

Piracy and Armed Robbery at Sea: An Analysis of Incidents Reported within India's EEZ and Adjacent Waters (1998 – 2022)

Vigneshwaran Venkatesan, Captain Vikas Dahiya, NM and Dayana Kruthi J

ABSTRACT

Piracy and armed robbery at sea occurring within India's EEZ and adjacent waters have been recurring security challenges affecting maritime commerce and safety. In this article, the authors examine the historical background, geographical dynamics, *modus operandi* of criminals, and the trends and dynamics of piracy and armed robbery cases reported within India's EEZ and adjacent waters and those compiled in the Global Integrated Shipping Information System (GISIS). It analyses the location of these incidents, characteristics of the attack, targeted ships and consequences to the crew, etc. The paper argues that a holistic approach that combines domestic and international efforts, spanning regulatory, enforcement, and capacity-building measures, is needed to effectively combat piracy and armed robbery in India and enhance the safety and security of seafarers, vessels, and coastal communities.

Keywords: Piracy, Armed Robbery at Sea, Maritime Security, Coastal Security, GISIS

Introduction

Piracy has been one of the major concerns of the international community; since the early 2000s, piracy and armed robbery incidents in the Indian EEZ and adjacent waters have become a major concern for the shipping industry.¹ It is crucial to recognise that while piracy and armed robbery against ships are maritime crimes, their root causes lie on land. These crimes often emerge in regions with weak law enforcement, economic hardships, maritime instability, and the predominance of illicit entities.² Contrary to the fictional portrayal of pirates as adventurers, today's pirates are often fishers whose resources have been depleted, coastal community residents whose waters have been severely polluted, or marginalised racial and religious minorities.³ These factors categorise armed robberies and piracy as non-traditional security concerns, posing an increasing threat to national security.⁴ These incidents not only pose a threat to the safety and security of crew members and vessels but also impact the overall trade and economic growth of the region.⁵ The maritime routes surrounding India, including the Arabian Sea, the Bay of Bengal, and the Indian Ocean, play a crucial role in facilitating global trade, connecting major economies, and serving as a lifeline for energy supplies.⁶ However, the incidents of piracy and armed robbery at sea have posed challenges to the safety and security of seafarers, commercial

vessels, and coastal communities. To contextualise the gravity of the problem, recent incidents underscore the persistent nature of maritime crime in the Indian EEZ and adjacent waters.⁷ For instance, according to the International Maritime Bureau's (IMB) Piracy Reporting Centre's Annual Report 2022, while incidents were reported in the Indian EEZ and adjacent waters, the majority of these were low-level theft attempts occurring within port areas rather than serious acts of piracy at sea⁸. Understanding the factors contributing to piracy and armed robbery in India requires an examination of various elements. Socio-economic conditions, regional political dynamics, maritime governance structures, coastal security mechanisms, and legal frameworks, including India's Anti-Maritime Piracy Act 2022, influence the complex interplay of factors in the maritime domain. Addressing these multifaceted challenges necessitates a holistic approach that combines domestic and international efforts, spanning regulatory, enforcement, and capacity-building measures. This paper draws upon existing literature, reports, and empirical evidence to provide an in-depth analysis of piracy and armed robbery in India.

By delving into the complex nature of piracy and armed robbery in India, this study seeks to inform policymakers, security agencies, international organisations, and researchers about the current trends and patterns based on the reported incidents. This study uses data from the International Maritime Organisation's (IMO) Global Integrated Shipping Information System (GISIS) portal. The information on the reported incidents from 1998 to 2022 was obtained. This information has been analysed to get some insights into the geographical dynamics, *modus operandi* and other important elements of the piracy and armed robbery incidents in and around India's vast coastline.

Piracy and pirates have been around since maritime navigation began. From the United States to Algeria in the North Atlantic Ocean, from Greek pirates to French pirates in the Mediterranean Sea, the Malay pirates between India and Malaysia, the Vikings and Danes from Scandinavia, the Dutch pirates, the Caribbean pirates, and others demonstrate the widespread nature of historical maritime piracy.⁹ Piracy had its place in international law long ago, when the Council of the League of Nations convened a Committee of Experts for the Progressive Codification of International Law, and the committee included the subject of piracy as one among the seven subjects which are "*sufficiently ripe for codification*".¹⁰ As a result, Harvard Law School researched the seven subjects, including piracy and prepared a draft known as the Harvard Draft Convention on Piracy of 1932.

Later, the International Law Commission was requested by the United Nations to study the regime of high seas and territorial waters.¹¹ The International Law Commission prepared a text entitled "*Regime of the High Seas*," which contained six articles related to piracy. The Convention on the High Seas, adopted by the United Nations, addresses piracy in Articles 14 to 21.¹² The Convention on the High Seas, among the four other treaties adopted in 1958, were replaced by the Convention on the Law of the Sea. The United Nations Convention on the Law of the Sea (UNCLOS) was adopted in Montego Bay on December 10, 1982.¹³ Articles 100 to 107 of the UNCLOS deal with piracy provisions.

As there were no provisions in the UNCLOS for various forms of violence at sea other than piracy, the international community brought up the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention). The SUA Convention was adopted in 1988 and entered into force in 1992, especially to deal with violent acts against ships and persons on board. It is relevant to mention another important convention, as many piracy incidents involved hostage taking. In 1979, the International Convention Against the Taking of Hostages was adopted and entered into force in 1983, exclusively to deal with hostage-taking incidents, including those that occur in the maritime domain.¹⁴

To effectively prevent and suppress the crime of piracy and armed robbery at sea, countries came up with agreements at a regional level. The Regional Cooperation Agreement on Combatting Piracy and Armed Robbery against Ships in Asia (ReCAAP) is the first and foremost initiative that addresses the issue of piracy at a regional level. The ReCAAP was indeed drafted with significant involvement from members of the Association of Southeast Asian Nations (ASEAN). The agreement was established in response to the increasing incidents of piracy and armed robbery in the region, particularly in the waters surrounding Southeast Asia, which had become a hotspot for such criminal activities.¹⁵

The United Nations General Assembly stressed the international cooperation among member states at regional and local levels. For instance, the United Nations General Assembly, in Resolution 63/111 adopted in December 2008, highlighted the need for cooperation in combatting maritime security threats, including piracy and armed robbery at sea.¹⁶ The IMO, too, convened a high-level meeting with countries of High-Risk Areas, such as countries from the Western Indian Ocean, the Gulf of Aden and the Red Sea areas, in January 2009. As a result, the Code of Conduct Concerning the Repression of Piracy and Armed Robbery against Ships in the Western Indian Ocean and the Gulf of Aden (Djibouti Code of Conduct) was adopted and entered into force. Information-sharing has been given importance in both ReCAAP and the Djibouti Code of Conduct. These regional cooperation and robust legal frameworks are essential to mitigate such risks and ensure safe maritime operations.¹⁷

Defining Piracy and Armed Robbery at Sea

The definition of piracy is well established in international law through Article 101 of UNCLOS 1982, which builds upon earlier frameworks including the Harvard Draft Convention and the 1958 Convention on the High Seas. UNCLOS provides universal jurisdiction for the crime of piracy and has been widely ratified by the international community. According to Article 101 of the UNCLOS, piracy is defined as,

Any illegal acts 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 on the

high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft.

