



Security Nexus Perspectives

MARITIME DOMAIN AWARENESS AND MARITIME FUSION CENTERS

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Maritime Domain Awareness (MDA) is a collective term that embraces all activities associated with gaining deeper insight and understanding into the global maritime domain. Most MDA programs have the following three aims at their core: 1) early threat detection and resolution; 2) provision of decision support for a broad spectrum of threats; and 3) monitoring adherence to international laws to ensure freedom of navigation and the efficient flow of commerce. Achieving these aims necessitates a high degree of situational awareness that is only possible through collaboration with allies and partner nations, international agencies, IO/NGOs, and the private sector in the sharing of information, the coordination of activities, and the development of expertise.

"The heart of the Maritime Domain Awareness program is accurate information, intelligence, surveillance, and reconnaissance of all vessels, cargo, and people extending well beyond our traditional maritime boundaries."

- President Bush, Jan 20, 2002

Many nations recognize the importance of MDA, have developed related capacities and facilities, and are eager to collaborate with allies and partners on initiatives of common interest.¹ While the aim is national security, most maritime centers work on more immediate issues, such as, drug and human trafficking, fisheries crime, incidents at sea, and environmental hazards.

Effective MDA requires unprecedented information sharing that provides value to all stakeholders, but must have protocols to protect proprietary information.² Complimentary information is required to enhance situational awareness for security data makes more sense in the context of economic,

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environmental and safety data. For instance, the US created a National Policy for the Stewardship of the Ocean, Coasts, and Great Lakes in 2009 to ensure the protection, maintenance, and restoration of maritime resources, and manage climate change.³ Built into this environmental initiative was an imperative to support national security and foreign policy interests.

Most MDA processes involve persistent monitoring and data collection from vessels and craft, cargo, crews and passengers, and maritime-related facilities and infrastructure that is designed to detect the following.

- Violent acts at sea
 - Terrorism
 - Piracy
 - Robbery
- People movement by sea
 - Irregular human migration
 - Human trafficking
- Contraband by sea
 - Drug trafficking
 - Arm trafficking or Weapons Proliferation
- Environmental threats
 - Illegal, unreported, and unregulated fishing (IUU)
 - Degradation of ocean health
 - Unlawful exploitation of marine resources
 - Climate change with its related repercussions on environmental security
 - Spills of hazardous chemicals and oil, and bilge dumping
 - Endangered species migration
 - Shark activity
 - Weather and geological hazards
- Incidents
 - Fire

- Flooding
- Medical evacuations
- Search and Rescue (SAR)
- Cybercrime
- Man overboard
- Critical infrastructure
- Health
 - Mass illness aboard a ship
 - Humanitarian assistance and disaster relief
 - Quarantining

But as other security sectors discovered back in the mid-1990s, data alone is not enough, and as the depth and breadth of data grew, a new breed of center emerged to make sense of it all by fusing the data into useful information. Indeed, the integrating MDA objective focuses on the fusing, analysis and dissemination of information that facilitates effective understanding.⁴

U.S. State-Based Fusion Centers

In the US, 80 state-owned and operated fusion centers gather information, analyze it, and share results with local, tribal, private sector, and federal partners.⁵ By including contextual data, they provide a unique perspective that is not available elsewhere. Fusion centers spend a third of their time integrating local and national data to generate leads for law enforcement agencies, threat assessments, vetting suspicious activity, deploying personnel to emergency operations centers, and monitoring.⁶ However, staffing of fusion centers is heavily skewed to law enforcement agents (79%) with other sectors, such as, Homeland Security (8%), State National Guard, Corrections, Fire, Cyber, public health, and emergency management playing a much smaller role.⁷

Prior to the 9/11 attack, law enforcement agencies used fusion centers for criminal intelligence analysis and information-sharing. This mission expanded post 9/11 and in 2007, the centers became part of the National Security Strategy with an expanded focus on receiving, analyzing, and sharing threat-related information between state, federal, and private sector partners.⁸ Five years after Homeland Security was created, fusion centers became one of their key endeavors.

