reasonably achievable goals, success for the maritime coalition should not be measured in terms of the economy and stability of Somalia, or even in terms of pirates captured. Instead, the definition of mission success for the maritime coalitions should be measured in the incidence of successful piracy events. Simply said, the coalition wins when no ships are taken by pirates.

Current international efforts to counter piracy in the Horn of Africa are centered on a robust international maritime coalition, Combined Task Force 151. This task force is the culmination of years of team building, cooperation and international diplomacy. Since 2001, over 24 nations have participated in CTF 151, with command rotating between eight different countries. The mission of this task force is to enforce maritime law by providing a deterrent maritime security presence. The force typically includes about one dozen ships with logistics and organic (helicopter) air support.[11] Additionally, non-coalition maritime nations have deployed independent forces to the region to protect their own interests – notably, Russia and China.

The recent efforts of CTF 151 have had some impact on the operations of pirates in the Horn of Africa but have not significantly reduced the incidence or success of their activity. As coalition efforts in the coastal areas of the HOA have increased in effectiveness, the pirates have adjusted their tactics to work farther off-shore. In order to realize significant success in the Horn of Africa, the coalition, working with whatever

provisional Somali government exists and the United Nations Security Council, will have to attack the problem from two directions – cooperation with the maritime community and avoidance and containment of the pirate threat.

Maritime Cooperation

If commercial shipping traffic were to avoid the Horn of Africa, the Somali pirates would have no targets and the piracy problem would be solved. While temptingly simplistic, this approach is wholly impractical. As discussed previously, routing commercial traffic completely clear of the threat zone would have adverse global economic consequences. Due to the Gulf of Aden's position as the only route of access to the Suez Canal, the bulk of international shipping is forced to pass through this pirate infested strategic chokepoint or face the prospect of adding as much as 4500 miles to their journeys. This reality does not mean, however, that the commercial shipping industry must accept losses and delays due to piracy as the "cost of doing business."

In order to safeguard maritime commerce in the Horn of Africa, commercial shippers transiting the HOA must employ more robust defensive measures coupled with some moderate traffic control and route management strategies. To accomplish this, the United Nations Security Council in conjunction with the International Maritime Bureau, International Maritime Organization, maritime insurers and the commercial shipping companies will need to change the procedures of the merchant shipping operating in areas of high piracy threat. Simple matters such as retrieving external access ladders and ensuring a constant visual and radar watch are relatively easy to implement. More complex measures involving altering the way merchant vessels

execute their voyage plans and organize their crews are more difficult and will likely incur additional costs.

As recommended on the International Maritime Bureau (IMB) web page, many pirate attacks have been thwarted by simple maneuvering measures such as an increase in speed, or a pattern of evasive maneuvers. Additionally, as many attacks occur during low-light periods, masters should plan transits through the highest threat areas during daylight hours. Simple countermeasures such as pre-mounted water cannon and gunwale/hand rail modifications to thwart grappling attempts have also been successful in staving off pirate boarding attempts.[12] The United States Coast Guard has issued binding defensive guidance to all US flagged ships transiting pirate threat areas reinforcing and amplifying the IMB recommendations.[13]

Arming merchant vessels to thwart pirate activities is a popular and controversial idea currently being debated. While there is no global ban on arming merchant ships, the complex web of laws that an internationally travelling ship must comply with as it travels from port to port makes the matter of carrying firearms extremely complicated.[14] Fears of escalation and increased casualties and damage limit the acceptability of armed self-defense by merchant ships. Increasingly, shipping companies are turning to contract security to improve their defenses against pirate attack, normally through non-lethal defensive measures. While it is encouraging to note that increased resistance measures by merchant shipping have resulted in successful pirate evasions, large scale armed defense of merchant ships is an unlikely development in the foreseeable future.

Merchant transit behavior is a key factor in successfully avoiding pirate activity. Vessels routinely transit in an area identified as the “Internationally Recognized Transit

Corridor (IRTC)." Roughly described, the IRTC skirts the southern Arabian Peninsula in the Gulf of Aden. This transit track routes the merchant vessels at a maximum distance from the Somali coastline. There is some risk associated with this track, as the more sophisticated pirates have identified the resultant traffic pattern and exploit it to identify targets. However, the resulting risk is more than off-set by the safety provided by travelling in company with other vessels and the more common presence of coalition warships along the track. The IMB strongly encourages masters to remain in international waters when travelling the IRTC as the coalition naval vessels may be unable to render assistance to ships being attacked in territorial waters and host nations may not be able to respond.[15]

At the international governmental level, the United Nations Security Council should expand the World Food Program convoy effort to include all merchant traffic in the Gulf of Aden. While perhaps an initial inconvenience to maritime commerce, with some adjustment of voyage plans, vessels could time their convoy rendezvous to coincide with Suez Canal convoy departures. By convoying commercial traffic through the threat zone, limited naval assets in the area may more effectively support a larger number of ships.