Piracy is considered a crime against the international community and is subject to universal jurisdiction, which means that any state can prosecute pirates. UNCLOS Article 101 defines piracy, while armed robbery at sea is addressed separately in other international instruments such as the IMO Code of Practice for the Investigation of Crimes of Piracy and Armed Robbery Against Ships.

While there is no definition for armed robbery against ships, the Assembly of the International Maritime Organisation adopted the Code of Practice for the Investigation of the Crime of Piracy and Armed Robbery against Ships through Resolution A.922(22) on 29 November 2001. This adoption was based on the recommendation made by the Maritime Safety Committee at its 74th Session. The IMO defines “armed robbery against ships” as

Any unlawful act of violence or detention or any act of depredation, or threat thereof, other than an act of ‘piracy,’ directed against a ship or against persons or property on board such ship, within a State’s jurisdiction over such offences.

Geographical Scope of the Study. This research examines incidents in India’s maritime zones as defined by the Maritime Zones of India Act, 1976, which includes:

- (a) Territorial sea (extending up to 12 nautical miles from the baseline)
- (b) Contiguous zone (extending up to 24 nautical miles from the baseline)
- (c) Exclusive Economic Zone (extending up to 200 nautical miles from the baseline)

The study also includes incidents in port areas and anchorages, adjacent high seas and ship-breaking areas.

Analysis of the Reported Incidents of Piracy and Armed Robbery against Ships

The analysis is based on the data obtained from the IMO’s GISIS for the period from 1998 to 2022.¹⁸ The information on the incident, such as location, the status of the ship at the time of the attack, number of perpetrators, consequences to the crew, weapons used for the attack, parts of the ship raided, etc., have been collected for analysis. These incidents were reported within India’s EEZ and adjacent waters. There are a total of 264 incidents reported between 1998 and 2022. The results of the analysis of each variable have been presented in tables and graphical representations, followed by a brief description and discussion.

This analysis expands to the interpretation of the research findings by integrating a wide array of literature, placing results within the context of broader studies on piracy and

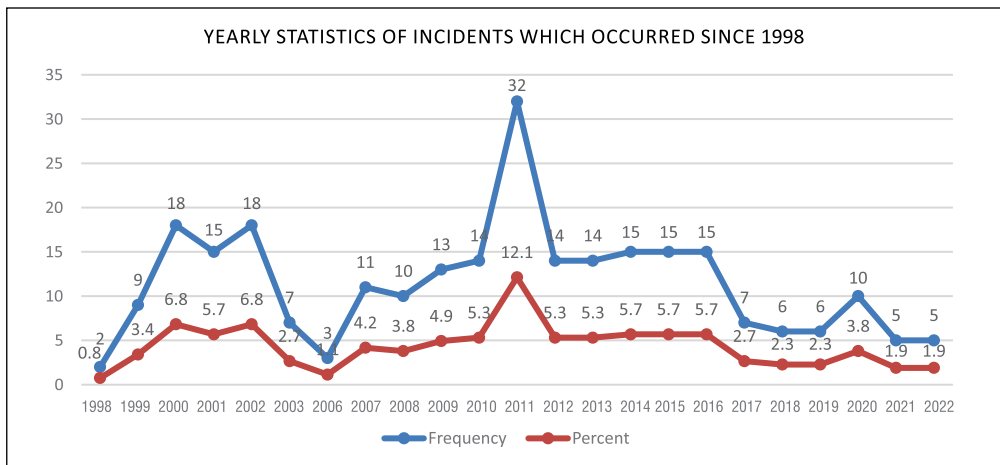
maritime security. The objective is to not only interpret the results but also to compare them with findings from similar studies, explore factors that could have influenced the outcomes, and discuss the broader implications of the results. The discussion also identifies the strengths and limitations of our approach, offering a comprehensive understanding of the data in relation to the existing body of research.

Statistical Overview of the Piracy and Armed Robbery Incidents

The data provided represents the number of reported piracy and armed robbery incidents per year from 1998 to 2022. Analysing the trends over this period reveals fluctuations in the frequency of incidents. From 1998 to 2003, there was a notable increase in the number of incidents, with a peak of 18 incidents in 2000 and 2002. This rise could be attributed to various factors such as changes in maritime security measures, economic conditions affecting piracy activity¹⁹, and shifts in the strategies of criminal organisations operating at sea.²⁰ Following the year 2003, there was a decline in reported incidents until 2006, when the number of incidents dropped to just three. This period of decrease may indicate successful anti-piracy initiatives or changes in criminal behaviour.²¹

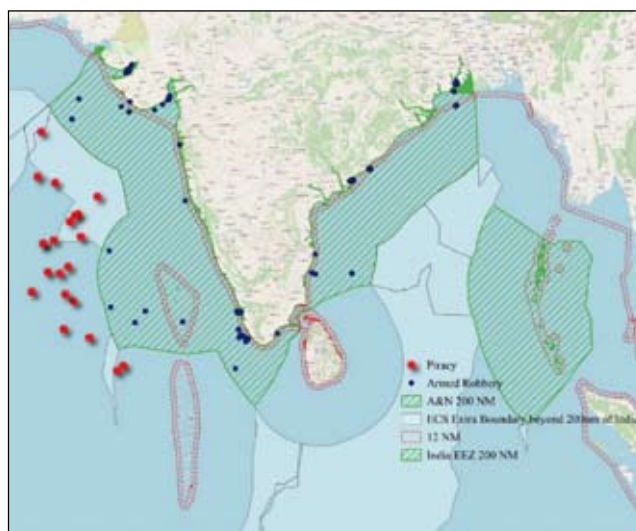
Incidents of piracy and armed robbery are widespread across the Indian Ocean, the Bay of Bengal, the South China Sea, and the Malacca Strait. Waters off the coast of Somalia, the Gulf of Aden, and the Straits of Malacca are especially notorious for high piracy.²² While incidents of piracy and armed robbery are reported in various parts of the Indian Ocean region, this study focuses specifically on incidents occurring within and adjacent to India’s maritime zones. As Figure 1 shows, from 2007 to 2011, there was a resurgence in piracy and armed robbery incidents, with a significant peak of 32 incidents reported in 2011. This increase aligns with a period of heightened piracy activity off the coast

