

INSIGHTS OF INCIDENTS BY LOCATIONS USING DATA ANALYTICS

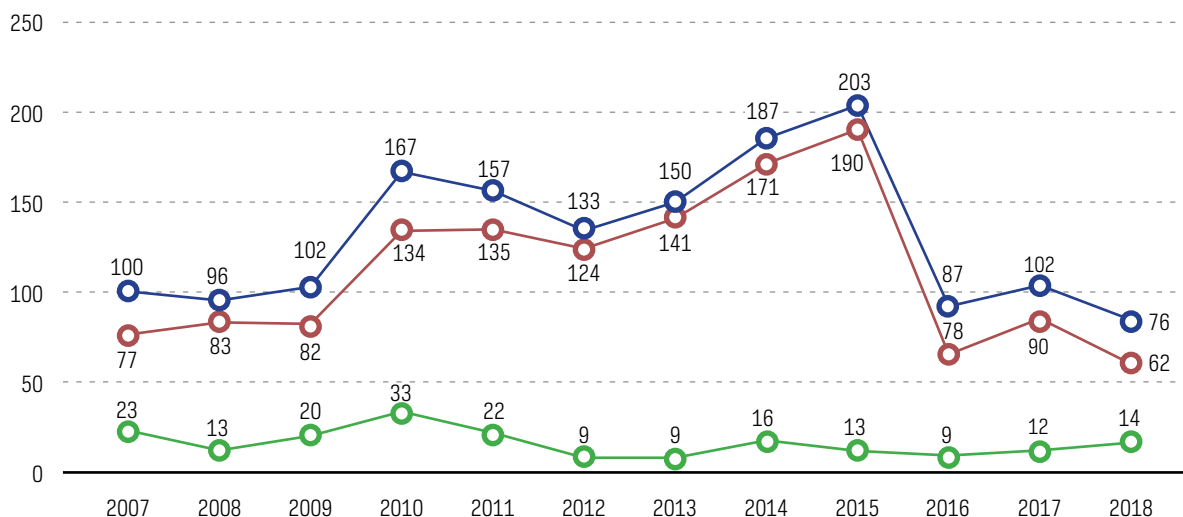
In 2018, ReCAAP ISC has started to use the tool of Data Analytics to provide deep analysis of incidents based on the accumulated data of past 12 years from 2007-2018.

This section provides insight into the incidents reported in the whole of Asia, Bangladesh, Indonesia, India, Vietnam, South China Sea (SCS) and Straits of Malacca and Singapore (SOMS) for the past 12 years of 2007-2018. The analysis focuses on the number of perpetrators, weapons carried by perpetrators, treatment of crew by perpetrators, items stolen, type of ships boarded and time of incidents. For some of the locations, ReCAAP ISC has observed some forms of correlation between type of ship vis-à-vis location; and time of incident vis-à-vis location.

ASIA

NUMBER OF INCIDENTS

During the 12-year period of 2007-2018, the total number of incidents reported in Asia fluctuated, with the highest number in 2015 (203 incidents) and the lowest in 2018 (76 incidents).



Graph 2 - Number of incidents in Asia (2007-2018)

● Total ● Actual ● Attempted

INSIGHTS FROM DATA ANALYTICS

A total of 76 incidents were reported in 2018. The type of incidents reported in 2018 were consistent with past trends observed during 2007-2017 in terms of number of perpetrators (**4-6 men**), type of weapons carried by perpetrators (**knives/machetes**), treatment of crew (**no injuries**), items lost (**ship stores**), type of ships boarded (**tankers and bulk carriers**) and time of incidents (**during hours of darkness in the early hours of between 0000 and 0559 hrs**).

DETAILS OF ANALYSIS

Number of perpetrators. In 2018, majority of incidents involved **4-6 men** (34%) which is consistent with the past 11-year trend where most incidents also involved 4-6 men (33%).