Convoy operations pose certain tactical risks and economic disadvantages. The first is that the schedules of the merchants transiting a threat area will be predictable with regular convoy formation and voyage tracks. Secondly, the convoys will provide a denser target set for the pirates to choose from. Third, delays in awaiting convoys equate to loss of profit for the shippers and the owners of the cargo they carry. In the long run, once convoy operations become routine, the shipping industry will see that the

benefits of participating in convoys outweigh the costs and the risks. A careful study of the success of World War II convoy operations during the Battle of the Atlantic provides a good overview of the eventual effectiveness of convoy operations.[16]

Avoidance

Since the 1990's various international efforts to reverse the rising piracy trend in the Horn of Africa have met with only marginal success. The current international effort is Combined Task Force 151, a coalition effort of the Combined Forces Maritime Component Commander/Commander US Naval Forces Central Command. This well-organized and resourced initiative maintains a multinational, multi-ship presence in the Gulf of Aden, Bab el Mandab, Red Sea, and the Somali Basin. The effectiveness of this effort is limited by the resources available to conduct operations, the speed of response of the coalition to calls for assistance by merchants under attack (due to the large distances of separation involved), and the difficulty discriminating between legitimate fishing and coastal merchant traffic and pirate activity.

As stated previously, the coalition wins when no merchant ships are successfully attacked by pirates. There are three basic approaches to achieve this result – tirelessly hunt down and apprehend every pirate on the high seas, provide escort for every merchant vessel transiting the area, or provide a mechanism to minimize the merchants' exposure to the pirates.

While in an ideal world, every pirate would be identified, captured and prosecuted, the resources available to operate a fleet of the magnitude to sweep the seas clean of pirates simply are not available. Each warship's ability to influence the battle space is limited to the range of its sensors and the reach of its helicopters. Similarly, the assets required to provide protective escort to each vessel transiting the

area are not available. In 2008, the Suez Canal Authority reported 22,000 transits. Even if ships could be paired up and the escort demand could be spread evenly across the calendar, based upon a two-day escort, 22,000 escort days would be required. This effort would require a minimum daily presence of 60 escort capable warships operating continuously throughout the region. The convoy operations proposed earlier, if implemented, alleviate address a large portion of this escort requirement but will still leave many ships to fend for themselves.

To fill the gap in escort coverage, a comprehensive system to monitor the HOA maritime environment, identify the potential threats and publish this information to the maritime community should to be deployed by the coalition. Such a system would be fed by national, theater, and local surveillance systems. The information collected would be fused in a chart-based database, and accessible to merchant captains as they plan their voyages. Armed with this information, merchant captains would be able to identify all known threat vessels, review current pirate activity, and adjust their voyages to minimize exposure to threats. For simplicity, the proposed system could be called Horn of Africa Common Operational Picture, or HOA COP for short.

HOA COP, to be described later, exploits the surveillance efforts of the coalition to create tactically significant Maritime Domain Awareness (MDA) available in an unclassified architecture. Surveillance is the art and science of assessing the maritime domain, optimizing systems to build a coherent tactical picture, and building high fidelity classification and identification of the resultant picture. When coupled with geographic factors, meteorological activity, intelligence analysis and other interpretative products, this picture becomes Maritime Domain Awareness (MDA). High fidelity MDA allows the

operational commander to exercise the benefits of information superiority to deter, disrupt and defeat the enemy in the Maritime Domain. Constructing this high fidelity MDA is the enabler of HOA COP.