Figure 1 - Number of Incidents (Year-wise)



Source: Collated by the author

Figure 2 - Map Showing Reported Incidents of Piracy and Armed Robbery near Indian Waters (1998-2022)



Source: Collated by the author*

of Somalia, which garnered international attention and prompted coordinated efforts to combat piracy in the region. Subsequently, from 2012 to 2018, the number of incidents fluctuated annually, ranging from 5 to 15 incidents each year. This period coincides with two significant developments: enhanced coastal security measures implemented after the 2008 Mumbai attacks, and a shift in the nature of reported incidents, with most cases after 2012 primarily involving petty thefts in Indian harbours rather than serious acts of piracy at sea. In the last few years of the dataset, from 2019 to 2022, there has been a slight decrease in reported incidents, with annual totals remaining relatively low, ranging from 5 to 10 incidents per year.

It is evident from Figure 2 that India's western coast, which extends from Kerala in the south to Gujarat in the north, witnessed the greatest number of attacks compared to the eastern coast. Abishek Mishra notes similar trends in the occurrence of piracy and armed robbery incidents in the Indian subcontinent.²³

Incident Location and Ship Status. The data in Table 1 demonstrates that 52.3 per cent of piracy incidents occurred in port areas, 27.7 per cent in territorial sea, and 20.1 per cent outside territorial sea. Furthermore, 70.1 per cent of these attacks happened when ships were at anchor, while 23.5 per cent occurred when vessels were steaming. These statistics underscore the heightened vulnerability of stationary vessels, particularly in port areas.

*Note: This map is for representative purposes only and does not reflect official boundaries. The maritime boundaries and jurisdictional limits shown are approximate and not authoritative. The furthest incident recorded is approximately 550 nautical miles from the Indian coast, extending beyond India's EEZ.

Table 1 - Location of the Piracy and Armed Robbery Incidents and Ship Status

Location	Category	Frequency	Percentage
Location of Incident	Outside territorial sea**	53	20.1
	In Territorial sea	73	27.7
	In Port areas	138	52.3
	Total	264	100.0
Status of Ship when Attacked	Steaming	62	23.5
	At Anchor	185	70.1
	Not stated	17	6.4
	Total	264	100.0

Source - IMO's Global Integrated Shipping Information System

These findings align with the literature on global piracy trends, particularly in regions like Southeast Asia and the Gulf of Guinea. Carolin Liss and Ted Biggs highlight that ports are often the most vulnerable due to their high density of ships and relatively lax security measures.²⁴ The vulnerability of anchored ships, especially in congested areas such as ports, is also emphasised by Rulah Odeh Alsawalqa and Denis Venter, who note similar trends in the North-Western Indian Ocean.²⁵ Also, Baird suggests that stationary ships are particularly susceptible to piracy due to reduced manoeuvrability and alertness.²⁶ According to Khobragade et al and Zohourian, anchored ships are easier targets as they are stationary, making it simpler for pirates to board and carry out their attacks without the risk of high-speed chases or evasion.²⁷

The data shows that the lowest number of attacks occurred outside the territorial sea (20.1%), which contradicts the existing research in Africa and Southeast Asia. Authors Bruwer and Elleman argue that piracy is more prevalent outside the territorial sea due to the vast, unregulated nature of these areas, allowing pirates to hijack vessels and demand ransoms.²⁸

Shishir Upadhyaya's study on the Gulf of Aden corroborates these patterns, indicating that piracy is more prevalent in the territorial sea and ports, where ships are stationary and thus more vulnerable.²⁹ This trend is also observed by Himadri Das's research on Indian maritime zones, which highlights that port areas are the prime targets for armed robbery due to the high concentration of potential targets and insufficient security measures.³⁰

The concentration of piracy in port areas is also noted in the work of Peter Chalk, who discusses the strategic targeting of ports by pirates seeking to exploit the dense clustering of high-value vessels.³¹ This is further supported by Martin N Murphy, who emphasises

** Includes incidents in EEZ and high seas

the role of ports as critical hubs of maritime trade that are frequently targeted by pirates for economic gains.³²

Further, Keunsoo Jeong's analysis underscores the recurring nature of piracy incidents in specific regions, particularly those with less effective security measures, such as ports.³³ This aligns with Elio Marchione and Shane D Johnson's findings, which reveal that piracy tends to cluster in time and space, particularly around ports and territorial waters where ships are more vulnerable.³⁴

The high incidence of piracy in port areas may be attributed to the concentration of ships in these regions, which provides pirates with numerous potential targets. Additionally, the relative immobility of anchored vessels makes them easier targets for piracy. The strategic behaviour of pirates, who often focus on less-defended ships, aligns with the patterns observed in this data.

The analysis of the present research identifies areas with concentrated incident reports, particularly ports. The data shows that 52.3 per cent of reported incidents occurred in port areas, with systematic reporting through established mechanisms such as the GISIS and IMB-PRC. The findings suggest that maritime security efforts should prioritise enhancing security in ports and for anchored vessels. This could include increasing patrols, improving surveillance, and implementing stronger security protocols in piracy-prone areas. While incidents in ports fall clearly under national jurisdiction, information-sharing through regional and international frameworks such as the Information Fusion Centre - Indian Ocean Region (IFC-IOR) helps in maintaining maritime domain awareness and identifying patterns of maritime crime.

Attack Characteristics. The data in Table 2 shows that the number of attackers can vary significantly, ranging from small groups of 4-5 pirates to larger, more organised gangs of 10-20 individuals. Smaller groups are typical for quick robberies, while larger groups are more likely to be involved in hijackings and prolonged hostage situations. Most incidents involve small groups, with 1 to 4 persons accounting for 83 cases (31.4%) and 5 to 10 persons for 66 cases (25%). Together, these groups constitute 56.4 per cent of all incidents. Larger groups, with more than 10 persons, are less common, with only 10 cases (3.8%) reported. Of the 264 reported incidents, 159 incidents (60.2%) provided information about the number of perpetrators involved. Among these documented cases, the total number of perpetrators was 910, with an average of 5-6 perpetrators per incident. Also, the data shows that most piracy incidents involved small groups of attackers, typically armed with rudimentary weapons like knives. Specifically, 62.1 per cent of the attackers were unarmed, while 37.9 per cent were armed, with knives being the most commonly used weapon (4%). These findings are consistent with studies on piracy in Southeast Asia, where small, loosely organised groups often rely on minimal force, as documented by Carolin Liss and Ted Biggs.³⁵ The prevalence of knives as the weapon of choice among pirates is similarly highlighted in their research, reinforcing that these attacks are primarily opportunistic. This suggests that many of these attacks are opportunistic, relying on intimidation rather than actual violence to achieve their objectives.