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | Overall % |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------------|
| 1 to 3 men | 18 | 20 | 18 | 31 | 28 | 39 | 39 | 48 | 56 | 22 | 32 | 24 | 24% |
| 4 to 6 men | 29 | 33 | 39 | 57 | 43 | 38 | 50 | 70 | 76 | 25 | 35 | 26 | 34% |
| 7 to 9 men | 9 | 8 | 13 | 18 | 24 | 15 | 16 | 19 | 25 | 6 | 3 | 5 | 10% |
| More than 9 men | 10 | 12 | 8 | 22 | 13 | 12 | 8 | 21 | 3 | 8 | 5 | 5 | 8% |
| Not stated | 34 | 23 | 24 | 39 | 49 | 29 | 37 | 29 | 43 | 26 | 27 | 16 | 24% |

Chart 5 - Number of perpetrators - Asia (2007-2018)

Types of weapons. In 2018, 45 incidents (59%) reported no information on the weapons carried by the perpetrators; and 19 incidents (25%) reported perpetrators were armed with knives/machetes /others. This is consistent with past 11-year trend that majority of the incidents (45%) had no information on the weapons carried but if armed, the perpetrators were usually **armed with knives/machetes/others** (34%).

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | Overall % |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|-----------|
| More sophisticated weapons | 2 | | 4 | 5 | 3 | | | 1 | | | | 2 | 1% |
| Gun & knives | 11 | 8 | 10 | 22 | 12 | 14 | 14 | 20 | 15 | 22 | 9 | 4 | 10% |
| Knives/Machetes/Others only | 32 | 34 | 41 | 63 | 62 | 56 | 53 | 61 | 59 | 15 | 33 | 19 | 34% |
| Not armed | 3 | 14 | 15 | 14 | 7 | 18 | 12 | 11 | 16 | 11 | 6 | 6 | 9% |
| Not stated | 52 | 40 | 32 | 63 | 73 | 45 | 71 | 94 | 113 | 39 | 54 | 45 | 46% |

Chart 6 - Type of weapons used - Asia (2007-2018)

Treatment of crew. In 2018, majority of the incidents in 2018 reported crew suffered **no injuries** (55%) which is consistent with the past 11-year trend (51%).

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | Overall % |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|-----------|
| Killed | | 2 | 2 | | | | | 1 | | 2 | 1 | | 0.5% |
| Missing | 1 | | 1 | | 1 | | 1 | 2 | | | | | 0.4% |
| Kidnapped | 1 | | 2 | 2 | 1 | | | | | 10 | 2 | 2 | 1.3% |
| Seriously injured | 1 | | | | | | 1 | 1 | 2 | | | 1 | 0.4% |
| Crew discarded | 1 | 2 | 1 | 1 | 2 | 3 | | 2 | 2 | | | | 0.9% |
| Assaulted | 6 | 4 | 5 | 6 | 4 | 9 | 4 | 12 | 7 | 3 | 2 | 5 | 4% |
| Taken hostage | 8 | 9 | 12 | 32 | 20 | 21 | 15 | 22 | 13 | 7 | 7 | 3 | 11% |
| Threatened | 3 | 3 | 6 | 10 | 7 | 6 | 10 | 7 | 4 | 5 | 5 | 4 | 4.5% |
| No injuries | 35 | 49 | 44 | 72 | 62 | 58 | 86 | 101 | 157 | 47 | 46 | 42 | 51% |
| Not stated | 44 | 27 | 29 | 44 | 60 | 36 | 33 | 39 | 18 | 13 | 39 | 19 | 26% |

Chart 7 - Treatment of crew - Asia (2007-2018)

Type of losses. Majority of incidents in 2018 reported **loss of stores** (41%) which is consistent with the past 11-year trend (33%).

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | Overall % |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------------|
| Hijack/Missing of ship | 4 | 3 | 1 | 4 | 5 | 4 | 1 | 1 | 4 | 2 | | | 2% |
| Cargo discharged | 1 | | | 1 | 5 | 6 | 4 | 15 | 11 | 2 | 4 | | 3% |
| Cash/Property | 5 | 20 | 22 | 36 | 33 | 21 | 22 | 29 | 9 | 9 | 6 | 6 | 14% |
| Stores | 25 | 28 | 38 | 55 | 55 | 58 | 63 | 39 | 67 | 32 | 35 | 31 | 34% |
| Engines spares | 9 | 4 | 4 | 10 | 8 | 11 | 11 | 20 | 19 | 8 | 9 | 4 | 7% |
| Unsecured items | 12 | 8 | 2 | 3 | 2 | 4 | 5 | 6 | | 1 | 12 | 5 | 4% |
| Nil | 25 | 25 | 34 | 56 | 47 | 27 | 43 | 76 | 88 | 25 | 29 | 24 | 32% |
| Not stated | 19 | 8 | 1 | 2 | 2 | 3 | 1 | 1 | 5 | 8 | 7 | 6 | 4% |

Chart 8 - Type of losses - Asia (2007-2018)

Type of ships. In 2018, most of the incidents (72%) occurred on board **either tankers or bulk carriers**. This is consistent with the past 11-year trend of incidents (63%).

