



ANNUAL REPORT 2021

**Information Fusion Centre
INDIAN OCEAN REGION**

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**TO ADVANCE MARITIME
SAFETY AND
SECURITY IN THE
INDIAN OCEAN REGION BY
ENHANCING MARITIME
DOMAIN AWARENESS AND
COORDINATING ACTIVITIES,
THROUGH INFORMATION
SHARING, COOPERATION AND
EXPERTISE DEVELOPMENT;
ALONG WITH PARTNER
NATIONS AND AGENCIES.**



Logo of the IFC-IOR draws inspiration from the Centre's vision of 'Collaboration for Maritime Safety and Security'. It highlights the convergence and fusion of information and data from multiple sources, that are extensively analysed to derive usable insights and disseminated to relevant stakeholders. The petals painted in all seven vibrant colours of the optical spectrum depict various national and international partners who contribute in promoting collaborative Maritime Safety and Security towards a peaceful stable and prosperous Indian Ocean Region.

TABLE OF CONTENTS

MESSAGE FROM DIRECTOR	06
FROM THE EDITOR'S DESK	08
EXECUTIVE SUMMARY	10
IOR MARSEC SCAN	14
ANALYSIS OF MARSEC INCIDENTS	16 - 91
• Piracy and Armed Robbery	16
• Contraband Smuggling	38
• IUU Fishing	52
• Irregular Human Migration	66
• Maritime Incidents	78
EMERGING MARSEC THREATS	92 - 113
• Maritime Security Threats	92
• Cyber Security Threats	98
• Marine Environment Pollution	104
• Climate Change and Security	110
GLOSSARY OF TERMS	114

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MESSAGE FROM DIRECTOR

The unique characteristic of freedom of the seas is one of the most important facets of the maritime domain. This freedom is unlike affairs on land and the airspace above, which sometimes also translates to lack of jurisdiction or adequate oversight over large swathes of the world's oceans. Further, multi-nationalism in every layer of maritime traffic, be it in vessel ownership, crew or cargo makes this vast expanse not only difficult to monitor but also complicates the security calculus.

In today's geo-political context, regional stability is threatened by the transnational and fluidic nature of existing and evolving challenges. The wide expanse of oceans, besides giving the identity of "Blue Planet", offer an ideal medium for various nefarious activities to flourish, thereby gratifying the interests of unscrupulous elements.

The combination of these complexities therefore calls for a collaborative approach for furthering maritime security and safety. It is difficult and often

unviable for a single Centre or agency to achieve complete Maritime Domain Awareness which is the *raison d'être* of a Centre like IFC-IOR, which strives to enhance the MDA of the region by collaborating and cooperating with various partners. All activities at the Centre are aimed towards the fundamental goal of safe and secure seas, which calls for seamless information sharing.

The maritime security challenges confronting today's world are not limited to traditional threats of piracy and armed robbery. The past few years have seen a plethora of threats across varied dimensions and evolving unprecedented actions in maritime sphere, the spectrum of which ranges from minor conflicts and disputes between regional entities to the involvement of non-state actors. Evolution of cyber and unmanned threats at sea further threaten maritime shipping, the life line of global economy.

An environment scan indicates that piracy off the coast of Somalia continues to remain suppressed

due to proactive efforts from various stake holders. While incidents have almost halved in Gulf of Guinea, continued instances of kidnapping of seafarers make these waters one of the most dangerous in the world. Incidents of theft in the Traffic Separation Scheme of Singapore Strait remains a worrying trend considering the large volume of traffic transiting through the region. Concurrently, hybrid threats in the form of drones and remote-controlled water borne improvised explosive devices have made the maritime security situation fragile in West Asia. Whilst such challenges are currently limited to certain regions, the contiguous nature of oceans may facilitate proliferation of such means elsewhere.

The challenges posed by contraband smuggling, especially drug trafficking may only be tackled by coherent response from regional stakeholders. Additionally, the exploitation of marine resources through IUU fishing and the challenges of irregular migration are further compounded by the impact of climate change.

The Centre in a short span of three years has performed exceptionally well and linkages have been established with multiple agencies in the maritime security realm. International Liaison Officers (ILOs) from many countries have also joined the Centre further adding

to the collaborative venture. While continuously monitoring and analysing the maritime security situation in the Indian Ocean Region and adjoining seas, the Centre has also been publishing various updates like the Monthly Maritime Security Updates (MMSUs) and had also published the maiden Annual Report in 2020. This Annual Report is the culmination of the analysis over the wider time frame of 2021 and would hopefully provide trends and analysis of the maritime security situation in the region.

In line with India's vision of Security and Growth for All in the Region (SAGAR), we at IFC-IOR remain fully committed in our endeavours to promote collaborative safety and security towards a peaceful, stable and prosperous Indian Ocean Region.

CAPT SOUMYAJIT MOHANTY
DIRECTOR

FROM THE EDITOR'S DESK

Not everything that can be counted counts, and not everything that counts can be counted.

Albert Einstein

While data is important, the right data is essential. In today's hyper-connected world, multiple exabytes of data is generated each day and circulated on world wide web. The sheer vastness of data and information sources coupled with ease of connectivity creates a state of information overload and oftentimes it is a herculean task to identify the right data, authenticate the veracity and separate '*wheat from the chaff*'. Authenticated and verified data collected diligently over time, forms the foundation for advanced analytics. Therefore, a clear understanding of what's really important is critical to evaluate what data counts or should be counted.

Team IFC-IOR in year 2021 has witnessed remarkable growth and has progressed well to achieve many milestones. In just three years, the Centre has graduated to a fully operational MARSEC INFO FUSION Centre, with advanced data analytics and information sharing mechanism to cue operational activities. As we welcomed six new ILOs at the Centre, we also bolstered our Research Cluster organisation to strengthen knowledge base and dive deep into sense-making of myriad contemporary maritime security challenges. Team IFC-IOR has continued the relentless work to better the understanding of MARSEC issues and gain insights which are corroborated and quantified with data.

The Annual report 2021 is the culmination of extensive research and data analytics coupled with modern data visualisation techniques for ease

of comprehension. The Report brings out statistical analysis of Piracy & Armed Robbery, Contraband Smuggling, IUU Fishing, Irregular Human Migration and Maritime Incidents. Additionally, the report also covers emerging MARSEC threats viz. Maritime Security Threats, Cyber Security Threats and Marine Environmental Pollution. Commencing 2021, the Centre has identified climate change as a potential MARSEC challenge and has added it under emerging threats.

The report also presents Maritime Security Scan of entire IOR in single spreadsheet for quick understanding. We have endeavoured to present the verified data with unbiased analysis for mariners, policy makers and seafarers. The Annual report and IOR MARSEC SCAN 2021 can be downloaded by scanning QR codes.

We also humbly solicit your valuable feedback to improve our reports and better meet the requirements of our readers. Feedback may be sent by scanning QR code placed on this page.

Wishing the Mariners, Seafarers and our readers a safe and prosperous year ahead.

Happy Reading...

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Kindly scan to send your
valuable feedback



**ANNUAL
REPORT 2021**

EXECUTIVE SUMMARY

During 2021, the Centre monitored, recorded and analysed a total of 3,411 incidents in the wider Indian Ocean Region and adjoining seas. These incidents pertain to a variety of maritime security challenges, which have been broadly categorised by the Centre into five groups for analysis: Piracy and Armed Robbery; Contraband Smuggling; Illegal, Unregulated, and Unreported (IUU) Fishing; Irregular Human Migration (IHM) and Maritime Incidents (MI). This year, an additional focus has been laid on the incidents impacting cyber security, marine environmental pollution, climate change and maritime security threats, which have been covered under separate sections in the later part of the report.

In the Annual report, the Centre provides collated data, analysis of trends and recommendations for seafarers and the shipping community. Featured text and graphics are also included for brief informational highlights of events observed throughout the year. The report also presents a comparison vis-à-vis the previous year for the Piracy and Armed Robbery section. This comparison has been limited to one section only in order to avoid misleading inference, attributable to higher number of incidents captured due to induction of greater number of International Liaison Officers (ILOs) and

continuing enhancement of data collation and information processing capability.

It is pertinent to note that the scope of the Centre's monitoring, recording, and analysis focuses on reported incidents that occur in and around the maritime domain. Incidents are monitored across ports, coastal landing sites, and riverways, to littoral regions near shore, and beyond to the open seas of the region. This report does not focus on incidents occurring inland; however, there is an implicit understanding that illicit activities are not exclusive to one geographical location and may frequently traverse various domains.

PIRACY & ARMED ROBBERY

In 2021, the Centre monitored 168 incidents classified under piracy and armed robbery, which have been further analysed in ten different subcategories: Hijack, Kidnap, Illegal Boarding, Attack, Sea Robbery, Sea Theft, Attempted Incidents (robbery, theft and boarding), and Suspicious Approach. Geographically, five distinct regions have been analysed for piracy and armed robbery trends: the Gulf of Guinea, East Africa, West Asia, South Asia and South East Asia. Sea Theft and Suspicious Approaches were observed to be the most frequently reported incidents.

With 48% of recorded incidents in 2021, South East Asia accounted for half the recorded incidents, typically occurring in proximity to coast, at night and on vessels either underway or at anchor. A significant development is increased usage of knives or firearms by perpetrators to confront or coerce the crew.

The Gulf of Guinea accounted for 37% of recorded incidents this year. Incidents in 2021 declined by over 50% as compared to 2020, likely due to efforts of multiple stakeholders. While a reduction in the use of firearms was observed in 2021 as compared to previous years, the Centre observed an increase in the use of violence. In six specific incidents, violence during an incident resulted in the injury or death of crew members.

CONTRABAND SMUGGLING

Contraband smuggling in 2021 accounted for 757 incidents, with an average of 60 seizures each month. The Centre categorised incidents into nine groups based on the type of contraband: Drugs, Domestic Products, Natural Resources, Fuel, Tobacco, Alcohol, Weapons, Wildlife and Miscellaneous. Incidents have also been grouped into four regions for further analysis: East Africa, West Asia, South Asia and South East Asia.

Drug smuggling represented 50% of monitored contraband seizures, with confiscations of cannabinoids, amphetamine type substances (ATS) and opioids among the 457 seizures this year. Generally, drug shipments start inland at production centers located within the areas referred to as the Golden Crescent and Golden Triangle, then travel across land and sea routes to their final destinations. In addition to transshipment, use of small cargo vessels or fishing vessels and concealment of drugs in containerised cargo has also been observed.

Domestic product smuggling accounted for 17% of total incidents, with the majority involving turmeric smuggling into Sri Lanka. Alcohol and tobacco smuggling trends in 2021 were concentrated in South East Asia

due to the archipelagic nature of the region allowing for ease of illicit transfers.

ILLEGAL, UNREGULATED, UNREPORTED FISHING

This year, the Centre monitored 392 IUU fishing incidents, with an average of 32 incidents per month. Due to challenges associated with information collation and classification of IUU fishing into 'illegal', 'unreported', or 'unregulated' incidents and in an effort to avoid inaccurate representations of data, the Centre classified events in two categories: Local IUU fishing and Poaching. Of the four regions (East Africa, West Asia, South Asia and South East Asia), trends showed a majority of incidents being local IUU incidents, with poaching varying across the IOR.

Seasonally, the IOR experiences two major monsoon seasons with decreased activity traditionally associated with severe weather. However, this year the Centre did not observe a decrease of IUU fishing incidents during this period, possibly due to fishers venturing out to sea, even during monsoon conditions, to compensate for the loss of income during the pandemic lockdowns and travel restrictions during the first half of 2021.

Due to the inherent nature of enforcement operations, the majority of recorded incidents involve smaller fishing vessels in violation of fisheries laws close to the coast. No IUU fishing incident was recorded in the high seas (beyond EEZ), which highlights the monitoring challenges and legal gaps in Areas Beyond National Jurisdiction (ABNJ).

Illegal fishing also tends to be associated with other maritime crimes such as drugs, human, and weapons trafficking, but lack of evidence is a significant factor which hampers law enforcement activities. Disagreement linked to pending EEZ delimitations and competition between coastal artisanal fishing and foreign industrial fishing fleets remain potential flashpoints.

MARITIME INCIDENTS

The broad scope of Maritime Incidents accounts for 1,117 recorded incidents in 2021, with an average of 93 incidents per month. The Centre groups incidents geographically across four regions: East Africa, West Asia, South Asia and South East Asia. Fourteen types of incidents are monitored, which have been grouped into three subcategories for ease of comprehension.

- » Incidents Affecting Vessels: fire, grounding, collision, mechanical failure, sunk, capsized, cargo mishap and SAR.
- » Incidents Affecting Individuals: MEDEVAC, man overboard, missing and death.
- » Incidents with Legal Connotations: Vessels detained and violent confrontations.

Regionally, 54% of Maritime Incidents occurred in South East Asia, possibly due to the prevalence of small vessels as well as comparatively higher maritime traffic. Seasonally, a greater number of Capsized and Sunk incidents were monitored during heavy weather periods related to cyclones and monsoons.

The Suez canal was blocked for six days in March, following the grounding of a container vessel EVER GIVEN. Other major Maritime Incidents this year included the loss of a submarine of Indonesian Navy off the coast of Bali, impact of Cyclone TAUKTAE in the Arabian sea and the fire (and subsequent sinking) onboard container vessel X-PRESS PEARL off Sri Lanka.

IRREGULAR HUMAN MIGRATION

The Centre's observations of IHM this year included 977 incidents involving 46,502 migrants and 423 traffickers, with a monthly average of 81 reported incidents in the IOR and the Mediterranean Sea. Regionally, 75% of IHM incidents occurred in the Mediterranean, followed by East Africa (14%). For analysis, the Centre has grouped IHM incidents in five geographical regions: Mediterranean Sea, East Africa, West Asia, South Asia and South East Asia.

Irregular human migration is often accompanied by a plethora of criminal activities such as slave trade, child abuse and labour, sexual exploitation, trafficking and organ harvesting, among others. A significant security risk of migration involves the use of migration routes and networks by terrorist and criminal elements. COVID-19 pandemic related travel and border restrictions are likely to have forced some otherwise legitimate travellers to take illegal maritime routes.

In 2021, the Centre observed migrants willing to take significantly higher risks on overcrowded and often unseaworthy boats during all seasons, regardless of heavy weather and absence of survival gear. True IHM numbers are likely to be higher than recorded numbers due to numerous challenges associated with tracking and reporting such movements. Irregular migration is expected to continue in the future, with possible increase due to political instability, economic disparities and the impacts of climate change.

EMERGING MARSEC THREATS

The Centre has monitored an increase in other types of maritime threats which do not conform to the classical definition of traditional maritime security challenges. These have therefore been clubbed under "Emerging MARSEC Threats" for ease of analysis. Marine Environment Pollution has been included under this category due to it being a possible direct or indirect implication of some of the other "Maritime Incidents".

MARITIME SECURITY THREATS

The Centre monitored several incidents related to maritime security threats that could not be defined by the traditional acts of Piracy and Armed Robbery. Maritime security threats involving attacks on ships included use of conventional military measures like rockets, missiles, artillery shelling, floating mines, limpet mines, etc., and unconventional delivery methods like Water Borne Improvised Explosive Devices (WBIEDs), Remote Controlled WBIEDs (RCWBIEDs), Unmanned Aerial Vehicles (UAVs) or drones, etc.

Of note, 2021 is the first year in recent past, in which the Centre recorded the loss of life of seafarers due to a hybrid drone-explosive attack onboard the tanker MERCER STREET in July.

CYBER SECURITY THREATS

As the maritime domain increasingly becomes automated and digitised, cyber security onboard ships and in ports assumes ever greater importance. The implications of a cyber attack can range from loss of data, compromise of IT systems, loss of connectivity, damage to infrastructure, even loss of a vessel or death of a seafarer. It is likely that only a portion of actual or attempted attacks are detected, of which many are not reported.

Submarine cables are a particularly vulnerable target, as they are estimated to carry more than 95% of the world's trans-regional data and communication traffic. As information super-highways, these cables are critical enablers of the interconnected world and are susceptible to both physical and cyber attacks.

The Centre noted four specific cyber attacks in 2021. The most significant was a ransomware attack against Transnet SOC Ltd, which severely impacted port operations in Durban, Ngqura, Port Elizabeth, and Cape Town, South Africa.

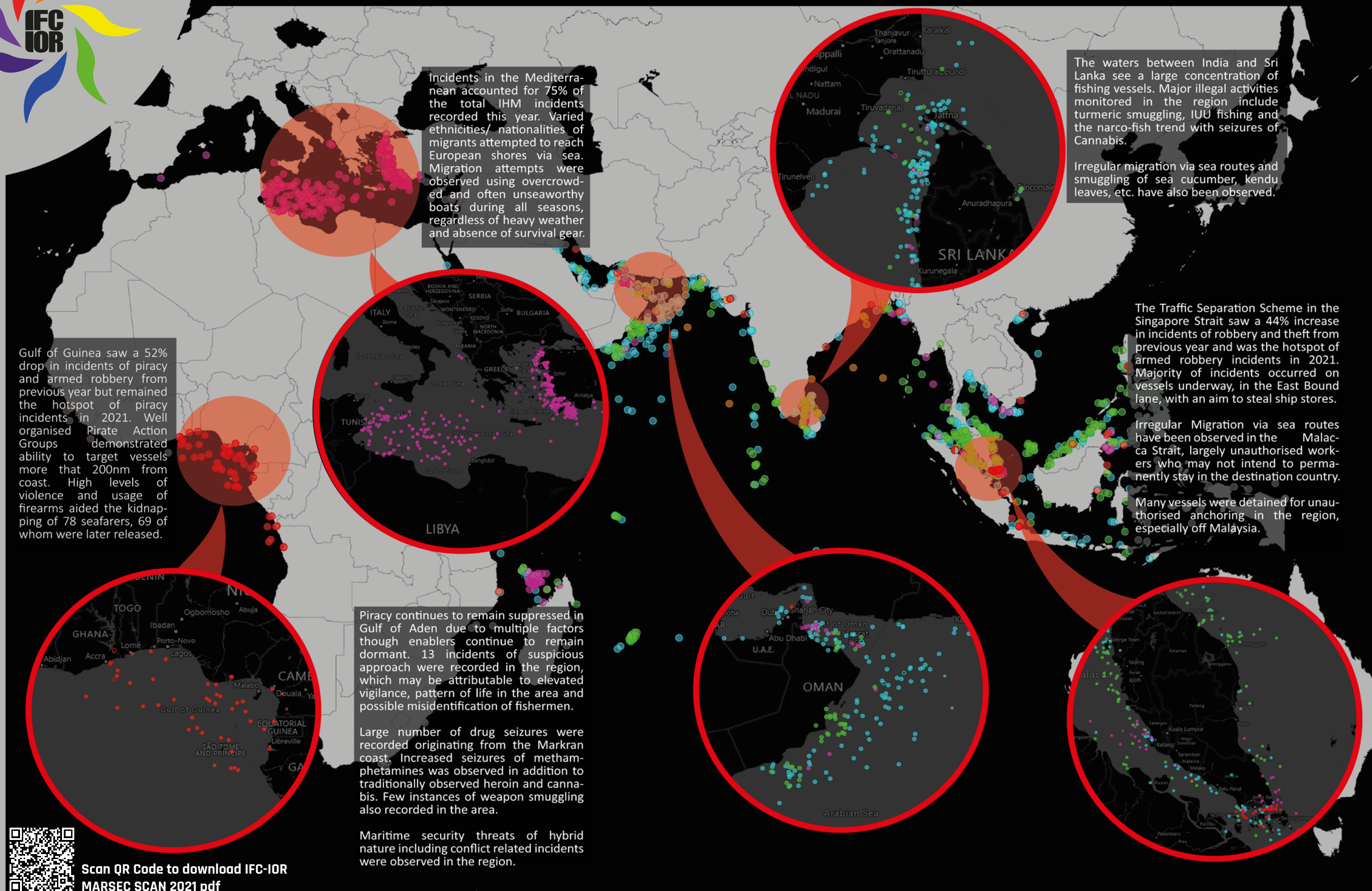
MARINE ENVIRONMENT POLLUTION

In the year 2021, the Centre monitored several incidents involving fire, collision, vessels running aground, capsizing and sinking at sea. The risk with incidents such as these is the compounding effect on marine environment safety, especially when such vessels are carrying shipments of hazardous cargo or which lead to an oil spill.

The most notable incident this year involved container vessel X-PRESS PEARL, which caught fire at anchor and subsequently sank off Colombo, Sri Lanka. With unprecedented impact on the environment and fish species in the area, plastic pellets called nurdles are expected to be present in Indian Ocean waters for decades to come.

CLIMATE CHANGE AND SECURITY

Climate Security is the impact of Climate Change on both traditional and non-traditional security threats. Climate change related effects are likely to exacerbate existing issues and conflicts and also have significant potential to generate new conflicts. Rising sea levels, consequent loss of coastal areas, risks to fresh water supplies, increasing human and animal migration, fishing conflicts, extreme weather and natural disasters are some of the key problem areas. The Centre will continue to monitor the impact of climate change on illicit maritime activity in the Indian Ocean Region.



Scan QR Code to download IFC-IOR
MARSEC SCAN 2021 pdf

Category ● Contraband Smuggling ● Marine Environmental Pollution ● Irregular Human Migration ● IUU Fishing ● Maritime Security Threat ● Piracy & Armed Robbery



Anti Piracy measure onboard a Merchant Vessel



PIRACY AND ARMED ROBBERY

PIRACY AND ARMED ROBBERY

OVERVIEW

In 2021, the Centre monitored 168 incidents classified under piracy and armed robbery, which have been further analysed in ten different subcategories: Hijack, Kidnap, Illegal Boarding, Attack, Sea Robbery, Sea Theft, Attempted Incidents (robbery, theft and boarding), and Suspicious Approach. **The incidents recorded by the Centre saw a 37% decline from the 267 incidents in 2020, predominantly driven by a 52% fall in the number of incidents recorded in the Gulf of Guinea.** The various sub-categories have also reflected a similar declining trend. The overall decrease is probably due to increased vigilance, enforcement activities, enhanced presence of naval forces and greater political will to curtail such activities.

One of the significant positive outcomes of this reporting period is the 66% reduction in use of guns or firearms in the incidents, which indicates greater gun control on land especially in the Western African region. South East Asia accounted for the majority of the incidents in 2021, highlighting the vulnerability of the merchant shipping community, especially while transiting restricted waters. However, most of the incidents were of petty theft

and robbery as opposed to the more serious incidents of attacks and kidnapping recorded in the Gulf of Guinea.

Piracy continues to remain suppressed in Gulf of Aden due to multiple factors. The attack on an MV in Aug 21 highlights that the enablers remain dormant and await opportune targets.

The Centre recorded lesser number of incidents as compared to 2020, a trend which has been reported in multiple other reports. As per the International Maritime Bureau, incidents of piracy and armed robbery in 2021 were the lowest since 1994.

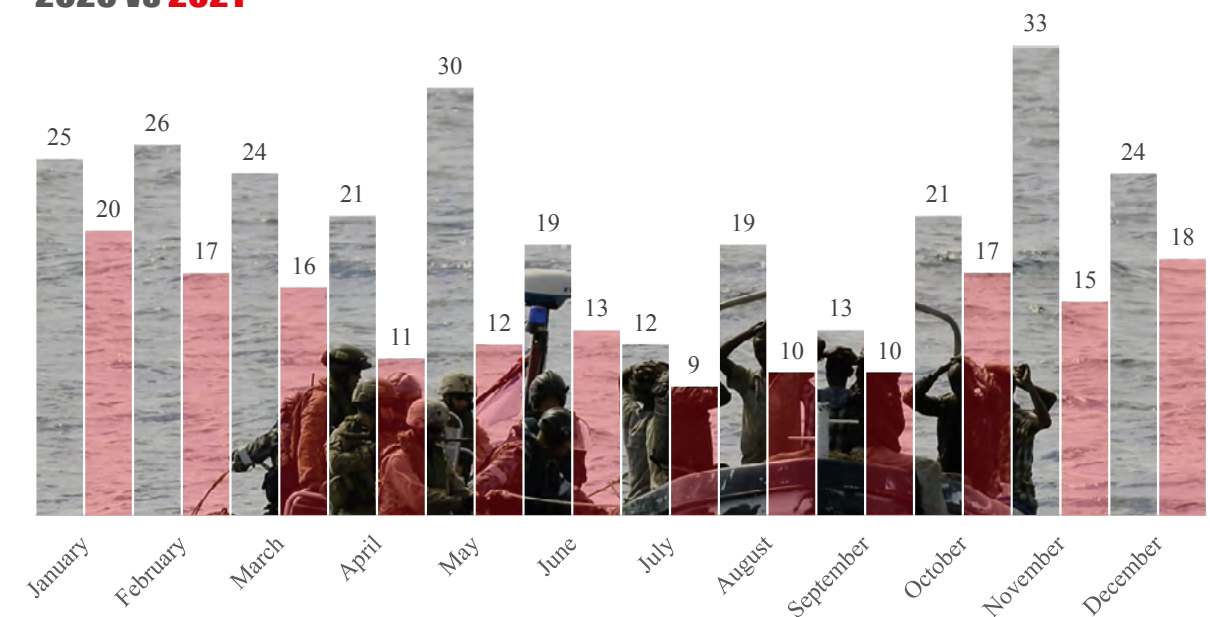
The Centre recorded a monthly average of 14 incidents in 2021. A dip in the number of incidents was observed in the periods associated with rough weather such as monsoon, possibly due to its impact on small boat operations. However, this dip during monsoons was not observed in relatively sheltered spaces such as Straits of Malacca and Singapore.

The incidents recorded by the Centre saw a 37% decline from the 267 incidents in 2020, predominantly driven by a 52% fall in the number of incidents recorded in the Gulf of Guinea



ANNUAL
REPORT 2021

PIRACY AND ARMED ROBBERY 2020 vs 2021



Piracy

Article 101 of the UNCLOS defines piracy as any of the following acts:

- (a) Any illegal act of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed:
 - i. On the high seas, against another ship, or against persons or property onboard such ship.
 - ii. Against a ship, persons or property in a place outside the jurisdiction of any State.
- (b) Any act of voluntary participation in the operation of a ship or of an aircraft with knowledge of facts making it a pirate ship or aircraft.
- (c) Any act of inciting or of intentionally facilitating an act described in subparagraph (a) or (b).

Armed Robbery

In accordance with the Code of Practice for the Investigation of Crimes of Piracy and Armed Robbery against Ships of the International Maritime Organisation (IMO) Assembly Resolution A.1025(26), armed robbery is defined as:

- (a) Any illegal act of violence or detention, or any act of depredation, or threat thereof, other than an act of "Piracy", committed for private ends and directed against a ship, or against persons or property onboard such ship, within a State's internal waters, archipelagic waters and territorial sea.
- (b) Any act of inciting or of intentionally facilitating an act described above.

**GULF OF GUINEA
CONTINUES TO
BE THE GLOBAL
PIRACY HOTSPOT
AND TRAFFIC
SEPARATION
SCHEME IN THE
SINGAPORE STRAIT
ACCOUNTED FOR
MAJORITY OF
ARMED ROBBERY
INCIDENTS**

TYPE OF INCIDENTS

44 incidents of unsuccessful attempts to attack or board a vessel were recorded by the Centre in 2021, which constituted 26% of the total incidents. These include suspicious approaches, attempted boarding and attack on vessels. Majority of the attempts were thwarted due to proactive actions by the vessels in accordance with BMP 5 and BMP WA viz., evasive manoeuvres and presence of armed security teams. However, three quarters of incidents were successful, which is a worrying trend and reflects on the dexterity of the perpetrators as well as vulnerability of merchant vessels.

39% of the incidents involved successful theft/ robbery by the perpetrators. About 68% of these were recorded onboard vessels in South East Asia.

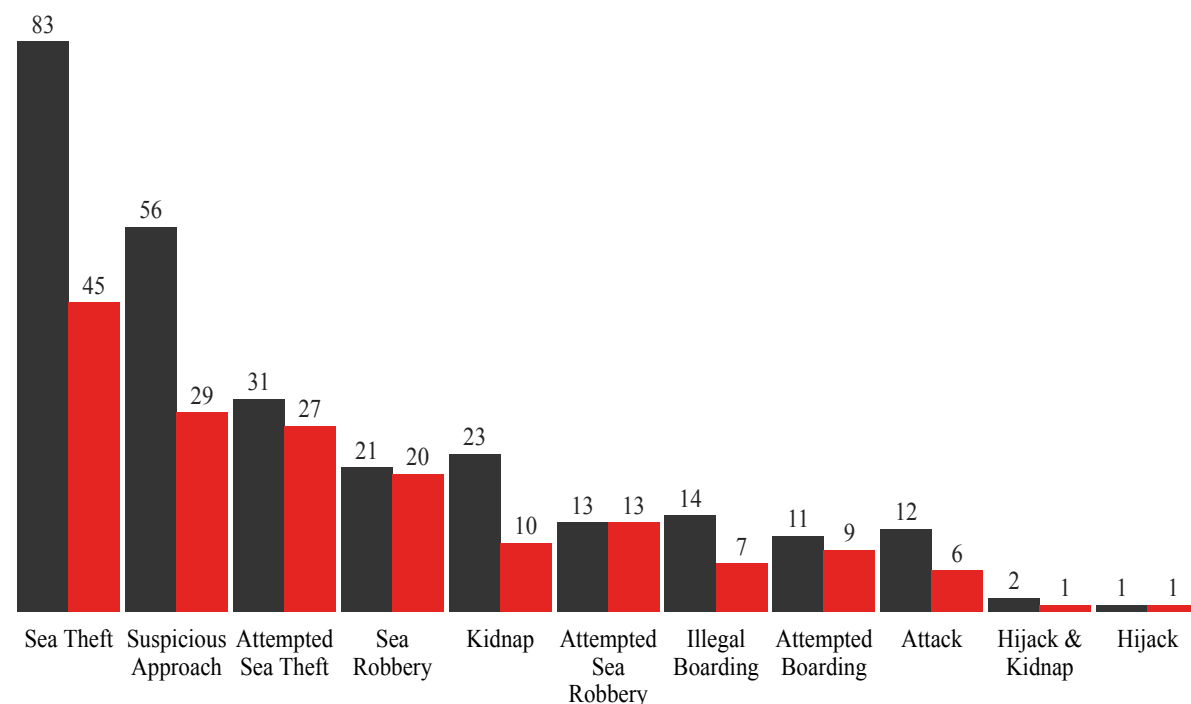
About 24% of the overall incidents and 27%

of the boardings included failed attempts of theft/ robbery by the perpetrators. This is attributable to crew raising alarm in a timely manner. The possibility of the perpetrators willing to leave the vessel empty handed to avoid apprehension/ arrests cannot be ruled out. Majority of these were recorded onboard vessels underway in the Traffic Separation Scheme in the Singapore Strait.

Like the previous year, Sea Theft was the most frequently reported type of incident in 2021, accounting for 27% of total incidents. It is possible that some traditional means of livelihood have been affected by ongoing COVID pandemic, which may have pushed perpetrators to low risk ventures like sea theft on opportune vessels. All the subcategories reflected similar patterns from 2020 albeit with lesser number of incidents recorded. Regional trends and analysis are enumerated in the latter part of this section.

Type of Incident 2020 vs 2021

● 2020 ● 2021



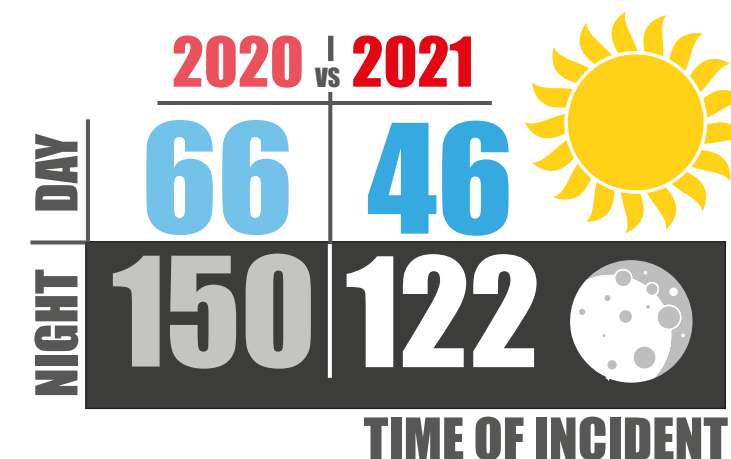
TYPE OF VESSELS, NAV STATUS AND TIME

Bulk carriers were targeted in 31% of the incidents, followed by tankers (20%) and container vessels (18%). 28 incidents (17%) were reported onboard vessels with low freeboard and/ or those that transit at slow speeds (most of which were recorded in South East Asia). Incidents were also reported onboard fishing vessels, service vessels, tugs, barge under tow by tug, supply vessels and passenger vessels. While the vessels with low freeboard were identified to be easy targets, perpetrators have successfully boarded

container vessels with high freeboard also.

Significantly lower number of incidents alongside in harbours is a positive statistic, signifying better security in ports.

Similar to the previous year, majority of the incidents recorded were reported on vessels underway (63%), followed by anchored vessels (31%) and vessels berthed alongside (6%). 73% of the incidents recorded occurred under the cover of darkness.



DISTANCE FROM COAST

71% of the incidents recorded occurred in proximity of nearest land (<12 nm), 41% of which occurred in the Traffic Separation Scheme in the Singapore Strait. The number of incidents saw a decrease with increase in distances from coast. Four incidents (2%) each were recorded between 150-200 nm and beyond 200 nm from coast. All of these incidents occurred in the Gulf of Guinea, which points to greater organisation and sophistication of Pirate Action Groups in West Africa, including usage of hijacked vessels as mother ships for launching pirate attacks.