Table 2 - Characteristics of Piracy and Armed Robbery at Sea

Characteristics	Category	Frequency	Percentage
Number of Persons Involved in the Attack	1 – 4 Persons	83	31.4
	5 – 10 Persons	66	25.0
	More than 10 persons	10	3.8
	Not stated	105	39.8
	Total	264	100.0
Number of Actual Perpetrators	1 – 4 Persons	229	25.2
	5 – 10 Persons	447	49.1
	More than 10 persons	234	25.7
	Total	910	100.0
Armed/Unarmed	Unarmed	164	62.1
	Armed	100	37.9
	Total	264	100.0
Types of Arms/Weapons Used	Knives	40	40.0
	Wooden Sticks/Iron Rods	3	3.0
	Guns/Rifles	10	10.0
	Rocket Propelled Grenades	7	7.0
	Automatic Weapons	2	2.0
	Not Stated/Unknown	38	38.0
	Total	100	100.0

Source: IMO's Global Integrated Shipping Information System

Upadhyaya also notes the common use of knives and other rudimentary weapons, particularly in attacks near ports or on anchored vessels.³⁶ This is supported by Peter Chalk's work, which emphasises that many contemporary piracy incidents are characterised by the use of minimal force, with pirates often relying on the element of surprise and intimidation rather than direct violence.³⁷ The criminological perspective provided by Anamika Twyman-Ghoshal suggests that the low level of violence observed in this data is typical of opportunistic piracy, where the goal is economic gain with minimal risk of confrontation.³⁸ Further support for these findings is provided by the work of Adelina Tumbarska, who notes that piracy incidents in regions like Southeast Asia often involve minimal violence, with pirates using knives and other simple weapons to intimidate crews rather than engage in outright violence.³⁹

It's important to note that the nature and scale of maritime crime vary significantly across regions. While Somali piracy incidents typically involved heavily armed groups using firearms and other weapons, the incidents reported near Indian ports were predominantly petty thefts of a much less severe nature.⁴⁰ This distinction highlights the broad spectrum of maritime crime, ranging from opportunistic theft in ports to organised piracy on the high seas. The presence of arms is intended to intimidate and control the ship's crew

quickly. The data shows that guns and rifles were used in 10 per cent of the cases, rocket-propelled grenades (RPGs) in 7 per cent, and automatic weapons in 2.0 per cent. The high percentage of unarmed attackers (62.1 per cent) indicates that these incidents are primarily opportunistic, targeting vessels that appear vulnerable and unprotected.

The detailed examination of attack characteristics provides valuable insights into the nature of the piracy threat in the region. However, the limitations of incomplete reporting on the number of attackers and the types of weapons used could hinder complete understanding of the threat dynamics. Additionally, the focus on incidents involving unarmed attackers may underrepresent the severity of attacks involving more sophisticated and well-armed groups.

The results align with the existing Best Management Practices (BMP) guidelines, which provide internationally recognised standards for vessel protection and crew response to maritime security threats. These established protocols already include comprehensive non-lethal defensive measures and crew training procedures.⁴¹ Improving the accuracy and completeness of reporting on piracy incidents is also crucial for enhancing our understanding of these threats.

Pirate Ship and Robber Characteristics. The data in Table 3 indicates that tankers are the most frequently attacked vessels (46.2%), with storerooms being the most commonly raided part of the ship (37.5%). These findings are consistent with global trends, where tankers are often targeted due to their valuable cargo and relatively slow speed, as noted by Pottengal Mukundan.⁴²

Boats were used in most piracy and armed robbery incidents (22.3%). Fishing boats, likely due to their versatility, account for 8.0 per cent of incidents. Wooden boats represent 6.4 per cent, while speed boats, unlit boats, and motor boats each range from 2.3 per cent to 4.2 per cent. Sakhuja noted that pirates in the Indian Ocean region, including those operating near India and Southeast Asia, typically employ small, fast boats to approach and board larger vessels.⁴³ Graham Gerard Ong-Webb observed that these pirates are often heavily armed and use intimidation or direct violence to subdue crews.⁴⁴

In many cases (42 per cent), the type of vessel used by the robbers was unknown, highlighting the challenges in detecting and identifying pirate vessels. In Southeast Asia, Robert C Beckman highlights similar challenges in detecting pirate vessels, particularly when they use small, fast boats that can evade capture in congested waters.⁴⁵ Similarly, these challenges are also noted by Nur Jale Ece and Hilal Kurt, who emphasise the difficulties in detecting small, fast-moving boats, particularly in regions like the Gulf of Guinea.⁴⁶

Despite these challenges faced by the targeted ships, Rulah Odeh Alsawalqa and Denis Venter discuss the professionalisation of piracy in the North-Western Indian Ocean, where organised crime syndicates have made it more difficult for naval forces to detect and intercept pirate vessels.⁴⁷ Further research by Elio Marchione and Shane D Johnson

Table 3 - Characteristics of the Pirate Ship and Pirates/Robbers

Characteristics	Category	Frequency	Percentage
Parts of Ship Raided	Master and crew accommodation	1	0.4
	Cargo area	23	8.7
	Storerooms	99	37.5
	Engine room	4	1.5
	Main deck	24	9.1
	Not boarded	68	25.8
	Not stated	45	17.0
	Total	264	100.0
Types of Ships Targeted	Bulk/Barge Carrier	56	21.2
	Tanker ships	122	46.2
	Container Ships	63	23.9
	Tug	12	4.5
	Other Ships	11	4.2
	Total	264	100.0
Type of Vessel Pirates/ Robbers Used	Not known	111	42.0
	Wooden Boat	17	6.4
	Speed Boat	10	3.8
	Unlit Boat	6	2.3
	Motorised Boat	11	4.2
	Fishing Boat	21	8.0
	Tug Boat	2	0.8
	Boat	59	22.3
	Skiff	23	8.7
Skiffs along with a Mother Ship	4	1.5	

Source: IMO’s Global Integrated Shipping Information System

reveals that pirates often exploit specific spatial and temporal patterns, targeting vessels that follow predictable routes or schedules.⁴⁸ This highlights the importance of improving surveillance and intelligence-sharing among maritime authorities to better anticipate and respond to piracy threats.