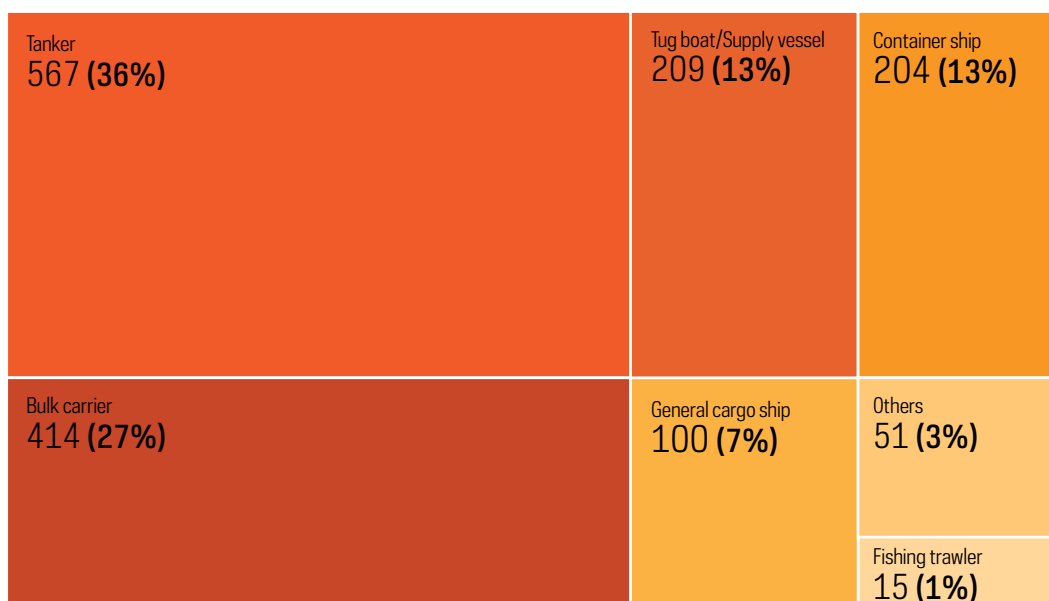


Chart 9 - Type of ships boarded - Asia (2007-2018)

TIME OF INCIDENTS

In 2018, majority of the incidents (59%) occurred between 0000 hrs and 0559 hrs which is consistent with the past 11-year trend (60%).