In a 2011 congressional hearing, an interviewee said, “we have made a great deal of progress in the last few years in building a network of national fusion centers that share information both upwards with the National intelligence and law enforcement communities and sideways with each other.”⁹ However, in 2012, a critical report was published by the Senate Homeland Security and Governmental Affairs permanent

subcommittee on investigations.¹⁰ They revealed that fusion centers had not effectively shared information on terrorist attacks, that they had become “pools of ineptitude, waste and civil liberties intrusions”, and that they had not helped uncover or prevent any terror attacks.

Reports from 2017 and 2018 indicate that state-based fusion centers have lifted their game, however not all are in agreement and find numerous instances of the centers violating First Amendment rights, producing unreliable intelligence, and inadequately sharing information.^{11,12,13,14} The performance measures in these reports only include quantitative indicators and no qualitative assessment of outcomes and impact. Numbers-based approaches are well known in other fields to “end up producing reams of low-quality data.”¹⁵ Therein lies a warning to all nations seeking to develop new fusion centers with high expectations of performance. Early threat detection is a juvenile field that requires investment for it to mature into a reliable and useful instrument for preserving national security.

There are currently, no US state-based fusion centers that focus on maritime issues and maritime issues are not even mentioned in the latest Homeland Security 2018 annual report on fusion centers. The bulk of US fusion centers are inward-looking as they focus on counterterrorism, crime, narcotics, cybersecurity, and critical infrastructure.

Maritime Information, Intelligence, and Coordination Centers

The US National Maritime Intelligence Center, containing the National Maritime Intelligence-Integration Office, is a *central point of connectivity to fuse, analyze, and disseminate information and intelligence for shared situational awareness across classification boundaries*, but this is lacking in its list of key initiatives.^{16,17}

Only two US-based centers actually live up to the label of a maritime fusion center (MFC): the US Coast Guard Maritime Intelligence Fusion Center Atlantic (MIFC LANT), and the Coast Guard Maritime Intelligence Fusion Center Pacific (MIFC PAC). However, these are service-specific MFCs primarily for USCG operational and tactical support, and they do not coordinate and support federal, state, local, tribal, and territorial partners. In 2015, NMIO attempted to promote and establish pathways for maritime information exchange through the state-based fusion centers and their respective port and maritime agency partners,¹⁸ however the success of this endeavor is not apparent from current state-based MFC reports.

Most so-called fusion centers focus exclusively on information or coordination. Generally speaking, information centers serve as a hub through which data passes for fusion, analysis, and dissemination to aid operations and provide actionable tactical support to intelligence personnel.¹⁹ Agencies, such as the Global Maritime Operational Threat Response Coordination Center (GMCC) use this intelligence to support interagency responses to maritime threats worldwide. Both NMIO and GMCC provide training, process guidance, expertise, and educational resources to support response to maritime threats.

The essential mission of a MFC is to strengthen MDA by gathering and analyzing data from multiple sources, fusing it into meaningful information, and disseminating actionable intelligence to operational commanders to directly improve national security, safety, economy, and environment. Not all maritime centers source data broadly enough to make fusion meaningful, and not all attempt to adequately fuse data

to extrapolate new intelligence. Some of these agencies only focus on internal monitoring and have little to do with transnational events. The following agencies display some of these traits.

- Australia: Australian Border Force (ABF) - [Maritime Border Command](#)
- Georgia: Maritime Fusion Center: [U.S.-Funded Maritime Fusion Center Planned \(news article\)](#)
- India: [Information Fusion Centre](#)
- Indonesia: [Indonesian Maritime Information Center](#) (IMIC)
- Madagascar: [Regional Maritime Information Fusion Center](#) (RMIFC)
- Pakistan: [Joint Maritime Information and Coordination Centre](#) (JMICC)
- Philippines: [National Coast Watch Center](#)
- Seychelles: [Regional Centre for Operational Co-ordination](#) (RCOC)
- Singapore: [Information Fusion Centre](#) (IFC)
- UK: [National Maritime Information Centre](#)
- US: [Coast Guard National Response Center](#) (NRC)
- US: [Global Maritime Operational Threat Response Coordination Center](#) (GMCC)
- US: [National Office of Global Maritime Situational Awareness](#)
- US: [USCG National Maritime Center](#)
- US: [CBP National Targeting Center](#)

National Maritime Fusion Centers

Among the very few MFCs that could be considered ‘national’ in their mandate, capacity, and activities, those in India and Singapore merit further mention.

