

CAUGHT RED-HANDED BRIEF | FEBRUARY 2019

WHO'S IN YOUR BACKYARD?

STRENGTHENING MARITIME DOMAIN AWARENESS IN THE INDIAN OCEAN

by Robert Mazurek and Laura Burroughs

OVERVIEW: This brief highlights five state-based solutions, developed with delegates during the Caught Red-Handed workshops, to increase maritime domain awareness and decrease illegal fishing in the Indian Ocean.

Indian Ocean littoral states have taken significant action in recent years to combat illegal fishing and other maritime crimes in coastal waters. In 2012, the MASE¹ program was launched to enhance maritime security and to create a favorable environment for the development of the region's blue economy.² That same year, the FISH-i Africa³ task force was formed to improve information and intelligence sharing to increase enforcement of illegal fishing laws. Three years later South Africa hosted the inaugural international symposium on FishCRIME,⁴ which received participation from nearly 200 delegates representing 31 countries. Subsequently, the Djibouti Code of Conduct was amended in 2017,⁵ broadening the scope of regional security coordination from piracy and armed robbery to other illicit maritime activities including human trafficking and illegal fishing.

These actions just scratch the surface of the recent work that has been done to combat maritime crimes in the Indian Ocean. As an expansion of regional efforts to counter maritime piracy, 2018 saw both the Regional Maritime Information Fusion Center (RMIFC)⁶ and the Regional Coordination Operations Center (RCOC)⁷ increase staffing and operational capabilities to process information and launch enforcement actions around additional maritime crimes, including illegal fishing. But despite the expansion of regional engagement efforts, there is growing concern that many Indian Ocean states lack the basic resources and capabilities needed to monitor their maritime domain and regulate maritime activities.

This concern spurred a unique partnership between One Earth Future's (OEF's) Secure Fisheries program, the United Nations Office on Drugs and Crime's (UNODC's) Global Maritime Crime program, and US Naval Forces Africa, to conduct a series of workshops during 2018 in 10 Indian Ocean states. The Caught Red-Handed workshops⁸ advanced interagency collaboration and low-cost improvements to maritime domain awareness (MDA). This was accomplished by promoting the utilization of all available human resources, across every maritime agency, to collect, disseminate, and communicate information related to suspect illegal fishing vessels.

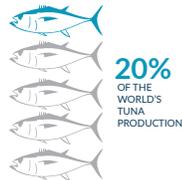
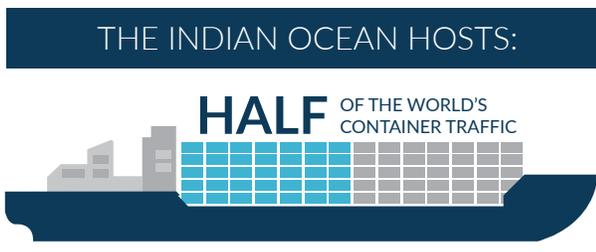
According to the International Maritime Organization, MDA is "the effective understanding of anything associated with the maritime domain that could impact security, safety, economy, or the environment."

Caught Red-Handed workshops were developed in collaboration with government representatives from Somalia, Seychelles, Comoros, Maldives, Kenya, Mauritius, Sri Lanka, Madagascar, Tanzania, and Mozambique.