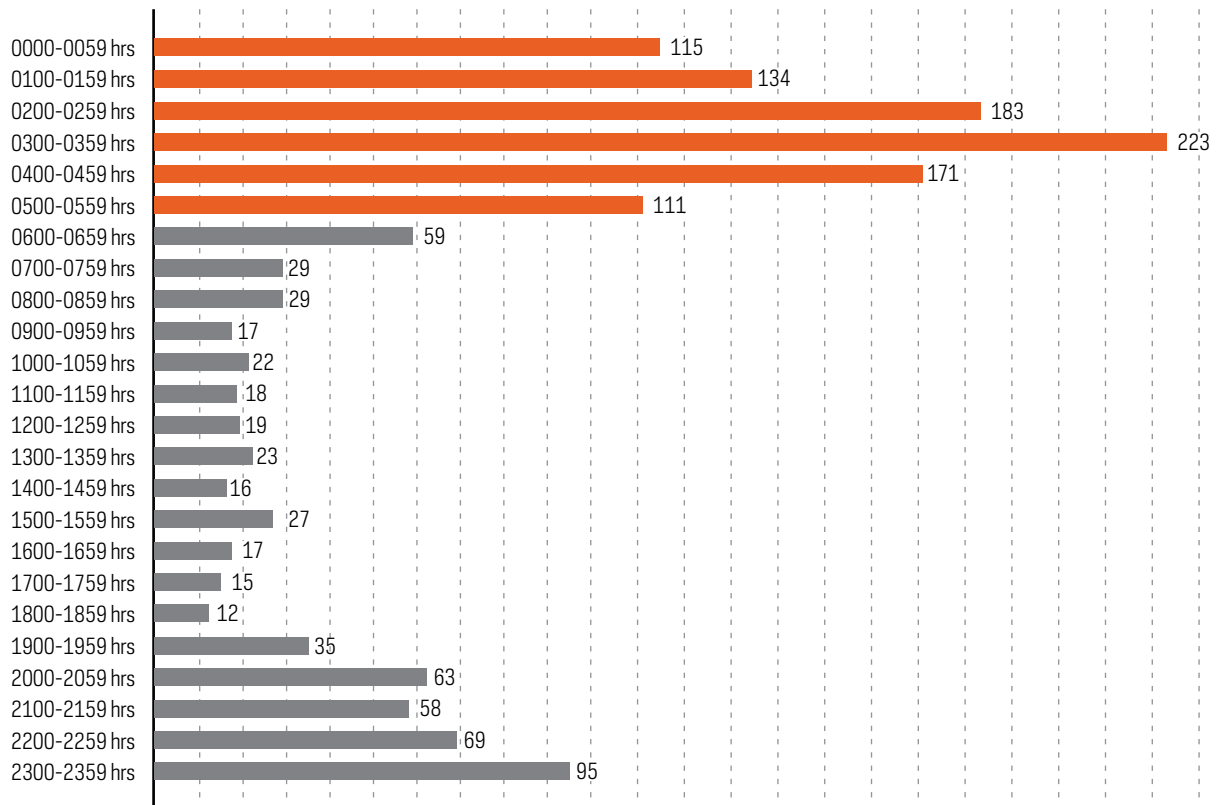
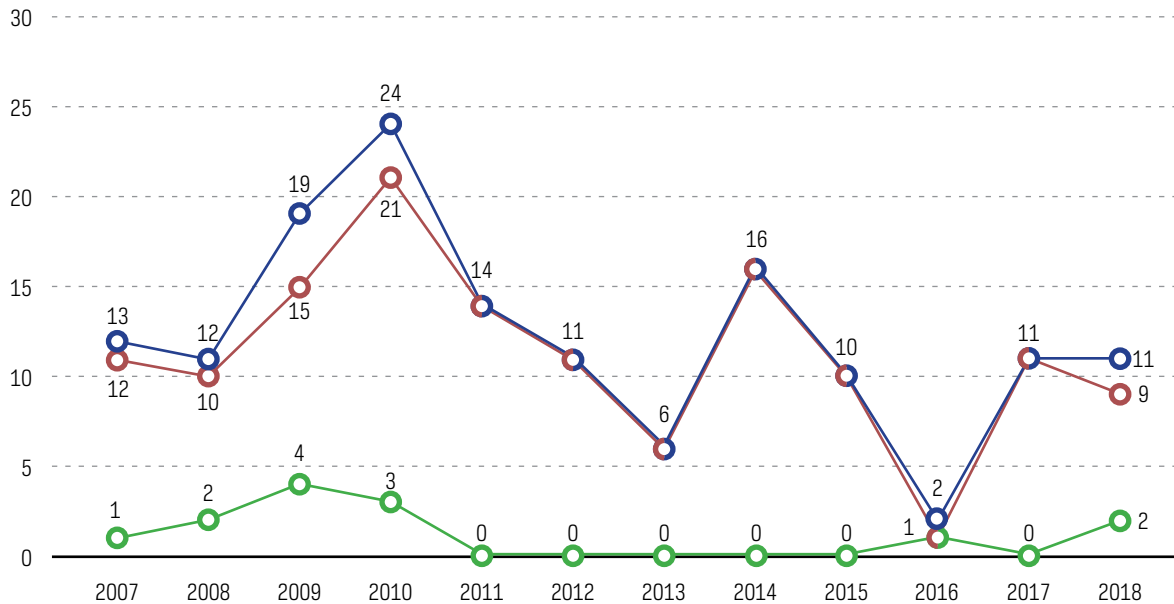


Chart 10 - Time window of incidents - Asia (2007-2018)

BANGLADESH

NUMBER OF INCIDENTS

During the 12-year period of 2007-2018, the number of incidents reported in Bangladesh fluctuated, with the highest number reported in 2010 (24 incidents) and the lowest in 2016 (two incidents). There was a slight improvement in 2018 with nine actual incidents reported compared to 11 actual incidents in 2017.