NUMBER OF PERPETRATORS

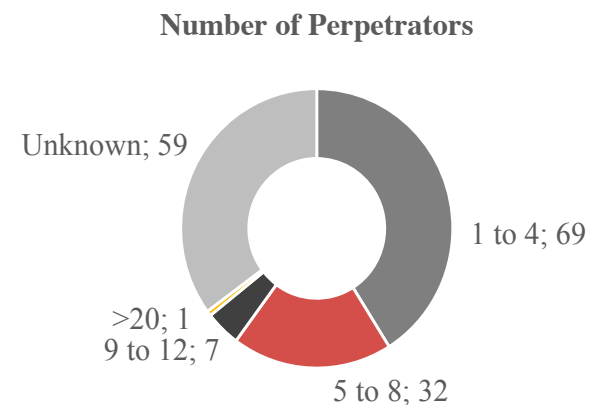
The Centre has information with respect to perpetrators in 65% of the recorded incidents.

Out of these, 63% involved 1-4 perpetrators, 68% of which were recorded in South East Asia and 20% in the Gulf of Guinea.

29% of these incidents involved 4-8 perpetrators, 50% of which were recorded in South East Asia, 43% in the Gulf of Guinea and 6% in West Asia.

6% of the recorded incidents involved 9-12 perpetrators. In one incident of attempted sea robbery on a tanker, Bangladeshi authorities had apprehended 43 perpetrators.

The majority of incidents were orchestrated by small groups of perpetrators, which highlighted the vulnerability of merchant vessels.



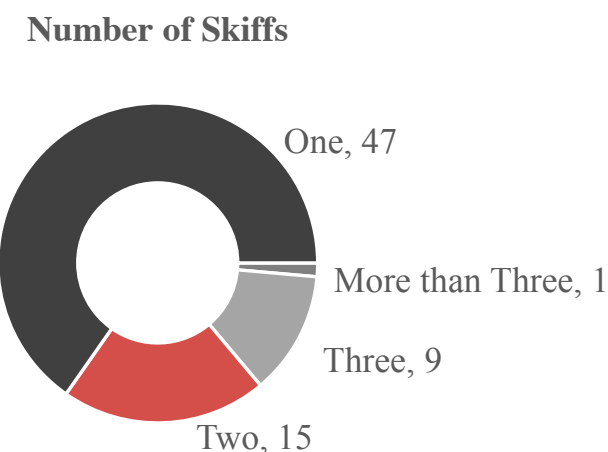
USE OF SKIFFS

In 2021, the Centre monitored 73 incidents involving usage of skiffs or small boats by the perpetrators for acts of piracy and armed robbery. This constituted 43% of the total incidents recorded.

64% of these incidents involved presence of one skiff, 55% of which were recorded in the Gulf of Guinea.

In South East Asia, 58% of the incidents involving small boats were single boat incidents.

The highest number of skiffs used in a single incident was ten during a suspicious approach incident in the Gulf of Aden. **The traffic and pattern of life in the Gulf of Aden raises the possibility of misidentification, especially of fishermen operating in groups while attempting to warn passing vessels of their nets.**



USE OF WEAPONS AND VIOLENCE AGAINST CREW

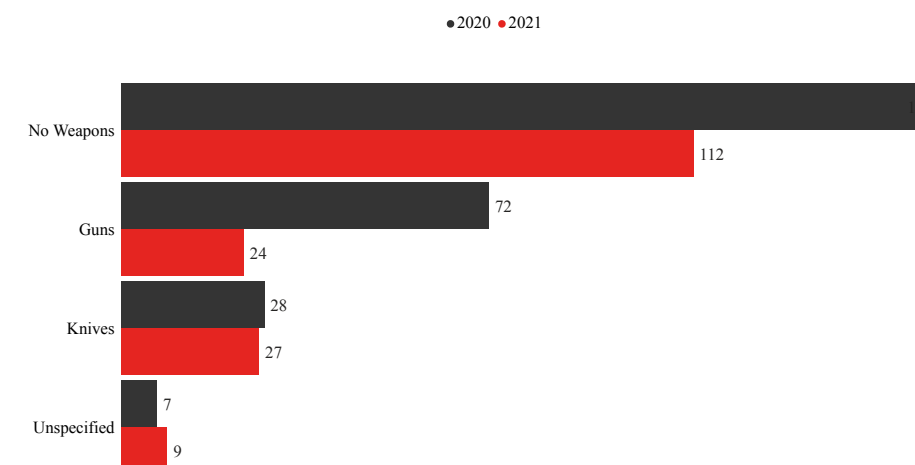
In 2021, sighting or usage of weapons were reported in 36% of the recorded incidents of piracy and armed robbery. 45% of the incidents with weapons involved different types of knives or similar weapons, 40% of incidents involved guns and similar weapons while the type of weapons were not specified in 15% of the incidents involving armed perpetrators.

Guns were predominantly observed in the Gulf of Guinea. Knives constituted majority of the weapons observed in South East Asia, with four cases of pistols/ similar weapons being used/ carried by the perpetrators. Three of these were recorded off Manila, Philippines and one in the Singapore Strait Traffic Separation Scheme.

It is highly likely that perpetrators carrying guns also have knives which are not sighted/ detected by crew members. Such knives are generally used by perpetrators to cut items and lashings as well as threaten the crew.

Guns continue to be weapon of choice in GoG while South East Asia saw usage of knives.

A major cause for concern is the attack on crew members in some of the incidents which has sometimes led to grievous injuries. **Two crew members were killed and seven were injured (including an embarked security guard) in six incidents.** All deaths and injuries occurred in the Gulf of Guinea except one injury which was reported onboard a vessel while transiting in the Singapore Strait.



KIDNAPPING OF CREW MEMBERS

78 crew members were kidnapped in 11 incidents in 2021 all of which were recorded in the Gulf of Guinea. This was a 58% drop from 2020. 69 crew members were subsequently released, with nine reported to be still in captivity by the end of the year. The 14 crew members held in captivity as per the Annual Report of 2020, were released in 2021.

The continued trend of kidnapping of crew members in the Gulf of Guinea, even though significantly reduced, continue to remain a worrying issue.

69 out of 78 crew members kidnapped in 2021 have been released.

ANALYSIS OF INCIDENTS

SEA THEFT/ SEA ROBBERY

About 72% of the incidents (actual and attempted) of theft/ robbery in 2021 were recorded in South East Asia. 31 out of 76 incidents were those without any loss of stores. This indicates that the perpetrators may not be willing to risk the possibility of getting caught and leave the vessel empty handed immediately after being noticed by the crew. Further, the perpetrators were observed to be non-confrontational during majority of incidents.

76% of the incidents of theft/ robbery in Gulf of Guinea involved loss of stores.

The perpetrators left empty handed only in 24% of the recorded incidents. This could be attributable to the crew retreating into the citadel in accordance with BMP-WA recommendations, which allowed perpetrators to escape with stolen items.

About 24% of the overall incidents and 27% of the boardings included failed attempts of theft/ robbery by the perpetrators. This is attributable to crew raising alarm in a timely manner.

HIJACKING

Two incidents of hijacking were recorded by the Centre in the year 2021, both in the Gulf of Guinea. One of this incident commenced as a hijack scenario and ended with the vessel being hijacked and subsequently the crew was kidnapped.

The first incident involved the Gabon flagged fishing vessel LIANPENGYU 809 off Port Gentil, Gabon on 08 Feb 21. Reportedly, the vessel was boarded by an unknown number of armed perpetrators, who took over the control from the Master. It was reported that the hijacked fishing vessel was later used for launching piratical attacks against two different vessels in the area. However due to failed attacks on these vessels, the pirates diverted the hijacked fishing vessel towards Nigeria and disembarked along with

kidnapped crew members. The FV then headed back to Gabon, where a Gabonese Navy ship intercepted it on 12 Feb 21. A total of 10 crew members were kidnapped.

The second incident was reported onboard a stranded Iraq flagged tugboat T-4 about 07 nm North off Bushehr, Iran on 21 Mar 21. Reportedly, the grounded tugboat was boarded and seized. A ransom was demanded from the owner for its release. This is likely to be an opportunistic incident.

There were no incidents of hijack for cargo theft in 2021. High ransoms being demanded for kidnappings has probably made cargo theft less lucrative and a high-risk option (more contact time on the vessel gives greater response time for enforcement agencies).

ILLEGAL BOARDING/ ATTACK

The Centre monitored 13 incidents of illegal boarding and attack during the year, a slight drop from 14 recorded in 2020. All incidents were recorded in the Gulf of Guinea except two attacks on vessels off Somalia and Yemen.

Nearly 46% of these incidents were observed beyond 100 nm from the nearest

Coast, all in the Gulf of Guinea. This goes on to highlight the increased capability of the armed perpetrators in the region. The Centre observed that adherence to BMP WA and a robust citadel mechanism onboard the vessels are likely to have foiled the perpetrators' attempts at kidnapping crew members.

KIDNAPPING

As brought out earlier, a steep decline was observed in the number of kidnapping incidents this year. A total of **78 crew members were kidnapped, which amounted to 44% reduction from the figures for 2020.** This may be attributed to the reduced number of incidents in the Gulf of Guinea due to enhanced presence of multinational warships, focused operations and enhanced coordination by coastal states.

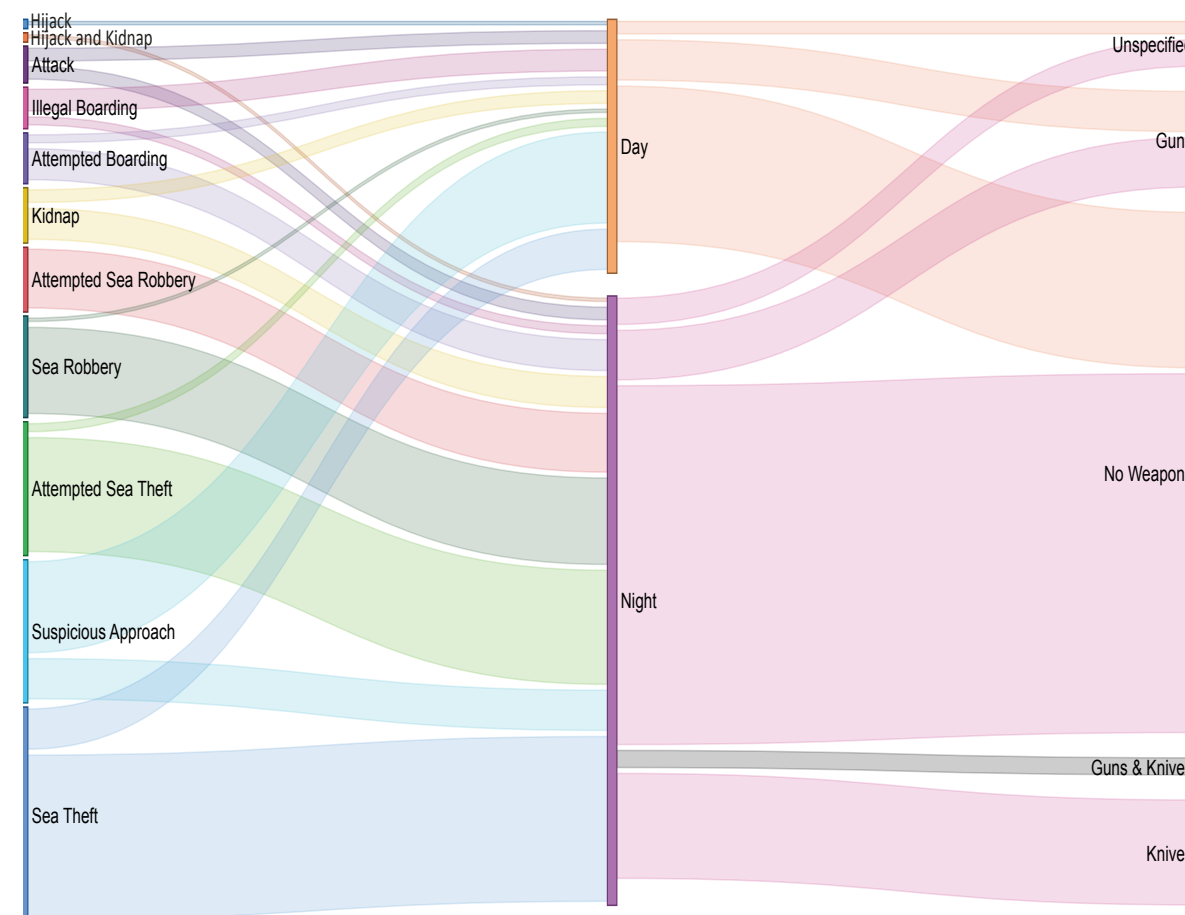
All kidnapping incidents monitored by the Centre were recorded in Gulf of Guinea. 69 crew members were subsequently released, after spending on an average around a month in captivity. Notably three-fourths of the kidnapped seafarers were not native to the region, which may be indicative of perpetrators' methodology aimed at seeking higher ransoms.

Majority of the incidents occurred during period of darkness (73%) and involved vessels underway (82%). Two incidents were reported at distances exceeding 100 nm from

the shore. These reiterate the dangers posed by well organised pirate groups supported by mother ships. The pattern of incidents leads credence to the fact that pirate action groups are likely to use tracking systems such as AIS in addition to human intelligence and support ashore.

Whilst seven out of the 11 incidents were reported onboard vessels with low freeboard such as fishing trawlers, tugs, barges and supply vessels, the perpetrators were also able to successfully board high freeboard vessels even while underway. This indicates the dexterity and proficiency of Pirate Action Groups as well as highlights the lucrativeness of kidnapping seafarers.

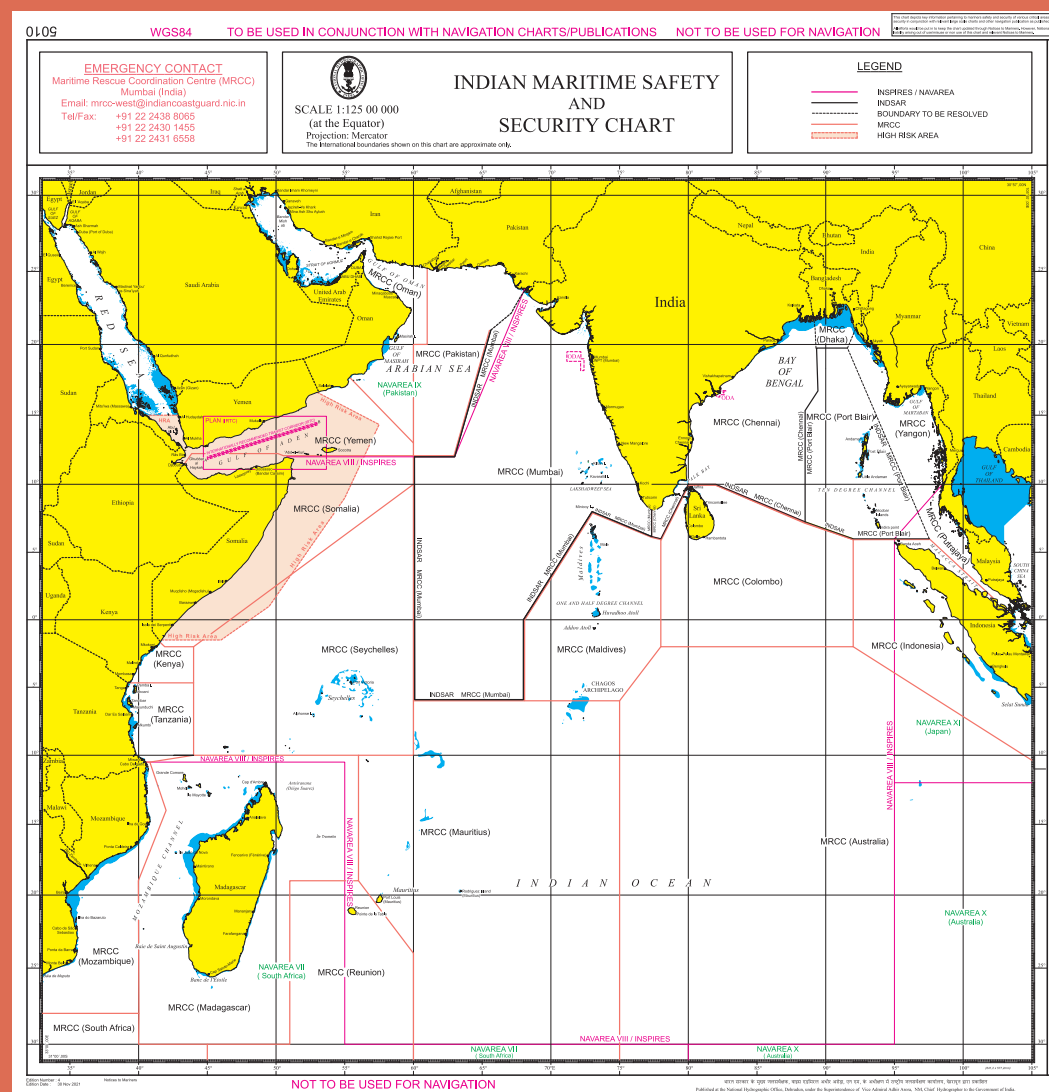
Though the Centre has observed an appreciable improvement in the security situation vis-à-vis safety of crew, it is opined that **even a single seafarer harmed/ kidnapped is one too many.** Continued efforts of all stakeholders are essential to eradicate this threat to seafarers.



Incidents with respect to time of the day and use of weapons

REDUCTION IN SIZE OF 'HIGH RISK AREA' FOR PIRACY

- » In view of the declining trend of piracy incidents, Industry stakeholders reduced the size of the High Risk Area (HRA) in the Indian Ocean with effect from 01 September 2021.
- » The Indian Maritime Safety and Security Chart, which includes the revised HRA area, may be accessed at <https://hydrobharat.gov.in/wp-content/uploads/2019/07/5010.pdf>



REGIONAL DISTRIBUTION

The Centre has grouped the recorded incidents into five distinct regions - South East Asia, South Asia, West Asia, East Africa and Gulf of Guinea.

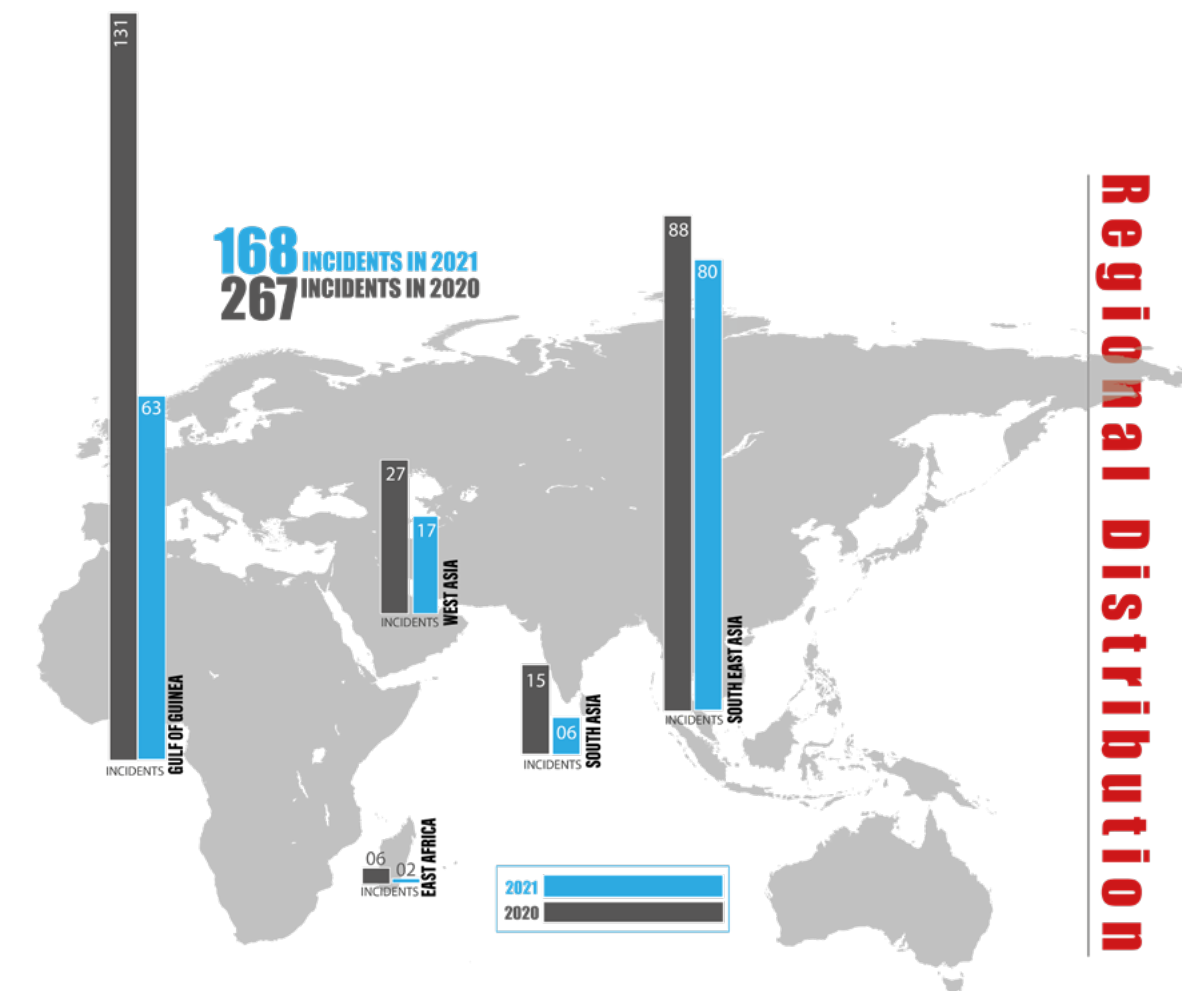
South East Asia, accounted for almost half (48%) of the recorded incidents. The Traffic Separation Scheme in the Singapore Strait was the hotspot of armed robbery and accounted for 61% of the incidents recorded in South East Asia.

Gulf of Guinea was the hotspot for piracy, with the second highest number of incidents

of piracy and armed robbery being recorded. These incidents accounted for 37% of the total incidents, an improvement from the 49% share observed in 2020.

West Asia, including the Gulf of Aden and Red Sea, saw 17 incidents, accounting for 10% of recorded incidents.

South Asia recorded six incidents and East Africa recorded two incidents.



GULF OF GUINEA

The Centre monitored 63 actual and attempted incidents of piracy and armed robbery across various anchorages, ports and waters in Gulf of Guinea. More than half of the incidents involved vessels underway (54%) and majority occurred during period of darkness (67%). Attacks were perpetrated on all types of vessels with incidents observed on Container vessels (27%), Tankers (21%), Bulk Carriers (17%), Supply vessels (11%) and fishing vessels (8%). It has been observed that a sizeable portion of incidents involving container vessels, tankers and bulk carriers was aimed at kidnapping crew. On the other hand, perpetrators are likely to target fishing vessels to secure a mothership as well as to kidnap crew members.

In 38% of the reported incidents, the perpetrators failed to board the vessels. Nearly 63% of the failed attempts were suspicious approaches reported by vessels. In the rest of the failed incidents, while the perpetrators managed to make contact with the vessel, they could not board the vessel. Majority of these incidents were thwarted due to timely sighting of speed boats/ skiffs and proactive measures by the crew.

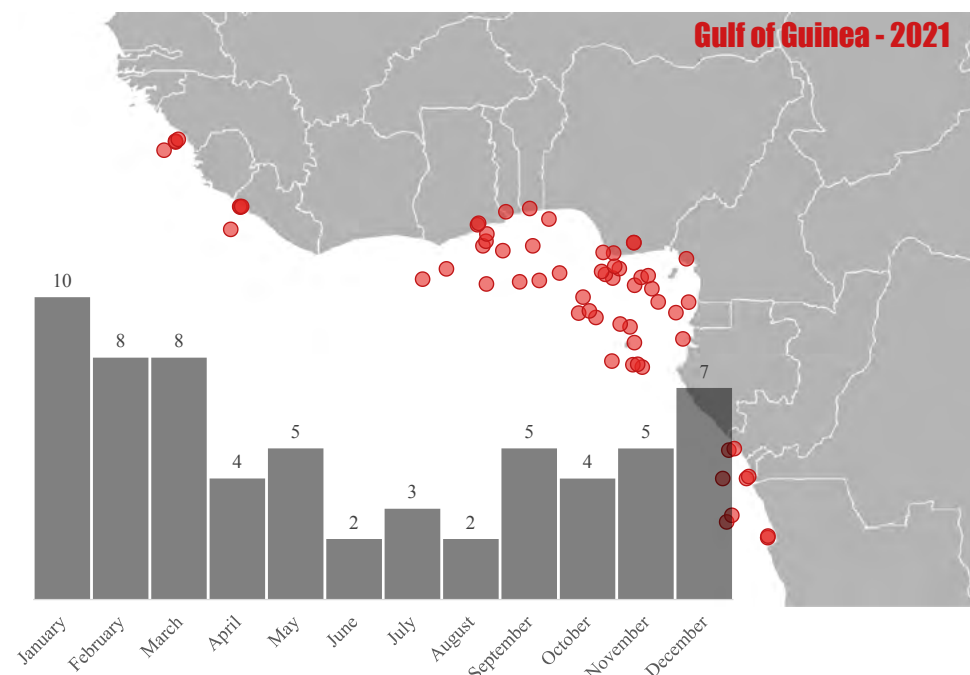
17% of the reported incidents involved kidnapping of seafarers. While this remains a concern for the entire region, the perpetrators also succeeded to steal some stores in one fourth of the overall incidents

About half of the overall incidents (51%) in the region were reported at distances less than 12 nm from the nearest coast, which highlighted the requirement of enhanced security presence and operations close to coast. 81% of these incidents were monitored onboard stationary vessels at anchorage. At the same time, four incidents (6%) beyond 200 nm from the coast, highlighted the need for vigilance at greater ranges.

The perpetrators were reported to be armed in nearly 37% of the overall incidents. Unlike other four regions, Gulf of Guinea witnessed higher percentage of incidents which involved sighting of weapons. 69% of the armed incidents involved usage/carriage of guns by the perpetrators. In addition to high rate of carriage of weapons, the issue of perpetrators firing at the vessels is considered a major challenge as it directly affects safety of seafarers.

The kidnapping of crew members remains the main objective of the pirates, with 11 incidents of kidnapping at sea. A total of 78 crew members were kidnapped, 69 of whom were subsequently released, after spending on an average about a month in captivity.

Perpetrators were observed to use high levels of violence in the region. **Two crew members were killed and six were injured (including an embarked security guard) in six incidents.** One fishing vessel and four MVs



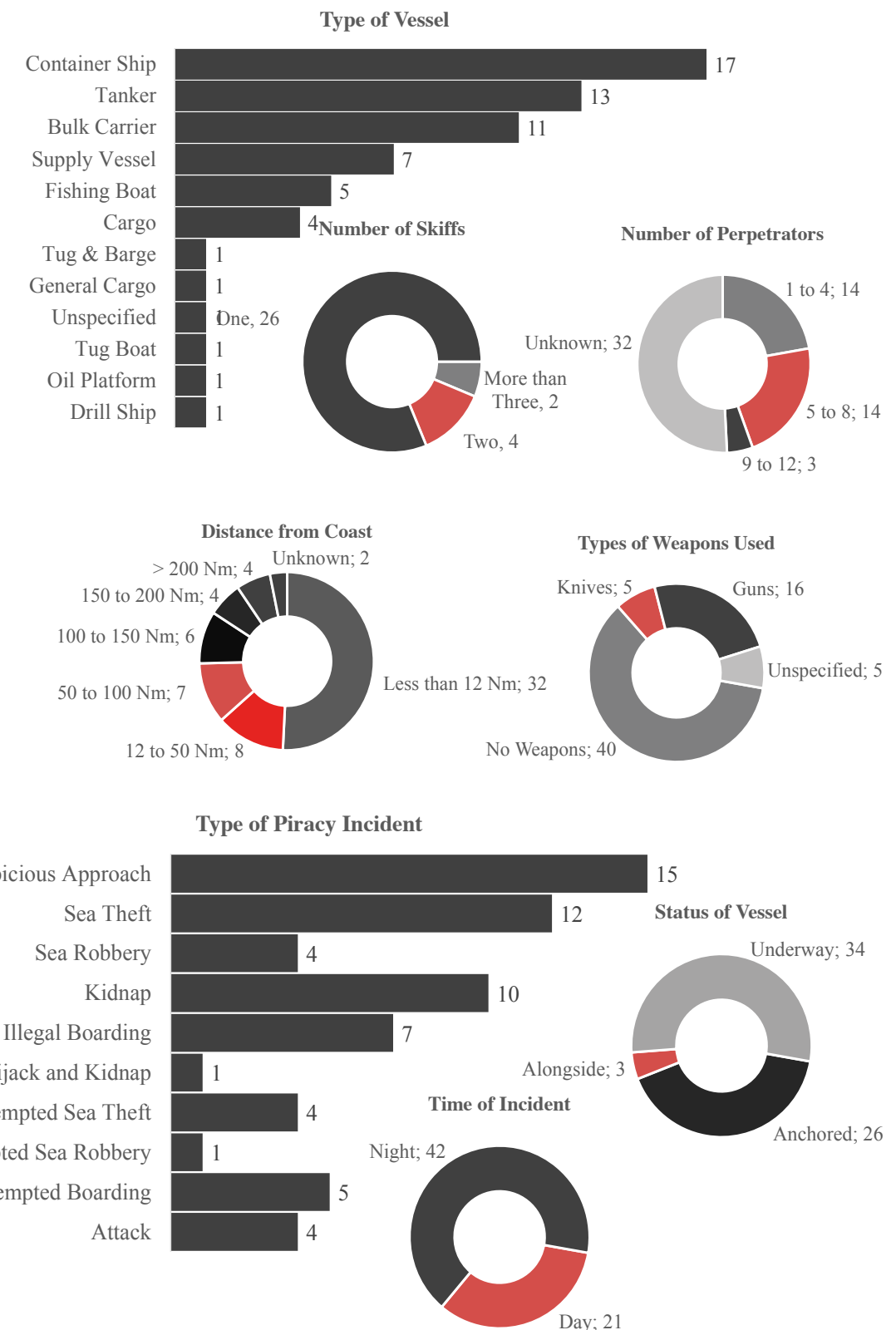
ANNUAL REPORT 2021

(MOZART, TAMPEN, TONSBORG and TROPICAL), were involved in these incidents.

The level of determination and sophistication of the pirates is evident from their radius of attacks, use of mother ships and time spent onboard. **In Jan 21, pirates were reported to have spent more than six hours onboard MOZART and even used some of the ship's engineering tools to breach the citadel.** Fishing vessel LIAN PENG YU 809, which was hijacked on 08 Feb 21, was used by the perpetrators as a mother vessel from where

smaller boats are launched to approach and target larger vessels.

The intervention by Danish warship on 24 Nov 21 and its subsequent chain of events highlight the gaps in legal framework of anti-piracy operations. During the anti-piracy operation, reportedly four pirates were killed, one was injured and three more captured by the Danish warship. These uninjured captured pirates were subsequently let go in view of legal considerations associated with taking the pirates back to Denmark.



SOUTH EAST ASIA

90% of incidents in South East Asia occurred during periods of darkness.

The Centre monitored 80 actual and attempted incidents of piracy and armed robbery across various anchorages, ports and waters of South East Asia. Majority of the incidents involved vessels underway (65%) and occurred during period of darkness (90%).

All incidents, except one, occurred less than 12 nm from the nearest coast, primarily due to constricted waters in the region. **Majority (49) of these incidents were reported onboard vessels underway in the Traffic Separation Scheme (TSS) of the Singapore Strait.** Analysis of the incidents in South East Asia indicate that while many incidents are recorded close to coast, only a few incidents were observed in the ports signifying stringent security protocols inside ports.

Actual and attempted sea robberies accounted for about 31% of the overall reported incidents in this region. The incidents reported in this region were generally of low intensity and 68% of the overall incidents did not involve usage or sighting of weapons. Perpetrators were reported to be armed in about 30% of the total incidents in the region, with knives or similar weapons such as iron rods, machetes, etc.

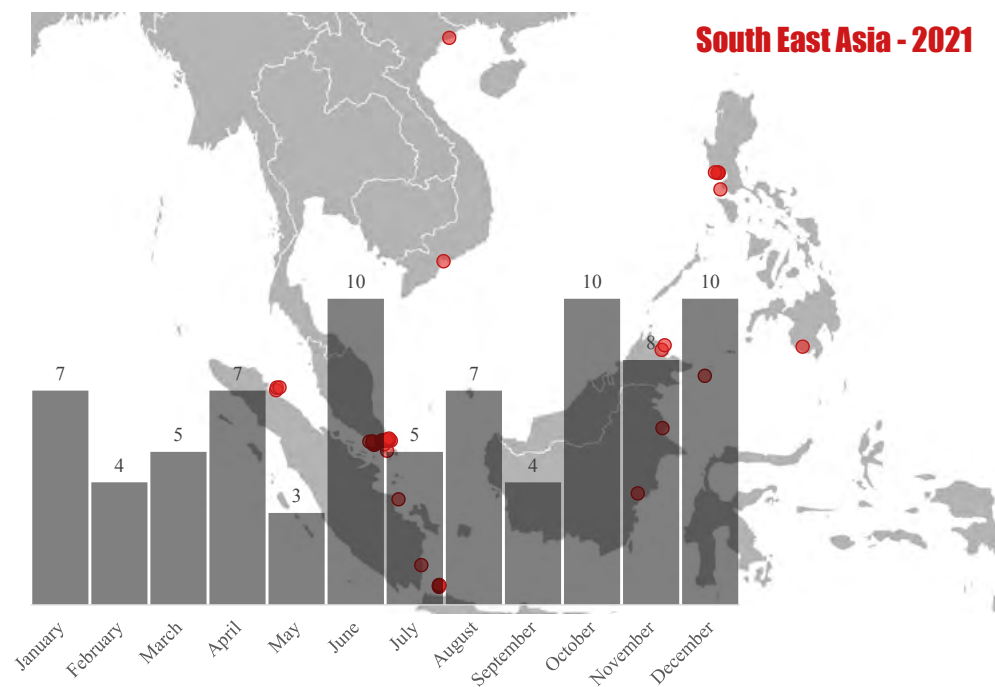
Guns were sighted in four incidents - three at Manila anchorage, off Philippines and one in the TSS in Singapore Strait. The incidents at Manila anchorage all occurred from Jul-Aug. Subsequently, Philippine authorities arrested three individuals likely to be associated with the incidents and no incident of similar nature has been observed since then.