Surveillance operations are largely misunderstood outside of the surface navy community. Widespread misperceptions about the effectiveness of radar and identification systems fuel the belief that modern military vessels are capable of constructing a comprehensive, high-fidelity surface picture to the maximum range of their sensor suites. Foregoing an extensive review of the physics of electromagnetic surveillance, it is safe to assign a nominal effective range of approximately twenty-five nautical miles for most military surface search radars.[17] This range is based upon a search for military size vessels constructed primarily of metallic, radar reflecting materials. The small craft employed by pirates in the Horn of Africa seriously challenge current systems, degrading these performance characteristics. Modern pirate vessels are typically small with low freeboard, devoid of superstructure, and constructed of wood and fiberglass. These characteristics allow the pirate craft to avoid detection by shipboard radar systems until they are well within the visible horizon, typically four to six nautical miles for most surface combatants.[18] Assuming an average of five nautical miles, the total detection area for any given surface ship is a diameter of ten nautical miles. A force large enough to adequately cover the entire coastline of Somalia would require a continuous presence of over 200 warships. Another way of looking at this problem is to examine the search area; each ship's search radius is an area of roughly seventy-eight square miles, while the threat region (Somali coastline out to 200 nautical

miles) encompasses over 400,000 square miles. Clearly, the coalition cannot sustain a maritime force capable of providing this coverage.

The addition of surveillance capable (radar and infrared equipped) aircraft significantly increases the effectiveness of the coalition search effort. This increase is due to improved radar effectiveness against the target set due to altitude, which extends the detection ranges of the aircrafts' radars and the speed with which aircraft conduct their missions. Additionally, small craft which may elude detection by radar systems can frequently be detected by visual and electro-optic surveillance of the aircrews. Combined with the greater maneuver capability of rotary and fixed wing aircraft, under ideal conditions, single mission (2 hour) search coverage could exceed 20,000 square miles (raw data without classification or identification information). A fully developed search effort consisting of a minimum of ten to twelve dedicated airborne search platforms could cover the area of interest with a reasonable chance of detection for most vessels underway, in good weather. Additional assets would be required to achieve high confidence identification, although many aircraft carry advanced electro-optic and infrared systems capable of performing this mission at significant distances.

The limitations on airborne search capabilities are defined by the on station times of the various aircraft employed and their installed sensor suites. Basing rights for fixed wing aircraft, such as the P-3C Orion maritime patrol aircraft, and relatively short on station times for shipboard rotary wing aircraft (approximately two hours for the SH-60B Sea Hawk) are the main limits on these assets. While most of the various NATO (North Atlantic Treaty Organization) coalition members have advanced surface search capabilities in their shipboard helicopters, many other coalition participants do not.

Typically, a US deploying frigate or destroyer will carry surveillance optimized SH-60 helicopters in this area of the world.

Once a high-fidelity collection of radar contacts along the Somali coast is built, the CTF commander is faced with the vexing problem of classifying and identifying all of the contacts and assigning relative threat values to the contacts of suspicious intent. The Automated Identification System (AIS) is an important tool in sorting out the identification problem. AIS provides the mariner with name, position, course and speed, and registry data of vessels equipped with an operating system. While not a means of identifying the pirates, it is a means of identifying legitimate merchant traffic, narrowing the identification problem significantly.

The difficulty in identifying the remaining radar contacts will depend upon the number of contacts, the proximity of coalition surface and air assets, and the types of identification systems available. Some helicopters and fixed wing maritime aircraft have electro-optical systems capable of classifying contacts at dozens of miles. This capability speeds the classification process by allowing aircraft to remain at search altitudes and speeds while working through the classification problem. Classification categories can be established for small, medium, and large craft with modifiers for merchant, fishing, or pleasure sub-categories. Positive Identification (PID) is a time and asset intensive process that will slow down search times and increase revisit requirements as the search platform will normally have to descend from search altitude and focus efforts for several minutes (in addition to transit time) to gain a visual identification of the target vessels. PID will not be required for every contact, just those

displaying the classification characteristics of the HOA pirates (small – pleasure or fishing vessels and motorized small boats).

All things considered, the challenges facing the global community in developing maritime domain awareness may seem overwhelming. Even if adequate ships, helicopters, and fixed wing aircraft were available in the numbers necessary to build high fidelity MDA in the HOA, sustainment of this effort in an area of the world with marginal port facilities and a limited maritime industrial base would become a daunting task. Additionally, the cost of maintaining this force indefinitely, as the problems of governance in Somalia are addressed over dozens of years is practically, and politically unsupportable.