India

Prime Minister Modi’s concept of Security and Growth for All in the Region (SAGAR) considers MDA essential to protect the maritime region and includes a national Information Fusion Centre – Indian Ocean Region (IFC-IOR) to achieve pervasive maritime domain awareness for the protection of international rules-based order.²⁰

IFC-IOR launched in 2018 and has three pillars that address many of the MDA threats listed above.²¹

1. Confidence and capacity building amongst partner nations, thereby ensuring swift and accurate exchange of information pertaining to maritime security.

2. Maintaining extensive and continuous linkages to ensure comprehensive MDA of the region thereby achieving transparency of maritime environment
3. Use of high tech including state of the art methods and analytic tools to undertake traffic analysis thereby ensuring that any emerging threats and trends are predicted in time.

This center has a mandate to work in a meaningful way with all partners, and recognizes the need to embrace acceptable stakeholders in bilateral and multilateral information-sharing networks that drive a regional approach and deter emerging threats. India realizes that a rules-based approach to maritime security would result in *greater tactical synergy, operational engagement and strategic trust between maritime agencies in South and Southeast Asia.*²²

Singapore

In 2009, an Information Fusion Centre (IFC) was formed under the Republic of Singapore Navy (RSN).²³ IFC has a strong external focus and adopts a *multinational approach towards defeating threats at sea.*²⁴ It is mandated to provide *actionable information to regional and international navies, coastguards, and other maritime agencies* to provide forewarning of new and emerging threats.

To foster multinational security cooperation, IFC has hosted 155 liaison officers from 24 countries and established cooperative relationships with 97 other centers in 41 countries.²⁵ This collaborative approach has produced positive outcomes with piracy and robbery, dropping in the Strait of Malacca and the Singapore Strait, decreasing by 92% drop from 2015 to 2018.²⁶

France Plays a Leading Global Role in Maritime Fusion Centers

Behind several successful maritime fusion centers lies cooperation with maritime experts from France.²⁷ In the midst of strategic competition between US and China, France is viewed as a technically proficient, neutral solution to acquiring expertise and technology. Using its extensive experience and skillset, France has placed liaisons in both Indian and Singaporean IFCs to assist maritime security throughout the Indo-Pacific region. It also assisted in establishing the successful European Union-funded Maritime Security Centre – Horn of Africa in Madagascar.

Conclusion

Maritime domain awareness is essential for safeguarding national security and international trade. However, making sense of all the data that flows through MDA monitoring, in the context of data from non-maritime sources, requires a significant investment in MFCs. While the hope has been that MFCs will effectively fuse data together in different ways to create novel information and generate intelligence, they have not delivered and most agencies have not embraced the entire fusion mission.

Incorporating all the intelligence disciplines into the intelligence cycle and conducting all-source analysis is vital. Developing cyber-capacity and artificial intelligence is fundamental to the success of any data fusion effort. People simply do not have the capacity to meaningfully process the big data flows and to know what is current and important at any given moment. As the US plays catch-up in the global cyber war, it will need

to rapidly improve the knowledge-base, infrastructure, and resources relating to maritime security. The race is already on to rapidly build up capacity as nations create internal networks of local fusion centers that all feed into thematic national centers.

Many lessons have been learned since 9/11 when fusion centers started to take off. In the US, the time is now to benefit from this learning and create a system of local maritime fusion centers and to have a dedicated national maritime fusion center that seamlessly integrates all internal data. This is an essential step before engaging on an effort to establish an international network of national maritime fusion centers to cater for transnational security issues.

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