TSS in Singapore Strait

With 49 incidents, the Traffic Separation Scheme in the Singapore Strait subregion accounted for the largest number of incidents recorded by the Centre in 2021. This was 61% of the total incidents recorded in South East Asia.

All incidents occurred on vessels underway and 90% of the incidents were recorded during periods of darkness. This trend is likely to be due to the perpetrators' desire to target opportune vessels in the dense shipping lane, at a time which is likely to complicate efforts of law enforcement or military vessels in the region and the level of alertness of crew may be low.

Majority of the incidents (43 incidents, 88%) were recorded in Eastbound Lane of Singapore Strait TSS, a trend similar with the previous year. Three incidents each

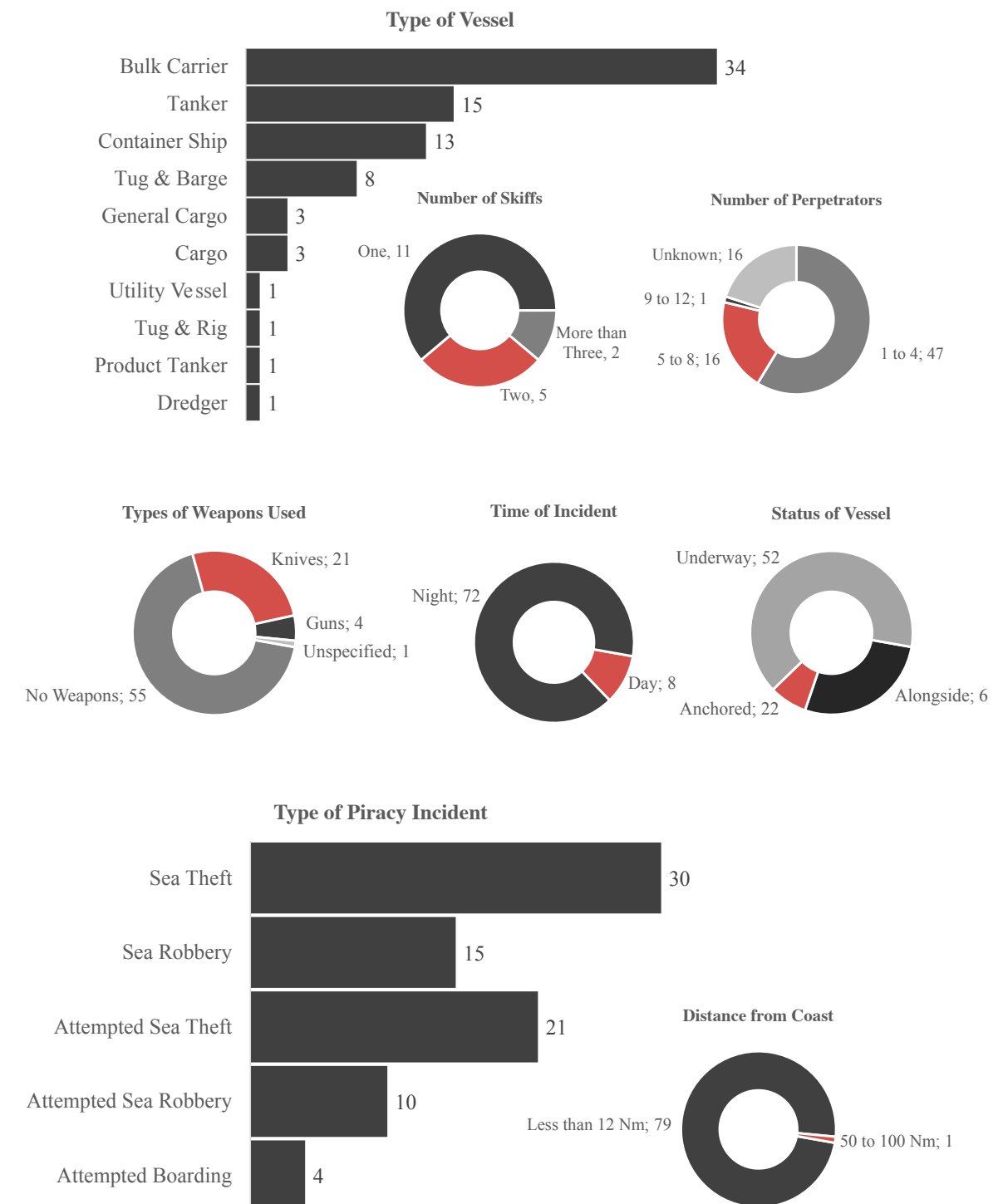


were recorded in the Westbound Lane and precautionary area of Singapore Strait TSS. Bulk carriers accounted for majority (65%) of the vessels involved, followed by Tankers (16%) and tug and barge (14%).

The incidents onboard vessels predominantly involved theft of items such as engine spares and other lightweight and movable items such as breathing sets, ropes, etc. Scrap metal and other easily removable items were observed to have been stolen from tugs and barges. Even though the waters are busy and some

law enforcement vessels patrol the waters, it has been found that perpetrators operate at night, and are likely to target more than one vessel, until they are successful.

Although uncommon, one incident of carriage of gun by perpetrators was reported in the region. Perpetrators are highly likely to be in possession of knives and have been observed to threaten/ physically restrain/ injure crew members on watch or security rounds. The Centre recommends that any altercation with perpetrators be avoided.



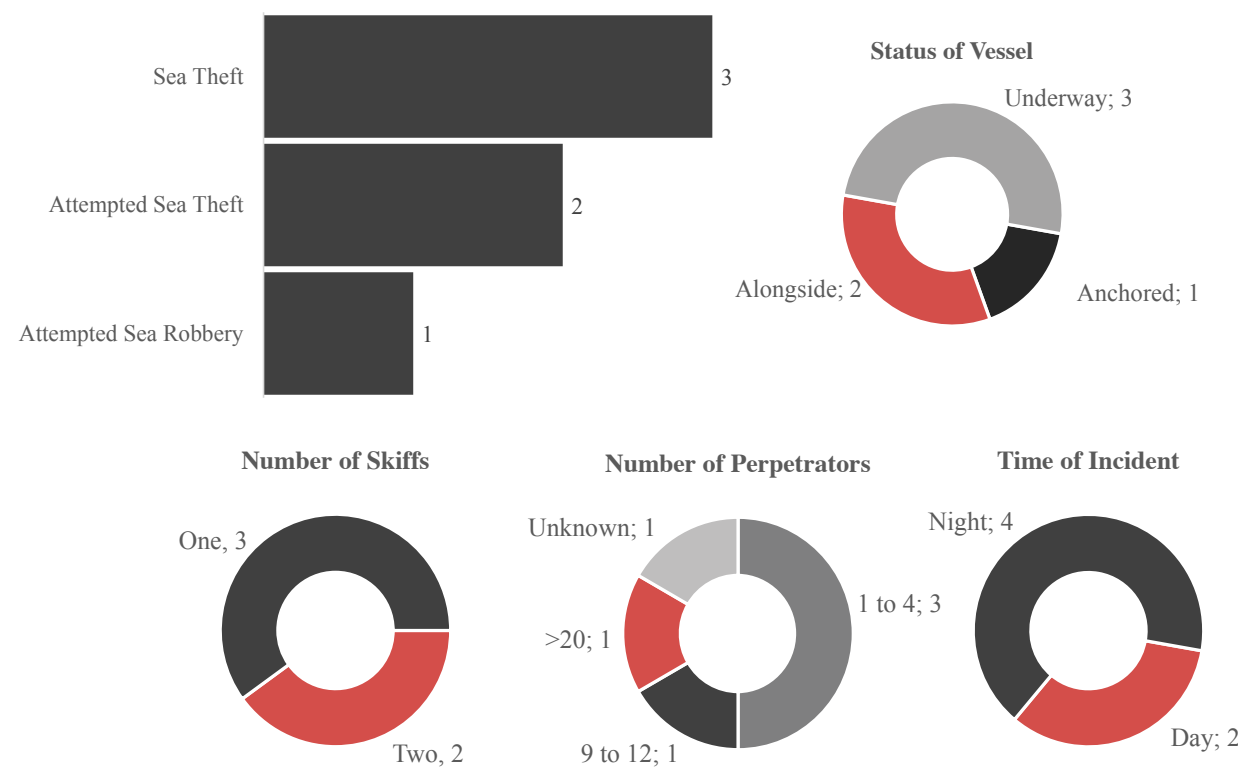
SOUTH ASIA

The Centre monitored six incidents of piracy and armed robbery in this region. **Most of the incidents in the region were sea thefts or attempts, primarily at/ near ports and anchorages.** Since this region is home to three of the biggest ship breaking yards in the world, perpetrators sometimes board vessels on their final journey to steal ship's stores.

An incident of attempted sea robbery was reported on 13 Dec 21, involving tanker LADINDA about 37 nm off Cox's Bazar light house, Bangladesh. Reportedly, 43

perpetrators approached the vessel onboard two boats and tried to flee post sensing the presence of law enforcement personnel. All 43 robbers were arrested after a chase and raid on the vessel by Bangladeshi authorities. Two boats were also seized from the robbers' possession during the operation.

The remaining five of these were incidents of sea theft/ attempted sea theft at various ports in India. No altercation between crew and perpetrators or sighting of weapons were reported during these incidents.



06 incidents of piracy and armed robbery recorded in the region consisted of sea thefts or attempts, primarily at/ near ports and anchorages.



WEST ASIA

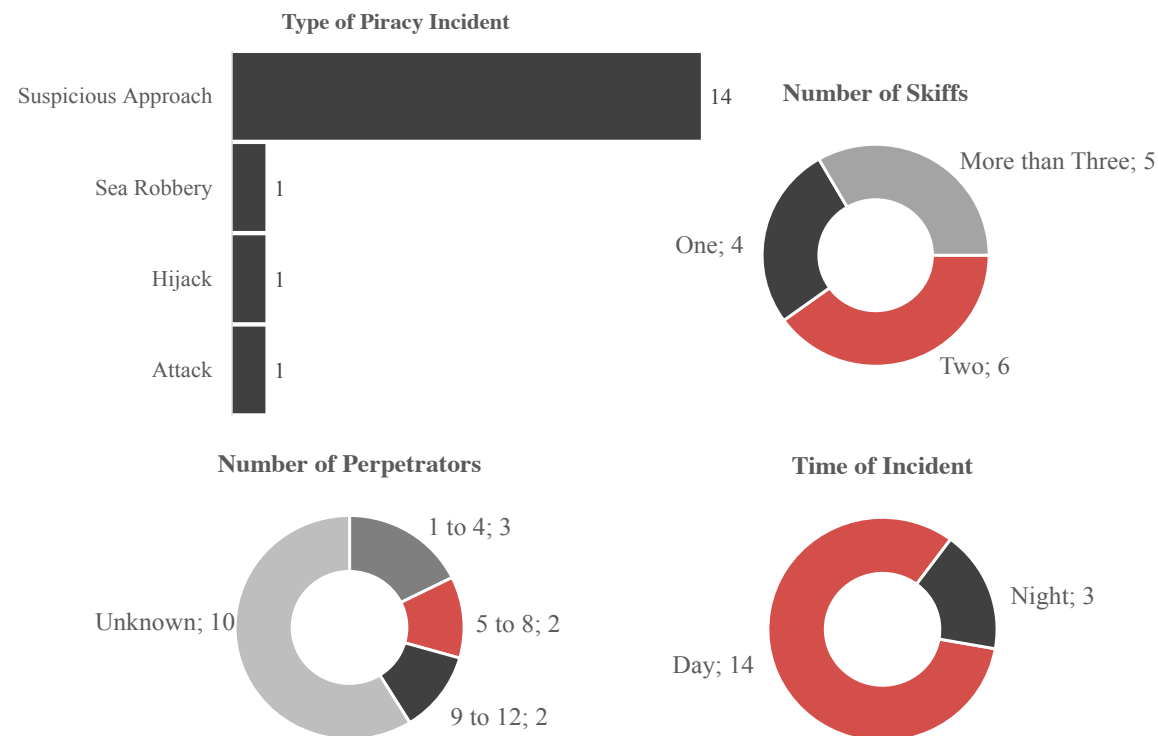
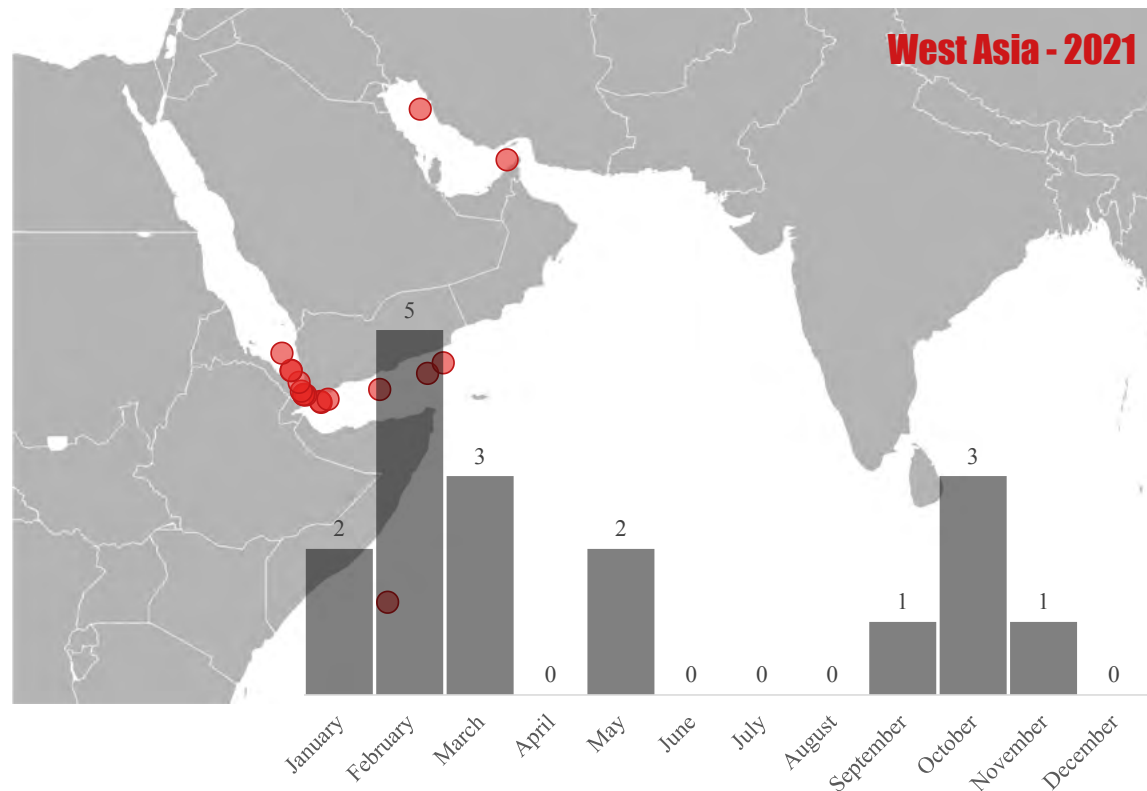
The Centre monitored a total of 17 incidents of piracy and armed robbery in this region. Incidents were predominantly reported on vessels underway during the day. Majority (14) of these were incidents of suspicious approach. Bulk carriers (35%) and tankers (23%) constituted most of the vessel types involved.

Most of the incidents of suspicious approach were recorded in the Gulf of Aden (13). One incident was reported near the Strait of Hormuz. The prevailing security situation in the region including the pattern of life, presence of irregular militia and elevated levels of security measures by transiting merchant shipping are likely to be the contributing factors for this trend. In three of the recorded incidents, all classified as suspicious approach, vessels

reported being approached by more than three skiffs. It is pertinent to note that the pattern of life in the region also includes significant number of small/ medium sized fishing vessels operating as a group. Such fishermen may approach vessels transiting, especially to safeguard their nets.

An incident of hijack reported onboard a stranded Iraq flagged tugboat T-4 about 07 nm North of Bushehr, Iran on 21 Mar 21, is likely to be an opportunistic incident. Another incident of sea robbery was reported onboard a supply vessel BARIQ in the Persian Gulf off Khor Abdullah Channel, Iraq. Both these incidents highlight the ability of armed group of perpetrators to conduct opportunistic attacks at sea.

76% of piracy and armed robbery incidents recorded in the region were suspicious approaches in Gulf of Aden.



EAST AFRICA

The Centre recorded two incidents in the region in 2021, an incident of attack off Somalia and an attempted Sea robbery off Mozambique.

One incident of attack was reported off Somalia on 13 Aug 21 on Ro-Ro passenger vessel ANATOLIAN where four armed perpetrators onboard a skiff approached the vessel and fired towards the vessel using small arms and Rocket Propelled Grenades (RPGs). Subsequently, armed security guards on board the vessel returned fire and after about an hour, the perpetrators aborted their attack. Prior the incident, the vessel had reported mechanical defects and was steaming about 5 nm from Somali Coast. It is likely that this was an opportune attack.

The second incident was attempted sea robbery involving two perpetrators armed with knives on an anchored tanker off Mozambique on 31 May 21.

Piracy off the coast of Somalia is assessed to be suppressed but not eradicated, with the presence of multinational warships in the region deterring such activities. The capability to carry out attacks still exists, especially close to coast, as demonstrated by the attack on ANATOLAIN. It is likely that some of the perpetrators previously involved in such activities have shifted to other lucrative but low risk activities such as smuggling of goods, charcoal, etc.

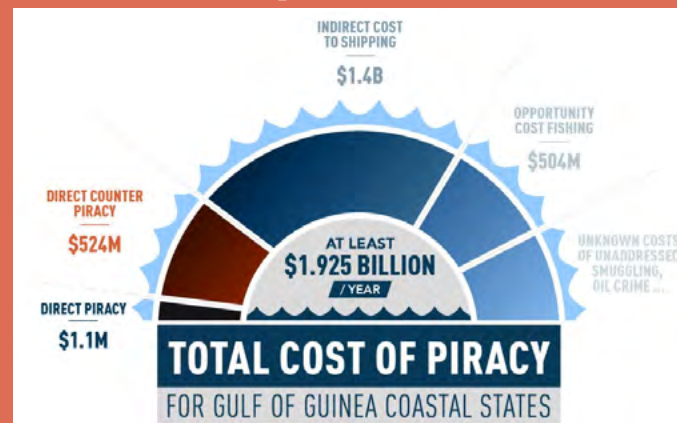
UNSC RESOLUTION 2608 (2021)

On 03 Dec 21, the United Nations adopted Resolution 2608 (2021) and extended the Somalia mandate for international naval forces to conduct anti-piracy patrols off Somalia for three additional months. Additionally, the designated High-Risk Area (HRA) off Somalia was reduced on 01 September 2021. A new methodology for holistic maritime risk assessment is being worked out by industry bodies.

PIRATES OF THE GULF OF GUINEA: A COST ANALYSIS FOR COASTAL STATES

The Gulf of Guinea has been the global hotspot for maritime piracy and armed robbery in past few years, and seafarers working in the region face unacceptable risks. This enduring threat has mobilised responses from both within the region and beyond it. However, this challenge has preoccupied navies that could be addressing other maritime security threats, discouraged foreign investment, weakened state control of coastal and offshore areas, slowed the development of the blue economy, emboldened illicit traders and illegal fishers, and terrorised the seafarer community. All these factors have exacted a financial and human cost to Gulf of Guinea states that, to this point, has been seen as secondary to the costs borne by multinational shipping companies and non-African entities.

In light of this context, this report, *Pirates of the Gulf of Guinea: A Cost Analysis for Coastal States*, examines the often overlooked costs imposed on regional states and communities, by the ongoing threat of maritime piracy and armed robbery. The report explores three categories of costs to coastal states: direct costs, indirect cost, and opportunity costs.



be significantly reduced, much of these financial costs could be redirected toward addressing various other maritime security and governance challenges and investment in the sustainable blue economy. As such, the Gulf of Guinea nations are much more than a setting for piracy. They are the nations losing the most from the ongoing piracy crisis. This also gives these nations the most to gain from eradicating the problem.

This report was produced by Stable Seas, a transnational maritime security research organisation with members in the United States and South Africa. The United Nations Office on Drugs and Crime's Global Maritime Crime Program (UNODC GMCP) provided coordination and research assistance with informants based in Nigeria, Cameroon, Gabon, and elsewhere. The project was funded with the generous support of the Norwegian Ministry of Foreign Affairs. This report was presented at the UN in support of a Security Council draft resolution on 07 December 2021.



IFC-IOR RECOMMENDATIONS

- » *Vessels are strongly recommended to follow respective flag state, IMO and coastal state guidance.*
- » *Proactive and timely reporting to relevant agencies per established procedures is critical to ensure appropriate and timely assistance to vessels under attack.*
- » *Measures for hardening vessels including those contained in BMP5 or BMP West Africa, are recommended to be followed.*
- » *The Centre strongly advises seafarers to avoid confrontation with perpetrators, especially when armed. It is likely that the perpetrators may cause harm attempting to escape from the vessel or may turn violent upon being provoked.*
- » *As incidents in the Gulf of Guinea have been observed more than 200nm from the coast, unescorted vessels are advised not to drift at distances less than 250 nm from the coast.*



Representative Image: Drug smuggling onboard passenger vessels



CONTRABAND SMUGGLING

CONTRABAND SMUGGLING

OVERVIEW

In 2021, the Centre recorded 722 instances of contraband smuggling in the maritime domain, which constituted 757 incidents, as some of the recorded instances had multiple categories of contraband being smuggled. The recorded incidents have been classified into nine categories of smuggling: Drugs, Domestic Products, Natural Resources, Fuel, Tobacco, Alcohol, Weapons, Wildlife and Miscellaneous.

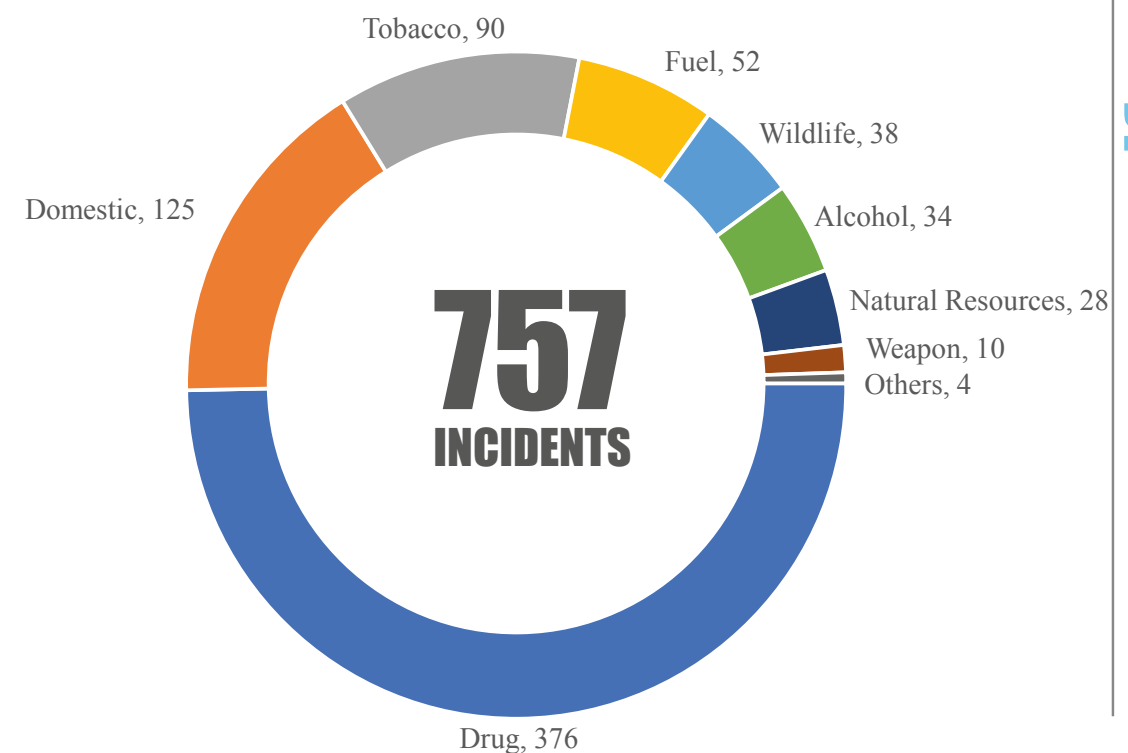
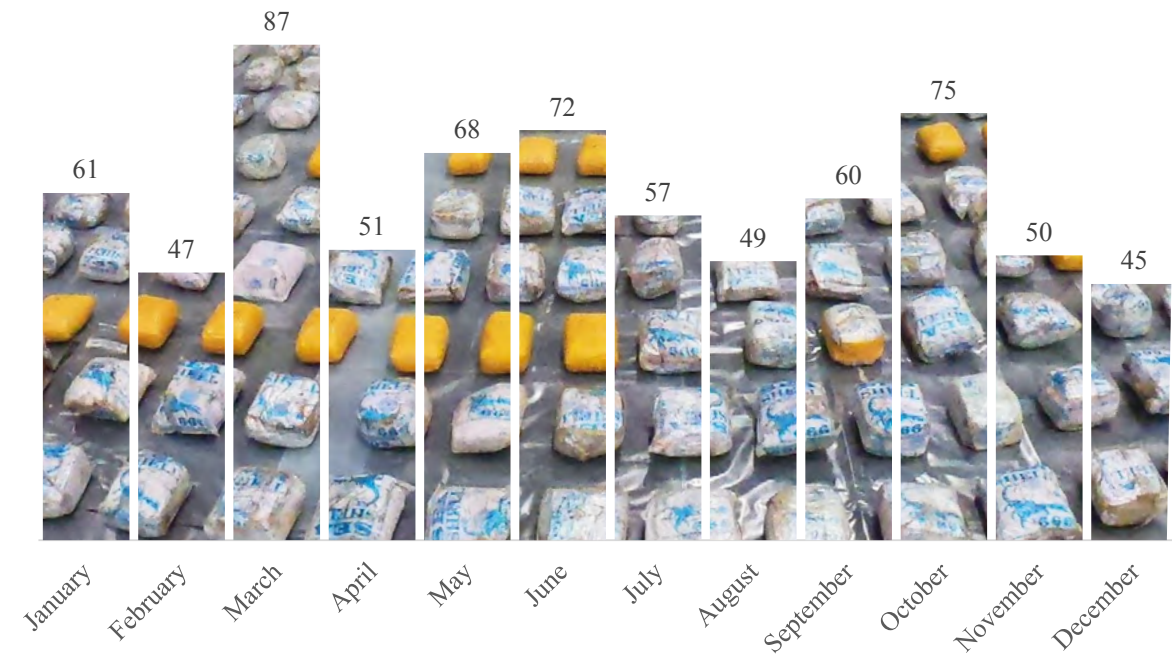
Recorded incidents are based on media reports and government press statements, and therefore may not be fully representative of all incidents of interdiction. Currently, the Centre does not monitor incidents reported solely in local vernacular media coverage. Likewise, the recorded seizures may not be

an exact impression of actual quantity of type of contraband being smuggled.

Drug smuggling was the most frequently reported type of contraband seizure incident in 2021, accounting for 50% of total incidents. Second most frequent was domestic product smuggling at 17% of incidents, followed by tobacco smuggling at 12% of incidents.

The Centre recorded a monthly average of 60 seizures in 2021. In some instances, a single seizure involved two or more categories of items being smuggled. Mar 21 saw a spike in the number of incidents recorded, driven by an increase in the number of drug smuggling incidents.

757 incidents of contraband smuggling recorded in the wider Indian Ocean Region. Drug Smuggling accounted for 50% of total incidents, followed by domestic product smuggling (17%) and tobacco smuggling (12%)



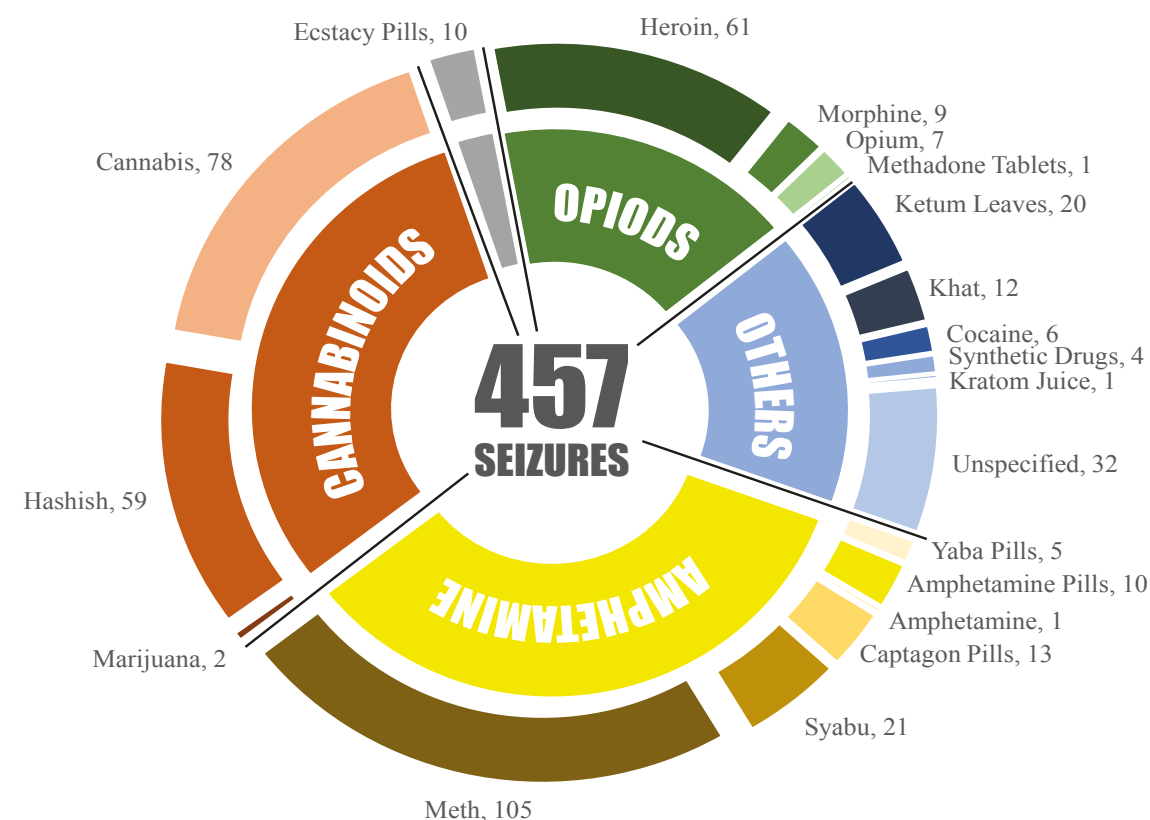
DRUGS

376 incidents of drug smuggling were recorded by the Centre in the wider IOR. As few of these incidents involved multiple types of drugs seized, these accounted for 457 drug seizures. Major drug seizures in the IOR centered mainly around large shipments of Cannabinoids, Amphetamine Type Substances (ATS) such as Methamphetamine, and Opioids, such as Heroin. The monitored seizures follow a smuggling lifecycle that highlight regional manufacturing hubs and seaborne smuggling routes.

A monthly average of 31 drug seizures in the maritime domain was observed in the wider IOR in 2021. Mar 21 observed a spike in

the number of recorded seizures. This trend may partly be explained by drug smugglers utilising opportunity provided by easing of COVID-19 related restrictions to make good pending orders.

Major drug seizures in the IOR centered mainly around large shipments of **Cannabinoids, Amphetamine Type Substances (ATS) such as Methamphetamine, and Opioids, such as Heroin.**



METHAMPHETAMINE TRENDS IN THE WESTERN INDIAN OCEAN

From 2014-2021, data on illicit drug seizures have indicated that methamphetamine producers and dealers have established a strong presence in Afghanistan. Drug trafficking has grown and spread beyond geographical bounds, connecting criminal networks in order to make the most money while avoiding detection by authorities.

According to the UNODC, the largest share of Afghan income from opiates is accrued by the manufacturers and international export, accounting for \$1.7 to \$2.5 billion in 2021. Comparatively, the domestic use market was pegged at \$43 million, while farmers income accrued \$425 million in 2021.

With an insecure economy and political system, plus the ongoing COVID-19 pandemic, drug traffickers are more successful at pressurising the poorest Afghans to become actively involved in the manufacturing of illicit substances, engaging in illegal enterprises like opium/ cannabis cultivation, heroin/ methamphetamine production and trafficking. The demand for methamphetamine is high, and it is steadily increasing throughout Asia, Europe, and Africa. As the demand for illegal drugs rise, so will the manufacturing of illegal drugs in Afghanistan.

Source: https://www.unodc.org/documents/data-and-analysis/Afghanistan/Afghanistan_brief_Nov_2021.pdf

CAPTAGON SEIZURES IN WEST ASIA

Captagon was first manufactured in 1961 as an alternative to amphetamines and used at the time to treat narcolepsy, depression, hyperactivity, and fatigue, but has been banned in most countries since the 1980s.

Production, trafficking, and consumption of captagon in West Asia have significantly increased in the past decade, with the small, off-white pills rising to become the region's most popular drug.

According to the UNODC, the large and growing amphetamine market in the Near and West Asia continues to be the main feature of the synthetic drugs market in the region in terms of quantities seized, illicit manufacture, and trafficking. Qualitative information reported by countries on trafficking trends indicates an overall expansion of the amphetamine market, specifically regarding trafficking of amphetamine.

Source: unodc.org. 2021. GLOBAL SYNTHETIC DRUGS ASSESSMENT. [online] Available at: <https://www.unodc.org/documents/scientific/Regional_Overview_Asia_and_Oceania.pdf> [Accessed 18 November 2021].

REGIONAL ANALYSIS

The areas referred to as Golden Triangle and Golden Crescent are widely reported to be the two main drug manufacture and distribution hubs in the Indian Ocean. Large scale drug seizures from these areas

have been recorded both at sea and in ports in the region. Interdictions by warships have also been reported in the high seas, especially in the Arabian Sea.