The strength of this analysis lies in its identification of specific targets and methods used by pirates, which can inform targeted security measures. However, the lack of detailed information on the vessels used by pirates is a limitation, as it hinders a comprehensive understanding of their operational strategies. Additionally, focusing primarily on Tankers might underrepresent the risks faced by other types of vessels, such as container ships or bulk carriers.

The findings suggest that maritime security strategies should prioritise the protection of Tanker ships and secure vulnerable areas such as storerooms. Efforts to improve the detection and tracking of pirate vessels through advanced surveillance technologies are crucial. Maritime surveillance capabilities have evolved to include various technologies such as Automatic Identification System (AIS), Long-Range Identification and Tracking (LRIT), coastal radar networks, satellite surveillance, and Unmanned Aerial Vehicles (UAVs). For instance, India's coastal surveillance network includes radar stations, AIS receivers, and electro-optical sensors integrated with maritime domain awareness centres.⁴⁹ Strengthening international cooperation in monitoring and responding to piracy threats is also vital, as better information-sharing and coordination could enhance the effectiveness of anti-piracy efforts.

Consequences of the Attack. Table 4 indicates that in 65.2 per cent of incidents, there were either no reported consequences or the outcomes were not stated. However, 13.3 per cent involved theft, 11.4 per cent involved threats of violence, and 8.3 per cent involved actual violence against the crew. This suggests that while theft is the primary objective, the threat or use of violence is not uncommon.

Table 4 - Consequences to the Crew

Consequences to the Crew	Frequency	Percentage
Actual violence against the crew	22	8.3
Threat of violence against the crew	30	11.4
Ship missing	0	0.0
Ship hijacked	5	1.9
Theft	35	13.3
None/not stated	172	65.2
Total	264	100.0

Source: IMO's Global Integrated Shipping Information System

These findings are consistent with research by Martin Murphy, who notes that economic motivations are the primary driver behind most piracy incidents, with violence being a secondary tactic used to ensure compliance.⁵⁰ The use of violence, though less common, poses significant risks to crews, as documented in various regional studies, including those focused on Southeast Asia and the Gulf of Guinea.⁵¹

Peter Chalk's analysis of piracy in the Gulf of Aden highlights the increasing use of violence, particularly in cases where pirates resort to kidnapping and holding crews for ransom.⁵² Himadri Das's study on armed robbery in Indian waters also discusses the rising trend of violent attacks, where pirates use intimidation and violence to achieve their objectives.⁵³ A research by Tumbarska highlights a similar trend towards more violent piracy in regions like the Gulf of Guinea, where economic pressures and the lack of effective governance have led to an increase in violent attacks and kidnappings.⁵⁴

Elio Marchione and Shane D Johnson add another dimension by analysing the spatial and temporal patterns of piracy, showing that incidents often cluster in space and time, suggesting that pirates may escalate violence if they perceive that previous attacks were successful and low-risk.⁵⁵

The high percentage of incidents with no reported consequences may reflect underreporting or a focus on the theft, where the primary objective is economic gain rather than physical harm. The relatively low incidence of violence could be influenced by the pirates' strategies, which often rely on the threat of force rather than actual violence.

The strength of this analysis is its focus on the outcomes of piracy incidents, providing a clearer picture of the risks associated with these crimes. However, the limitations include potential underreporting or incomplete data on the consequences of these incidents, which could obscure the true impact of piracy on maritime operations.

The results indicate that while the primary focus of anti-piracy strategies should be on preventing theft and ensuring the safety of crews, there is also a need to address the potential for more severe outcomes, such as violence or hijacking. Additionally, enhancing crew training and preparedness could help mitigate the risks associated with piracy, particularly in cases where violence or threats are involved.

Unavailability of Data on Registered Cases by Law Enforcement Agencies in India

Though India has established legal frameworks against piracy and related activities, there is a significant challenge in comprehensively understanding and addressing piracy and armed robbery at sea near the Indian coastline i.e., the unavailability of detailed and accessible data on registered cases by law enforcement agencies, including the National Crime Records Bureau (NCRB) in India. For instance, the existing records on piracy and armed robbery incidents lack law enforcement aspects, such as the number of apprehensions, convicted pirates, etc, which are the parameters of effective law enforcement. This lack of data presents several issues that hinder effective policy-making, enforcement, and research efforts.

Incomplete Reporting and Documentation. One of the primary issues is the incomplete reporting and documentation of piracy incidents by local law enforcement agencies. Although international bodies like the IMB and the IMO maintain extensive records of piracy incidents globally, there is often a disconnect between these records and those maintained by national and local agencies in India. This discrepancy arises due to various factors, including under-reporting by victims, lack of standardised reporting mechanisms, and bureaucratic inefficiencies. The International Maritime Bureau (IMB) relies heavily on self-reporting from ship crews, owners, and government authorities, all of whom may have incentives to downplay or avoid reporting piracy incidents. Analysis of reporting

patterns reveals specific discrepancies across different reporting systems. For instance, Ahmad Almaududy Amri's research documented specific cases where vessel crews were reluctant to report incidents without mentioning the reason for reluctance.⁵⁶ In addition, the absence of a centralised reporting agency further complicates the situation. Data on piracy incidents are not collected by a single entity, leading to variations in the accuracy and type of data reported by different organisations.⁵⁷

Lack of Centralised Database. India lacks a centralised and comprehensive database specifically dedicated to piracy and armed robbery incidents. While the NCRB compiles and publishes crime statistics annually, these reports often do not include detailed information on maritime crimes.⁵⁸

Research and Academic Implications. For researchers and academics, the lack of reliable data on piracy incidents in Indian maritime zones poses significant barriers to conducting thorough and impactful studies. Empirical research relies heavily on accurate and detailed data to identify trends, understand underlying causes, and propose evidence-based solutions. The current data limitations restrict the scope and depth of research, leading to potential gaps in knowledge and understanding.