Graph 3 - Number of incidents in Bangladesh (2007-2018)

● Total ● Actual ● Attempted

INSIGHTS FROM DATA ANALYTICS

A total of 11 incidents were reported in 2018. The type of incidents reported in 2018 were consistent with past trends observed during 2007-2017 in terms of type of weapons carried by perpetrators (**knives/machetes/others**), treatment of crew (**no injuries**), items lost (**ship stores**), type of ships boarded (**container ships and bulk carriers**) and time of incidents (**during hours of darkness between 0000 and 0459 hrs**). The analysis also shows the **correlation between the type of ships boarded and the location of incidents** (at Anchorage A, B and C off Chittagong).

DETAILS OF ANALYSIS

Type of weapons. In 2018, seven incidents (64%) reported no information on the weapons carried by the perpetrators; and four incidents (36%) reported perpetrators were armed with knives/machetes/others. This is consistent with past 11-year trend that majority of the incidents (50%) involved **perpetrators armed with knives/machetes/others** such as rods and wooden poles.

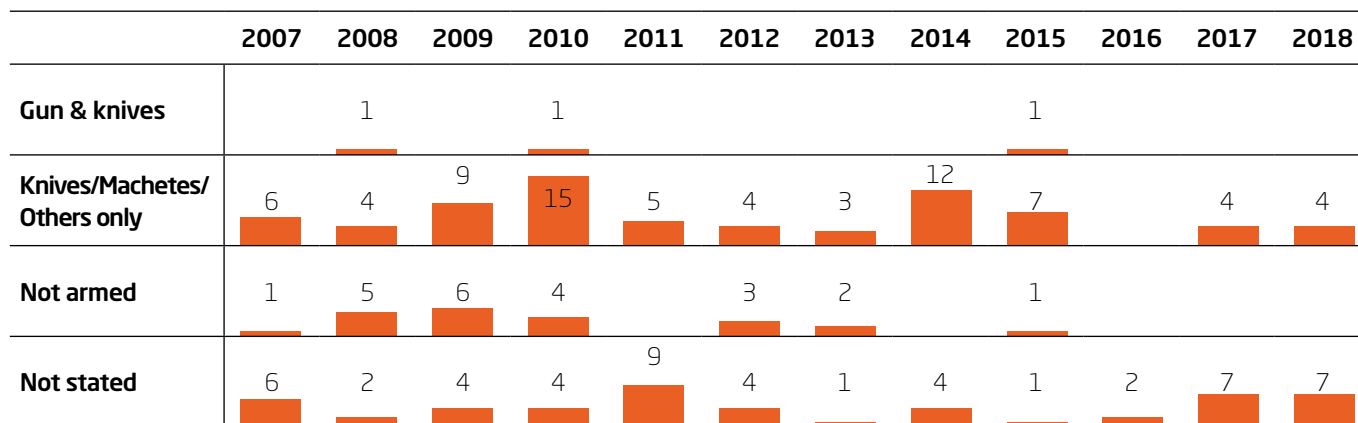


Chart 11 - Type of weapons used - Bangladesh (2007-2018)

Treatment of crew. Most of the incidents in 2018 reported crew suffered **no injuries** (45%) which is consistent with the past 11-year trend (56%).