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I. THE IMPORTANCE OF INCREASING MDA IN THE INDIAN OCEAN

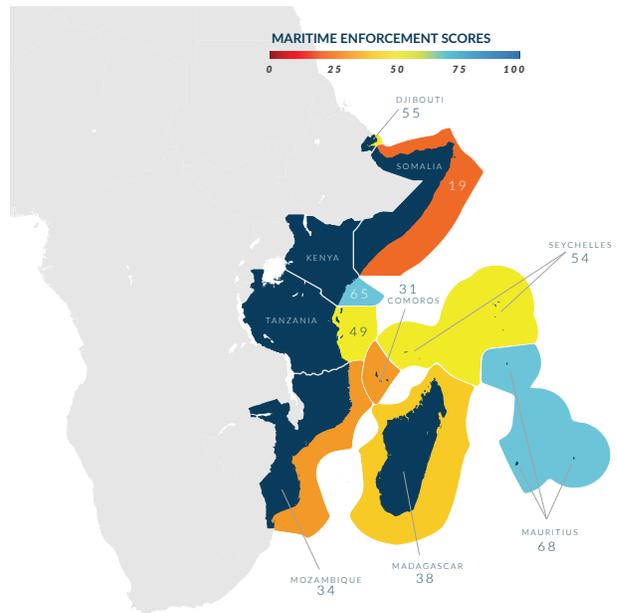
The Indian Ocean has significant strategic value: it is an important geopolitical hub connecting trade routes in Africa, the Asia-Pacific region, the Middle East, and Australia; it is home to some of the busiest fishing grounds and shipping routes in the world; about 50 percent of oil and 40 percent of gas shipments navigate this area,⁹ while Indian Ocean ports handle roughly 30 percent of global trade¹⁰ and about half of the world's container traffic;¹¹ and it is also home to economically important fishing areas, accounting for 20 percent¹² of the world's tuna production.



But the Indian Ocean also borders areas of active or recent conflict, including Yemen, Myanmar, Somalia, and Sudan, and many other countries with limited capacity for policing offshore activities. As a result, illicit trade and other maritime crimes flourish. Illegal fishing, piracy, and the smuggling and trafficking of firearms, narcotics, and people continue to threaten security.¹³ In fact, the UNODC has called the oceans the biggest crime scene in the world, as vast ocean spaces offer perfect conditions to hide criminal activities.

In the Indian Ocean, maritime crime has a significant effect on littoral states, which rely heavily on their blue economies¹⁴ as a source of income, nutrition, employment, and development. Delegates from the Caught Red-Handed workshops cited maritime crime as one of their primary maritime security concerns, yet they are ill-equipped to combat it. According to OEF's Stable Seas Maritime Security Index,¹⁵ the East Coast of Africa, from the Somali region to Mozambique, scores only a 45 out of 100 in "maritime enforcement," while the island states of Madagascar, Mauritius, Seychelles, and Comoros are only slightly better, collectively scoring 50 out of 100.

MARITIME ENFORCEMENT SCORES FOR AFRICAN NATIONS ON THE INDIAN OCEAN, from Stable Seas Maritime Security Index



These low maritime enforcement scores, compared to the theoretical maximum score, are closely linked to a general lack of MDA. This is troubling since MDA is vital to combating illegal fishing and fisheries-related conflict, creating maritime security, and developing the blue economy.

Unfortunately, Indian Ocean coastal states have low capacity to achieve MDA. They often have few law enforcement vessels capable of patrolling their exclusive economic zones (EEZs) and lack effective navies, coast guards, or air force resources capable of ensuring maritime rule of law.

II. MDA CHALLENGES FOR INDIAN OCEAN COUNTRIES

The MDA challenges facing Indian Ocean states can be grouped into three distinct but interconnected categories: resources and technology, human capacity, and port control. Resources and technology can only be effective with proper training of personnel combined with strong procedures at port, which in turn provide robust information for intelligence gathering and regional coordination of enforcement actions. In order to establish MDA and combat illegal fishing, it is, therefore, important to develop these efforts.

The following examples of MDA challenges pull information from across Caught Red-Handed participant countries.



Resources and Technology

Many Caught Red-Handed countries lack resources and technology, including vessels, to patrol their waters. Their fishing fleets are largely artisanal, and their small patrol boats are only capable of operating within territorial waters (12 nautical miles). For example, Comoros has a large EEZ and licenses 200 to 400 vessels, but it has few resources to monitor, control, and surveil. Kenya only has one patrol boat with the capacity to patrol beyond 12 nautical miles, and it has yet to be commissioned. Tanzania recently conducted Operation Jodari with Sea Shepherd to conduct patrols and crack down on illegal fishing within its EEZ. The Tanzanian authorities remarked that the vessel they used, *Ocean Warrior*,¹⁶ was much larger and more capable than Tanzanian patrol boats.

Technological observation allows some Caught Red-Handed countries to compensate for a lack of patrol vessels. Vessel monitoring systems (VMS) can provide vessel location data, but some Caught Red-Handed countries, like Tanzania, Kenya, and Somalia, do not currently have access to VMS across parts of their EEZs. Many workshop participants said that when data are collected, there is no central repository for storing the information. A database and physical center would be useful for this process. In 2005, Mauritius created such a center for storing VMS information, called the Fisheries Monitoring Center, but it struggles to monitor vessels not casting VMS, frequently referred to as dark targets or vessels.