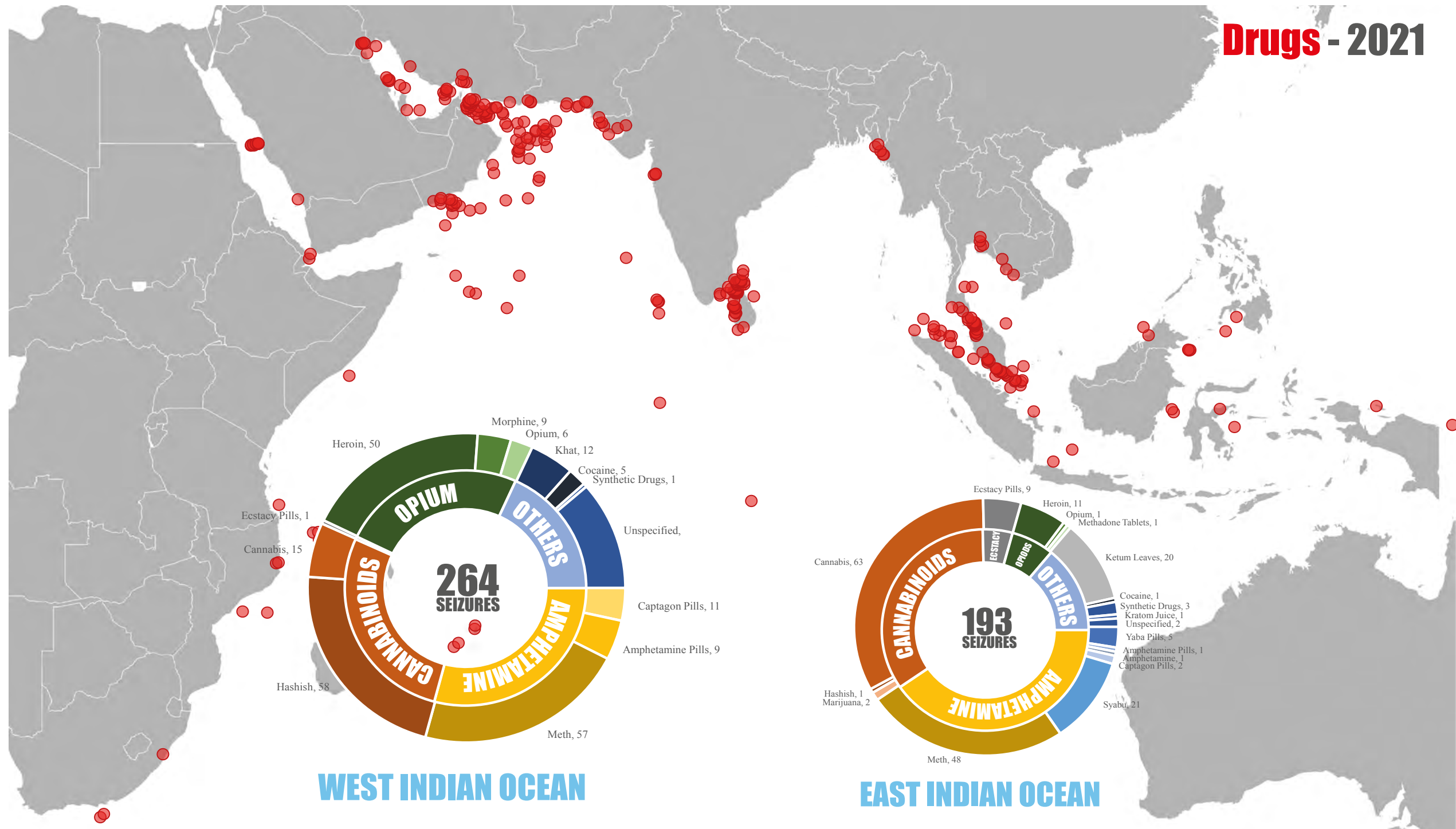
WESTERN INDIAN OCEAN

Amphetamine Type Substances (29%), Cannabinoids (28%) and Opioids (25%) constituted majority of drugs seized in the region. In addition to the traditionally observed

heroin and cannabis smuggling, seizures of methamphetamine were observed in the region, which may probably be traced to the Golden Crescent Area. The seizures of Captagon pill (a synthetic alternative to amphetamine) were predominantly recorded in West Asia, especially Saudi Arabia. This is assessed to be caused by factors such as proximity to production centres in West Asia, higher demand and higher price that can be fetched in the region.

EASTERN INDIAN OCEAN

A higher share of Amphetamine Type Substances (41%) was observed in the seizures in the Eastern Indian Ocean, a region which traditionally saw high production of ATS. This was followed by Cannabinoids (34%) and Other Drugs (14%) - predominantly Ketum seized in South East Asia.



DRUG SMUGGLING METHODOLOGY

MODUS OPERANDI

The smuggling of drugs generally starts via land routes and inland waterways, from their point of production, to the nearest/ preferred port of debarkation. The two most common methods observed were transshipment using dhows/ small boats and concealment in containerised cargo. The following additional delivery methods were observed:-

- “Dead drops” in remote locations.

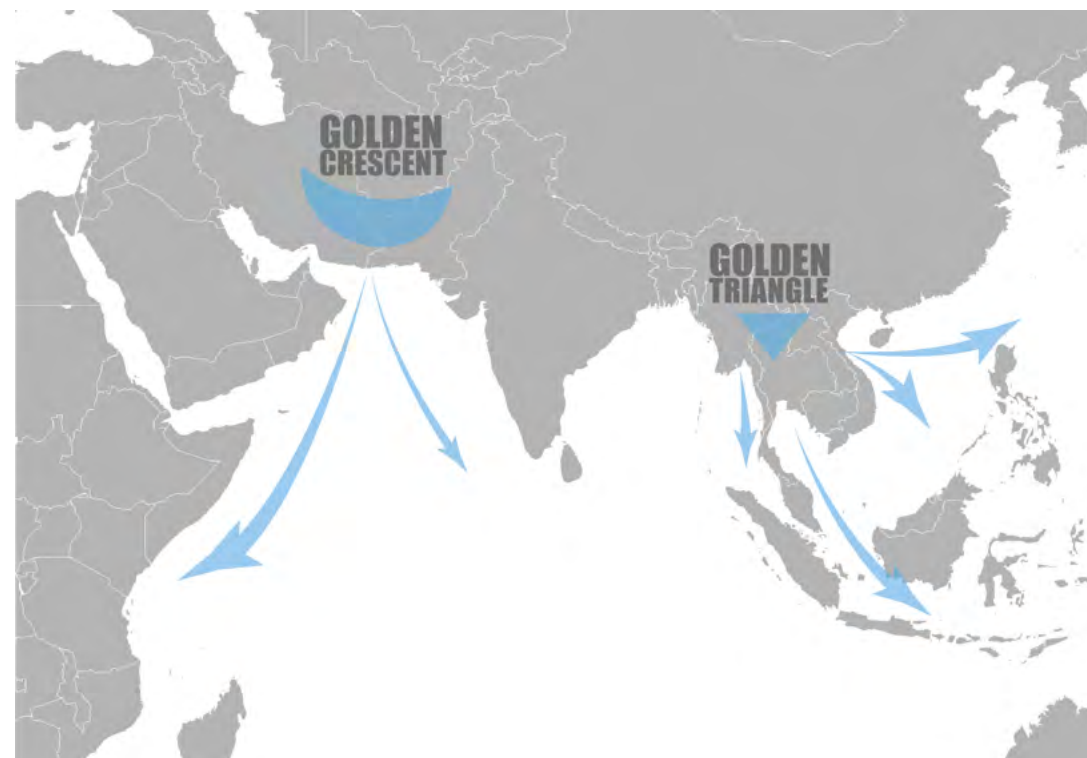
- Contraband moored to buoys with GPS fixed locations.
- Contraband ditched at sea for picking up at a later date or to float ashore.
- Concealment of contraband under/ attached with navigational buoys.
- Carriage by crew onboard merchant vessels.
- Carriage by passengers/ vehicles being transported by ferries.

MAJOR DRUG SMUGGLING ROUTES

In the Western Indian Ocean, Smack Track / Hash Highway refer to heroin and hashish smuggling routes that originate from the Makran Coast or North Arabian Sea. This is also referred to as the Southern Route (the other two routes of narcotics produced in Afghanistan are the Northern and Central route - both of which are land based and off late have become more hazardous for

traffickers).

There have been recent indications of contraband traffic altering from traditional direct routes to more circuitous pathways that may head out to the middle of the Indian Ocean for transshipment., primarily for avoiding warships patrolling in the region.



PACKAGING

Narcotics are routinely observed to be packed in certain distinguishable manner. For large quantities of Hashish or Cannabis, large bales are normally utilised for the sake of efficiency. On the other hand it is common to find synthetically produced drugs packaged in such a way so as to identify their branding. A typically observed example would be the packaging of Syabu (methamphetamine pills) in Chinese Tea

Packets in the Eastern Indian Ocean Region. Seizures in the Western Indian Ocean Region saw contraband being packed in recognised brands of domestic products such as rice and coffee, which are popular in West Asia. These packages were observed to have unique stamps with month/ year of production, possibly indicating the production Centre/ team.

INCREASED METHAMPHETAMINE SEIZURES

Hashish followed by heroin have traditionally been the largest contributors of narcotics seizures, which have originated from the Makran Coast. In the recent past, increased seizures of methamphetamine have been recorded in the Western Indian Ocean region. This is assessed to be caused due to establishment

of synthetic drug production centres in areas undergoing political instability/ without adequate oversight in the Golden Crescent Region. The low cost of production and discovery of alternatives for some chemical precursors (like ephedra plant in Afghanistan), are likely to have reinforced this trend.

IMPACT OF POLITICAL INSTABILITY

Drug production and smuggling syndicates have been observed to exploit political instability to further their nefarious activities. In the Golden Crescent region, the political situation in Afghanistan has been complicated and is likely to further compound the narcotics smuggling. The reliance on narcotics production and smuggling for economic gains and funding illicit activities

including terrorism by some actors in the region is an ongoing phenomenon. Similarly in the Golden Triangle region, the areas dominated by insurgents in Myanmar are reported to be major drug production centres.

IMPACT OF COVID-19

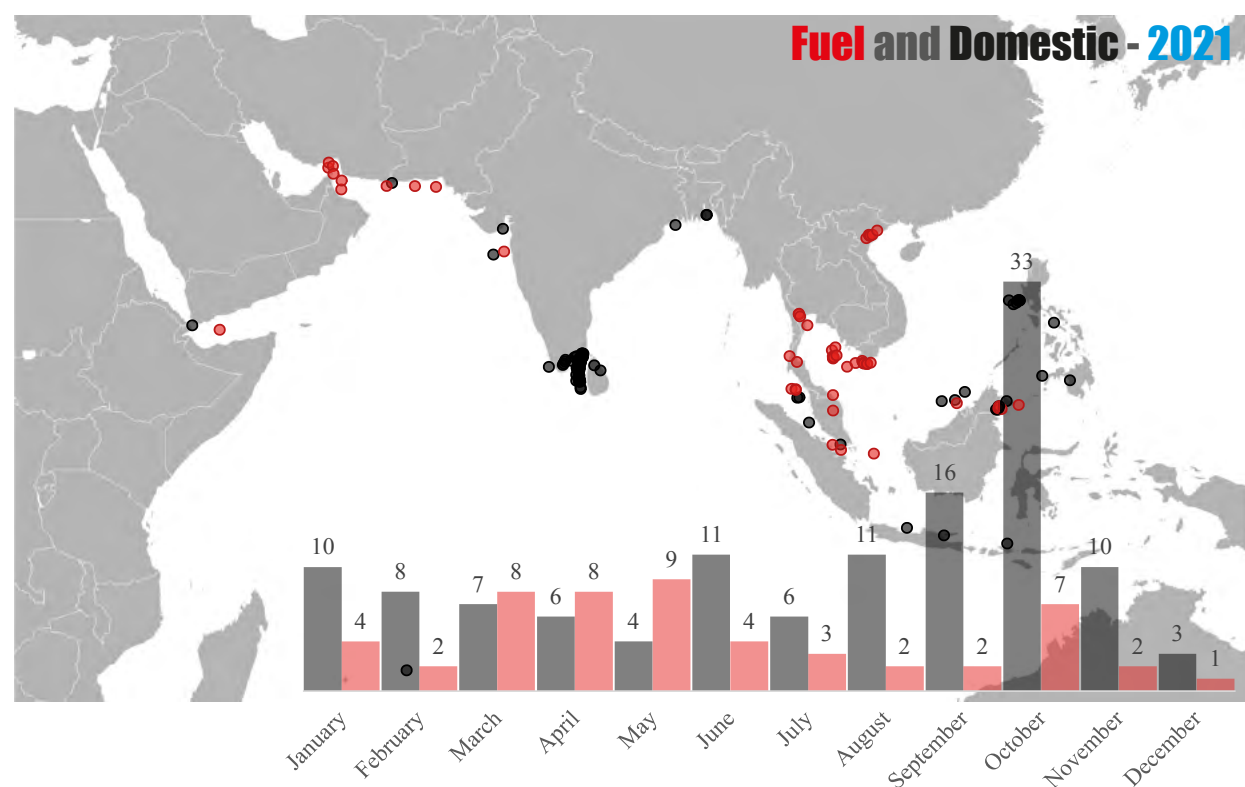
Due to various pandemic related travel restrictions, movement of narcotics by air/ road has become more challenging. This is likely to have made the sea route more lucrative for smugglers. The economic difficulties faced by vulnerable sections of societies also presents opportunities for the smugglers, for eg, usage of locals/ fishermen as mules for transportation of narcotics. This phenomenon is also referred to as narco-fish.

DOMESTIC PRODUCTS AND FUEL

Incidents involving smuggling of domestic products cover a wide range of items, from counterfeit material to undeclared items at customs. **Of the 125 monitored incidents this year, 64% involved smuggled turmeric.** Ban on import of turmeric by Sri Lanka in Dec 19 is assessed to have caused an imbalance between availability and high demand, following import restrictions. This in turn led to a significant increase in turmeric smuggling during 2020 and into 2021 by illicit operators. The Centre has monitored this trend throughout 2021 and has also seen a noticeable decline in recorded seizures during the last two months of the year. This may be partly attributable to an increase in local production and enforcement operations to deter turmeric smugglers.

In 2021, the Centre monitored 52 incidents of fuel smuggling, 76% of which occurred in South East Asia: 37% in the South China Sea, 25% in the Gulf of Thailand, 8% in the Straits of Malacca and Singapore, and 6% in the Sulu and Celebes Sea. Fuel smuggling that occurs in South East Asia is likely due to lengthy and porous coastlines in the archipelagos, the transient nature of maritime traffic and price differential.

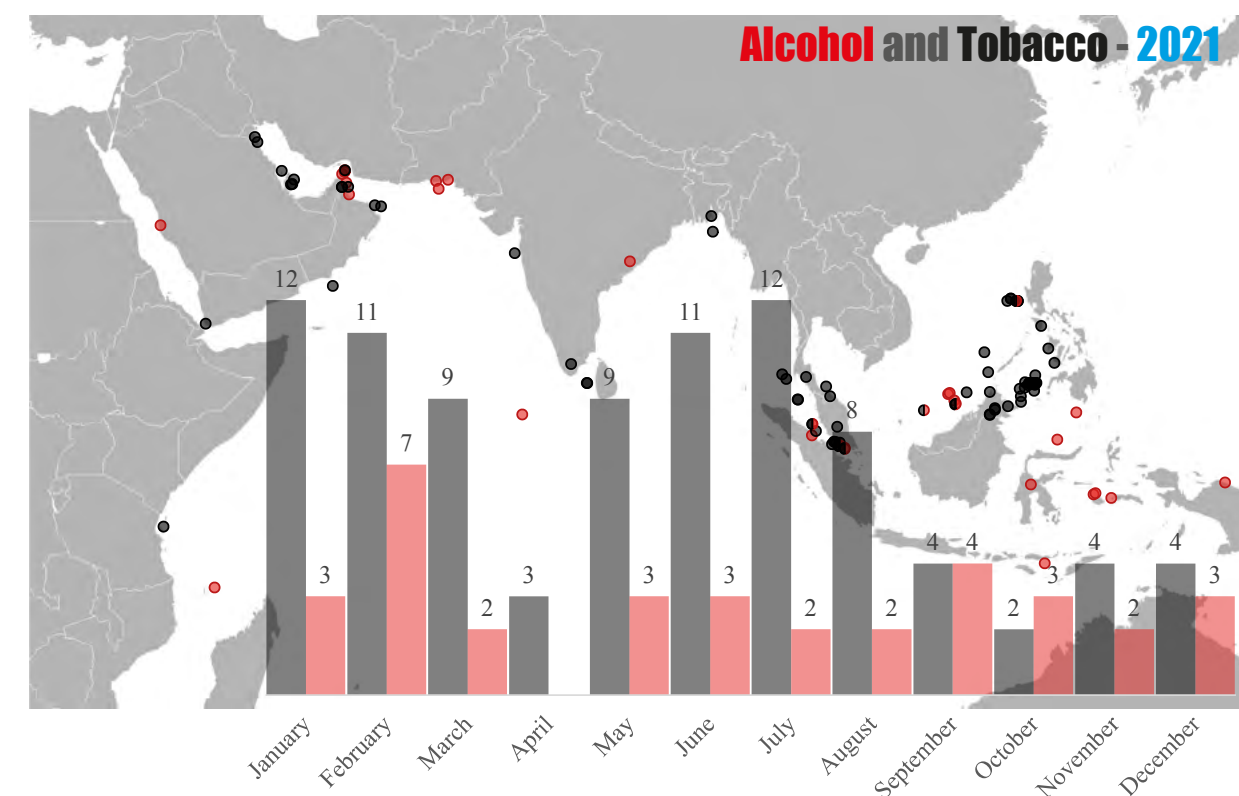
125 incidents of domestic product smuggling and 52 incidents of fuel smuggling recorded in 2021



ALCOHOL AND TOBACCO

Alcohol smuggling incidents in the region were mainly driven by attempts to skirt duties and/ or bans/ restrictions in consumption providing a lucrative market for smuggling. Of the 34 incidents reported in 2021, 44% were monitored in South East Asia, where the archipelagic nature of the area allows for illicit transfers to be conducted with relative ease using sea routes.

In a trend similarly seen with alcohol smuggling, the Centre monitored 64% of tobacco smuggling incidents having occurred in South East Asia. A total of 90 incidents were recorded, with large scale seizures observed from both containerised cargo and small cargo boats. Illicit tobacco products are smuggled due to the demand for cheaper variants by consumers and disparity in pricing in adjacent countries.



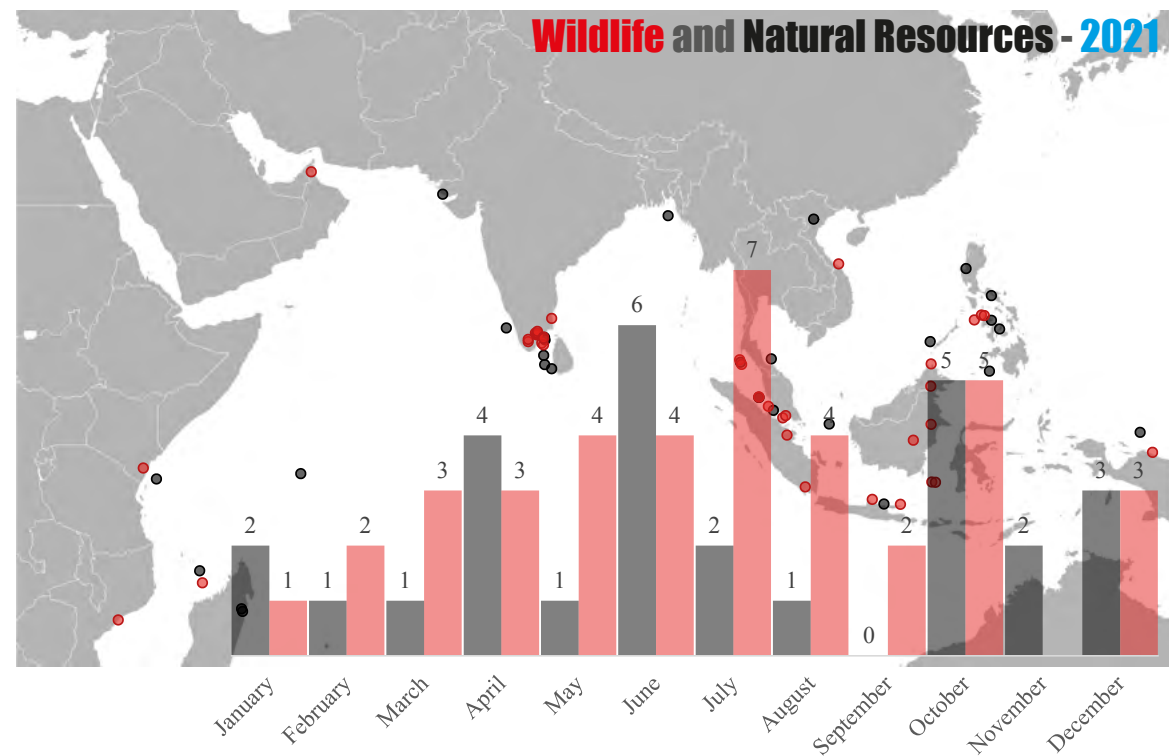
90 incidents of tobacco smuggling and 34 incidents of alcohol smuggling recorded in 2021

WILDLIFE AND NATURAL RESOURCES

The Centre monitored a total of 38 wildlife smuggling incidents in 2021, with 60% of seizures occurring in South East Asia. Sea cucumbers and lobster seeds were observed to be the most smuggled wildlife.

A total of 28 incidents of natural resource smuggling were monitored, majority of which were recorded in East Indian Ocean and South East Asia. Similar to domestic products that were smuggled in 2021, a

variety of natural resources were seized, the most common being wood, precious metals, and Kendu leaves (used as a substitute for paper in rolling tobacco for low cost cigarette alternatives).

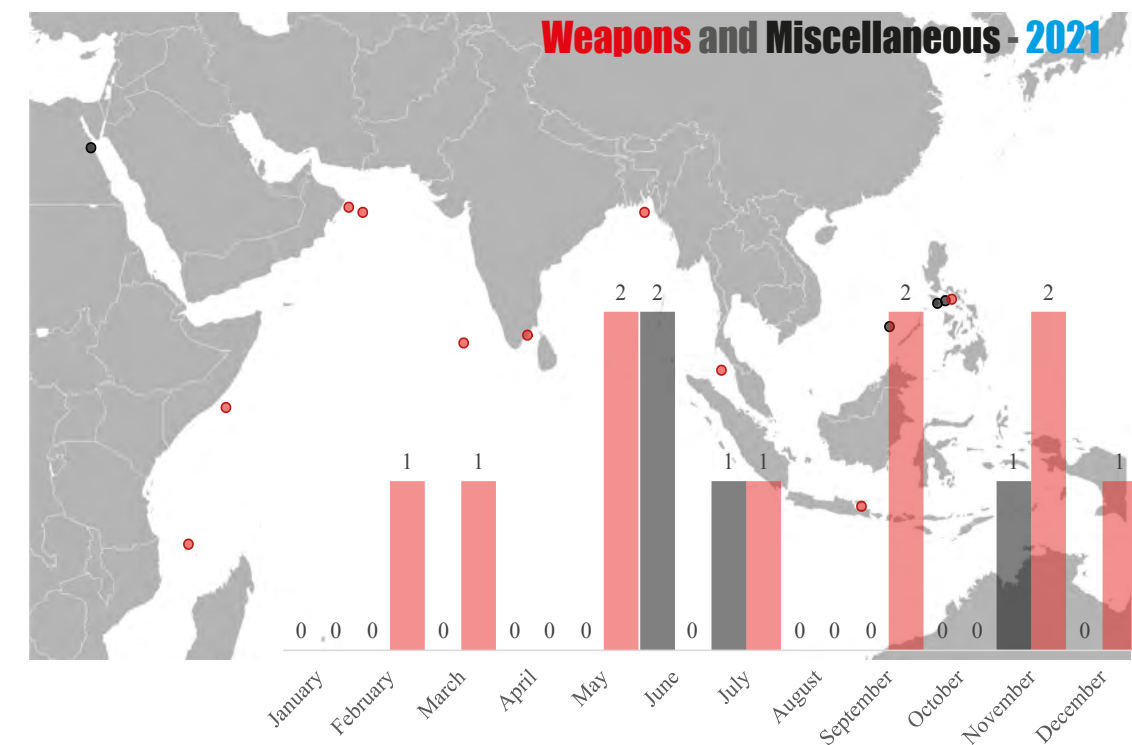


WEAPONS AND MISCELLANEOUS

10 weapons smuggling incidents were recorded in 2021, with major weapon hauls by international forces being recorded off West Asia/ Northern Arabian Sea. **Drug smugglers were also observed to smuggle weapons, as evident during an apprehension by Indian Coast Guard in Mar 21, of a drug trafficking vessel with 05 AK47 rifles and ammunition off Lakshadweep, India.** Explosive seizures were reported in Sri Lanka and South East Asia, possibly for use in the illegal practice of blast fishing/ bomb

fishing. Seizure of assault rifles was also reported in the Philippines.

An incident involving seizure of ancient artifacts was recorded in Egypt in Nov 21. Three incidents of smuggling of Ammonium Nitrate were recorded off Philippines in 2021. Ammonium nitrate, widely used as a fertiliser is also a key ingredient for production of bombs/ explosives which may be used for blast/ bomb fishing or IEDs.





Representative Image: Illegally caught fish enter established supply chains



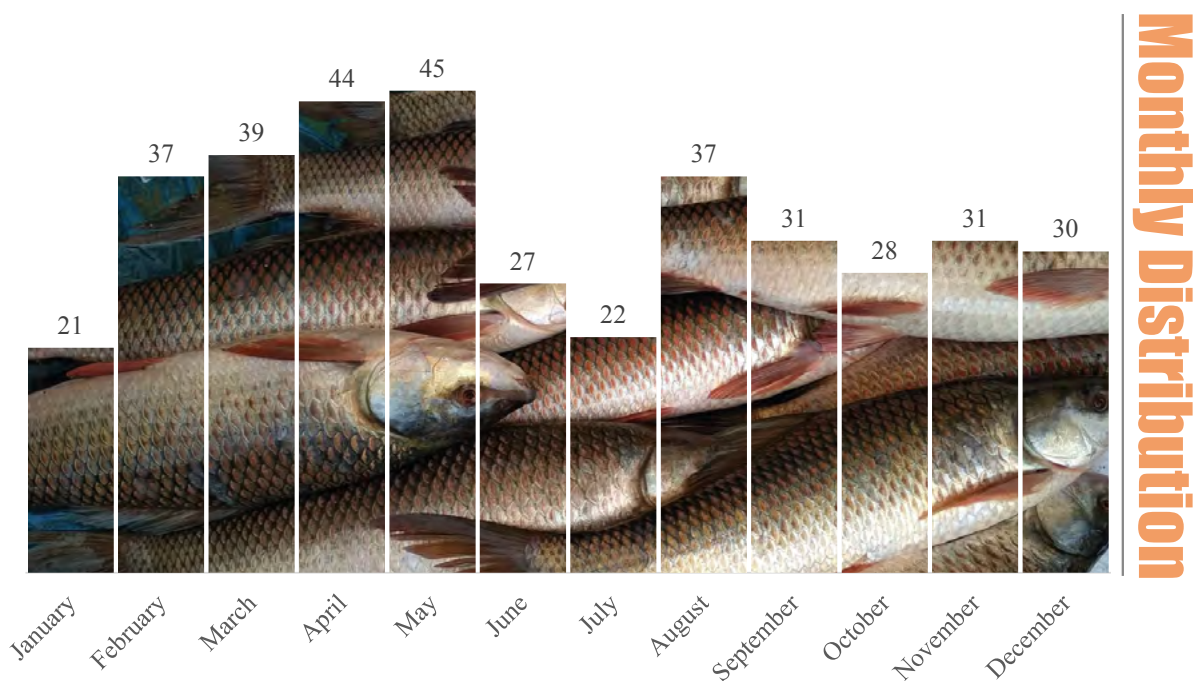
ILLEGAL UNREPORTED AND UNREGULATED FISHING

ILLEGAL, UNREPORTED AND UNREGULATED FISHING

OVERVIEW

In 2021, the Centre monitored 392 reported incidents of IUU fishing. IUU fishing encompasses a wide variety of illicit fishing activity and occurs both on the high seas and in areas within national jurisdiction. While undertaking analysis of the reported incidents, the Centre observed that it is difficult to categorise incidents into distinct 'illegal', 'unreported', or 'unregulated' fishing. Therefore, to avoid inaccurate representation of data, the reported incidents have been categorised as 'Local IUU' and 'Poaching'.

As per United Nations' Food and Agricultural Organization, each year, about 26 million tons of fish are caught illegally, which has catastrophic impact on sustainable fisheries management and the marine environment. More often than not, illegal fishing is also associated with other maritime crimes such as drugs, human, and weapons trafficking. However, lack of evidence is a significant factor which hampers law enforcement activities conducted by authorities. One particular issue with unregulated fishing is being monitored in the Northern Arabian Sea,



where only fishing of tuna-like species is regulated, while the main catch in the region outside EEZ of coastal states is squid.

Due to the inherent nature of enforcement operations, the majority of the recorded incidents involve fishing vessels in violation of fisheries laws close to the coast. Meaningful analysis of the unreported and unregulated aspects of fishing including human exploitation on board fishing vessels remain a challenge. Disagreement linked to pending EEZ delimitations and competition between coastal artisanal fishing and foreign industrial fishing fleets remain a potential flashpoint.

Data collection is paramount in order to address IUU fishing. New technology tools

are currently being developed and used by government and non-governmental agencies, including artificial intelligence, dedicated satellites, AIS tracking, infrared, and drones. Moreover, with climate change and global warming, protection of planet biodiversity is a priority and intersects with the domain of IUU fishing, resulting in governments becoming more involved in the IUU law enforcement process.

The Centre recorded an average of 32 incidents per month during 2021, which equates to one incident per day. The Centre observed a decrease in Jun-Jul 21, likely due to rough seas associated with seasonal southwest monsoon, precluding fishing by smaller vessels.

OVERFISHING LINKED TO "NO REGULATION GAPS"

This map highlights the areas of the IOR where there is a lack of enforced fishing regulations. Some industrial fishing fleets are exploiting these non-regulated areas, regardless of biodiversity safeguard concerns. As a result, fishing fleets are increasing pressure on fish resources, like squid, which are a large part of feed for juvenile tuna.



Source: tm-tracking.org, 2020. [online] Available at: <<https://www.tm-tracking.org/post/unregulated-fishing-in-the-indian-ocean>> [Accessed 10 November 2021].

TYPE OF INCIDENTS

63% of the recorded IUU incidents were that of local IUU fishing. A majority of these incidents were related to license violation by local and foreign fishermen, illegal fishing techniques, and fishing of banned species. About 48% of the local IUU incidents in South East Asia were reported off Malaysia, showing a trend of stringent law enforcement and proactive reporting of the counter-IUU interdictions by local authorities.

The Centre observed that 66% of the poaching incidents were recorded in South East Asia and most incidents were monitored in the waters of Indonesia and Malaysia. The interdiction of foreign fishing trawlers by authorities across regions was observed due to robust surveillance, timely information sharing, coordinated patrols, and adequate focus on the pertinent issue of poaching.

In some instances, it was monitored that foreign fishermen found to be poaching were not apprehended in view of various COVID-19 related restrictions and concerns. In many such instances, offending fishermen were pushed/ cleared off respective EEZ by coastal authorities.

The regions monitored by the Centre for IUU fishing broadly experience two major monsoon seasons. South Asia, West Asia and parts of South East Asia are impacted by southwest monsoon from late May to early October. The northeast monsoon is active from November to early February, typically

peaking in December, impacting South East Asia and some parts of South Asia.

A common phenomenon to both monsoons is rough weather accompanied by strong winds and heavy sea swell, which combine to become dangerous for navigational safety of smaller vessels. Law enforcement activity is also affected as small patrol vessels experience difficulty in remaining at sea for prolonged durations to undertake counter-IUU deployments in heavy weather.

Incidents of IUU fishing recorded by the Centre usually see a dip during the peak periods of the two monsoons. However, incidents are likely to have increased between June to September due to two factors. Firstly, fishermen ventured out to sea even during rough weather to compensate for the loss of income during various lockdowns during the first half of 2021. Secondly, it is also possible that the difference is due to a decrease in IUU activity during the first half of 2021 rather than a distinct increase in incidents during the second half of the year. The sharp decrease in December can be attributed to the peak of the northeast monsoons, which reinforces the anomaly of the June to September increase in incidents.

The Centre will continue to monitor this trend in 2022 to establish if this is an anomaly or a shift in the previously observed seasonal trend.