Recommendations Based on Analysis

Port Security Enhancement. Given that 52.3 per cent of incidents occurred in port areas and 70.1 per cent while ships were at anchor, the following recommendations are suggested:

- (a) Implementation of enhanced surveillance systems for anchored vessels. For example, the integration of thermal imaging cameras with AIS data for real-time monitoring of approaching vessels, has been successfully implemented in Singapore ports.
- (b) Establishment of dedicated patrol schedules during high-risk periods. For example, the implementation of randomised patrol patterns during night hours (2000-0400), when vulnerability is heightened, as practised in major Indian ports.
- (c) Development of port-specific security protocols. For example, Chennai Port's multi-layered security approach combines RFID-enabled access control, CCTV monitoring, and regular security audits.

Vessel Protection Measures. Based on the finding that storerooms were targeted in 37.5 per cent of incidents, and tankers were most frequently attacked (46.2%):

- (a) Strengthen physical security measures for storeroom access, for instance, installation of hardened padlocks, steel gratings, and motion sensors at storeroom entry points, as recommended in BMP guidelines.

- (b) Develop specific security protocols for tankers. For example, the implementation of enhanced watch rotation systems during cargo operations, with a minimum of three-person teams, as practised by major shipping companies.
- (c) Install enhanced lighting and surveillance systems, such as the installation of LED flood lights with motion sensors around vulnerable areas, particularly near the ship's rails and access points

Security Response Protocols. Considering that most incidents (56.4%) involved small groups of 1-10 perpetrators, with 62.1 per cent being unarmed:

- (a) Train crew members in non-violent response procedures. For example, regular drills practising lockdown procedures and safe mustering points, as implemented by leading maritime training institutes
- (b) Implement graduated response protocols. For example, a three-tier response system based on threat level (unarmed theft/armed robbery/organised piracy), as used in international shipping protocols
- (c) Establish clear communication procedures. For example, direct hotline connections to port control and marine police, with pre-programmed emergency contact numbers

Reporting and Documentation. Given that 39.8 per cent of incidents lacked perpetrator information and 42 per cent did not specify attack vessel types:

- (a) Standardise incident reporting formats. For example, the implementation of digital reporting forms with mandatory fields for incident details, similar to IMO's GISIS system
- (b) Implement systematic documentation procedures. For example, the use of standardised checklists for incident documentation, including photographic evidence where safe to obtain.

Crew Safety Measures. With 13.3 per cent of incidents involving theft and 19.7 per cent involving threats or actual violence:

- (a) Develop specific crew training programs. For example, scenario-based training modules covering common attack patterns, such as those provided by maritime security companies
- (b) Establish clear protocols for crew response. For example, the implementation of a colour-coded threat level system with specific response procedures for each level, as used in international shipping
- (c) Implement regular security drills, such as monthly drills simulating the most common attack scenarios, with post-drill analysis and improvement recommendations

Establishing a Centralised Maritime Crime Database. Creating a centralised database that consolidates reports from various agencies, including the Coast Guard, Navy, and Marine Police, would ensure more accurate and comprehensive data collection.

Improving Inter-agency Coordination. Strengthening coordination between local, national, and international agencies can facilitate better data sharing and collaborative efforts to combat piracy. The following specific areas require enhanced coordination:-

(a) Information-Sharing Mechanisms

- (i) Integration of port security data between the Customs, Coast Guard, and Maritime Police through a unified digital platform.
- (ii) Real-time incident reporting between port authorities and coastal security agencies.
- (iii) Example: Enhancement of the existing Coastal Security Information Network to include automated alerts to all relevant agencies.

(b) Joint Response Protocols

- (i) Establishment of clear jurisdictional protocols between the state marine police and Coast Guard for incidents within territorial waters.
- (ii) Development of Standard Operating Procedures (SOPs) for joint responses between multiple agencies.
- (iii) Example: Implementation of coordinated patrol schedules between Coast Guard and Marine Police in high-incident areas.

(c) Cross-Border Cooperation

- (i) Strengthening of existing mechanisms like the Information Fusion Centre - Indian Ocean Region (IFC-IOR)
- (ii) Enhancement of bilateral coordination with neighbouring countries for incidents near maritime boundaries
- (iii) Example: Development of shared databases for suspect vessel tracking with neighbouring countries

(d) Training and Capacity-Building

- (i) Joint training exercises involving multiple agencies
- (ii) Shared resources for capacity-building
- (iii) Example: Combined training programs for port security personnel, customs officers, and marine police

(e) Community Engagement and Socio-economic Development

- (i) Community engagement and socio-economic development play significant roles in addressing the root causes of piracy, such as poverty and lack of economic opportunities. Implementing community-based programs and promoting sustainable economic development in coastal communities can reduce the incentive for engaging in piracy, as emphasised by Christian Bueger.⁵⁹ Engaging local communities in maritime security efforts through awareness campaigns and cooperative initiatives is also important.
- (ii) Finally, research and policy development should be encouraged to better understand the evolving nature of piracy and armed robbery at sea. Academic and policy research can inform evidence-based policy decisions. Developing and regularly updating comprehensive maritime security policies to address emerging threats and challenges is necessary.

Conclusion

The analysis of piracy and armed robbery incidents near the Indian EEZ and adjacent waters from 1998 to 2022 reveals distinct patterns that inform maritime security strategies. Our study demonstrates that these maritime crimes manifest primarily as opportunistic incidents rather than organised attacks. The data shows a clear concentration of incidents in port areas (52.3%) and a predominance of attacks on anchored vessels (70.1%), with tankers being particularly vulnerable (46.2%). The characteristic pattern that emerges is one of small group operations, with 56.4% of incidents involving groups of 1-10 perpetrators, most of whom were unarmed (62.1%). These incidents typically focused on storeroom theft (37.5%), with relatively low levels of violence or threats (19.7% of cases).

These patterns indicate a shift from historical concerns about organised piracy to current challenges of port and anchorage security. The findings suggest the need for targeted security measures, particularly enhanced surveillance systems in port areas and anchorages, and specific security protocols for tankers during vulnerable periods. The standardisation of incident reporting procedures across jurisdictions emerges as a crucial requirement for better threat assessment and response.

Looking ahead, the integration of port security systems with coastal surveillance networks, regular review and updating of vessel protection measures, and enhancement of crew training programs based on current threat patterns will be essential. This research contributes to maritime security by providing evidence-based insights for the development and implementation of security measures in Indian waters, while acknowledging the dynamic nature of maritime threats and the need for continuous adaptation of security protocols.