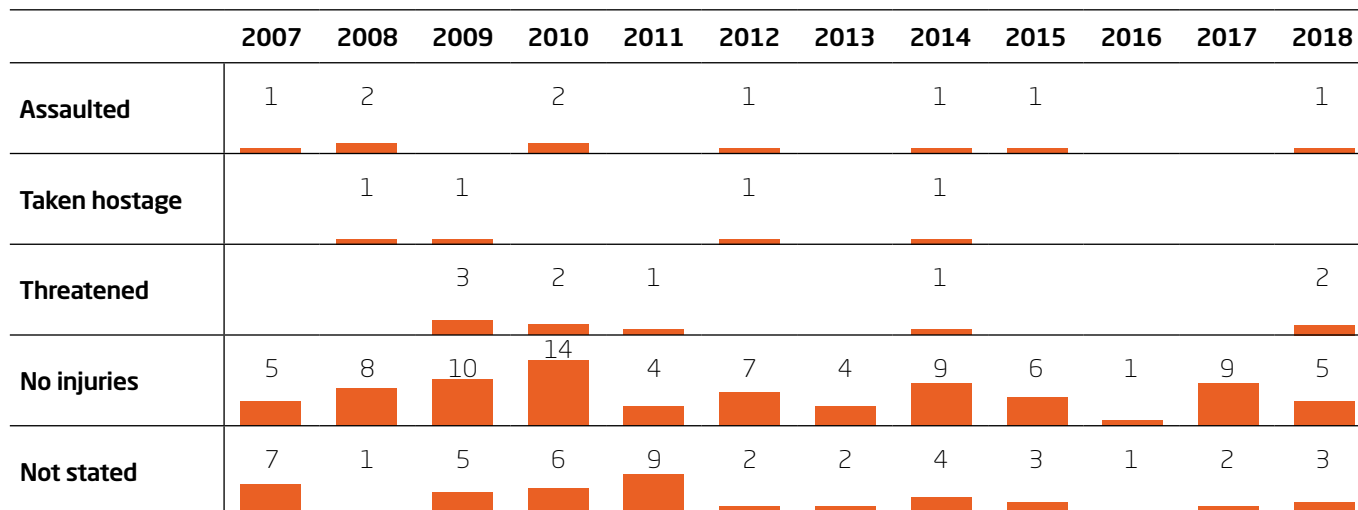


Chart 12 - Treatment of crew - Bangladesh (2007-2018)

Type of losses. Majority of incidents in 2018 reported **loss of stores** (73%) which is consistent with the past 11-year trend (65%). The common items stolen were mooring rope, life/floating buoy, gas bottle/cylinder, fire hose, fire wire, aluminium ladder, etc.

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Cash/Property | | | | 1 | | | 1 | 4 | | | 1 | |
| Stores | 6 | 6 | 13 | 17 | 13 | 9 | 2 | 9 | 9 | 1 | 5 | 8 |
| Engines spares | | 1 | | | | | | | | | | |
| Unsecured items | 3 | | | | | 2 | 1 | | | | 3 | 1 |
| Nil | 2 | 5 | 6 | 6 | 1 | | 2 | 3 | 1 | 1 | 1 | 2 |
| Not stated | 2 | | | | | | | | | | 1 | |

Chart 13 - Type of losses - Bangladesh (2007-2018)

Type of ships. In 2018, most of the incidents (67%) occurred on board **either container ships or bulk carriers**. This is consistent with the past 11-year trend of incidents (60%).