REGIONAL DISTRIBUTION

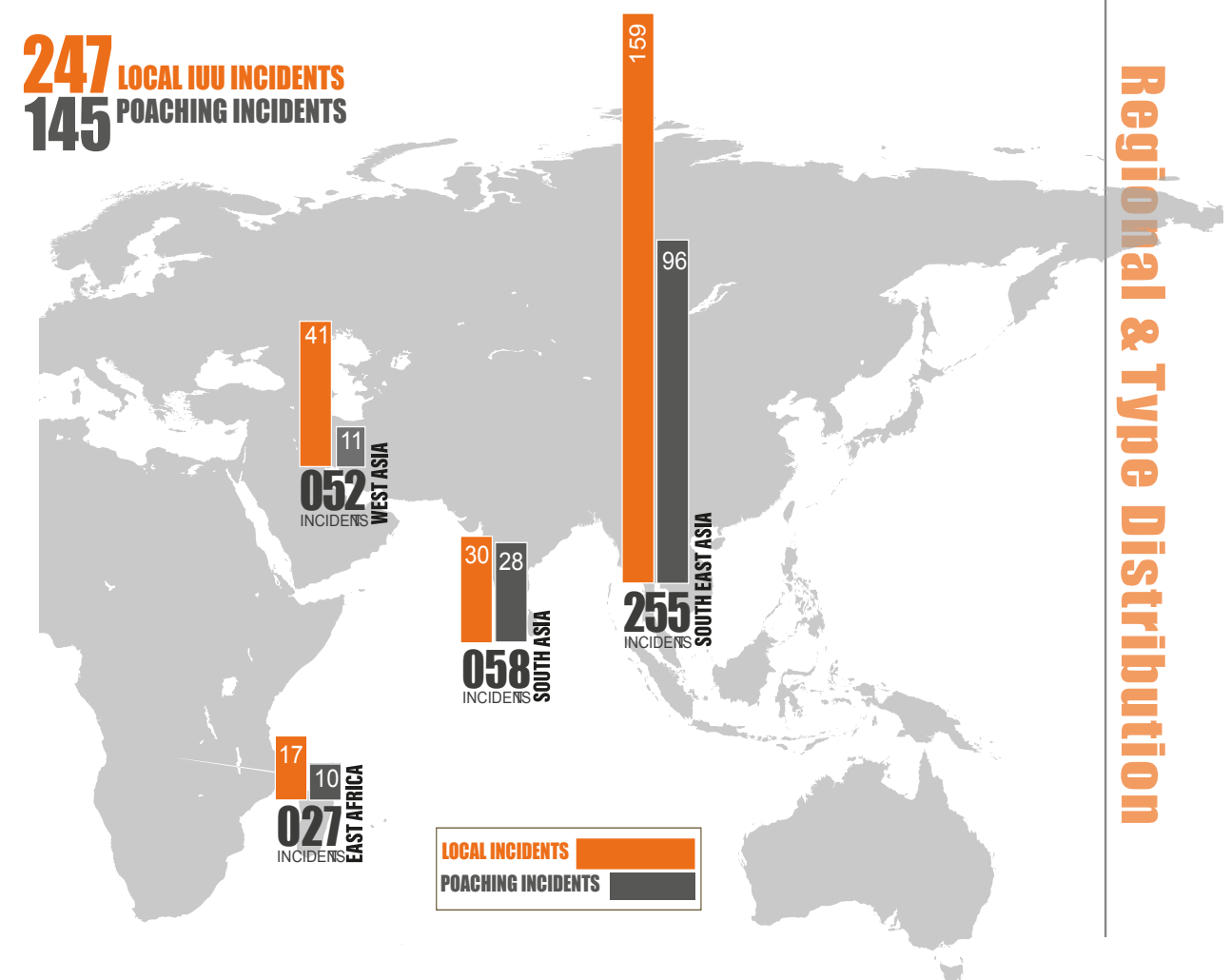
The incidents recorded by the Centre have been geographically grouped under four regions: South Asia, West Asia, East Africa and South East Asia.

About 64% of overall incidents were recorded across the waters of South East Asian countries, mainly off Malaysia and Indonesia, followed by Philippines and Thailand.

Nearly 14% of the total reported IUU incidents were monitored in South Asia. 52% of these incidents were local IUU and 48% were poaching.

About 80% of IUU incidents monitored in West Asia were local IUU, with the remaining 20% being poaching.

Reported incidents along East Africa accounted for 6.8% of overall incidents.



SPIKE IN POACHING OFF NORTHERN AUSTRALIA

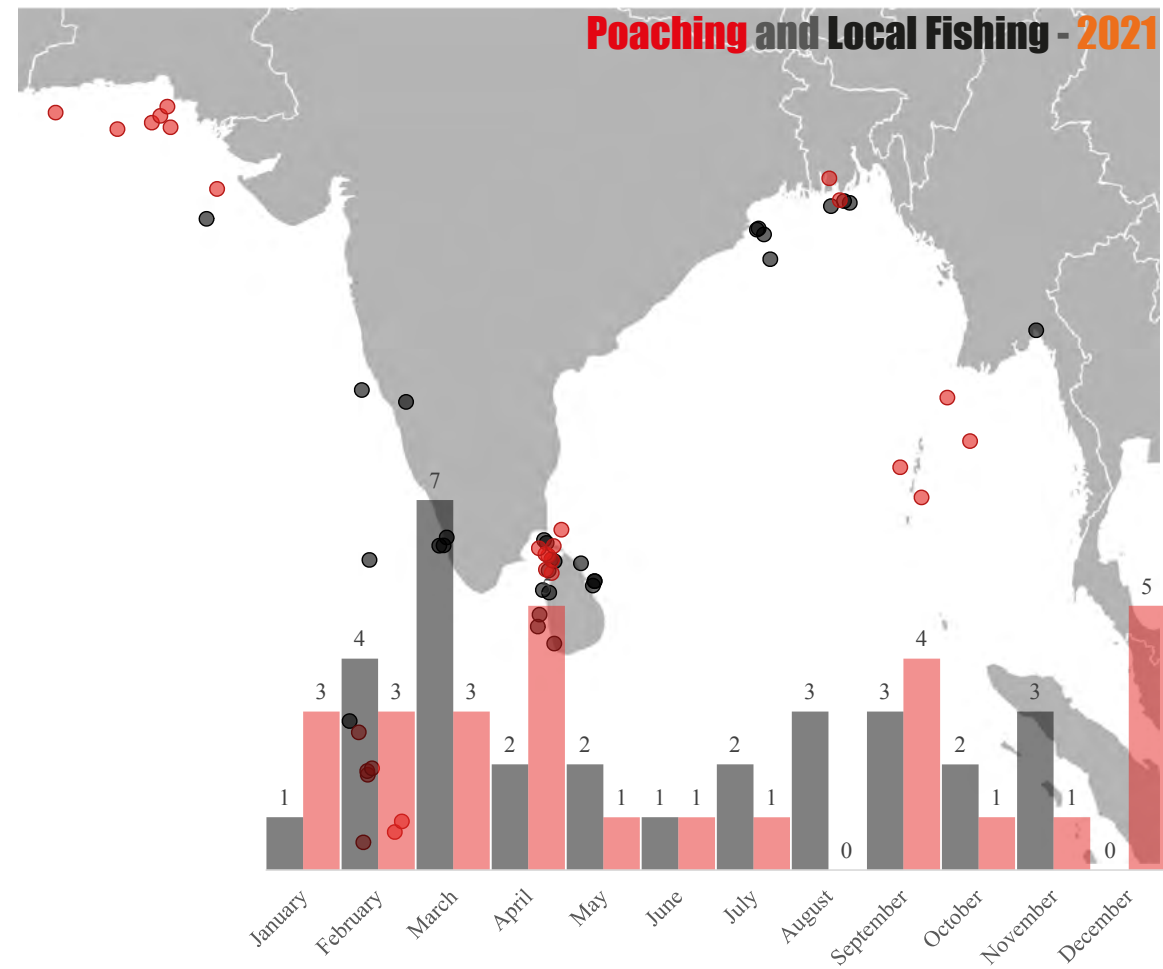
A spike in the number of poaching incidents by foreign fishermen was reported off Australia's northern coast in late 2021. 101 foreign fishing vessels were reportedly intercepted in the third quarter of 2021 alone, as opposed to 85 vessels in the entire 2020-21 financial year. Sea Cucumber was observed to be the major target of these foreign fishermen, most of whom were not detained but sent back due to COVID pandemic considerations.

Source:- abc.net.au, 2022. Authorities catch 101 illegal fishing vessels off northern Australia since July. [online] Available at: <<https://www.abc.net.au/news/2021-10-15/federal-authorities-confirm-spike-in-illegal-fishing/100540258>> [Accessed 5 January 2022].

SOUTH ASIA

The Centre monitored 58 (15%) of IUU fishing incidents in the IOR. Local IUU incidents averaged 2.5 incidents per month and accounted for 52% of the observed activity. Poaching averaged 2.3 incidents per month, for 48% of incidents in the region. Reports in March, April, and December are

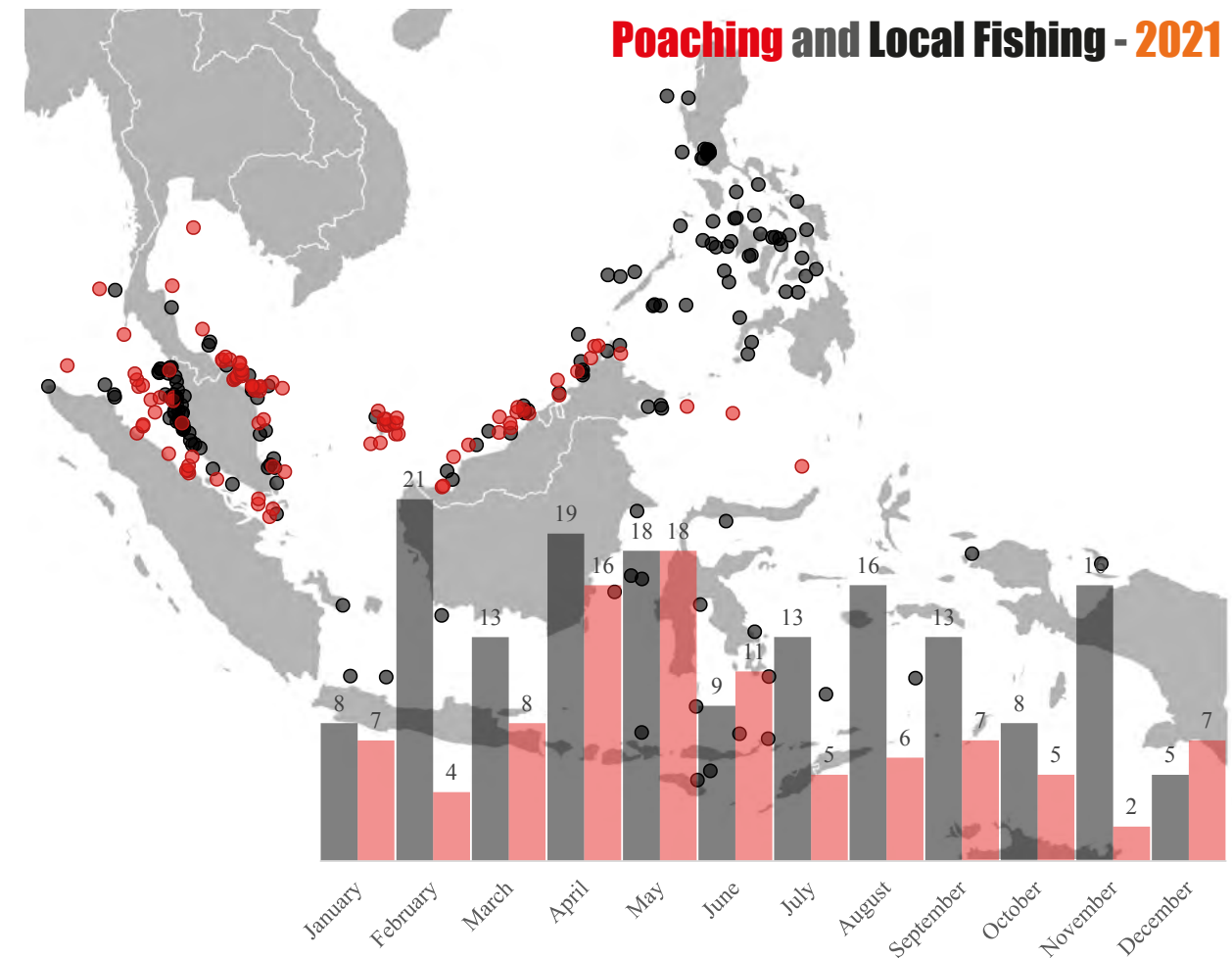
above average and may be attributable to better weather in the region in the same period. There was a significant drop recorded in the number of local IUU incidents reported off Sri Lanka this year as compared to last year, possibly due to the effect of enhanced enforcement operations.



SOUTH EAST ASIA

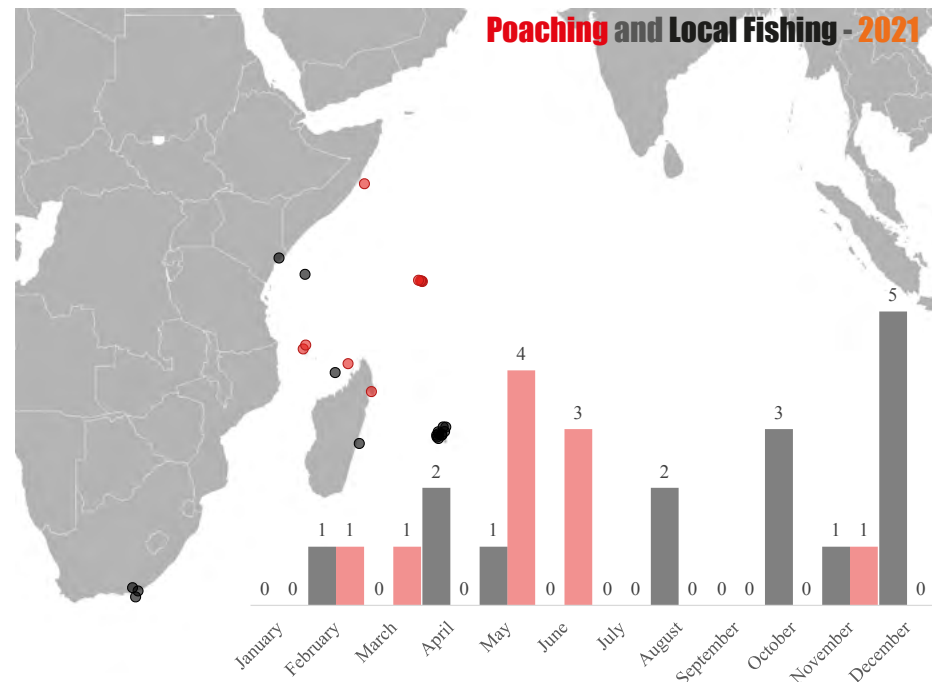
The Centre monitored 255 incidents (65%) of IUU fishing activity in 2021, for an average of 21 incidents per month. South East Asia constituted 66% of overall poaching and 64% of overall local IUU incidents recorded by the Centre. The archipelagic nature, dependence on fisheries coupled

with enhanced enforcement operations by littoral countries, especially Malaysia and Indonesia are the likely drivers behind this trend. Destruction of resources elsewhere and inability to fish due to disputes at sea are the likely factors behind large number of foreign vessels poaching in these waters.



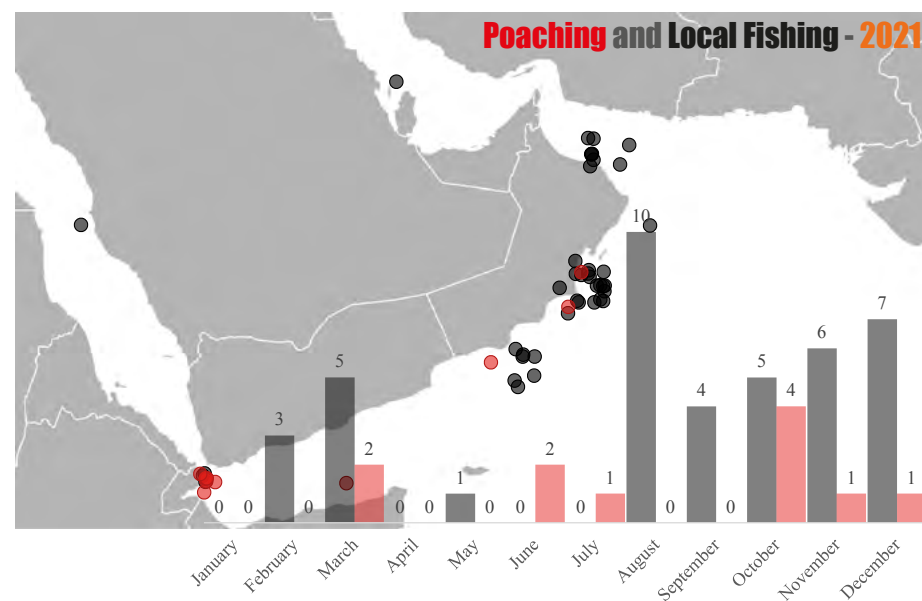
EAST AFRICA

The Centre monitored 27 incidents in the region which accounted for 7% of the overall IUU activity. Local IUU accounted for 63% and peaked in December, while 37% poaching incidents peaked in May and June.



WEST ASIA

The Centre monitored 52 incidents in the region, accounting for 13% of the total incidents recorded. Local IUU fishing in the region accounted for 79% and poaching accounted for 21%. Local IUU incidents were reported off Bahrain, Oman, Djibouti, and Saudi Arabia, majority of which were incidents of fishing during closed seasons and in prohibited areas. A high number of expatriate workers were observed in the local IUU incidents in the region.



CRIMES ASSOCIATED WITH IUU FISHING

Crimes Linked to Harvest

- » Labour Trafficking and Human Rights Violations: crew are over exploited and forms of neo-slavery have been exposed
- » By-Catch: non-targeted fish species are trapped in fishing nets
- » Ghost Nets: abandoned nets that drift and continue catching fish; 640,000 tonnes of fishing gear are lost or abandoned in the ocean each year, making up 10% of total marine litter. Gear is lost due to multiple reasons, some of which are:-
 - Evading Capture: Vessels dump gear to destroy evidence when interdiction is likely
 - Ensuring Port Access: Fishers dump gear to avoid being denied entry to port
 - Night Fishing: Fishers often work under difficult conditions, like during the night, which increases the possibility of losing gear
 - Gear Conflict: Conflict, particularly between active and static gear, is a common cause of abandoned, lost or discarded fishing gear (ALDFG). Vessels operating illegally may not obey fisheries management guidance for avoiding gear conflict.
- » Bomb Fishing: A traditional fishing method using explosives to kill or stun a group of fish for ease of catching - 90% of the fish killed remain in the sea, while only 10% is harvested
- » Over Fishing: Fishing in excess of certain populations, which can lead to extinction of the species

Crimes Linked to Cargo

- » Transshipment at Sea that supports IUU fishing:-
 - Long range refrigerated vessels grant illicit logistic support to fishing fleets and transport the fish to distant ports avoiding control procedures
 - Coastal "loitering reefers" a legal practice or cover for illegal activity reefers, also known as carrier vessels, are refrigerated ships used in industrial fishing to transship their catch, allowing fishers to spend more time fishing and less time transiting to port
- » The Narcotraf Trend: fishing vessels that occasionally transport narcotics in order to make money; identified in 2020 and confirmed by observed seizures in the region in 2021
- » Migrant Trafficking: a significant number of observed interdictions show that fishing vessels are commonly used to transport migrants

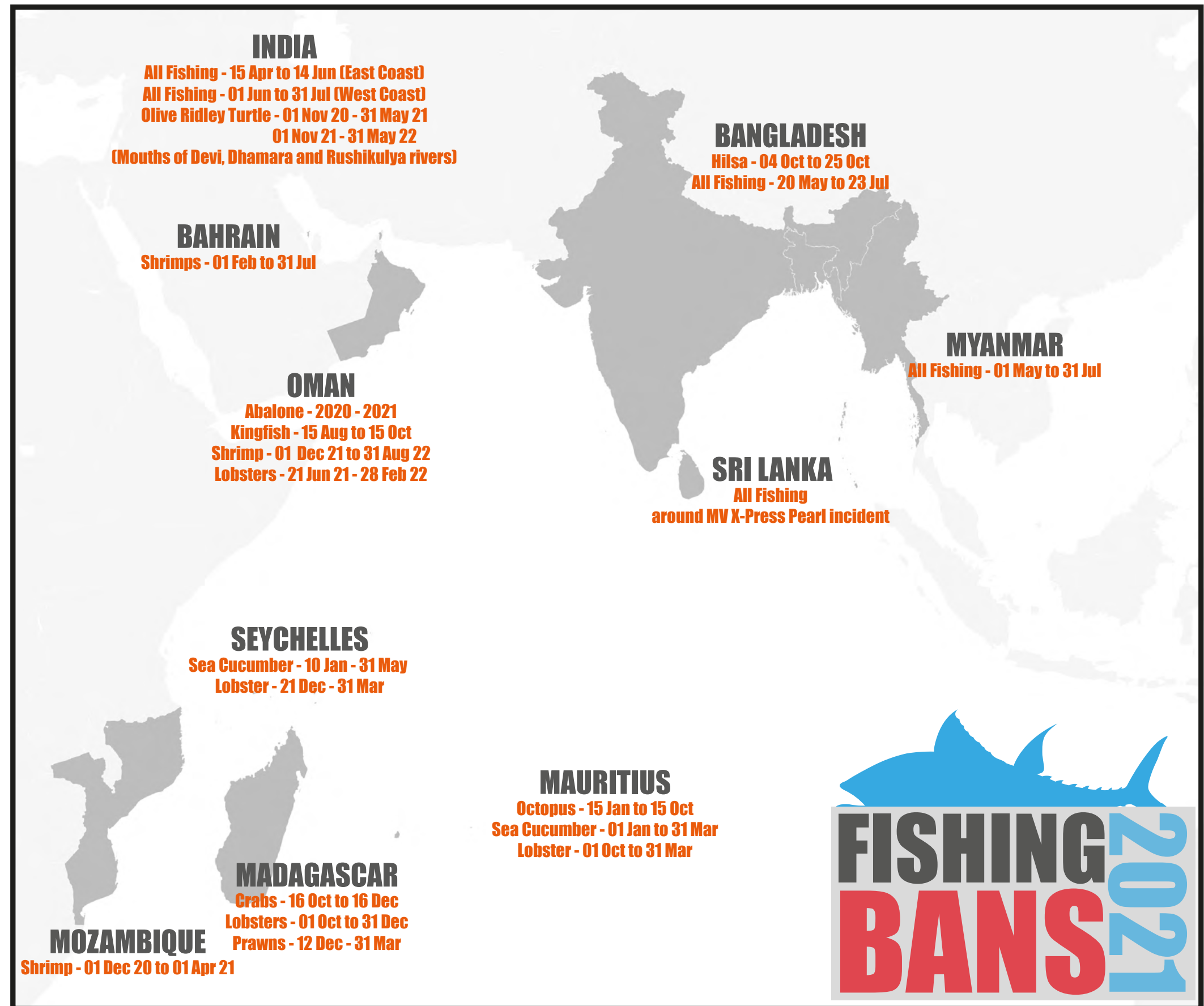
Crimes Linked to Venue

- » Economic crises, global warming, industrial fishing, and overfishing in some areas have led to the end of local artisanal fishing communities
- » The nature of the fishing vessel is conducive to onboard criminal activities, specifically the capability of freedom of navigation in the high seas and the immensity of the oceans.

FISHING BANS

During the year, the Centre monitored various bans on fishing activity imposed by coastal states broadly aimed at protecting species from uncontrolled exploitation during breeding seasons. Fishing bans are generally seasonal and specific dates for the year are announced by the concerned coastal states for awareness. Some seasonal bans targeted specific type of species, while a few bans applied to all species in a specific geographical area. Some bans are also enforced for non-fish species which are in danger of being caught as by catch.

05th June is
celebrated
as the
International
Day for the Fight
Against Illegal,
Unreported and
Unregulated
(IUU) Fishing



PROACTIVE MEASURES AND INITIATIVES

Initiative	Source	Remarks
2022 - International Year of Artisanal Fisheries and Aquaculture (IYAFA)	UN FAO	One in ten people depend on fisheries to provide employment and income, while sustaining cultures and communities. However, the same industry often uses unfair recruitment practices, poor payment practices, and target forced and child labour, among other abuses. https://www.fao.org/home/en/
Resolution 21/02 on Establishing a Program for Transshipment by Large-Scale Fishing Vessels	IOTC	All transshipment operations of tuna and tuna-like species, and sharks caught in association, in the IOTC area of competence must take place in port. The flag CPCs shall take necessary measures to ensure their flagged vessels comply with the obligations. Transshipment operations within the Maldives between pole and line fishing vessels, and Maldives flagged collector vessels and registered on the IOTC Record of Authorised Vessels shall be exempted. https://iotc.org/documents/entry-effect-conservation-and-management-measures-adopted-iotc-its-25th-session
Requirement for vessel Masters to accept and facilitate boarding and inspections	SIOFA	Each Contracting Party may carry out boarding and inspection in the Agreement Area of fishing vessels flying the flag of a CCP that is engaged in or suspected of illegal fishing. https://www.apsoi.org/management/CMM/14
Demersal longlines fishing is prohibited in depths <500m to protect species	SIOFA	Promote the sustainable management of deep-sea fisheries resources in the Agreement Area, including target fish stocks and non-target species. Applies to all CCPs to the Agreement engaging or intending to engage in bottom fishing. https://www.apsoi.org/management/CMM/15



Representative Image: Fishing Vessels operating as a group



Representative Image: Migrants at Sea



IRREGULAR HUMAN MIGRATION

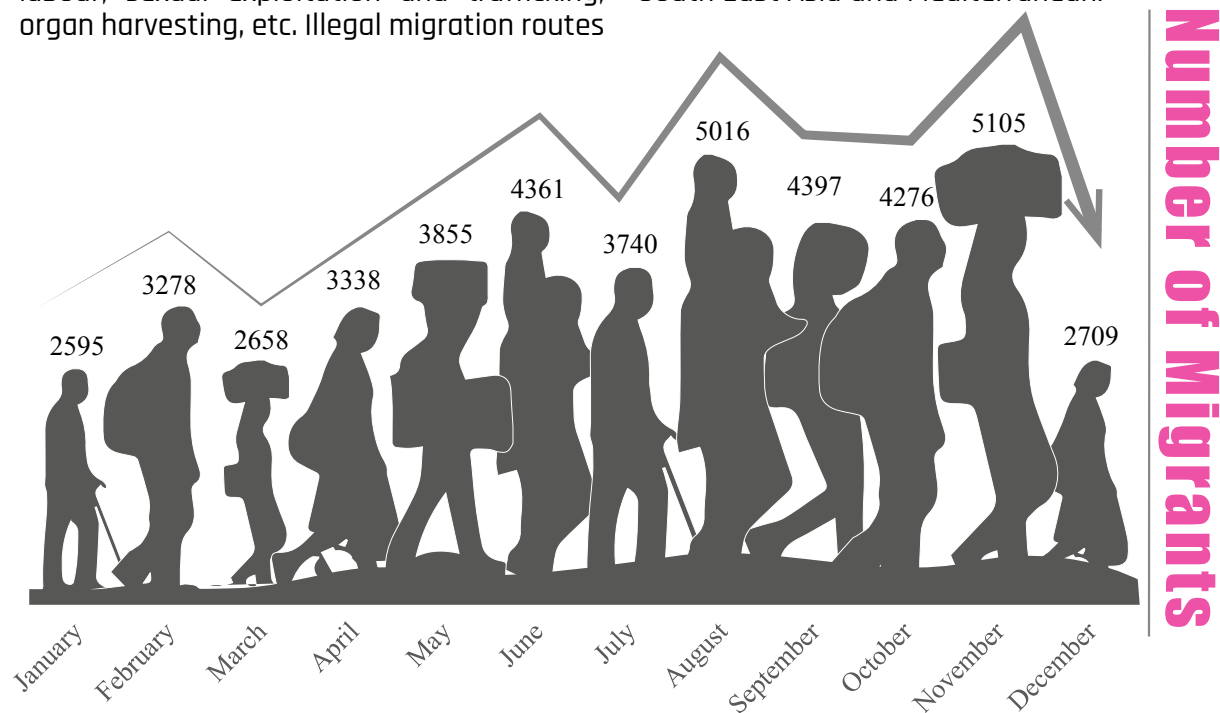
IRREGULAR HUMAN MIGRATION

OVERVIEW

The centre recorded 977 incidents of Irregular Human Migration in 2021, which were reported to involve 46,502 migrants and 423 smugglers/ traffickers. Human migration over the years has been driven by economic needs, survival requirements, climate, etc. Maritime migration is highly dependent on environment, political situation, border enforcement and conducive sea state and conditions for small to medium boat operations. Illegal human migration is often accompanied by a plethora of criminal activities such as slave trade, child abuse and labour, sexual exploitation and trafficking, organ harvesting, etc. Illegal migration routes

and networks are also used by terror and criminal elements, which is a big security risk.

In some regions, cultural and ancestral linkages drive such migration attempts across geographical boundaries. The travel restrictions imposed due to the ongoing COVID - 19 pandemic are also likely to have forced some otherwise legitimate travellers to take the illegal maritime routes. For ease of analysis and understanding, the Centre has grouped the IHM incidents in five geographical regions - West Asia, East Africa, South Asia, South East Asia and Mediterranean.



Number of Migrants



ANNUAL REPORT 2021

MIGRANT MOVEMENT

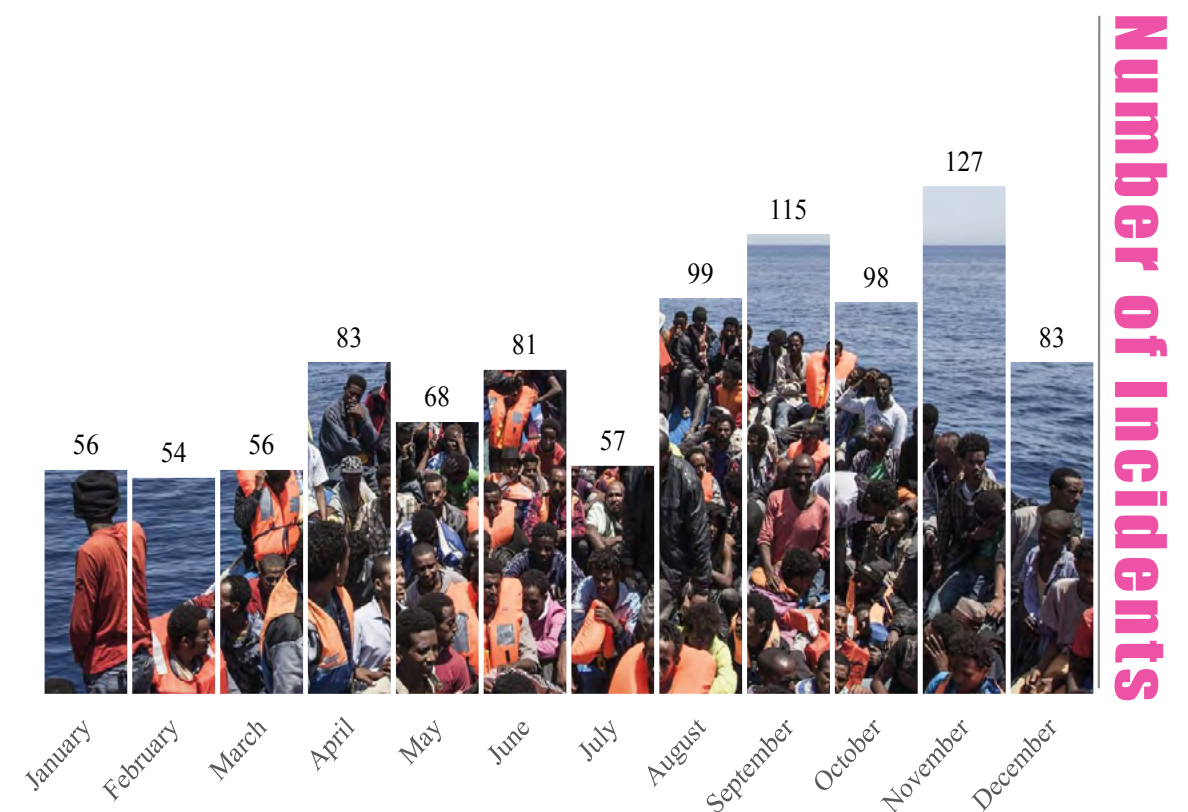
The monthly average of IHM incidents recorded by the Centre was 81. Higher number of incidents were recorded in the second half of the year; a trend also observed in the previous year. A total of 45,328 migrants were rescued or apprehended in all recorded incidents, with a monthly average of 3,784 migrants. Additionally, 167 deaths and 1,007 missing migrants were reported in the recorded incidents, highlighting the dangers associated with such crossings which often involve unseaworthy vessels with minimal/ no survival gear.

In the year 2021, it was observed that migrants were willing to take significantly higher risks on overcrowded and often unseaworthy boats. Due to the inherent nature of IHM incidents, it is usually difficult to conclusively arrive at the number of migrants who have initially started the voyage. In some incidents, the information on migrants and their condition was available only after calls (using handheld satellite communication devices) from migrant boats to various international humanitarian organisations

and non-governmental organisations. The following methodologies of IHM were observed during the period: -

- Transfer of illegal migrants on small boats, to undertake regular economic activity in a nearby country. This was usually observed where the distances involved are relatively short.
- Direct embarkation of migrants on converted fishing vessels from beach areas, away from ports/ harbours.
- Transfer by small boats to a relatively large migrant vessel offshore. This vessel can then stay for multiple months at sea, waiting for a suitable landing window.
- Concealment in scheduled passenger services/ ferries.
- Stowaways in merchant vessels.

It has been observed in some incidents that the smugglers/ traffickers were in possession



Number of Incidents

of small arms with limited ammunition. This is assessed to be a form of self-insurance, which furthers their ability to control numerically superior migrants.

In some of the incidents, it was also reported that the migrant boat is intentionally damaged or rendered unseaworthy. This tactic is likely to be resorted to avoid being turned away and ensure that respective coastal authorities allow illegal migrants to land ashore.

The true numbers are likely to be higher than the recorded numbers, in view of challenges associated with tracking and reporting such movements. Such irregular crossings are likely to continue in the future, with a possible increase due to climate change-initiated migration (a second order effect of human exploitation of earth), adding to the list of causative factors.