The problem becomes how to build a better Maritime Domain Awareness with reasonably available resources. In order to do this, a restructured approach to MDA is required. Surface ships and short dwell-time manned aircraft provide robust gathering, processing and interdiction capabilities. However, as demonstrated, they cannot be everywhere at once, leaving large holes in the surveillance volume. As an alternative, the international maritime community should invest in long-range, high on-station time unmanned aerial vehicles (UAV) equipped with a sensor suite specifically tailored to meet the mission. Airframes such as the RQ-4 Global Hawk or RQ-1 Predator equipped with maritime search radar and advanced electro-optics would be ideal for conducting a persistent aerial surveillance. The addition of an AIS receiver completes the package for an optimally equipped UAV. Centrally controlled from a Maritime Operations Center at Camp Lemonier in Djibouti, these systems could produce the

dwell time and required level of classification needed to build a comprehensive Maritime Domain Awareness in the Horn of Africa.

Once the local surface picture has been sorted out, it must be fused with the pictures from all other participants in a time sensitive system to provide a common operational picture (COP). The Global Command and Control System – Maritime (GCCS-M) provides a convenient and functional means for displayed fused (shipping data integrated with hydrographic and mapping information) maritime data in a near-real time venue. However, as a US-only (with some exceptions) system, the data displayed in GCCS-M is not widely available to the members of the international coalition resulting in a difficult information sharing environment. GCCS-M is a powerful tool for managing global forces in a traditional maritime conflict, but the baggage it carries in classification and accessibility to allies and commercial shippers renders it almost useless in the fight against pirates. Fortunately, counter-piracy maritime COP need not be classified as a US-only product.

A new system, developed in concert with the international maritime bureau, which fuses the data obtained from the coalition surveillance effort in an easily accessed and understood, web-enabled application is required. This application should be accessible to commercial shippers, insurance companies, ships' masters, local and national law enforcement and the coalition. As identified earlier, HOA COP will become an instant force multiplier in the counter-piracy struggle, enabling coalition partners full access to the MDA picture. Ideally, merchant captains would be provided access to enter their radar contact information to the system (either directly or by email

submission), effectively adding hundreds of additional surveillance platforms to the SSC effort with a resultant increase of surveillance area.

The HOA COP system could be modeled on, or adapted from, already successful mapping applications such as Google Earth™. From the Maritime Operations Center, suspect/threat vessel data would be automatically fed into the mapping application. Data entries would include name and classification of vessels, position, course and speed, description, name of reporting unit, time, and, if available, photographs. Once operational, HOA COP will provide the commercial mariner a tool to avoid high threat areas along his intended route.

HOA COP will be a powerful tool, and modern pirates should be expected to try to exploit it as a targeting resource. In order to protect the system, HOA COP should exist behind a password protected firewall, and system intrusion should be expected and mitigated. To prevent the misuse of the data base, the publicly available product should only contain the locating information of known/suspected pirates and unidentified contacts. The location of vulnerable commercial targets should never be published in the publicly accessible system. A complete and coherent COP which includes merchant and coalition ship data would exist behind a second secure firewall and be distributed as an overlay to the members of the coalition.

With HOA COP up and running, the coalition could then use this data to identify high threat areas for focused enforcement efforts, and the commercial masters could use the data to steer their vessels clear of any potential threats.

Escort/Interdiction

In conjunction with the fielding of HOA COP, a complete overhaul in the mix of surface ships involved in the mission and their employment will be required. With the

problem of gross Maritime Domain Awareness building turned over to UAV assets, the role of the surface ships becomes two-fold: escort of merchants through high threat areas and interdiction of suspected pirates.

Appropriate escort ships should be small, quick destroyer or frigate type vessels, preferably with an armed helicopter capability and a robust small arms/self-defense suite. Depending upon the size of the convoys, a surface group of two to four ships with continuous helicopter coverage should be adequate to maintain a coherent tactical picture around the convoy. Convoy formations should be compact enough to allow mutual support, but still leave maneuver room for both ships under attack and escorts attempting to "come to the rescue." At least one escort ship should be equipped with adequate command and control connectivity to communicate effectively with the coalition commander and the Maritime Operations Center, as well as other key decision makers.

Interdiction ships assigned to the MDA and interdiction mission should be capable of operating and controlling armed helicopters while accessing and updating HOA COP. An ideal platform for this effort would be an amphibious dock landing ship with multiple helicopter capability, organic maintenance and support facilities, and multiple small boats. However, based upon asset availability and some technical limitations inherent in amphibious ships, a cruiser, destroyer or frigate will be a more practical choice. In any event, these picket ships should be stationed as close as practical to the coastline in areas of highest pirate activity. This stationing will allow them to identify and investigate threat vessels before they "disappear" into the open ocean. Through aggressive investigation of the small craft leaving the Somali coastline,

the coalition picket ships will be able to classify, track and board those vessels exhibiting characteristics that fit the pirate profile making apprehensions as appropriate or allowing legitimate traffic to proceed.