Notes

- 1 Directorate General of Shipping, "Piracy and Armed Robbery against Ships in Waters off the Coast of Somalia - Guidelines to Shipping in Accordance with IMO Resolution A.979(24) Adopted on 23rd November, 2005. N.T. BRANCH CIRCULAR NO : NT/PIRACY/01 of 2007."
- 2 Christian Bueger, "Learning from piracy: future challenges of maritime security governance," *Global Affairs* 1, no. 1 (January 1, 2015): 33–42, <https://doi.org/10.1080/23340460.2015.960170>.
- 3 Christian Bueger, Jan Stockbruegger, and Sascha Werthes, "Pirates, Fishermen and Peacebuilding: Options for Counter-Piracy Strategy in Somalia," *Contemporary Security Policy* 32, no. 2 (August 1, 2011): 356–81, <https://doi.org/10.1080/13523260.2011.590359>.
- 4 Andrew Mallia, "Piracy and Armed Robbery," in *Research Handbook on Ocean Governance Law*, ed. Simone Borg, Felicity G. Attard, and Patricia Mallia Vella De Fremeaux (Edward Elgar Publishing Limited, 2023).
- 5 Press Information Bureau, "Piracy Close to India's Western Seaboard a Matter of Great Concern: MoD."
- 6 Ministry of External Affairs, "Address by External Affairs Minister at the 2nd Indian Ocean Conference (August 31, 2017)."
- 7 Abishek Mishra, "Piracy and Armed Robbery in Indian Ocean Region: Assessment, Challenges and the Way Forward" in *Contiguity, Connectivity and Access: The Importance of the Bay of Bengal Region in Indian Foreign*, ed. Suranjan Das and Anita Sengupta, 123-140 (Routledge, 2023).
- 8 ICC- IMB Piracy and Armed Robbery Against Ships, Report for the Period January 1- December 31, 2022
- 9 David Cordingly, *Under the Black Flag: The Romance and Reality of Life among the Pirates* (New York: Random House, 1996).; Ian W. Toll, *Six Frigates: The Epic History of the Founding of the U.S. Navy* (New York, NY: W.W. Norton & Co, 2008).
- 10 The Committee of Experts for the Progressive Codification of International Law, "General Introduction."
- 11 United Nations General Assembly, "A/RES/899 (IX) (Dec. 14, 1954)."
- 12 *Convention on the High Seas*, opened for signature April 29, 1958, entered into force September 30, 1962, United Nations Treaty Series, vol. 450, 11, <https://treaties.un.org/doc/Publication/UNTS/Volume%20450/v450.pdf>.
- 13 Tullio Treves, "Introductory Note to the United Nations Convention on the Law of the Sea." December, 1982
- 14 International Convention Against the Taking of Hostages, opened for signature December 17, 1979, Article 5, United Nations Treaty Series, vol. 1316, 205
- 15 H. Srikanth, "Combating Transnational Crimes in the Era of Globalization," *International Studies* 53, no. 2 (April 2016): 91–104, <https://doi.org/10.1177/0020881717728157>.
- 16 United Nations General Assembly, "A/RES/63/111: Oceans and the Law of the Sea."
- 17 Mallia, "Piracy and Armed Robbery."
- 18 The International Maritime Organization's Global Integrated Shipping Information System (GISIS) is a comprehensive database that provides access to a wide range of information on maritime safety, security, and environmental protection. It allows users to search and retrieve data on shipping incidents, vessel details, port state control inspections, and more.

- 19 Matthias Flückiger and Markus Ludwig, “Economic Shocks in the Fisheries Sector and Maritime Piracy,” *Journal of Development Economics* 114 (May 2015): 107–25, <https://doi.org/10.1016/j.jdeveco.2014.12.003>.
 Ursula Daxecker and Brandon Prins, “Insurgents of the Sea: Institutional and Economic Opportunities for Maritime Piracy,” *Journal of Conflict Resolution* 57, no. 6 (August 16, 2012): 940–65, <https://doi.org/10.1177/0022002712453709>.
- 20 Casper van Elteren, Mike Lees, and Vítor V. Vasconcelos, *Criminal Organizations Exhibit Hysteresis, Resilience, and Robustness by Balancing Security and Efficiency*, April 3, 2024, <https://doi.org/10.21203/rs.3.rs-4108278/v1>.
- 21 Robert M. Farley and Yoav Gortzak, “Fighting Piracy: Experiences in Southeast Asia and off the Coast of Africa,” *Journal of Strategic Security* 2, no. 1 (February 2009), <https://doi.org/10.5038/1944-0472.2.1.1>.
- 22 Timur Abdusamatov, “Piracy in the Straits of Malacca and Singapore,” *Indian Journal of Law and Legal Research* IV, no. I (April 5, 2022): 3758–70.;
 Robert Beckman, “Piracy and Armed Robbery against Ships in the Southeast Asia: A Critical Evaluation with a Focus on the Singapore Strait”, *Asia-Pacific Journal of Ocean Law and Policy* 8, 2 (2023): 201-220.;
 Robert Beckman, “Piracy and Armed Robbery against Ships in the Southeast Asia: A Critical Evaluation with a Focus on the Singapore Strait”, *Asia-Pacific Journal of Ocean Law and Policy* 8, 2 (2023): 201-220,.
- 23 Mishra, “Piracy and Armed Robbery in Indian Ocean Region”.
- 24 Carolin Liss and Ted Biggs, *“Piracy in Southeast Asia: Trends, Hot Spots and Responses”* (London: Routledge, 2016).
- 25 Rulah Odeh Alsawalqa and Denis Venter, “Piracy and Maritime Security in the North-Western Indian Ocean: From the Gulf of Oman to the Waters off the Somali Coast,” *Insight on Africa* 14, no. 1 (2022): 88-103.
- 26 Rachel Baird. “Transnational Security Issues in the Asian Maritime Environment: Responding to Maritime Piracy.” *Australian Journal of International Affairs* 66, no. 5 (2012): 501-513. <https://doi.org/10.1080/10357718.2011.570240>.
- 27 Jagdish Wamanrao Khobragade et al., “The Anti-Maritime Piracy Law in India and Malaysia: An Analytical Study,” *Journal of International Maritime Safety Environmental Affairs and Shipping* 5, no. 4 (October 2, 2021): 208–19, <https://doi.org/10.1080/25725084.2021.2006462>.;
 Mohammad Ali Zohourian, “Statistical Comparison of piracy and armed robbery with emphasis on the South China Sea - Malacca Strait and the Persian Gulf - Strait of Hormuz,” *Law And Safety* 75, no. 4 (December 20, 2019): 71–85, <https://doi.org/10.32631/pb.2019.4.10>.
- 28 Carina Bruwer, “Transnational Organised Crime at Sea as a Threat to the Sustainable Development Goals: Taking Direction from Piracy and Counter-Piracy in the Western Indian Ocean,” *African Security Review* 28, no. 3–4 (July 3, 2019): 172–88, <https://doi.org/10.1080/10246029.2020.1728352>.;
 Bruce A. Elleman, “Seaborne Perils : Piracy, Maritime Crime, and Naval Terrorism in Africa, South Asia, and Southeast Asia”. (Rowman & Littlefield, 2018).
- 29 Shishir Upadhyaya, “Piracy in the Gulf of Aden: Naval Challenges,” *Maritime Affairs: Journal of the National Maritime Foundation of India* 6, no. 2 (2010): 133-147, <https://doi.org/10.1080/09733159.2010.559792>.