IMO AWARDS MERCHANT VESSELS FOR SAVING MIGRANT LIVES

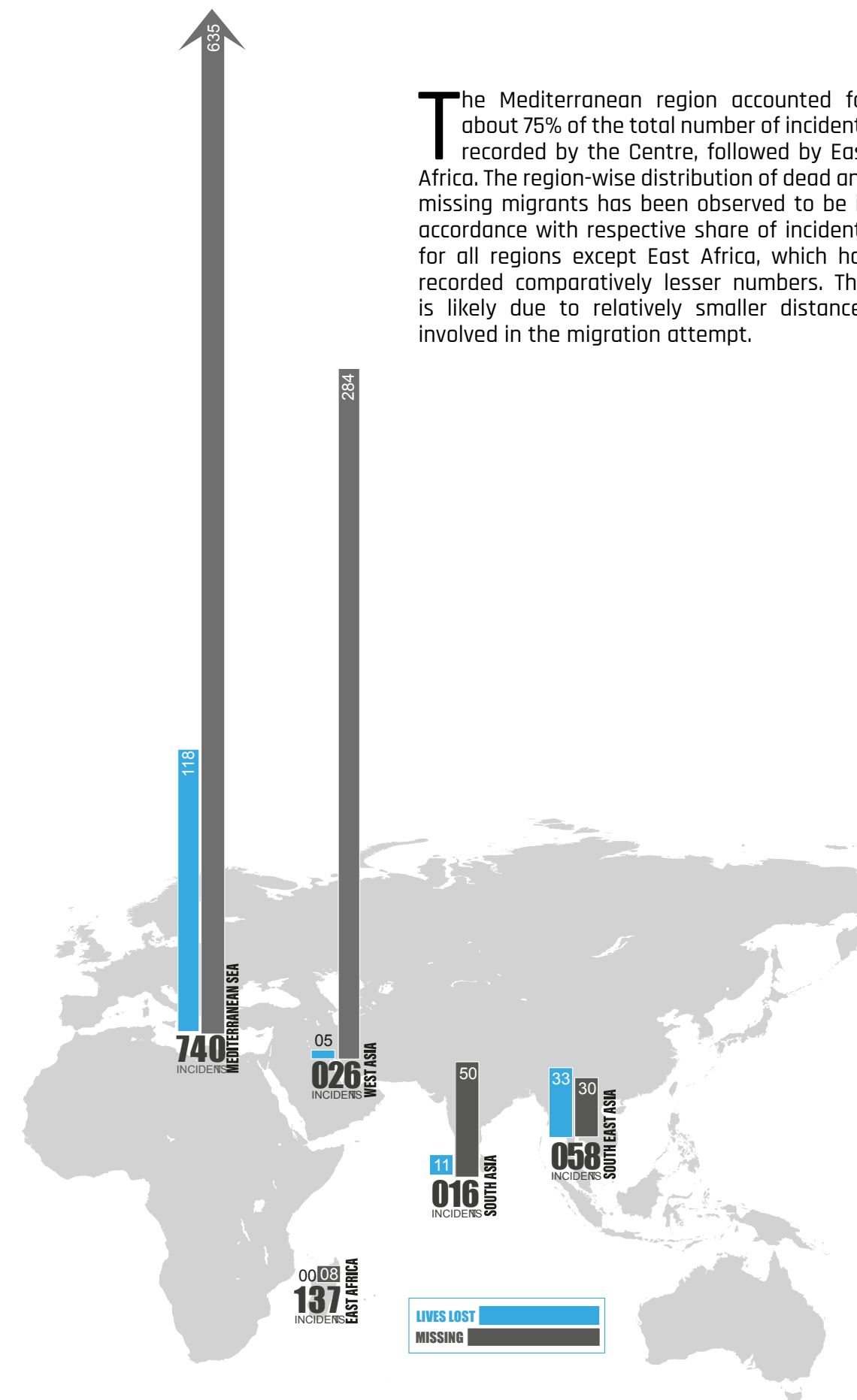
The IMO, during its 125th session, awarded special recognition to Captain Zhang Hui and the crew of MV OCEAN ANG and Captain Volodymyr Yeroshkin and the crew of oil tanker MAERSK ETIENNE for their exemplary action in saving lives at sea. OCEAN ANG rendered its selfless assistance in rescuing 41 migrants from a sinking boat in the Aegean Sea, and MV MAERSK ETIENNE assisted in rescuing 27 persons from a sinking boat in the Mediterranean.

IMO Secretary General Lim noted "a special recognition should be given to the coast guards, navies, and search and rescue agencies and merchant vessels that act in saving lives at sea and thereby acting in the best tradition of seafaring and ensuring the death toll is not even higher".



Source: imo.org, 2021. IMO celebrates bravery at sea, [online] Available at: <<https://www.imo.org/en/MediaCentre/PressBriefings/pages/Bravery2021.aspx>> [Accessed 2 January 2022].

REGIONAL DISTRIBUTION



The Mediterranean region accounted for about 75% of the total number of incidents recorded by the Centre, followed by East Africa. The region-wise distribution of dead and missing migrants has been observed to be in accordance with respective share of incidents for all regions except East Africa, which has recorded comparatively lesser numbers. This is likely due to relatively smaller distances involved in the migration attempt.

Incidents / Lives Lost / Missing

MEDITERRANEAN SEA

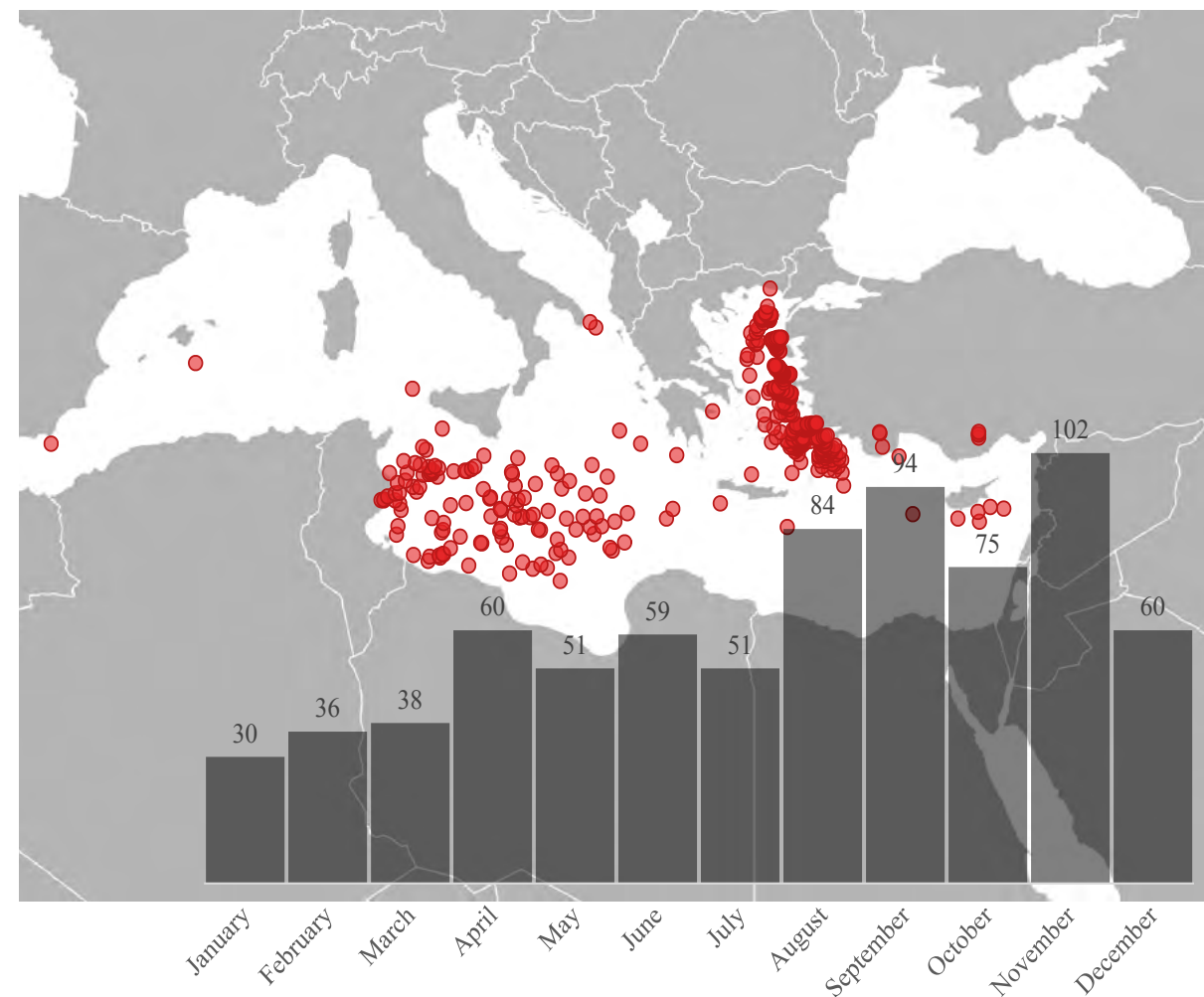
Mediterranean continued to be the hotspot of IHM in 2021, with 740 incidents accounting for 75% of the total incidents recorded. The quarterly analysis indicates that the second half of the year is the favourable timeframe, a pattern like the previous year. Europe was observed to be the destination for almost all the recorded incidents.

Varied ethnicities of the migrants were reported, with large numbers belonging to Africa, West and South Asia. The common conditions, as identified earlier in the section, are the drivers in the region and assessed to be the push and pull factors for such ventures.

It has been observed that the migrants were willing to take higher risks regardless of the seasonal variations, sea conditions, unseaworthy boats and were often not deterred by the presence of security forces.

As per the International Organisation for Migration, a record number of migrant lives were lost in 2021, with Mediterranean crossing making up the majority. The incidents recorded by the Centre tally with this general observation.

Research by the Centre indicates that the Western and Central Mediterranean routes continue to account for a major part of migration into Europe. However, details of individual incidents have been difficult to obtain, thereby limiting analysis. The Centre has been able to pick up greater number of incidents along the Eastern route due to the detailed open-source reports put out by countries/ bodies in the region especially Turkey. As a result, about 80% of the total IHM incidents recorded in the Mediterranean have occurred off Turkey. This is likely to present a misleading picture and hence may be treated with caution.

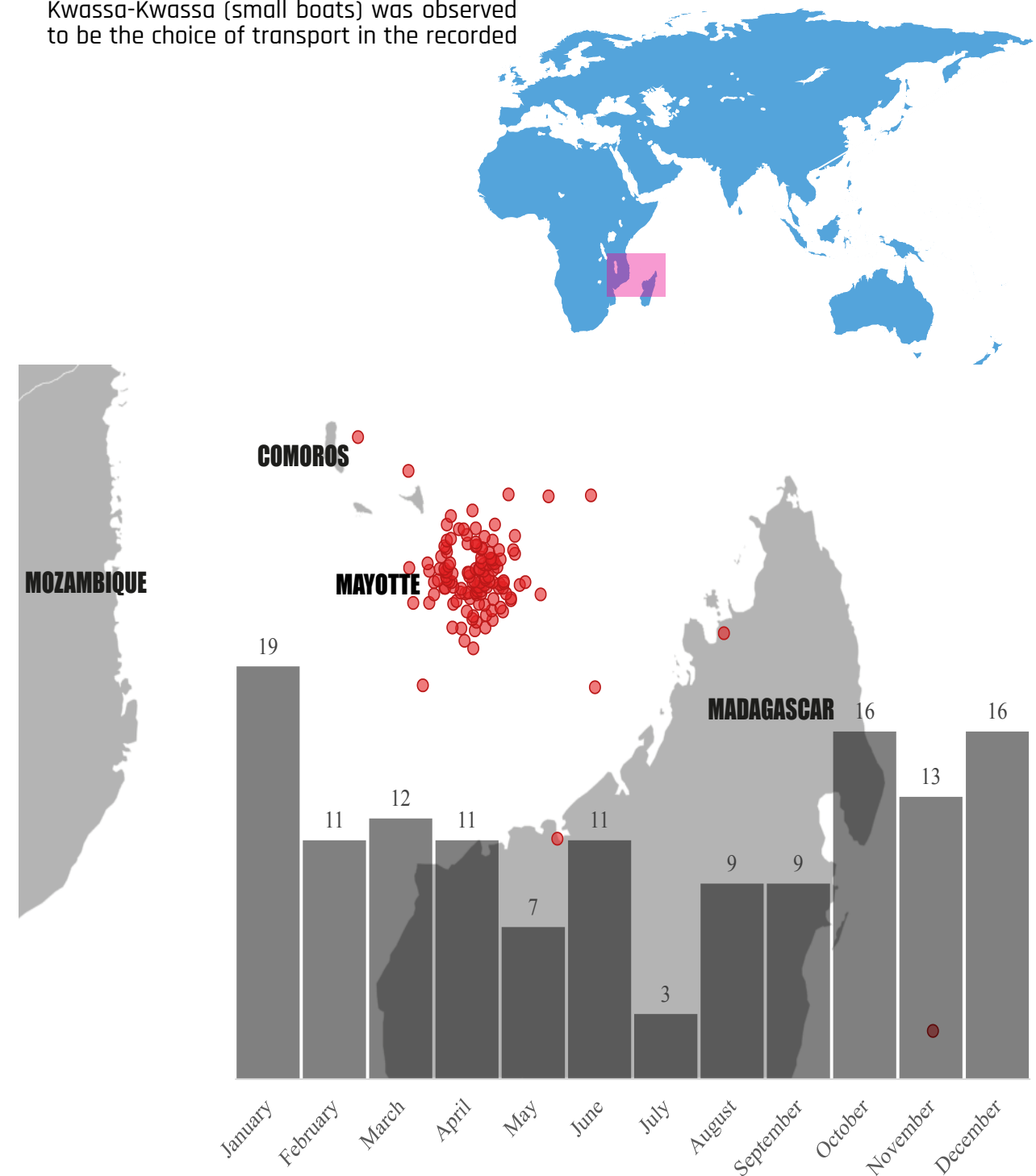


EAST AFRICA

With a total of 137 incidents, East Africa accounted for second largest numbers recorded; 94% of these incidents were recorded off Mayotte alone; six incidents were recorded off Mozambique and two off Comoros. In addition to cultural and familial ties spanning generations, socio-economic factors are understood to be drivers behind Mayotte being a popular IHM destination in the region.

Kwassa-Kwassa (small boats) was observed to be the choice of transport in the recorded

incidents. However, these boats are susceptible to rough weather conditions in the region between May - Oct, caused by the Southwest Monsoons.

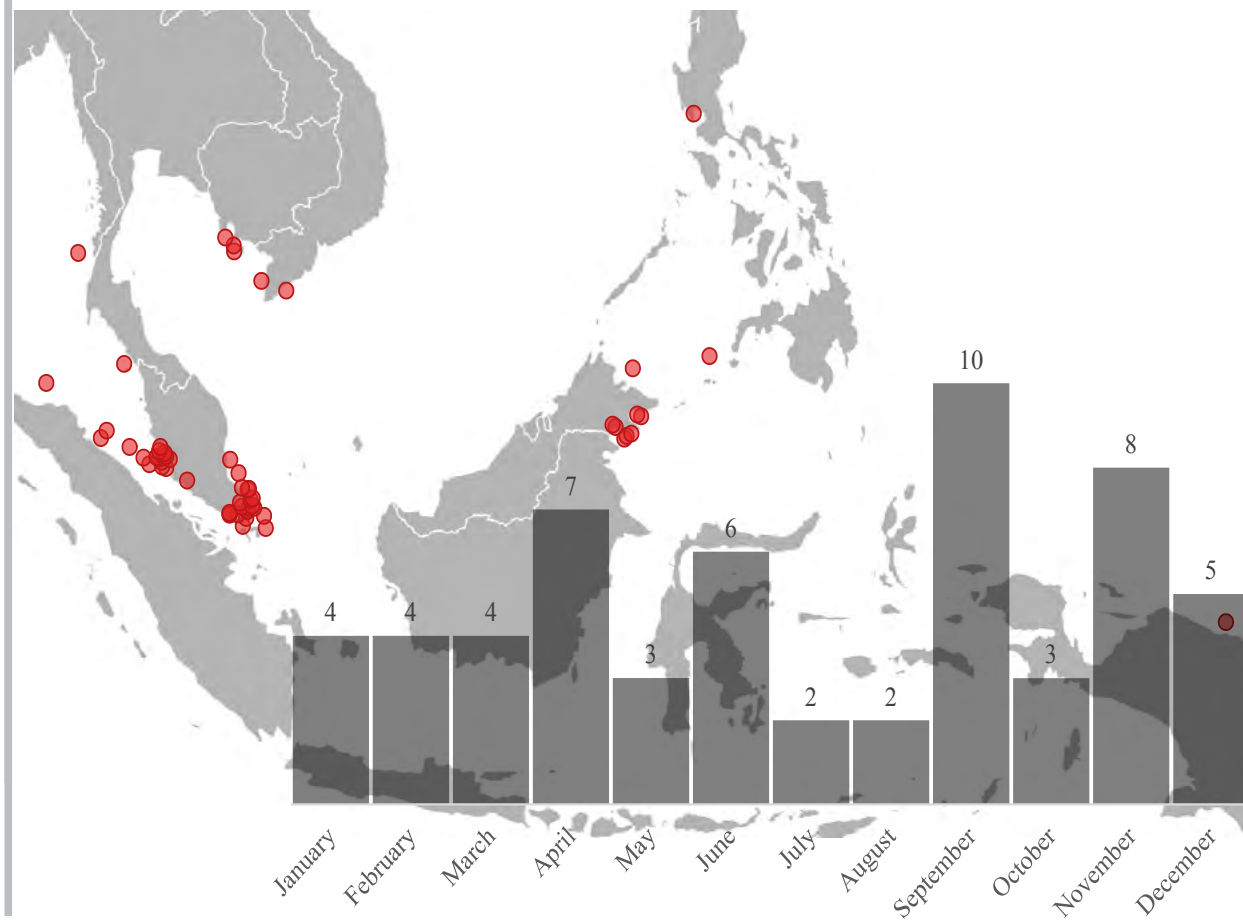
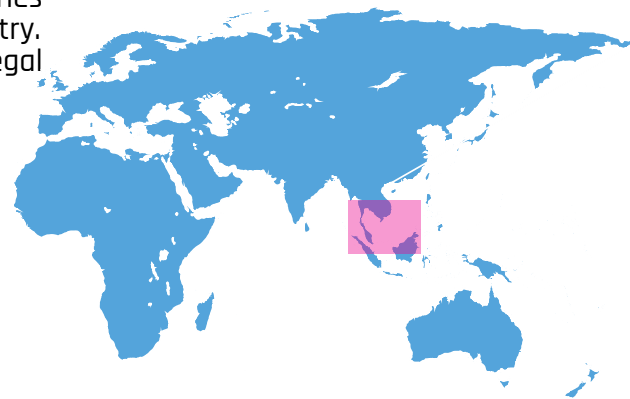


SOUTH EAST ASIA

58 IHM incidents, which constituted about 7% of the total incidents recorded in 2021, occurred in South East Asia region; 65% of the recorded incidents occurred off Malaysia and a further 17% were recorded off Indonesia.

It is assessed that apprehensions have been driven by focussed operations of authorities in the region. Majority of these incidents include migrants who are illegally travelling to/ departing from Malaysia. Malaysia is likely to be a favoured destination due to the abundance of low-skilled jobs in industries such as palm plantation and rubber industry. World over, employers tend to hire illegal

immigrants due to economic considerations and challenges in finding locals willing to do these jobs. Such migrants often do not intend on settling down in their destination countries, but regularly travel back home, including for events such as important festivals.



**ANNUAL
REPORT 2021**

SOUTH ASIA

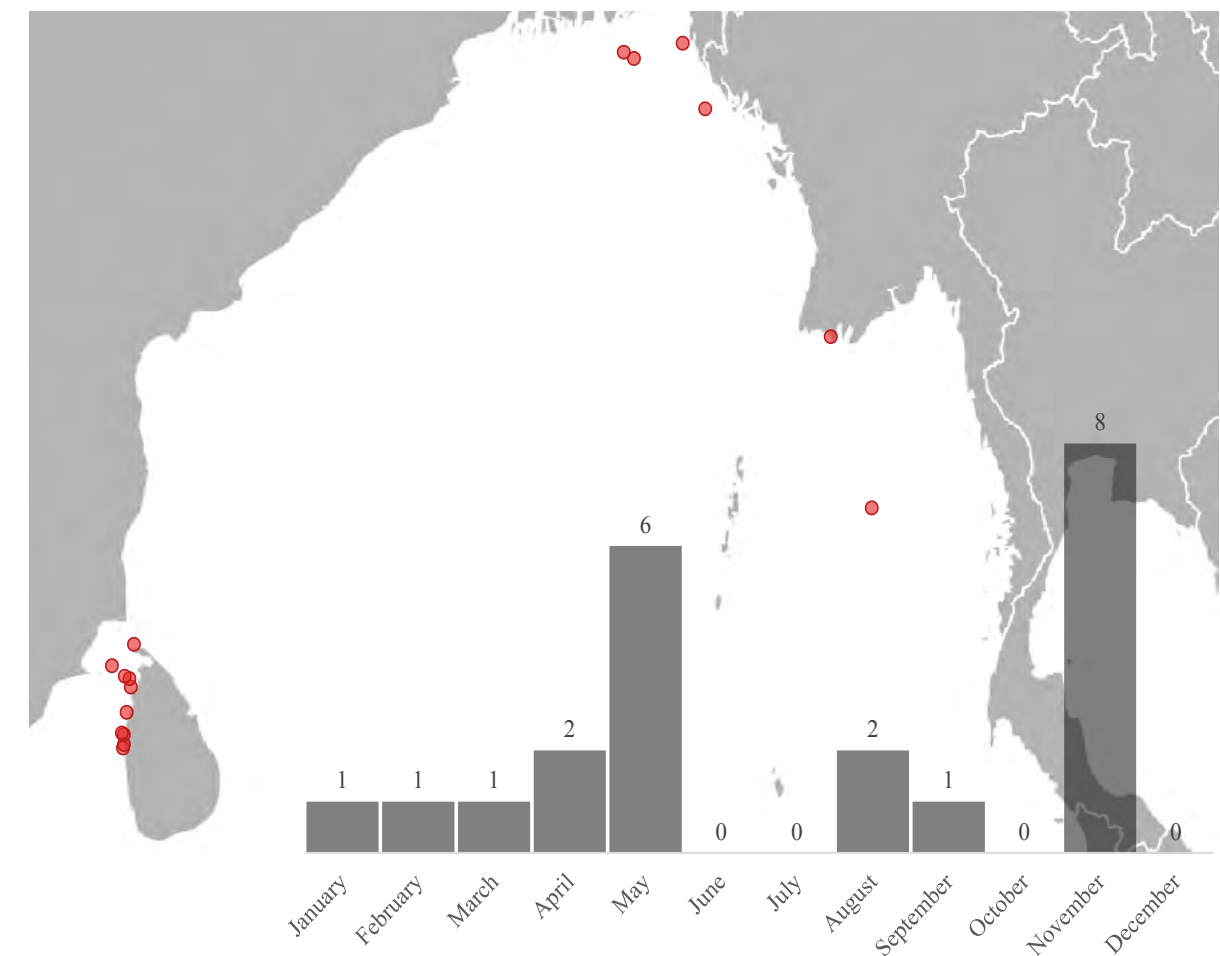
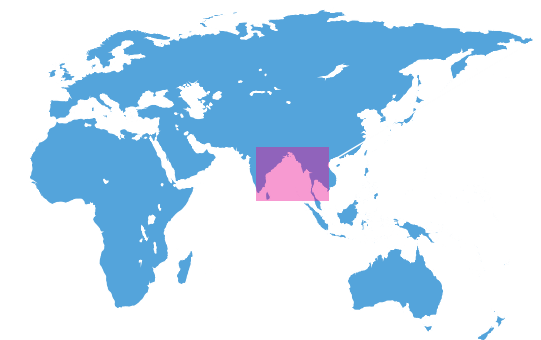
The Centre recorded 16 incidents during this year, which constituted about 2% of the total recorded incidents. The trend has been similar to last year and incidents were recorded off Bangladesh, India, Sri Lanka and Myanmar.

Similar to South East Asia, cultural and ancestral ties play a part in irregular migration using sea routes. Such ties sometimes enable planning and execution of IHM ventures to other countries.

Migrants from various refugee / displacement camps in the region were observed to continue IHM ventures notwithstanding absence of proper means of sea borne transportation. Such attempts often involve unseaworthy and overcrowded vessels, resulting in frequent breakdowns at sea. Lack of survival gear further exacerbates the situation. The restrictions in the refugee/ displacement camps along with promise of

a better life elsewhere are likely to be the primary drivers behind such ventures.

The number of incidents from Jul-Sep were observed to be lower, possibly due to the rougher sea conditions associated with the South West Monsoons.



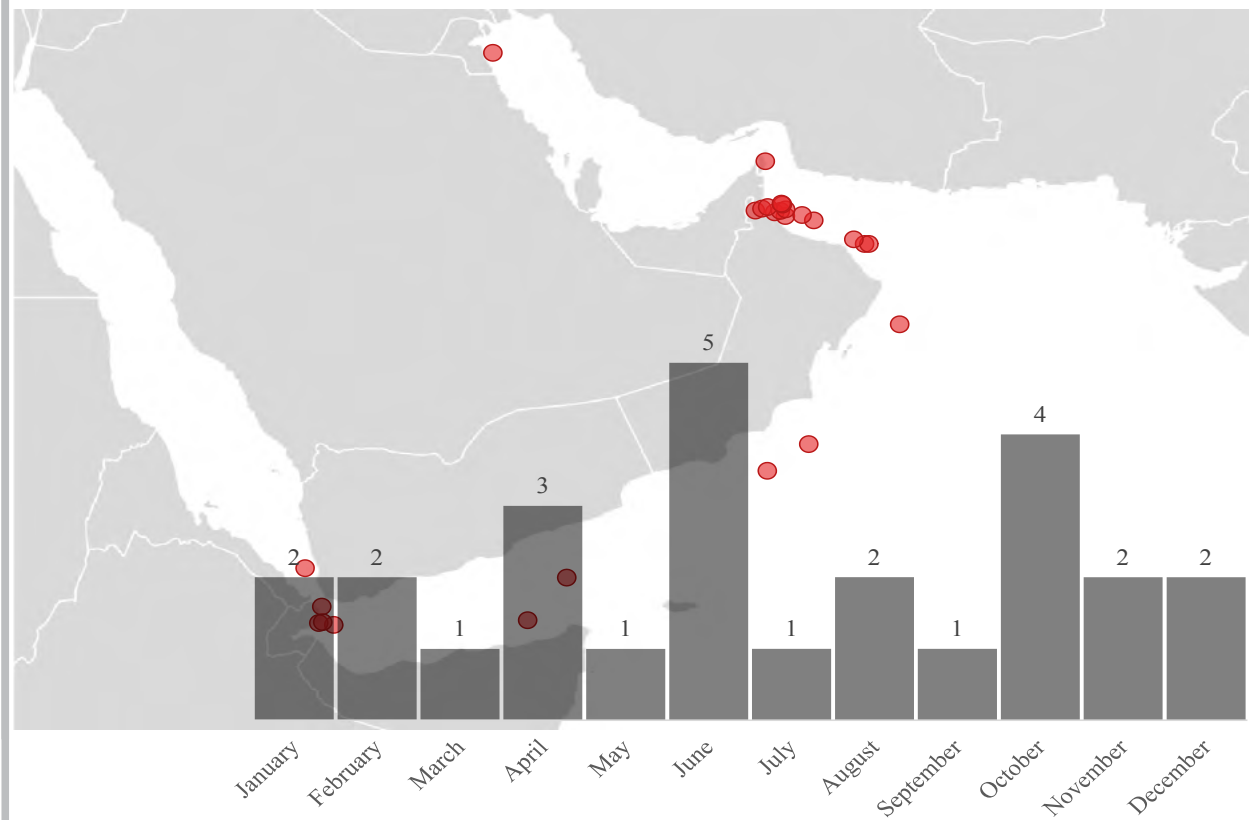
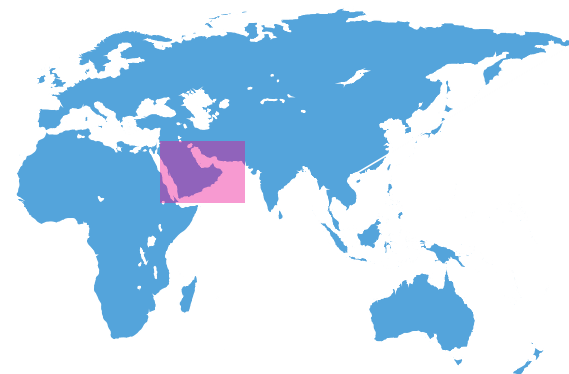
WEST ASIA

The Centre monitored 26 incidents in the West Asia Region, which constituted for about 3% of the total recorded incidents. Some of the migration attempts may be attributed to the cultural ties, trade and other reasons attributable to the historic pattern of life. The prevailing security situation and political instabilities in different parts of the region is likely to have further exacerbated these factors.

The incidents recorded this year follow the previously observed trends, with the second and fourth quarter accounting for majority of the incidents, possibly due to calmer sea state.

Oman accounted for about 70% of the recorded incidents, which may be attributable to economic factors as well as better policing

and prompt reporting by Omani authorities. Due to its proximity to the Makran coast, this route is also likely to be used by other criminal elements to cross illegally over from/ to other countries in the region. Yemen is likely to be a transit country for the migrants to continue their journey to Saudi Arabia, Oman or UAE.



**ANNUAL
REPORT 2021**

45,328 migrants were rescued or apprehended in all recorded incidents, with a monthly average of 3,784 migrants. Additionally, 167 deaths and 1,007 missing migrants were reported in the recorded incidents, highlighting the dangers associated with such crossings which often involve unseaworthy vessels with minimal/ no survival gear.



Representative Image: Hulk of a merchant vessel



MARITIME INCIDENTS

MARITIME INCIDENTS

OVERVIEW

The IFC-IOR monitored 1,117 incidents classified under the maritime incidents section. These incidents may primarily be attributable to factors such as environmental conditions, mechanical failure, human error, etc. A total of 420 individuals were reported to have died and 633 were reported missing in the recorded incidents.

The Centre has classified the maritime incidents recorded into 14 different categories. For ease of comprehension, the individual categories have been grouped into the following three broad classifications (some incidents may involve both vessels and individuals):-

TYPE OF INCIDENTS

SAR and MEDEVAC operations combined, constituted 22% of recorded incidents. Incidents of Capsize and Sunk categories made up 13% and 9%, respectively. Small vessels accounted for 70% of these incidents. Collision and Grounding incidents combined accounted for approximately 14% of total incidents. Mechanical failure accounted for 11% of the recorded incidents, 54% of which involved small vessels. 'Vessel Detained' category contributed to 9% of the recorded incidents. Most of these

• **Incidents Affecting Vessels** – Fire, Grounding, Collision, Mechanical Failure, Sunk, Capsize, Cargo Mishap and SAR.

• **Incidents Affecting Individuals** – MEDEVAC, Man Overboard, Missing and Death.

• **Incidents with Legal Connotations** – Vessel Detained and Violent Confrontation.

For further analysis, recorded incidents have also been classified as per four geographical regions: East Africa, South East Asia, South Asia, and West Asia.

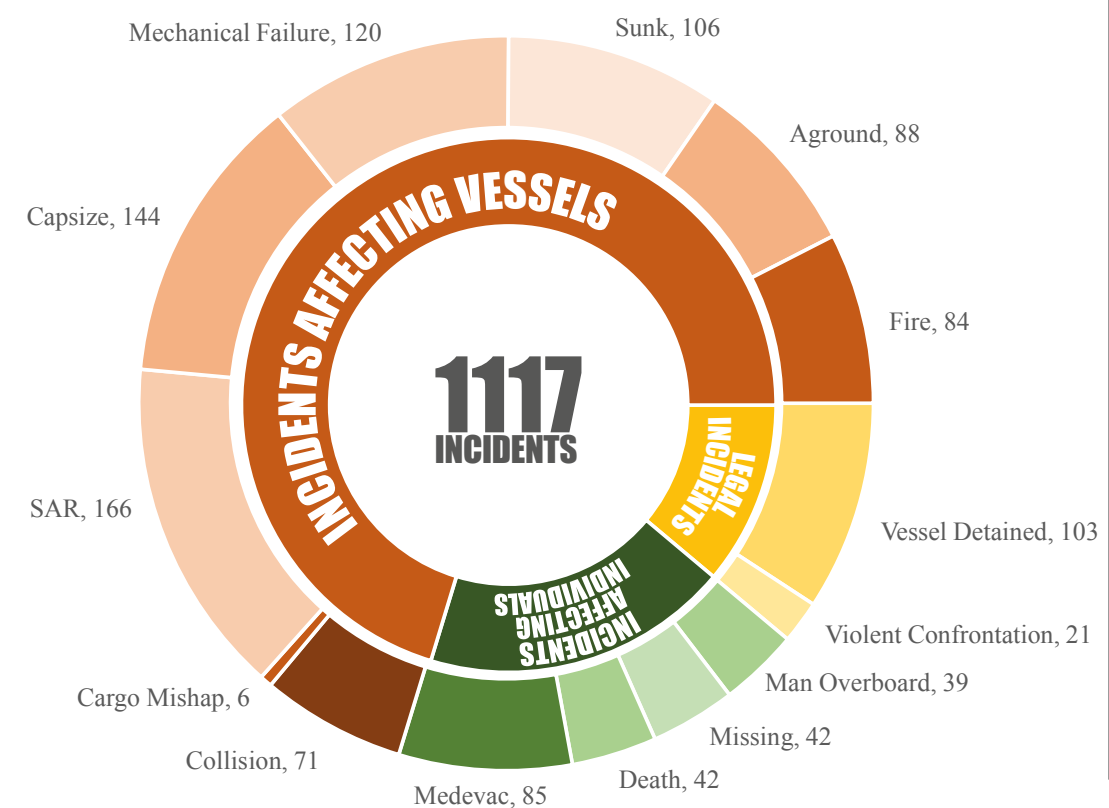
incidents were reported in Malaysian waters and were predominantly associated with unauthorised anchoring by vessels. Incidents under 'Fire' category accounted for 7% of total incidents.

The incident involving fire and eventual sinking of MV X-PRESS PEARL off Colombo, Sri Lanka had a significant environmental impact.