Summary Recommendations

While the problem of ending piracy in the Horn of Africa requires a mammoth, multi-dimensional international effort, the mission of protecting legitimate commercial shipping traffic from pirate attack is both necessary and achievable. Through the application of readily available 21st century technology and an aggressive program of merchant training and awareness, the short-term goal of reducing and eliminating successful pirate attacks is attainable.

Merchant captains can be equipped to make their ships “hard targets” for maritime criminals, and well-organized and defended merchant convoys will frustrate pirates’ attempts at capturing vessels. The development of the HOA COP maritime domain collaborative awareness tool adds an even greater dimension of defense by empowering the commercial maritime community to leverage the efforts of the coalition to steer clear of potential threats. The combination of these initiatives will reduce the effectiveness of HOA piracy to a level of diminishing returns.

Continued international efforts to eliminate the conditions that foster piracy and a robust, consistent international legal regime to punish pirates are the long-term solutions to successfully eliminating piracy and ending the requirement for a global counter-piracy coalition in the Horn of Africa. Until then, the coalition must make the adjustments necessary to provide legitimate commercial traffic effective protection against piracy in the Horn of Africa.

Endnotes

[1] *Webster's New Twentieth Century Dictionary*, 2nd ed., s.v. "piracy; pirate."

[2] *International Chamber of Commerce Home Page*, http://www.icc-ccs.org/ (International Maritime Bureau, accessed November 30, 2009).

[3] *The United Nations Home Page*, http://www.un.org/en/peacekeeping/missions/past/unosom2.htm (accessed December 20, 2009).

[4] Greg E. Weir, "Fish, Family and Profit – Piracy in the Horn of Africa," *Naval War College Review* 29, no. 3 (Summer 2009) pp 15-25. This article provides a more in depth background of the genesis of the Horn of Africa piracy issue.

[5] *The United Nations Home Page*, Documents – Security Council Resolutions (accessed January 11, 2010).

[6] *The World Merchant Fleet in 2005*, EMSA and Equasis, 2005, accessed through the Equasis Home Page – www.equasis.org January 2010.

[7] *International Chamber of Commerce Home Page*, "Piracy Figures for 2009."

[8] *The United Nations Home Page*, Documents – Security Council Resolution 1846 (accessed January 10, 2010).

[9] *International Chamber of Commerce Home Page*, "Advice to Masters."

[10] *United Nations Convention on the Law of the Sea*, Articles 100, 101, 103, 105, 107, 1982.

[11] *Commander, U.S. Naval Forces Central Command, U.S. Fifth Fleet, Combined Maritime Forces Home Page, Combined Task Force 151 History,* http://www.cusnc.navy.mil/command/ctf151.html, accessed December 1, 2009. Additional information added from the author's recollections from a recent (2009) AFRICOM deployment to the Gulf of Aden and Arabian Sea.

[12] *International Chamber of Commerce Homepage*, "Advice to Mariners."

[13] United States Coast Guard, Port Security Advisory 2-09, US Department of Homeland Security, United States Coast Guard, Washington DC, May 22, 2009.

[14] While there are no international prohibitions against carrying defensive weaponry in merchant ships, the laws governing the use and possession of firearms vary widely from country to country. The difficulty in understanding and complying with firearms regulations in each port of call makes defensive armament of merchant vessels difficult, if not impossible.

[15] For an extensive list of IMB recommendations, see "Best Management Practices to Deter Piracy in the Gulf of Aden and off the coast of Somalia," ver 2, August, 2009.

[16] A number of good sources are available regarding the Battle of the Atlantic. A good start for beginning research on this topic would be Samuel Elliot Morrison's 1947 classic, *The Battle*

of the Atlantic 1939-1941, which was published as part of a larger volume entitled *History of United States Naval Operations in World War II.*

[17]An examination *Jane's Radar and Electronic Warfare Systems* (Jane's Information Group Limited, 2001) can provide more detail on the various performance characteristics of installed surface search radar systems. Additionally, *The American Practical Navigator* (Bowditch, 2002) provides a good explanation of the physics affecting radar performance.

[18] For a more detailed discussion of the performance of radar systems against small boats, refer to SWDG Tacmemo 3.20.06-05, *FAC/FIAC Defensive Procedures* (Surface Warfare Development Group, 2005)