Capacity and Training

MDA technology is ineffective without substantial human capacity and technical training. Even with funding for VMS, several Caught Red-Handed countries lack technical capacity for interpreting VMS technology. Moreover, several participants remarked that staff were inadequately trained to conduct patrols and port state inspections.

Effective use of human intelligence and information sharing is key to improving MDA, but individuals must first know what information to collect and how to turn this information into actionable intelligence that supports law enforcement and leads to prosecutions. Participants from the Caught Red-Handed workshops repeatedly stressed the need for trainings to increase capacity for maritime agencies to identify suspect vessels:

- In Mozambique, workshop participants emphasized the challenges of identifying illegal vessels, as illegal fishers often present fake licenses, conceal

catch, and remove or change vessel identification numbers. This makes it difficult for enforcement officials to track one vessel over time.

- In Tanzania, Operation Jodari provided training in profiling, boarding, and searching vessels. However, workshop participants in Tanzania stated that its maritime enforcement agencies lack necessary personnel to be effective.
- In Mauritius, participants expressed a need for more on-board observers to increase vessel compliance.



Port Control

Another challenge to MDA is the lack of port control in developing countries. For example, foreign fishers operating in Tanzania, Kenya, or Somalia are rarely landing their fish in those countries, making it difficult to quantify how much fish is taken from these waters. Ports also have differing practices and procedures in place for inspections. Tanzanian representatives complained about loose port control hindering their ability to combat illegal fishing. In Kenya, unpatrolled landing sites, private lots, and jetties along the coast can be safe havens for illegal fishing and other criminal activity.

Kenya, Maldives, Mauritius, Mozambique, Seychelles, Somalia, and Sri Lanka are parties to the Food and Agriculture Organization of the UN's (FAO's) Port State Measures Agreement (PSMA),¹⁷ a treaty that aims to decrease illegal fishing by increasing port controls, but capacity-building around implementation and enforcement has been a challenge. In response, the FAO has increased its capacity-building efforts following the passage of the PSMA.¹⁸



Somali maritime police strategize before a visit, board, search and seizure drill.
Photo: SSgt Allyson Manners, U.S. Air National Guard.



Joint maritime forces inspect a fishing vessel suspected of illegal fishing.
Photo: Kwabena Akuamoah-Boateng, U.S. Navy.

III. INCREASED MDA CAN DECREASE ILLEGAL FISHING

By increasing MDA while strengthening laws and consequences for illegal fishing, states can gain greater control of their EEZ. One example is in Indonesia, where since 2014 foreign fishing activity has declined by more than 90 percent and total fishing by 25 percent. This resulted from a government ban on foreign fishing boats from its waters, among other restrictions on fishing, that were put in place to regain control of the Indonesian EEZ. According to Reniel Cabral et al., from the Bren School of Environmental Science at the University of California, Santa Barbara, Indonesia lost an estimated \$4 billion per year to illegal fishing before 2014.¹⁹ Since then, more than 300 ships caught violating the fishing bans, foreign and local alike, have been seized and sunk. While Cabral et al. consider Indonesia's policies "novel and bold," they are making a difference.

Sumaila, Alder, and Keith, from Sea Around Us at the University of British Columbia, cite three main drivers of illegal fishing.²⁰ There are (1) *detection likelihood drivers*, where the higher the probability of getting caught the lower the incentive to cheat; (2) *avoidance drivers*, where illegal activity is reduced as enforcement increases; and (3) *penalty drivers*, where the severity of the penalty lowers the likelihood of cheating. But for all these drivers to result in a decrease in illegal fishing there must be adequate MDA.

To increase MDA within Indian Ocean developing states, the Caught Red-Handed workshops assisted delegates in creating state-based solutions in a set of five focal areas that, when integrated, can decrease illegal fishing:

1. Maximize Human Resources

Developing states frequently lack the fiscal resources needed to obtain expensive technologies that increase MDA, such as optical and radar satellite data, or a fleet of patrol vessels capable of navigating offshore waters. In the rare instances where they do raise the appropriate funding, it is often for a limited time period.