**ANNUAL
REPORT 2021**

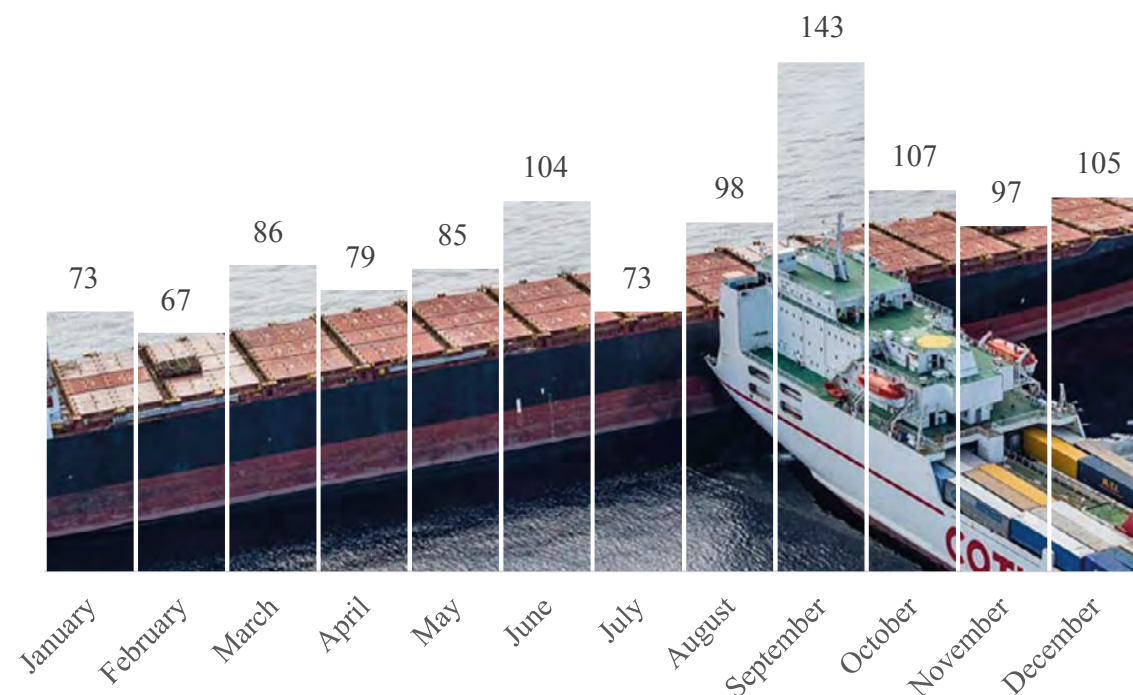
Types of Incidents



MONTH WISE BREAKDOWN

An average of 93 incidents per month were monitored in 2021. September and October recorded the highest number of incidents at 143 and 107 respectively, which

can be attributed to the effects of Cyclones Gulab and Shaheen during that same time frame.



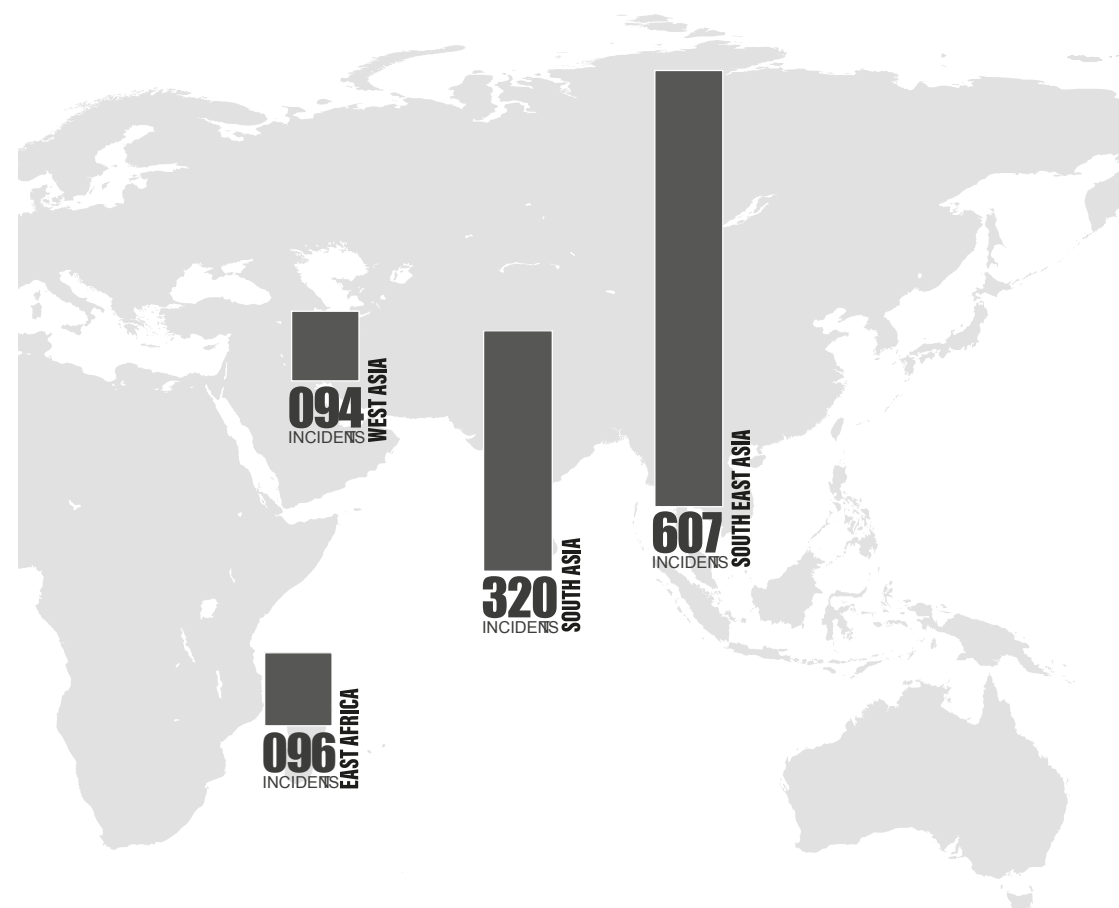
Monthly Distribution

REGIONAL DISTRIBUTION

54% of the overall incidents recorded in 2021 occurred in South East Asia, 28% in South Asia and approximately 9% each in East Africa and West Asia.

Marginal increase was observed in the number of incidents during the SW Monsoon seasons, especially in South East and South Asia.

Higher number of 'Capsize or Sunk' incidents, especially those involving smaller vessels, were monitored during rough weather periods, such as those associated with cyclones.



Regional Distribution

AIS EPIRB

IMO's MSC 101/24/Annex 24 2.3.16 adopted in June 2019, mandates that Emergency Position Indicating Radio Beacon (EPIRB) should be provided with an Automatic Identification System (AIS) locating signal in accordance with the Recommendation ITU-R M.1371. This will enable the distress call to be detected both by vessels on scene as well as national coordination centers via satellites. Every EPIRB installed, on or after 01 July 2022, is to be equipped with this facility.

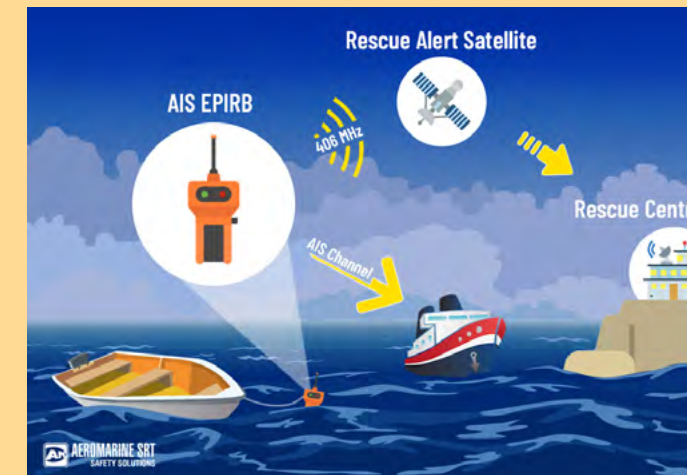


Image Credit- Gmdsstesters.com. Get ready to upcoming IMO requirements for EPIRBs. GMDSS Radio Survey Blog. [online] Available at: <<https://gmdsstesters.com/radio-survey/epirb/get-ready-to-upcoming-imo-requirements-for-epirbs.html>> [Accessed 2 January 2022].

NAIROBI INTERNATIONAL CONVENTION ON THE REMOVAL OF WRECKS

Adopted 18 May 2007 | Enforced 14 April 2015

In 2007, an international conference in Kenya ratified the Nairobi International Convention on the Removal of Wrecks. It provides legal basis for nations to remove shipwrecks and associated objects lost at sea, such as shipping containers, which could adversely affect the safety of navigation, maritime lives, goods or property, and coastal and marine environments.

The Convention provides a standardised set of international rules expected to ensure the prompt and effective removal of wrecks located beyond territorial seas, and holds ship owners financially accountable for wreck removal costs.

Source: imo.org. Nairobi International Convention on the Removal of Wrecks. [online] Available at: <<https://www.imo.org/en/About/Conventions/Pages/Nairobi-International-Convention-on-the-Removal-of-Wrecks.aspx>> [Accessed 9 December 2021].

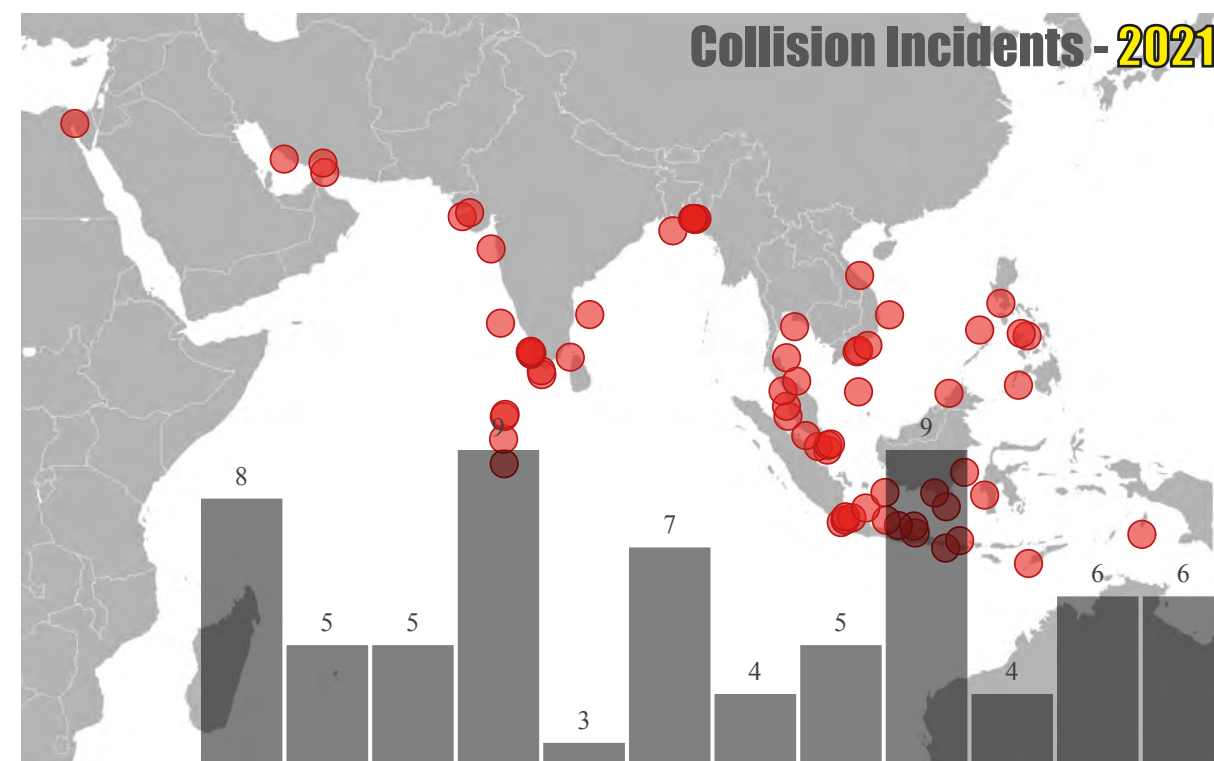
ANALYSIS OF INCIDENTS

COLLISIONS

In 2021, the Centre monitored 71 incidents of collisions. These included both ship-to-ship collisions and vessels colliding with marine/port infrastructure. April and September saw the highest number of incidents (nine each). 62% of the incidents were recorded in South East Asia, 56% of which occurred off Indonesia. 32% of the incidents were recorded in South

Asia and 6% in West Asia. No incident was recorded in East Africa.

Cargo ships and fishing vessels accounted for 21% and 18% of recorded incidents, respectively.



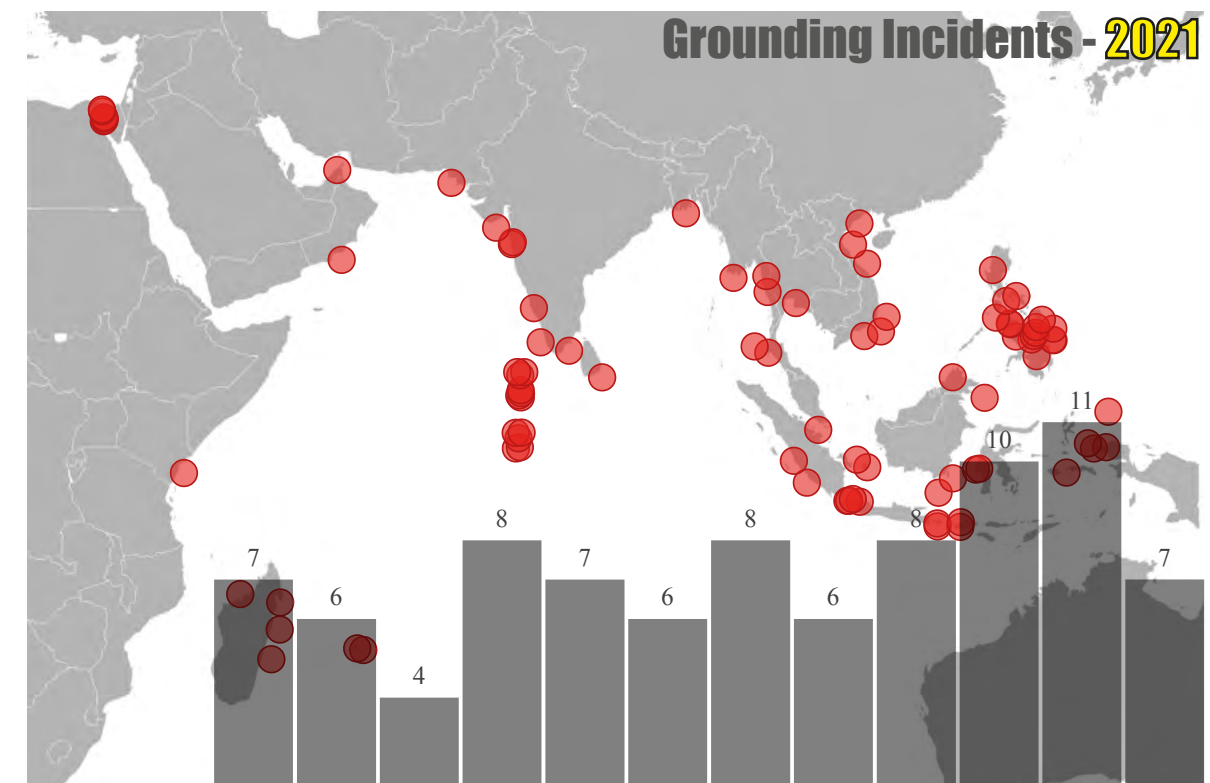
GROUNDINGS

The Centre monitored 88 incidents of vessels running aground in 2021, with a monthly average of seven.

A six-day blockage of Suez Canal in Mar 21, caused by the grounding of a container vessel is covered in the latter part of this section. Groundings, Collisions and Mechanical Failure are not uncommon in the Suez Canal and the Centre recorded eight such incidents in 2021, which were recovered in a much shorter span

of time with minimal effect on flow of traffic. 56% of the incidents were recorded in South East Asia, predominantly off Indonesia (45%) and the Philippines (34%). The remaining incidents were distributed in South Asia (27%), West Asia (9%) and East Africa (8%).

46% of the incidents recorded involved smaller vessels such as cargo, passenger and fishing vessels.



PLACES OF REFUGE

Two IMO resolutions address the matter of places of refuge for ships in distress, which are critical for assisting ships and personnel involved in incidents needing a place of refuge.¹

A.949(23) identifies guidelines for ships in need of a place of refuge, where safety of life is not involved.

Note: Where safety of life is involved, vessels are required to abide by the SAR Convention.

A.950(23) recommends all coastal States establish a maritime assistance service (MAS), with the principal goal

to receive various IMO reports, consultations, and notifications.

The following information is required from a ship seeking refuge:

- Communication with the nearest coastal authorities
- Identification of the vessel
- Technical details of the vessels:
- Casualty
- Strength
- Stability
- Maneuverability
- Liability coverages

Source:- imo.org, "Places of refuge" - addressing the problem of providing places of refuge to vessels in distress. [online] Available at: <<https://www.imo.org/en/OurWork/Safety/Pages/PlacesOfRefuge.aspx>> [Accessed 6 December 2021].

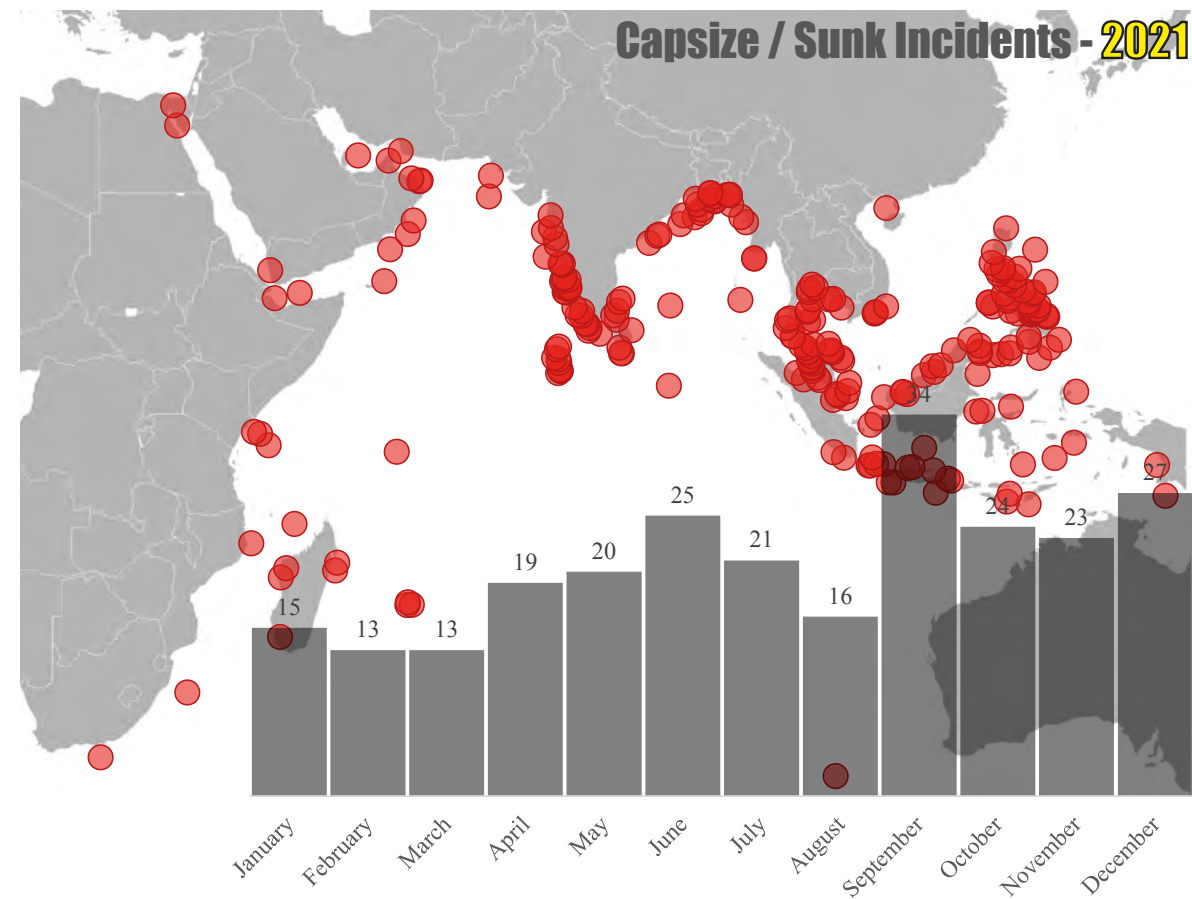
CAPSIZE OR SUNK

The Centre monitored 250 incidents of vessels capsizing or sinking at sea in 2021, with a monthly average of about 21 incidents. September saw the highest number of monitored incidents in 2021, which can be attributed to rough weather associated with Cyclones Gulab and Shaheen in the region.

57% of the incidents were recorded in South East Asia, predominantly off Indonesia (45%) and the Philippines (34%). The remaining

incidents were distributed in South Asia (30%), East Africa (6%) and West Asia (6%).

Fishing vessels alone constituted 40% of the recorded incidents of capsizing or sinking, majority of which occurred close to the coast. Ignoring weather warning to make a living may have forced many fishermen to venture into sea in rough weather and is likely cause for some of these incidents.



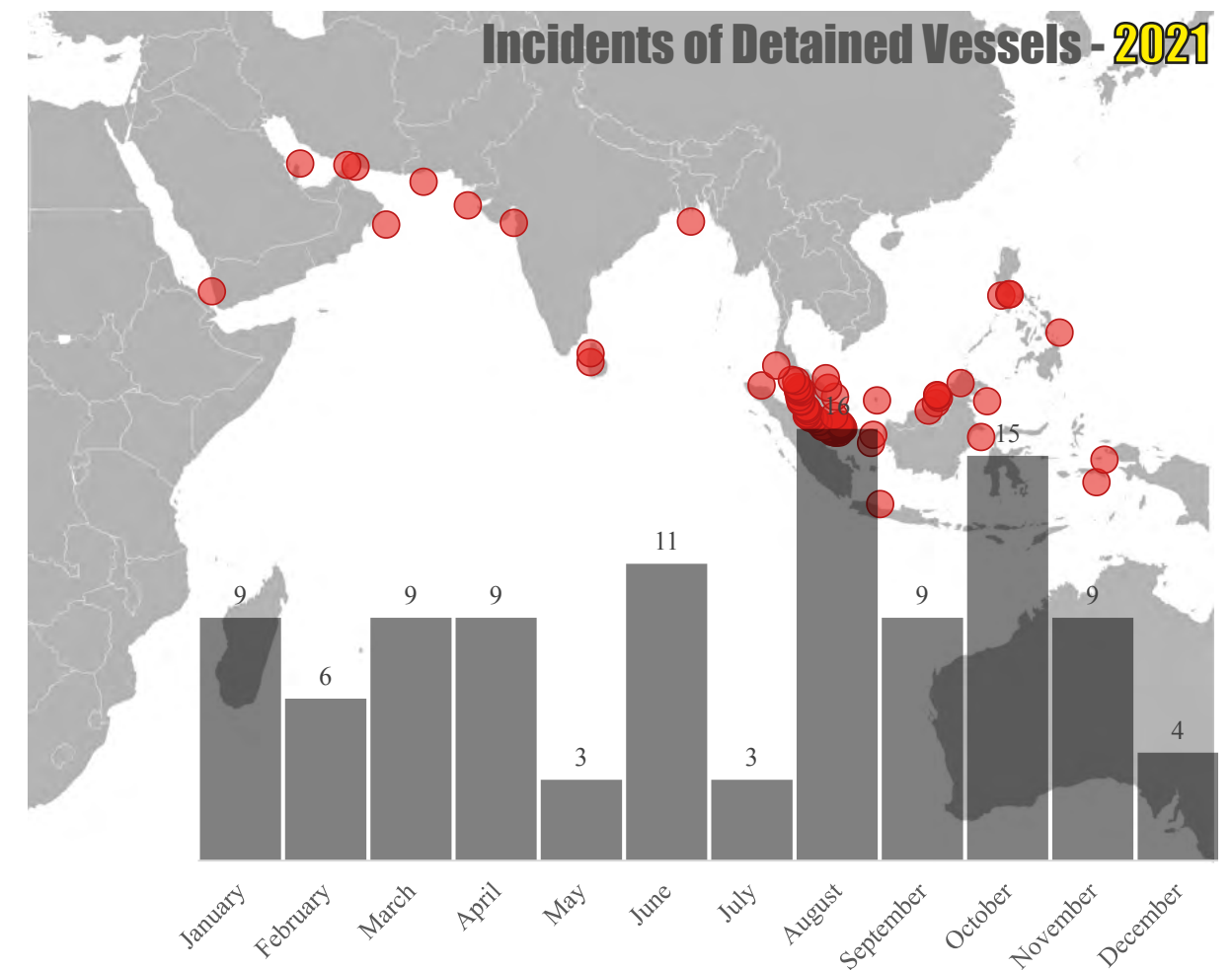
VESSELS DETAINED

The Centre monitored 103 incidents in 2021. Incidents peaked in August, with 16 monitored detentions.

89% of the total recorded incidents occurred in South East Asia, 88% of which were recorded off Malaysia. Majority of these detentions were attributed to unauthorised anchoring and strict enforcement by Malaysian authorities. It is appreciated that

vessels calling in Singapore anchor in nearby Malaysian waters to await availability of berth.

Tankers, Cargo vessels and tugboats constituted majority (69%) of the vessels detained.



MAJOR INCIDENTS

GROUNDING OF MV EVER GIVEN

On 23 Mar 21, Panama flagged container vessel MV EVER GIVEN ran aground in the Suez Canal. The ship blocked the canal for six days, with an estimated \$9.6bn worth of goods held up per day. The Suez Canal Authorities (SCA) used 14 tugs, diggers, a dredger, and a crane to refloat the vessel, finally freeing the ship on 29 Mar 21. The Ever Given was initially detained by the Egyptian authorities in April amid a dispute over compensation, and was released after three months at anchor.

General Average
was declared by the shipowners to cover losses following the incident

\$9.6bn worth of goods were held up per day due to blockade in Suez canal for six days



MV X-PRESS PEARL

On 20 May 21, a Singapore flagged containership MV X-PRESS PEARL caught fire while anchored about 9.5 nm NW of Colombo, Sri Lanka. On 25 May 21, an explosion took place in one of the containers onboard the vessel. All 25 crew members were evacuated safely. However, two Indian crew members sustained injuries and were hospitalised.

Indian ships and aircraft were dispatched to join Sri Lankan Navy for firefighting and rescue effort on 25 May 21. Indian Coast Guard specialised pollution response vessel SAMUDRA PRAHARI was deployed for the operations commencing 29 May 21. The fire was brought under control by AM 30 May 21; however, the efforts continued till 01 Jun 21 when the salvors boarded the vessel for first inspection. Salvors found that the engine room was completely flooded and smoke was still coming out from cargo hold 1, 2 and 3

intermittently. Salvors set up a tow line on 02 Jun 21 to pull the vessel away from the coast. The operations were aborted after the stern of the ship hit the bottom. INS SARVEKSHAK, Indian Navy's Hydrographic Survey Ship, which was deployed for survey around the site commencing 25 Jun 21, detected 54 prominent underwater debris from MV X-PRESS PEARL and one additional uncharted wreck was identified.

The vessel had 1,486 containers embarked (including 25 tons of nitric acid). Leakage of nitric acid in one of the containers is reported to be the likely cause of fire. Further details on the environmental impact of the incident are covered in the Marine Environment Pollution Section.

The salvage operation for removal of the wreck was delayed due to monsoons and finally commenced in Nov 21.



Image Source: Fernholz, T., 2021. The shipwreck's owner said no oil spilled. Satellites disagree. [online] Quartz. Available at: <<https://qz.com/202044/satellites-spot-oil-leak-from-x-press-pearl-wreck-near-sri-lanka/>> [Accessed 9 December 2021].

INDONESIAN SUBMARINE – KRI NANGGALA INCIDENT

On 21 Apr 21, the KRI NANGGALA 402, a Cakra class Type 209/1300 attack submarine of the Indonesian Navy, lost contact while conducting a live torpedo firing drill off the coast of Bali. The Indonesian Navy immediately launched SAR operation with multiple units and subsequently also alerted the International Submarine Escape

and Rescue Liaison Office. The submarine was declared sunk on 24 Apr 21 after debris were found by the SAR units. The wreck was found at a depth of 838 metres, split into three parts. The Indonesian Navy confirmed that all 53 crew on board the sunk submarine were lost.

CYCLONE TAUKTAE

A low-pressure area was formed over south East Arabian Sea on 13 May 21, which progressively strengthened into extremely Severe Cyclonic Storm Tauktae by 17 May 21. From 14 to 18 May 2021, Indian Navy and Coast Guard conducted Search

and Rescue operations, rescuing more than 423 individuals from barges, tankers and fishing vessels. Tauktae resulted in at least 169 deaths in India, with 81 people missing. Losses from Tauktae are estimated at USD \$2.1 billion.

TSUNAMI SERVICE PROVIDERS IN INDIAN OCEAN

Three Tsunami Service Providers (TSP) are responsible for detection, alerting and analysis of tsunami events in the Indian Ocean Region:

- » Indian Tsunami Early Warning Centre (ITEWC), INCOIS in Hyderabad, India
<https://tsunami.incois.gov.in/TEWS/>
- » Joint Australian Tsunami Warning Centre, Australian Bureau of Meteorology and Geoscience in Melbourne and Canberra, Australia
<http://www.bom.gov.au/tsunami/>
- » Tsunami Early Warning System. Climatology and Geophysics Meteorology Agency (BMKG) in Jakarta, Indonesia
<https://rtsp.bmkg.go.id>

IFC – IOR RECOMMENDATIONS

- » *The Centre strongly recommends the seafarers to monitor weather warnings prior putting out to sea.*
- » *Vessels that can monitor relevant warnings/ broadcasts whilst at sea are advised to seek shelter (if feasible) or steer a safe course during periods of heavy weather.*
- » *Effective crew change mechanisms may be worked out to minimise fatigue factor. Relevant flag state, port state, IMO and industry guidance may be consulted to ensure timely crew change keeping in mind COVID-19 restrictions.*
- » *Local education of fishermen and other coastal seafarers regarding rough weather warnings and mechanism for their dissemination is recommended.*
- » *Vessels may ensure proper cargo and weight management onboard to ensure adequate stability in prevailing and envisaged sea conditions.*
- » *Vessels are recommended to monitor coastal state guidance with respect to anchoring locations and procedures.*
- » *Proactive and timely reporting to relevant coastal agencies is recommended to facilitate appropriate response.*
- » *The Centre urges all seafarers to maintain a good lookout for any small vessels in distress and render timely assistance, which is also mandated by relevant SOLAS convention.*



Representative Image: Fire on a Tanker



MARITIME SECURITY THREATS

MARITIME SECURITY THREATS

OVERVIEW

In the year 2021, the Centre continued to monitor several incidents of attack on ships and crew, which because of the nature or motive, differ from the traditional acts of Piracy and Armed Robbery. Although piracy and armed robbery have been suppressed in Gulf of Aden due to the presence of warships and other measures, the continuation of maritime security threats of a hybrid nature complicates the security situation, especially in West Asia.

The term maritime security threat refers to an action conducted in the maritime domain by state or non-state actors, whose goal is to undermine or harm a target by combining overt and covert military and non-military means, conventional capabilities, irregular tactics and formations, indiscriminate violence and coercion, as well as criminal disorder.

WATER-BORNE IMPROVISED EXPLOSIVE DEVICES

West Asia has reported usage of explosive laden remote-controlled skiffs, with the Saudi Arabia led coalition forces reported to have destroyed more than 16 such crafts this year. Currently such skiffs are reported to be used closer

Such maritime security threats include usage of conventional military measures like rockets, missiles, artillery shelling, floating mines, limpet mines, etc. and unconventional measures like Water Borne Improvised Explosive Devices (WBIEDs), Remote Controlled WBIEDs (RCWBIEDs), Unmanned Aerial Vehicles (UAVs) or Drones. Such threats may also directly imperil economic activities such as the withdrawal of the French oil company TOTAL from the Mozambique LNG project in Apr 21, after it declared *Force Majeure* due to worsening security situation in Cabo Delgado province, Mozambique.

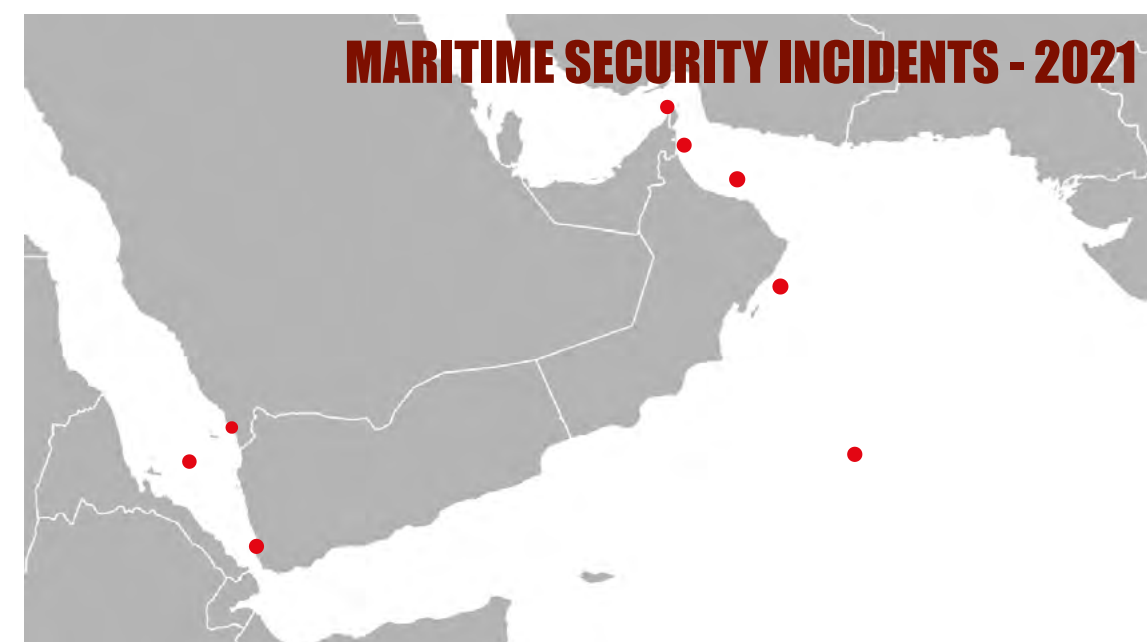
A brief description of these incidents alongwith the available analysis has been elucidated in this section.

to the coast and limited to West Asia, predominantly Southern Red Sea. However, the easy availability of commercial satellite communication networks may be exploited to increase their range in the future.

