Conclusion

This article compared and contrasted the OR approaches taken by the five TTCP nations so the leadership in each nation can better understand its options for potentially improving its OR practices. There is no one right way to organize defense OR resources to support decision makers; rather, there is a range of options that may have consequences for issues such as the nature of the advice generated, the formulation of the analysis program, the culture within the analysis organizations, and the career opportunities for the analysts working within them. It is not surprising that the 20,000-person New Zealand Defence Force organizes and uses OR in a much different way than does the much larger US structure. Each country must consider its own unique issues and culture.

Acknowledgements and Disclaimer

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About the Authors

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Assessing Counter-Piracy Tactics: Is It Better to Fight or Flee?

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Recent estimates set the worldwide cost of piracy as high as $12 billion per year and the cost of military operations in the Horn of Africa (HOA) as high as $1.27 billion in 2011 alone (Bowden and Basnet 2012). At the end of 2011, 159 people were being held for ransom by pirates. From 2010 to 2011, total ransoms paid to Somali pirates increased from an estimated $111 million to $160 million, with an average payment per ransom of just under $5 million (Bowden and Basnet 2012).

More than half of worldwide piracy occurs in the Red Sea, Gulf of Aden, and Somali Coast and more than 40% of the world’s seaborne oil passes through the same (Lorenz et al. 2012). The high cost of piracy off the HOA has resulted in many insurance firms designating the area as a “war-risk” zone and raising rates accordingly. There is a growing multinational naval effort to patrol the high-risk area and combat the pirate action groups (PAGs), which now consist of multiple skiffs supplied and deployed by larger mother ships. The use of privately contracted armed security personnel (PCASPs) is also on the rise (Lorenz et al. 2012).

Although the last six years of reporting has been incomplete due to a prevailing belief among shippers that increased reporting leads to higher insurance premiums, the International Maritime Bureau (IMB) has tracked yearly increases in HOA piracy events. This increase in reporting has been attributed to the increased military focus in the region, which has brought with it greater awareness and a greater willingness of ships’ crews and owners to report incidents. Figure 1 shows the types of attacks by year from 2009–2011. The year 2011, however, brought about a new trend in the form of a notable decrease in successful attacks by Somali pirates. That is, although reported attacks increased by 8% (from 217 to 234),
attacks resulting in boardings decreased by 27% (from 65 to 47), and attacks resulting in successful hijackings decreased by 43% (from 49 to 28) (ICC-IMB 2012).

The IMB attributes the decrease in boardings and hijackings in 2011 to the military focus in the region, the effective employment of IMB-recommended best management practices (BMPs), and the deterrent effect of PCASPs (ICC-IMB 2012). However, our analysis of the data they have collected suggests these factors are listed in reverse order of effectiveness.

In particular, we conclude that, despite the obvious public relations value, the high cost of the naval effort may not offer the best return on investment in terms of piracy deterrence. Although the preemptive naval interdiction of 20 PAGs in 2011 certainly mitigated some of the piracy threat to area shipping, other trends suggest that awareness of the threat and the progressively stiffer antipiracy measures taken by owners and crews are a far more dominant factor.

Analyzing the Data

The IMB posts limited piracy reporting data on their website at www.icc-ccs.org, where full quarterly and yearly reports can also be requested. Their full annual reports include narratives for each reported event as well as considerable analysis of relevant trends (ICC-IMB 2012). For the analysis in this article, comprehensive spreadsheet data of all reports submitted from 2009 to 2011 were obtained from the IMB. These spreadsheets consist of numbered event reports, narratives, and columns of data derived either from the reporting forms submitted to the IMB by ship owners and masters or from a report called in to the IMB Piracy Reporting Centre in Kuala Lumpur, Malaysia.

For the purpose of our analysis, the IMB’s piracy reporting data includes useful fields such as attack type (attempted, fired upon, boarded, hijacked) as well as environmental factors and target attributes. Although these are important details in determining pirate activity patterns and target preference, they do not describe the level of difficulty the pirates encountered in attempting to board and hijack the ship. To categorize events based on this information, we culled through narratives that describe the details of piracy events, including the actions taken by crews, if any and if known. Then, using words and phrases such as “security team,” “warning shots,” and “evasive maneuvering,” we categorized crew response.

Table 1 provides the criteria we used for categorizing crew response according to the level and type of crew resistance, as well as whether naval forces were involved in the response.

Results

From 2009 to 2011, naval forces were mentioned in 196 of 661 piracy reports (30%). After filtering out reports with incomplete information, naval influence was instrumental in 145 of 592 reported events (24%). As Table 2 shows, with or without naval assistance, crews repelled 85% of attempted boardings; crews who had no naval assistance were only 3% more likely to be hijacked once boarded than crews who did have naval assistance. Statistically speaking, there is no difference between the two distributions in Table 2 ($\chi^2 = 2.17$, $p = 0.34$), suggesting that naval assistance has little to no effect on the outcome of an attack. Clearly, the time-late nature of naval assistance results in its value being greater after being boarded than before, but for all the resources devoted ($1.27 billion in 2011), one would hope for a greater impact of naval force presence.