The Caught Red-Handed workshops focused on maximizing each government's human capacity. Workshop participants not only represented a cross-spectrum of traditional maritime agencies including fisheries, maritime police, coast guard, navy, and ports, but included personnel from customs enforcement, the attorneys general office, and the judiciary—agencies that might not have specific expertise in the maritime realm but that play a critical role in maritime law enforcement.

Most workshop participants had a very specific role in collecting and utilizing maritime information and often lacked an understanding of how they fit into a bigger picture for increasing MDA across the country and region. Through the Caught Red-Handed workshops, participants had the opportunity to work together to understand this big picture—linking activities and actions with broader interagency outcomes. This enabled participants to better align mandates and tasks across maritime agencies and personnel.

2. Ensure Interagency Coordination

Coordination between maritime agencies in the collection and analysis of information related to suspect illegal fishing vessels is vital. The agencies with the most maritime resources, like the navy or coast guard, often do not have a strong mandate to combat illegal fishing. And those agencies with strong illegal fishing mandates, like the fisheries ministry, lack patrol boats or vessel tracking software. The Caught Red-Handed workshops provided a framework for strengthening legal authorities, interagency agreements, and policies to allow the processing and fusion of intelligence, domestic law enforcement information, and commercial maritime data, with appropriate safeguards.

Workshop participants discussed ways to reduce regulatory barriers to information sharing and interoperability through the establishment of operating protocols, memorandums of understanding, and memorandums of agreement

that are necessary for joint, interagency, and industry relationships. This resulted in broader discussions on concepts of operation, detailing interagency coordination and situational awareness through common operating procedures and consistency with international norms.

Effective MDA relies on a network architecture that links maritime intelligence and information providers with all MDA users, decision-makers, and operational commanders.

The US Navy highlighted the importance of interagency MDA governance structures, which should

- provide direction in developing policy and standards;
- guide individual agencies and partners in sharing information and intelligence; and
- work together to ensure continued alignment of efforts to achieve national MDA goals.

The US Navy also explained that effective MDA relies on a network architecture that links maritime intelligence and information providers with all MDA users, decision-makers, and operational commanders.

3. Utilize Low- or No-Cost MDA Technology

Though interagency coordination of maritime personnel is important, linking these efforts with the utilization of vessel tracking technologies and satellite information will significantly expand MDA. There are several efforts to provide this technology at no or low cost to Caught Red-Handed countries:

- [Regional Maritime Information Fusion Center \(RMIFC\)](#)
Based in Madagascar, the RMIFC utilizes information from member states in the Indian Ocean to process, fuse, store, share, and exchange information with the objective of issuing an alert in the event of imminent or proven danger to maritime security and safety. The RMIFC provides daily briefings, weekly reports, and press summaries.
- [Vulcan](#)
Vulcan has pioneered an integrated system called [Skylight](#), which uses several vessel monitoring systems and satellite technologies to create profiles, reports, and alerts on suspect illegal fishing activities in a country's EEZ.

- [Trygg Mat Tracking \(TMT\)](#)

TMT provides fisheries authorities with intelligence analysis in support of enforcement actions and improvements in fisheries governance. TMT focuses on African littoral states while facilitating information sharing with government agencies, fisheries intelligence gathering and analysis, capacity-building of fisheries personnel, and the development of fisheries analytical tools.

- [Global Fishing Watch](#)

Global Fishing Watch is a free Google Maps-based website launched in September 2016 by Google in partnership with Oceana and SkyTruth to provide a global view of commercial fishing activities, utilizing the Automatic Identification System (AIS) tracking technology.

- [SeaVision](#)

SeaVision is also a free Google Maps-based marine vessel visualization tool using AIS. Developed by the US Department of Transportation and housed at the [Volpe Center](#), SeaVision also uses the Maritime Safety and Security Information System, which is an unclassified government-to-government near-real-time AIS data collection and distribution network.