UNMANNED AERIAL VEHICLES

Novel methods such as UAVs for delivering explosives or 'kamikaze drones' have been observed in the maritime domain. Although vessels have been attacked by such means in the past, resultant loss of life onboard a modern commercial vessel, was

recorded for the first time this year. Three such attacks were recorded by the Centre in 2021 - two on ships and one on port infrastructure. This threat is likely to remain elevated due to the increasing popularity and affordability of drones and other unmanned aerial platforms.



Maritime security threats include usage of conventional military measures like rockets, missiles, artillery shelling, floating mines, limpet mines, etc. and unconventional measures like Water Borne Improvised Explosive Devices (WBIEDs), Remote Controlled WBIEDs (RCWBIEDs), Unmanned Aerial Vehicles (UAVs) or Drones

NOTABLE INCIDENTS

Notable attacks on merchant vessels and maritime infrastructure in 2021 are enumerated below. Due to the ongoing

MV HELIOS RAY, Gulf of Oman: External Source Explosion(s) - 25 Feb 21

On 25 Feb 21, Bahamas flagged Ro-Ro Vessel HELIOS RAY experienced one or two explosions about 44 nm off Muscat in the Gulf of Oman. The vessel was on an easterly transit from Dammam, Saudi Arabia to Singapore. The explosions reportedly occurred during the hours of darkness and the crew was reported to be safe. The vessel suffered damage to the ship's side above the waterline and was diverted to Port of Dubai for damage assessment and repairs. Considering that there were no reports indicating presence of drifting sea mines in the area, it is possible that this was a targeted attack.

MT LORI, Western Arabian Sea: Possible Missile Attack - 25 Mar 21

On 25 Mar 21, the Liberia flagged container vessel LORI reported a possible missile attack while the vessel was in the Western Arabian Sea enroute to Mundra, India from Dar-Es-Salaam, Tanzania. No further information is available with respect to the specifics of the attack.

MV SAVIZ, Red Sea: Possible Limpet Mine Attack - 06 Apr 21

On 06 Apr 21, the Iran flagged general cargo vessel SAVIZ reportedly suffered explosions, whilst anchored in the Red Sea, approximately 115 nm NW of Hudaydah, Yemen. Reportedly, the crew onboard was safe, and the explosions were caused by limpet mines.

MV HYPERION RAY, Gulf of Oman: External Source Explosion - 13 Apr 21

On 13 Apr 21, the Bahamas flagged Ro-Ro vessel HYPERION RAY reportedly suffered light damage after an explosion from an external source while steaming Eastbound in the Gulf of Oman, approximately 17 nm East of Fujairah, UAE. The crew was reported to be safe. The vessel was heading to Fujairah, UAE from Kuwait's Mina Al Ahmadi port.

conflicts, exact cause of most of the incidents could not be conclusively determined.

MV CSAV TYNDALL, Persian Gulf: Fire due to External Source - 03 Jul 21

On 03 Jul 21, a fire was reported onboard the Liberia flagged container ship CSAV TYNDALL, off Musandam Governorate, Oman. The fire was reported to have been caused by an external source. All crew were reported to be safe. The Centre does not hold any further details on the incident.

MT MERCER STREET, Gulf of Oman: Possible UAV Attack - 29 Jul 21

On 29 Jul 21, the Liberia flagged product tanker MERCER STREET was reportedly subjected to two failed aerial drone attacks off the coast of Oman. On 30 Jul 21, reportedly a separate drone attack caused an explosion in the superstructure of the vessel, resulting in the death of two personnel, a Romanian (Master) and a British national (embarked security guard). The vessel was subsequently escorted to Khor Fakkan anchorage, UAE.

MT ALBERTA, Red Sea: Possible UAV Attack - 30 Jul 21

On 30 Jul 21, the Bahamas flagged oil tanker ALBERTA was reportedly hit by an Unmanned Aerial Vehicle (UAV) off Jizan Port, Saudi Arabia. No significant damage or casualties were reported.

Mocha Port, Yemen: Possible Missile and UAV Attack - 11 Sep 21

On 11 Sep 21, Mocha Port, Yemen was reportedly hit by three missiles and six drones, causing damage to the warehouses at the port. No casualties were reported in the incident.

ANALYSIS BY THE CENTRE

- » *The proliferation of technology along with miniaturisation and reduced costs have made such means available to a wider variety of actors. The adoption of technology such as commercial satellite communication services will effectively increase the threat radius of RCWBIEDs and UAVs.*
- » *The attacks monitored in West Asia were observed to be against specific flag/ owners, indicating deliberate targeting. However, attacks on other vessels due to mis-identification and/ or spillover of attacks on a wider group of merchant traffic cannot be ruled out.*
- » *Similarly, adoption of these tactics by state/ non-state actors in other parts of the world, for targeting maritime infrastructure and/ or ships in choke points, would endanger ships and seafarers as well as seriously affect global maritime traffic. Political instability in littoral regions provides a staging area for actors carrying out such activities.*
- » *Mariners are advised to continue to exercise caution and keep a sharp lookout. Strict compliance with respective flag state guidance and adherence to preventive measures laid out in industry guidance such as BMP5/ BMP West Africa is recommended.*



Menace of Environmental Pollution



MARINE ENVIRONMENTAL POLLUTION

MARINE ENVIRONMENTAL POLLUTION

OVERVIEW

In the year 2021, the Centre monitored several incidents of fire, collision, vessels that ran aground and vessels which capsized or sank at sea. While these incidents resulted in loss of property and in some cases even loss of valuable lives of seafarers, majority of them did not involve any major oil/ cargo spill hazardous to environmental safety. The

year, however, has been a witness to a major marine pollution incident, one of the largest in recent years. A brief description of the marine environment pollution due to the incident along with some other notable incidents have been elucidated in the succeeding paragraphs.

MARITIME ENVIRONMENT POLLUTION INCIDENTS - 2021



MV X-PRESS PEARL

Incident

On 20 May 21, a Singapore flagged containership MV X-PRESS PEARL caught fire while anchored about 9.5 nm NW of Colombo, Sri Lanka. The subsequent chain of events, including the eventual sinking in shallow waters has been covered in the Maritime Incidents section.

Environmental Impact

As per a report by OCEANSWELL, MV X-PRESS PEARL was transporting 78 tonnes of low-density polyethylene pellets called nurdles in three containers. Nurdles are used as a raw material for the manufacture of plastic bags. Large quantities of nurdles were washed up on the beaches closest to where the ship was anchored. These were transported onshore because of the strong winds and high waves present at that time. These nurdles are expected to continue to be present in the surface waters of the Indian Ocean for many

decades and will make landfall in many of the Indian Ocean countries (eg, Indonesia, India, Maldives, Somalia) because of the reversing monsoon currents in the region. Additionally, of the chemicals on board, 25 tonnes of nitric acid appeared to be of the most concern. Considering the higher density of the nitric acid compared to that of seawater and a very small volume compared to that of the ocean, the acid was envisaged to have rapidly mixed in the water column, a phenomenon aided by the high winds experienced. Thus, the impact of these chemicals in the marine environment were assessed to be negligible.

Removal

The salvage operation for removal of the wreck was delayed due to monsoons and finally commenced in Nov 21.



Image Source: Srilanka Weekly. 2021. MV X-Press Pearl: Sri Lanka fighting its 'worst' beach pollution - Srilanka Weekly. [online] Available at: <<https://www.srilankaweekly.co.uk/mv-x-press-pearl-sri-lanka-fighting-worst-beach-pollution/>> [Accessed 5 January 2022].

OTHER INCIDENTS

FSO J. NAT, Gadani Shipbreaking Yard, Pakistan: Hazardous Materials - 31 May 21

The Floating Storage and Offloading (FSO) tanker J. NAT was beached on the shipbreaking shores of Gadani, Pakistan on 31 May 21. The vessel, formerly known as JESSLYN NATUNA, operated in the Natuna gas field, Indonesia. The vessel was reported sold to a cash buyer, re-named J. NAT and re-flagged to Palau. The FSO J. NAT left Indonesian waters on 18 Apr 20, with reportedly 1,500 tonnes of improperly processed hazardous waste.

For more than a year the vessel was reportedly under the spotlight of enforcement agencies; Bangladesh and India had banned its entry. The ship's identity had been changed several times, from J. NAT to RADIANT to CHERISH. After several months off the radar, the vessel reappeared in Mumbai before initiating its final voyage towards Pakistan.

Media reports indicate that mercury-contaminated oil sludge was removed from the ship and filled in drums for sale. It is also reported that the vessel's steel is likely to be contaminated by mercury, which may release toxic vapours when heated. Dismantling operations of the J. NAT were reportedly halted by Pakistan authorities and an investigation was launched.

MV DEVON, Bay of Bengal: Oil Spill due to Cracked Fuel Tank - 16 Jun 21

On 16 Jun 21, it was reported that a Portugal flagged container vessels MV DEVON with 17 crew members and 382 containers onboard experienced an oil leak about 260 nm South-East of Chennai, India. Reportedly, the vessel developed a crack in portside fuel tank area followed by the oil leak while it was enroute from Colombo, Sri Lanka to Haldia, India. All fuel in damaged fuel tank was pumped to another tank. It was reported that about 10,000 litres of fuel leaked into the sea. The vessel resumed its voyage to her next port of call on 17 Jun 21.

MV GALAPAGOS, Malacca Strait: Oil Spill following Collision - 11 Jul 21

On 11 Jul 21, Malaysian authorities reported an oil spill from the Malta flagged bulk carrier MV GALAPAGOS after it collided with the United Kingdom flagged container vessel MV ZEPHYR LUMOS in the Malacca Strait about 14.1 nm Southwest of Sungai Muar, Malaysia. Reportedly, GALAPAGOS experienced a steering failure and collided with ZEPHYR LUMOS, while transiting in the Malacca Strait. No injuries were reported in the incident.

MT DIA, off Aden, Yemen: Oil Spill after Sinking - 18 Jul 21

On 18 Jul 21, it was reported that an abandoned tanker DIA sank off Aden, Yemen and caused an oil spill in the Gulf of Aden. Reportedly, the vessel was moored since 2014 at Al-Bariqah, west of the main port, and oil had spread 20 Km along the coast. A preliminary government report said the spill had reached a nearby nature reserve.

Ship at Israeli Navy Base, off Eilat, Red Sea: Hydraulic Oil Spill - 14 Oct 21

On 14 Oct 21, dozens of litres of hydraulic oil reportedly spilled from a ship docked at an Israel Navy base off the Red Sea coast of Eilat. The cause of leak was not specified. It was however reported that the leak was arrested. Reportedly, the Israeli Navy and the Israeli Environmental Protection Ministry took relevant measures to block the spread of the oil to the surrounding area.

NS QINGDAO, off Durban, South Africa: Toxic Smoke during Unloading - 11 Nov 21

On 11 Nov 21, it was reported that South African authorities evacuated the China flagged bulk carrier NS QINGDAO from Durban after its chemical cargo started emitting toxic fumes. It was reported that the cargo became unstable after it got wet during unloading operation in the rain. To ventilate, the vessel

was shifted to a safe anchorage at St Helena Bay - about 850 nm away on the Atlantic coast of South Africa, under escort by tug UMKHUSELI. The cargo was to be unloaded into barges, neutralised and then stored on land. A team of salvors, chemical and hazardous materials experts were deployed to assist. The vessel had reportedly arrived in Durban from Gwangyang, Korea on 14 Oct 21, left Durban on 27 Oct 21 and arrived at St Helena Bay, Namaqua on 08 Nov 21.

MV SOLIN, Algoa Bay, South Africa: Oil Spill during Fuelling - 17 Nov 21

An oil spill was reported in Algoa Bay, South Africa on 17 Nov 21 at around 1300 LT when a Croatian-flagged vessel MV SOLIN was fuelling from the bunker tanker SEA EXPRESS at the Algoa Bay anchorage number 1. It is estimated that about 80 litres of heavy fuel oil were spilt after a fuel tank on board the receiving vessel overflowed. The vessel was temporarily detained and released after payment of relevant fees.



Cyber Security: A critical pillar for maritime industry



CYBER SECURITY THREATS

CYBER SECURITY THREATS

OVERVIEW

As the maritime domain is increasingly becoming automated and digitised for better efficiency and productivity, the significance of Cyber Security assumes even greater importance. Information networks and services in the maritime industry face similar challenges as systems elsewhere. Due to its inherent interconnected nature, attacks on such infrastructure can originate from anywhere.

Onboard ships, sophisticated computer systems are categorised as Information Technology (IT) and Operational Technology (OT). IT systems manage the flow of information and data computation. In contrast, OT manages the operation of the physical processes and equipment. The increasing role of IT and OT systems onboard ships and in ports/ marine infrastructure brings an inherent risk of a malicious attack or unauthorised access which may directly impact safety of seafarers and vessels.

The implications of a cyber attack can range from loss of data/ compromise of system at one end to loss of life or platforms on the other extreme. It is likely that only a portion of actual or attempted attacks are detected and many of these are not reported.

Submarine cables are estimated to carry more than 95% of the world's international data traffic. These information super-highways are critical enablers of the interconnected world which are susceptible to both physical and cyber attacks/ incidents. While incidents of vessels unintentionally damaging submarine cables have been recorded in the past, these are categorised in "Maritime Incidents" Section. However, cyber attacks which aim to disable landing centres or manipulate/ hack submarine cables will be monitored in this Section due to the large-scale ramifications of the same.

IMO RESOLUTION ON CYBER SECURITY

Resolution MSC.428(98)

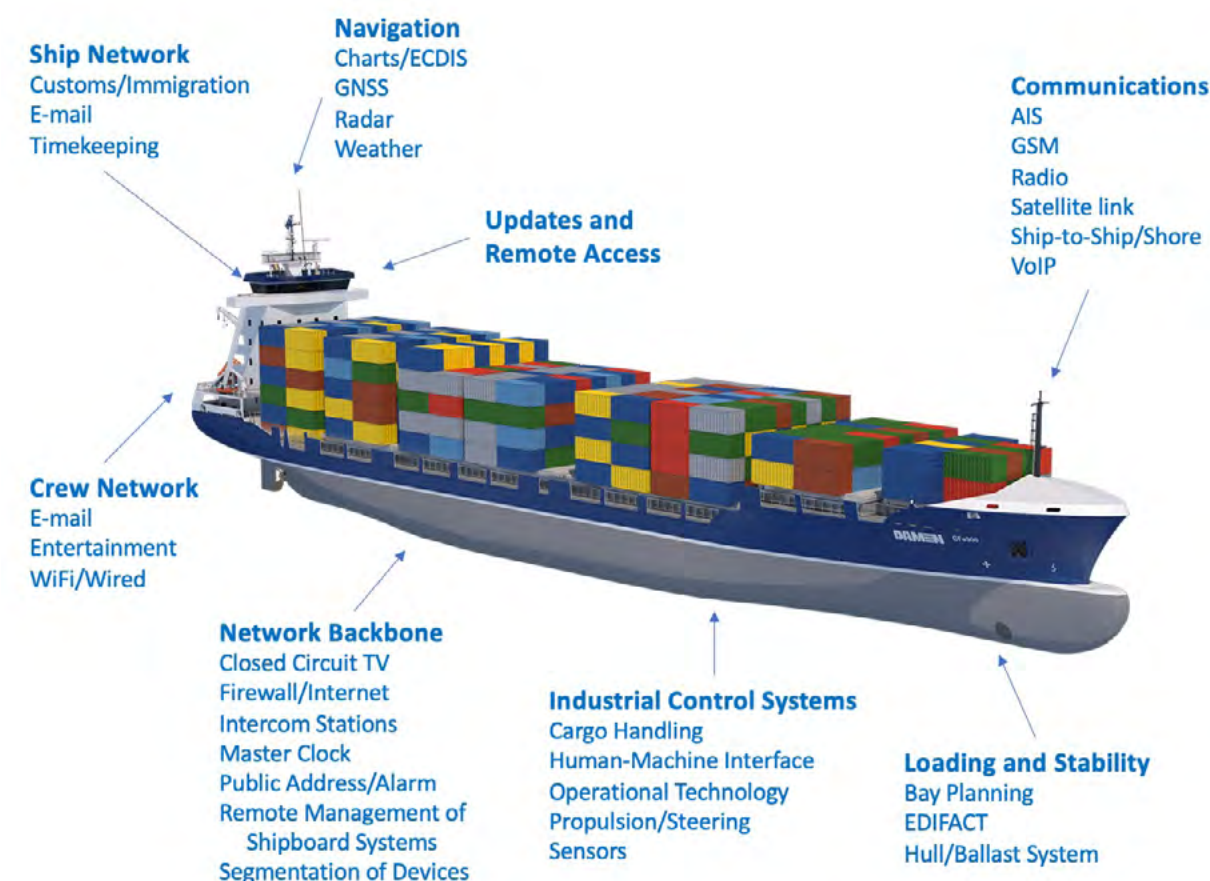
On 16 Jun 17, the Maritime Safety Committee adopted Resolution MSC.428(98) - Maritime Cyber Risk Management in Safety Management Systems. The resolution encourages administrations to ensure that cyber risks are appropriately addressed in existing safety management systems no later than the first annual verification of the company's Document of Compliance after 01 Jan 21.

MSC-FAL.1/Circ.3

IMO on 05 Jul 17, issued MSC-FAL.1/Circ.3 Guidelines on maritime cyber risk management, which provide high-level recommendations on maritime cyber risk

management to safeguard shipping from current and emerging cyber threats and vulnerabilities. They also include functional elements that support effective cyber risk management. Recommendations can be incorporated into existing risk management processes and are complementary to safety and security management practices already established by IMO.

Achieving compliance brings additional benefits in terms of the adoption of digitalisation on board vessels, the implementation of more secure IT networks at sea and improved efficiency for shipping companies.



Networks onboard a ship

Image Source: Kessler, G. and Shepard, S., 2022. Maritime Cybersecurity A Guide for Leaders and Managers. 2nd ed. p.51.

OTHER NOTABLE INCIDENTS

Cyber Attack on HMM

On 12 Jun 21, the South Korea flagged carrier HMM confirmed a virus attack on its email system. An unidentified security breach was detected by the company, which reportedly led to limited access to its email systems in certain areas. As per the company, the systems were eventually restored and no data leakage was detected. The attack and subsequent actions caused disruption in the email communication systems, which impacted the interaction with shippers for tasks such as booking, price enquiries, etc.

Cyber Attack on Transnet South Africa Shipping

On 22 July 21, Transnet SOC Ltd – a rail, port and pipeline company based in South Africa – suffered a Ransomware attack that severely impacted the port operating systems used to track containers, book pick-up and delivery appointments or communicate with shippers. The attackers were reportedly (likely) linked to an International criminal group, and the attack primarily affected operations at the ports of Durban, Ngqura, Port Elizabeth and Cape Town.

Transnet isolated the affected systems to minimize the impact from this attack. The company's initial statement “disruption on its IT network” was upgraded on 26 Jul 21 confirming the incident as “an act of cyber-attack, security intrusion and sabotage”, declaring *force majeure*. The *force majeure* was lifted on 02 Aug 21, following the resumption of container tracking services on 28 Jul 21.

The Port of Durban processes 60% of sub-Saharan African containerized cargo, and the attack caused significant backlog and disruption, forcing companies such as Maersk to divert the cargo operations to Mozambique.

Cyber Attack on CMA CGM

On 20 Sep 21, CMA CGM announced that it was hit by a cyber attack, almost a year after the previous attack in Sep 20. The company reported a leak of data was observed on limited customer information involving first and last names, employer, position, email address and phone number. CMA CGM added that security patches were immediately developed and installed. The company advised clients not to share their account passwords or any personal information. Clients were also asked to check the authenticity of an email requesting to log in to the carrier's platforms, especially if requested to reset a password. The hackers reported by an email to have obtained records of more than 4,99,000 customers and reportedly threatened to make the information public.

Cyber Security Incident - Swire Pacific Offshore

On 25 Nov 21, the Singapore based offshore vessel operator Swire Pacific Offshore (SPO) reportedly filed a report noting its systems had been subjected to a cyber security incident resulting in the loss of some confidential proprietary commercial information along with some personal data. Unverified reports indicated that the company was subject to a ransomware attack by a group named ‘CI0p’.

IFC-IOR RECOMMENDATIONS

- » *The Centre recommends that mariners plan for cyber security vulnerabilities, have a response and contingency plan, and follow the guidelines outlined in the IMO Resolution MSC-FAL.1/Circ.3 of 05 Jul 17.*
- » *In addition to flag state guidance and IMO resolutions/ circulars the following industry publications may be consulted for enhanced cyber security management: -*
 - * *The guidelines on Cyber Security Onboard Ships - Version 4, published by industry bodies.*
 - * *Cyber Security Guidelines for Ports and Port Facilities published by the International Association of Ports and Harbours (IAPH) in 2021.*
- » *Protection of critical submarine cables from unintentional damage by vessels/ seafarers cables may be achieved by promulgation of protected, safety and restriction zones, especially in shallow waters and near landing points offshore.*



CLIMATE CHANGE AND SECURITY

CLIMATE CHANGE AND SECURITY

OVERVIEW

Climate Change is a term used to describe the long-term shifts in temperatures and weather patterns. Both natural events and human activities may impact this phenomenon. Humans have no control over natural variations such as variations in solar cycle; however, since the 1800s, human activities have been reported to be the main driver of Climate Change. Fossil fuel consumption has been assessed to be the primary contributor, due to the generation of Green House Gases and resultant warming by trapping of solar radiations.

The last decade was reported as the warmest on record, with Earth's temperature reported to be 1.1°C above the late 1800s level. The broad consensus amongst experts is that limiting global temperature rise to no more than 1.5°C is critical to avoid significant impact of Climate Change. However, going by the present trends, global warming is projected to reach 2.7°C by the end of this century, as per the Intergovernmental Panel on Climate Change - the UN body for assessing the science related to climate change.

Climate Security is the impact of Climate Change on both traditional and non-traditional security threats and the Centre focusses on Climate Security in the maritime domain. This phenomenon will threaten not only human survival but also national and regional political

stability. Climate change related effects are likely to exacerbate existing issues/ conflicts and generate new conflicts. Sea level rise, increased severity and frequency of natural disasters, fisheries conflict, climate migration and risks to fresh water supply are some of the key problem areas. To assess one of these factors, a study on the Unconventional Tracks of Tropical Cyclones in the North Indian Ocean, including interplay with rising sea surface temperatures, was undertaken by the Indian Navy and is hosted on the Centre's website.

It is pertinent to consider development goals and aspirations while working out a strategy to tackle the challenges posed by climate change. Holistic international response through funding, capability enhancement, collaboration and cooperation are hence essential to effectively address the challenges posed. The 26th Conference of the Parties (COP26) organised by the United Nations Framework Convention on Climate Change (UNFCCC) in Glasgow from 31 Oct - 12 Nov 21, deliberated on some of these key issues.

While discussing, deliberating and acting to address the impact of climate change, it is essential to consider the effects on vulnerable regions of the world. One such perspective, by the Maldives ILO is included in the report.

A NATION AT THE VERGE OF EXTINCTION

Maj Hassan Nadeem, Maldives ILO at IFC-IOR

Purchasing land or building a floating city is not the solution for the world's lowest lying terrain nation. 80 % of islands in the Indian Ocean archipelagic state of Maldives are less than 1 meter above the sea level.¹

The reports and statistics published by global bodies indicate that human activities are responsible for carbon emission of about 40GT annually, ²subsequently causing global sea levels to rise at an alarming rate of 3 to 4 millimeters per year.³ At this pace, the island nation will be a legend before the end of the century. The demise of Maldives has already begun; 90% of the islands have experienced flooding and 97% of our shorelines have experienced erosion.⁴

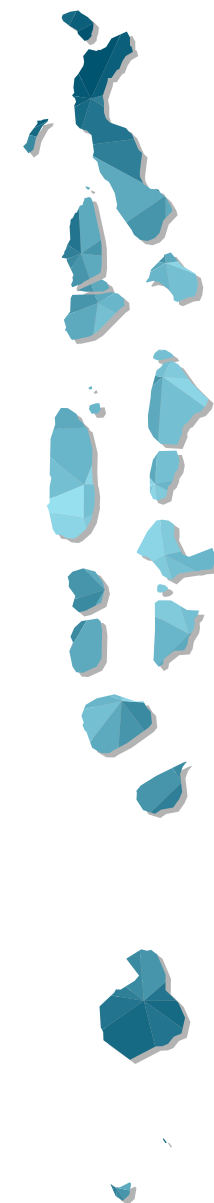
An island nation like Maldives, is uniquely vulnerable to climate change, torrential rainfall, high swells, rising sea surface temperature and many more environmental crises which are becoming more frequent with greater devastation. As the country is largely dependent on imports for necessities, such disasters and severe weather events strain the economy and infact impinges on the very survival of the nation and its people.

Along with the economic burden the country must bear, it must also work to mitigate natural crises and organize relief operations. For an economy that relies on pristine nature for a sizeable portion of its earnings, the situation resembles an individual holding the proverbial final breath on a sinking ship in middle of the ocean.

The island nations are calling the world to unite to fight global warming. The time for preventive action has passed and positive change is the need of the hour to secure the future of generations to come. The Maldives, as an island nation is fighting to reduce carbon emissions and to reach a target of net zero emission by 2030.⁵

The Honourable President Ibrahim Mohamed Solih stated that the Maldives will do everything possible to address the climate emergency and impel international partners to fulfill their global climate responsibilities.⁶

The global community is urged to fulfill its collective responsibility, commitment and cooperation to achieving the global temperature limit of below 1.5 degrees.



1 Earthobservatory.nasa.gov. Preparing for Rising Seas in the Maldives. [online] Available at: <<https://earthobservatory.nasa.gov/images/148158/preparing-for-rising-seas-in-the-maldives>> [Accessed 10 January 2022].
2 Minister Aminath Shauna's statement in response to IPCC Working Group 1 Report on Climate Change - 09 August 2021. [online] Available at: <<https://www.environment.gov.mv/v2/en/news/12294>> [Accessed 5 January 2022].
3 ibid
4 Gilchrist, K. 'There's no higher ground for us': Maldives' environment minister says country risks disappearing. [online] www.cnn.com. Available at: <<https://www.cnn.com/2021/05/19/maldives-calls-for-urgent-action-to-end-climate-change-sea-level-rise.html>> [Accessed 6 January 2022].
5 ibid
6 The President's Office. President Ibrahim Mohamed Solih Outlines Maldives' Climate Commitments at Climate Ambition Summit. [online] Available at: <<https://presidency.gov.mv/Press/Article/24110>> [Accessed 6 January 2022].

GLOSSARY OF TERMS

PIRACY AND ARMED ROBBERY

Hijack. An illegal act of violence where attackers have illegally boarded and taken control of a ship against the crew's will with an objective which could include armed robbery, cargo theft or kidnapping.

Kidnap. An illegal act of violence involving unauthorised forcible removal of persons belonging to the vessel.

Attack. An act of violence, where a ship has been subjected to an aggressive approach by an unidentified craft AND weapons have been discharged.

Illegal Boarding. An act of violence, where attackers have boarded a ship but HAVE NOT taken control. Command remains with the Master.

Sea Theft. Any illegal act of stealing property from a vessel without any violence against the crew or passengers, other than an act of piracy and directed against a ship or property on-board a ship.

Sea Robbery. Any illegal act of stealing property from a vessel committed with arms or with violence against the crew or passengers, other than an act of piracy and directed against a ship or property onboard a ship.

Suspicious Approach. An action involving, definite alteration towards the ship, rapid increase in speed which cannot be accounted for in the prevailing conditions, sudden changes in course towards ship and aggressive behavior by the craft.

Attempted Sea Theft. Any illegal act of an attempt to steal property from a vessel without any violence against the crew or passengers, other than an act of piracy and directed against a ship or property onboard a ship. Nothing reported to be stolen from the vessel.

Attempted Sea Robbery. Any illegal act of an attempt to steal property from a vessel committed with arms or with violence against the crew or passengers, other than an act of piracy and directed against a ship or property onboard a ship. Nothing reported to be stolen from the vessel.

Attempted Boarding. An action involving, close approach or hull-to-hull contact with report that boarding paraphernalia were employed or visible in the approaching boat, but are thwarted by BMP measures, PAST, weather conditions, lack of appropriate equipment, etc.

CONTRABAND SMUGGLING

Contraband Smuggling: Contraband is any item that is illegal to produce or possess. Smuggling is most prominently a form of customs violation, avoidance of duties, and tax fraud. Contraband smuggling involves movement of goods that are against the law to be imported or exported.

Drugs. The broad understanding of drug smuggling is derived from commentary of the United Nations Convention against Illicit Traffic in Narcotics Drugs and Psychotropic Substances, 1988. For the purpose of this report, "drugs" also refers to UNODC's definition of any natural or synthetic substances in Schedules I and II under the Controlled Substances Act, and "illicit traffic" under the International Drug Control Convention. The report categorises drugs by type and effect under the following definitions: -

- » **Opioids.** Substances that bind to μ -opioid receptors, including opium and derivative substances, such as heroin and morphine. Also includes semi-synthetic opioids of varying strength such as codeine, fentanyl, carfentanyl, methadone, hydrocodone, hydromorphone, meperidine, tramadol, and oxycodone.
- » **Cannabinoids.** All substances derived from or synthesized to emulate and bind to cannabinoid receptors in the brain. Includes hashish, cannabis, ganja, charas, marijuana, bango, and synthetic cannabinoids.
- » **Amphetamine Type Substances (ATS).** Amphetamine and derivatives, predominantly methamphetamine, captagon, ecstasy, syabu, yaba, and mephedrone; includes ephedra as a precursor for synthetic drugs.
- » **Other Drugs.** There are several additional drugs noted in this report that are not easily placed into these categories. They include khat, cocaine, LSD, magic mushrooms, and ketum.

Domestic Products. Goods that are either common household products or manufactured items. Examples include rice, flour, salt, turmeric, gas cylinders, and cars.

Natural Resources. Goods or resources that are harvested from nature, including gold, wood, sand, and metals.

Fuel. Smuggling fuel is a form of arbitrage aimed at bringing lower priced fuel from one jurisdiction into a higher priced jurisdiction in order to obtain a profit through the price differential. Examples include petroleum, crude oil, and gas.

Tobacco. Any product of the tobacco plant, including cigarettes, cigars, and chewing tobacco.

Alcohol. Smuggling of alcoholic beverages that are illegal to be imported or exported.

Weapons. Goods designed for inflicting bodily harm or any form of damage, including guns, knives, explosives, and fireworks.

Wildlife. Live animals, bird, or animal parts listed under the Convention on International Trade in Endangered Species (CITES) of Wild Fauna and Flora, including elephant tusks, pangolin scales, sea cucumber, tortoises, turtle eggs, and shells.

Others. Items not falling in any of the categories above such as ancient artifacts, ammonium nitrate, etc.

ILLEGAL UNREPORTED UNREGULATED (IUU) FISHING

IUU Fishing. A range of offences covering fishing without permission or in violation of regulations of the flag state or host nation, misreporting or failure to report catches to relevant authorities where required to do so, fishing vessels without a flag or national registration, or fishing on stocks without management measures in place.

Illegal Fishing. Fishing conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations; conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organisation but operate in contravention of the conservation and management measures adopted by that organisation and by which the States are bound, or relevant provisions of the applicable international law; or in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organisation.

Unreported Fishing. Fishing activities which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or are undertaken in the area of competence of a relevant regional fisheries management organisation which have not been reported or have been misreported, in contravention of the reporting procedures of that organisation.

Unregulated Fishing. Fishing Activities in the area of application of a relevant regional fisheries management organisation that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.

Local IUU Fishing. IUU fishing conducted by fishing vessels of a state, in the waters under the jurisdiction of the flag state, without valid license/ permit of that state, or in contravention of its laws and regulations. Offences by licensed foreign fishing vessels are also counted under this category.

Poaching. IUU fishing conducted by foreign flagged vessels, in waters under the jurisdiction of a state, without valid license/ permit of that state, or in contravention of its laws and regulations.

IRREGULAR HUMAN MIGRATION (IHM)

Human Smuggling. Human Smuggling involves facilitating the illegal entry of a person into a State of which that person is not a national or permanent resident, for financial or other material benefits. Smuggled migrants pay smugglers to facilitate their movement. Attempts by individual(s) alone, are also classified under this category.

Human Trafficking. Human Trafficking is where the person is coerced and moved/ migrated against his/ her will (forced or deceived into doing so) into a State of which that person is not a national or permanent resident.

Irregular Human Migration. The incidents have been placed in a single category of Irregular Human Migration due to the challenges associated with conclusively determining the will and intent of illegal migrants.

MARITIME INCIDENTS

Fire. Incidents involving fire and/ or explosion in the maritime domain.

Grounding. Incidents involving vessel running aground.

Collision. Incident involving collision of vessels or collision of vessel with navigational hazards/ aids.

Mechanical Failure. Incidents involving failure of mechanical shipboard systems such as engine, steering, switchboards etc.

Medical Evacuation (MEDEVAC). Incidents involving evacuation of crew from their vessel due to a medical emergency.

Search and Rescue (SAR). Incidents involving conduct of search and rescue by authorities or maritime personnel to locate missing person or vessel.

Sunk. Incident involving vessels sinking at sea due to maritime accidents attributable to collision, weather or other constraints.

Capsize. Incident involving capsizing of vessels sinking at sea due to maritime accidents attributable to collision, weather or other constraints.

Man Overboard. Incidents involving crew/ passengers falling overboard from a vessel.

Vessel Detained. Incidents involving apprehension of vessels by maritime authorities of a state for engaging in unauthorised activities within the maritime jurisdiction of the state.

Violent Confrontation. Incident involving acts of violence (such as use of force) in an encounter between two or more parties in the maritime domain.

Cargo Mishap. Incidents involving cargo including containers falling overboard at sea.

Missing. Incidents involving mariners reported missing due to accidents at sea.

Death. Incidents involving loss of life at sea attributable to collision, weather or other constraints.

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