Although naval assistance seems to be essentially unrelated to whether an attacked vessel is successfully hijacked, the effect of crew resistance on thwarting hijacking is substantial. Specifically, as Table 3 shows, boarding rates drop from 36% with evasion alone to 2–4% with TDF and NLF tactics, respectively. In contrast, evasion tactics alone are easily overcome by pirates, who are progressively adapting to ship-hardening measures as well. What does remain true is that when faced with stiff resistance, PAGs have been content to divert their efforts to less-defended targets.

Now, when assessing these results, some consideration must be given to the fact that, in addition to incomplete narrative data collected on many successful hijackings, unreported, unsuccessful events undoubtedly exist. Kaivn H. Chinyo, a Mercantile Marine Officer and Senior Marine Surveyor at CSL Global (Canada) Ltd. wrote in his report on Somali piracy (Chinyo 2011):

*The ship owners have been known to discourage Masters from reporting an unsuccessful attack as they don’t want bad publicity, increased premiums or ship to be delayed while a formal investigation takes place.*

Although the number of these unreported unsuccessful events is unknown, there would have to be more than 1,800 unreported unsuccessful attempted boardings with crews only...
Table 2. The time-late nature of naval involvement translates to a boarding rate that is statistically no different than the total population. Unless the crew can remain protected in a citadel, naval assistance is usually too late to prevent a boarding from progressing to a hijacking.

<table>
<thead>
<tr>
<th>Attack type</th>
<th>Without naval assistance</th>
<th>With naval assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attempted</td>
<td>379 (84.8%)</td>
<td>123 (84.8%)</td>
</tr>
<tr>
<td>Boarded</td>
<td>25 (5.6%)</td>
<td>12 (8.3%)</td>
</tr>
<tr>
<td>Boarded and hijacked</td>
<td>43 (9.6%)</td>
<td>10 (6.9%)</td>
</tr>
</tbody>
</table>

*Classification of attack type is in accordance with the IMB data classification with the exception that our "attempted" category is the sum of attacks classified as "attempted" and "fired upon" by IMB.

Table 3. Immediate, aggressive resistance improves a crew’s chances of repelling boardings. The decrease in the number of boardings when NLF or TDF is statistically significant compared to evasion only (χ² = 107.7, p < 0.001).

<table>
<thead>
<tr>
<th>Crew Resistance Category</th>
<th>Evasion only</th>
<th>Nonlethal tactics</th>
<th>Threat of deadly force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attempted</td>
<td>135 (64.0%)</td>
<td>238 (95.6%)</td>
<td>129 (97.7%)</td>
</tr>
<tr>
<td>Boarded</td>
<td>24 (11.4%)</td>
<td>10 (4.0%)</td>
<td>3 (2.3%)</td>
</tr>
<tr>
<td>Boarded and hijacked</td>
<td>52 (24.6%)</td>
<td>1 (0.4%)</td>
<td>0 (0.0%)</td>
</tr>
</tbody>
</table>

Conclusions and Recommendations

Published research on the subject of piracy has raised a chorus in favor of better application of operational art, and the recommendations encourage a more terrestrial focus. Dr. Milan Vego of the Naval War College asserted only last February that the US military’s neglect of operational art is a contributing factor to the lack of antipiracy success (Vego 2012). Virginia Lunsford identified key centers of gravity in her explanation of pirate dependency on “recruits, a base of operations, sophisticated organization, some degree of outside support, and cultural bonds that engender vibrant group solidarity” (Lunsford 2008). Naval forces have great reach and influence, but in this arena they are far too blunt a tool restricted by policy to operating in an adjacent battle space.

Until the policy gap is closed, however, naval forces can continue to have an effect. Part of the support network does extend seaward, and the mothership operations and associated communication and coordination required to convert an attempt into a paid ransom are indeed vulnerable to naval tactics. However, as Larry Cosgriff and Edward Feege pointed out in 2010, if a ship cannot successfully survive the critical 15-minute window from the time pirates are detected to the time they typically board when successful, few options remain for warships and their crews by the time they arrive to assist (Cosgriff and Feege 2010). This is why PCASP’s are so valuable.

Somali pirates clearly prefer easy targets and once they have control of the vessel and crew they gain a distinct advantage over responding forces. Because crew-served tactics are more responsive, they deter attacks more effectively than dispersed naval forces. Although the use of armed resistance has been highly successful in delaying and deterring pirate attacks, even trained, conscientious PCASP teams introduce risk of unnecessary escalation of force and improper use of force. As such, future antipiracy initiatives should:

- Increase focus on awareness efforts and urge crews to adopt aggressive antipiracy measures in high-threat areas. Along with the IMB’s BMPs, the use of trained personnel capable of employing deadly force should be included.
- Encourage increased legitimacy of PCASPs through international organizations such as the IMB, utilizing standards such as the International Code of Conduct (ICoC) and their guidance on the Rules for Use of Force (RUF) (Lorenz et al. 2012). Encourage the insurance industry to cooperate in the licensing of PCASPs so they can mitigate their risks and effectively incentivize rather than penalize their use.
- Continue multinational naval operations in the region, but with increased focus on disrupting pirate camps and collecting evidence from captured pirates that can aid in disrupting the complex networks required for the piracy operations to remain economically attractive.

References


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