- 30 Himadri Das, “*Armed Robbery at Sea in India: Trends and Imperatives*”, 26 February 2021, www.maritimeindia.org.
- 31 Peter Chalk, “*The Evolving Dynamic of Piracy and Armed Robbery at Sea in the Modern Era: Scope, Dimensions, Dangers and Policy Responses*” (RAND Corporation, 2009).
- 32 Martin N. Murphy, “*Contemporary Piracy and Maritime Terrorism*” (Adelphi Papers, 2007).
- 33 Keunsoo Jeong, “Diverse Patterns of World and Regional Piracy: Implications of the Recurrent Characteristics,” *Australian Journal of Maritime & Ocean Affairs* 10, no. 2 (2018): 118-133.
- 34 Elio Marchione and Shane D. Johnson, “Spatial, Temporal, and Spatio-Temporal Patterns of Maritime Piracy,” *Journal of Research in Crime and Delinquency* 50, no. 4 (2013): 504-524.
- 35 Liss and Biggs, “*Piracy in Southeast Asia: Trends, Hot Spots and Responses*”
- 36 Upadhyaya, “Piracy in the Gulf of Aden: Naval Challenges”.
- 37 Chalk, “*Scope, Dimensions, Dangers and Policy Responses*”.
- 38 Anamika A. Twyman-Ghoshal, “Contemporary piracy research in criminology: a review essay with directions for future research,” *International Journal of Comparative and Applied Criminal Justice* 38, no. 3 (2014): 281-303.
- 39 Adelina Tumbarska, “Maritime Piracy and Armed Robbery Evolution in 2008-2017,” *International Scientific Journal ‘Security & Future’* 2, no. 1 (2018): 18-21.
- 40 United Nations, Monitoring Group on Somalia, Report, Dec. 10, 2008, para. 138;
See also United Nations, UNODC, Piracy-Background, *available at* www.unodc.org/eastern_africa/en/piracy/background.html
- 41 BMP5, *Best Management Practices to Deter Piracy and Enhance Maritime Security in the Red Sea, Gulf of Aden, Indian Ocean and Arabian Sea* (2018), Edinburgh (Scotland): Witherby Publishing Group Ltd.
- 42 Pottengal Mukundan, “Piracy and Armed Robbery Against Ships Today,” *WMU Journal of Maritime Affairs* 2, no. 2 (2003): 167-180.
- 43 Vijay Sakhuja, “Sea Piracy in South Asia,” In *Violence at Sea: Piracy in the Age of Global Terrorism*, ed. Peter Lehr, 1st ed. (New York: Routledge, 2006).
- 44 Graham Gerard Ong-Webb, “Piracy in Maritime Asia: Current Trends,”. In *Violence at Sea: Piracy in the Age of Global Terrorism*, ed. Peter Lehr, 1st ed. (New York: Routledge, 2006).
- 45 Robert C. Beckman, “Combatting Piracy and Armed Robbery Against Ships in Southeast Asia: The Way Forward,” *Ocean Development & International Law* 33, no. 3-4 (2002): 317-341, <https://doi.org/10.1080/00908320290054800>.
- 46 Nur Jale Ece and Hilal Kurt, “Analysis of Maritime Piracy by Using Qualitative Methods,” *Mersin University Journal of Maritime Faculty* 3, no. 2 (2021): 37-50.
- 47 Alsawalqa and Venter, “Piracy and Maritime Security in the North-Western Indian Ocean”.
- 48 Marchione and Johnson, “Spatial, Temporal, and Spatio-Temporal Patterns of Maritime Piracy,”
- 49 Press Information Bureau, “Measures to enhance Coastal Security: MoD.” Posted on 05 March 2018
- 50 Murphy, *Contemporary Piracy and Maritime Terrorism*.
- 51 Chalk, *The Evolving Dynamic of Piracy and Armed Robbery at Sea in the Modern Era*.
- 52 *Ibid*.

- 53 Das, “*Armed Robbery at Sea in India*”.
- 54 Tumbarska, “Maritime Piracy and Armed Robbery Evolution in 2008-2017”.
- 55 Marchione and Johnson, “Spatial, Temporal, and Spatio-Temporal Patterns of Maritime Piracy”.
- 56 Ahmad Almaududy Amri, “Southeast Asia’s Maritime Piracy: Challenges, Legal Instruments and a Way Forward,” *Australian Journal of Maritime & Ocean Affairs* 6, no. 3 (June 18, 2014): 154–69, <https://doi.org/10.1080/18366503.2014.915492>.
- 57 Marchione and Johnson, “Spatial, Temporal, and Spatio-Temporal Patterns of Maritime Piracy”.
- 58 Anurag Bisen, “India’s Maritime Security: Five Concerns”, MP-IDSA Issue Brief, May 18, 2022.
- 59 Bueger, “Learning from Piracy: Future Challenges of Maritime Security Governance.”

Disclosure Statement

The views expressed in the article are solely those of the author(s).

Note on Contributors

Vigneshwaran Venkatesan is a UGC-Senior Research Fellow, conducting interdisciplinary PhD research at the intersection of Criminology and Defence Studies at the University of Madras. His research interests encompass coastal and maritime security, transnational organised crimes, and policing of maritime crimes.

Captain Vikas Dahiya, NM, is an Executive Officer in the Indian Navy and is presently posted at the Naval War College, Goa. Apart from his experience as MARCOS, he commanded the Naval ships on the Eastern & Western Seaboard of India. A prolific writer, Captain Vikas is pursuing his PhD at Madras University.

Dayana Kruthi J is a UGC-Senior Research Fellow, conducting interdisciplinary research at the Department of Defence and Strategic Studies, University of Madras. Her PhD research focuses on the Coastal Security Group of Tamil Nadu. Her research interest includes coastal policing and non-traditional security threats in the maritime domain.