4. Utilize Regional Partnerships

Even after maximizing all human resources and ensuring interagency coordination of maritime agencies, developing states can still struggle to achieve enough MDA that results in a decrease in illegal fishing. But the Indian Ocean has two important organizations in place that coordinate efforts throughout the region, while amplifying the efforts of individual states. These are

- [Regional Coordination Operations Center \(RCOC\)](#)
The RCOC, located in the Seychelles, works with member states to pool resources in a cost-efficient manner to respond to maritime crimes. The center uses [IORIS](#), a new secure information sharing and incident management tool developed under a European Union-funded program called [CRIMARIO](#). IORIS enables countries in the region to coordinate operations when maritime security threats are identified, including incidents of illegal fishing.
- [FISH-i Africa](#)
FISH-i Africa is a partnership of eight East African countries: Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, and Tanzania. This task force brings together national enforcement

authorities, regional organizations, and international technical and legal experts to combat large-scale illegal fishing in the Indian Ocean through information sharing and regional cooperation.

5. Utilize Shiprider Agreements

Bilateral maritime law enforcement shiprider agreements allow partners to use vessels, aircraft, and law enforcement personnel to assist host nations in MDA and law enforcement actions. Shiprider agreements can improve cooperation and coordination, while building maritime law enforcement capacity to more effectively combat illegal fishing and other maritime crimes. Both government and nongovernmental organizations have used shiprider agreements in Africa. Two of the more well-known agreements are

- [US Coast Guard](#)

The US Coast Guard regularly exercises 16 bilateral fisheries law enforcement shiprider agreements²¹ with countries in the Eastern Pacific and in West Africa. These agreements enable US government vessels and US Coast Guard law enforcement personnel to help host-nation law enforcement

personnel better exercise their authority. They are open to expand these agreements to East Africa and the Indian Ocean to build capacity for MDA and enforcement actions.

- [Operation Jodari](#)

Operation Jodari began in January 2018 and is a partnership with the government of Tanzania to help in the fight against illegal, unregulated, and unreported fishing. The campaign is supported by Fish-i Africa. Law enforcement officials from the Deep Sea Fishing Authority, the Tanzanian Navy, and the Multi-Agency Task Team are stationed on board the M/V *Ocean Warrior*, along with Sea Shepherd crewmembers. These officials have the authority to board, inspect, and arrest vessels in violation of Tanzanian law. Since the patrols began, three vessels have been impounded and 10 arrests have been made.

If fully realized, these five actions can significantly improve MDA and reduce illegal fishing in Caught Red-Handed states. And because of the strategic importance of this area, the international community has a vested interest in continuing their work with participating states to seek sustainable funding to implement these efforts in MDA.

The Caught Red-Handed workshops are convened and chaired by One Earth Future's Secure Fisheries program and the United Nations Office on Drugs and Crime's Global Maritime Crime Programme and supported by the US State Department's Bureau of International Narcotics and Law Enforcement Affairs and US Naval Forces Africa.

Maritime forces of Seychelles prepare to board a patrol boat during a training scenario. Photo: Mass Communication Specialist 2nd Class Mat Murch, U.S. Navy



LIST OF ACRONYMS

RMIFC	Regional Maritime Information Fusion Center
RCOC	Regional Coordination Operations Center
MASE	Program to Promote Regional Maritime Security
OEF	One Earth Future
UNODC	United Nations Office on Drugs and Crime
MDA	Maritime Domain Awareness
EEZ	exclusive economic zone
VMS	vessel monitoring system
PSMA	Port State Measure Agreement
TMT	Trygg Mat Tracking
AIS	Automatic Identification System

ENDNOTES

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ONE EARTH FUTURE

oneearthfuture.org     

One Earth Future (OEF) is a self-funded, private operating foundation seeking to create a more peaceful world through collaborative, data-driven initiatives. OEF focuses on enhancing maritime cooperation, creating sustainable jobs in fragile economies, and research which actively contributes to thought leadership on global issues. As an operating foundation, OEF provides strategic, financial, and administrative support allowing its programs to focus deeply on complex problems and to create constructive alternatives to violent conflict.

SECURE FISHERIES

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Secure Fisheries is a program of One Earth Future. Secure Fisheries works with local, regional, and international stakeholders to strengthen fisheries governance, combat illegal fishing, and promote sustainability in fragile and post-conflict regions as a pathway towards greater peace and stability.

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