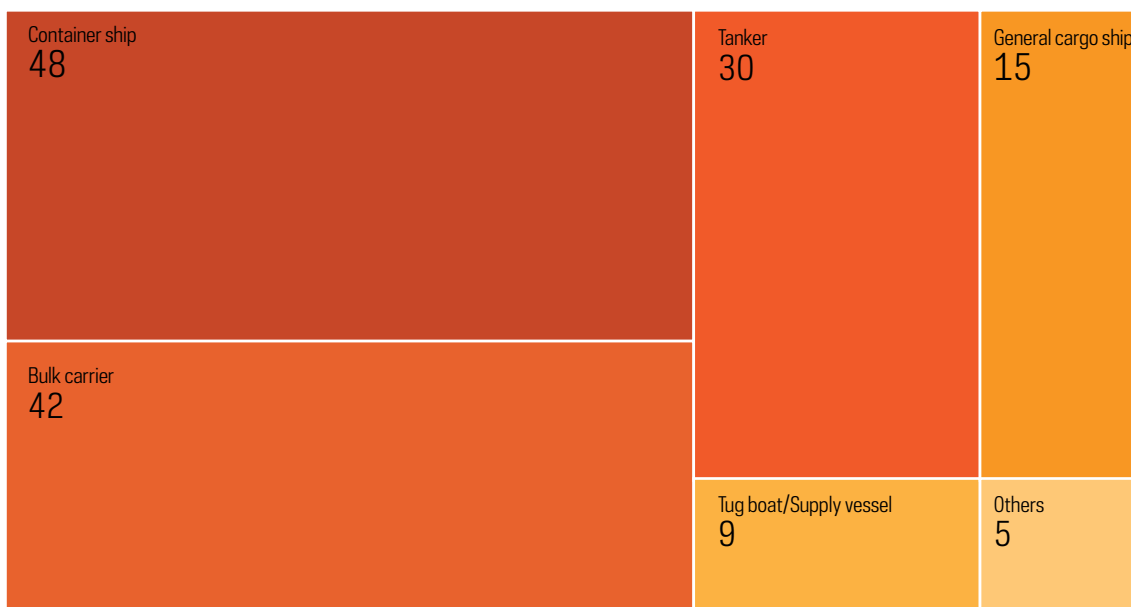
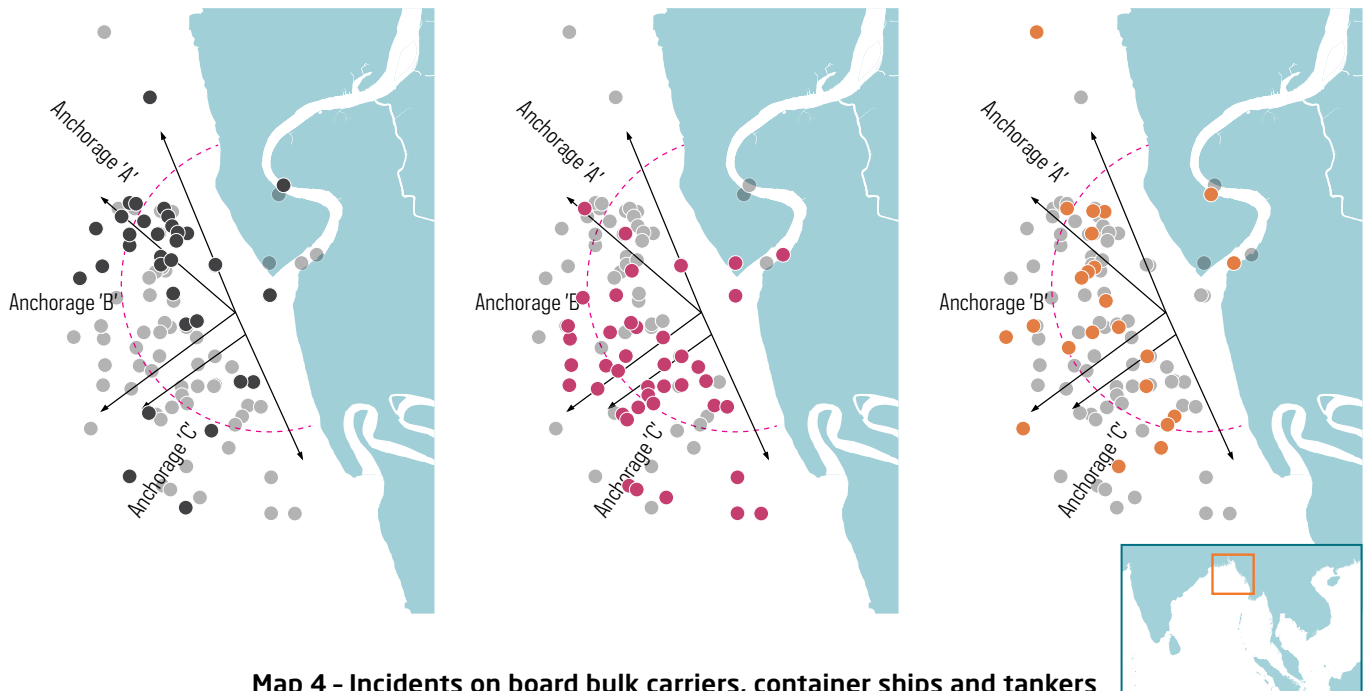


Chart 14 - Type of ships boarded - Bangladesh (2007-2018)

CORRELATIONS BETWEEN TYPE OF SHIPS VIS-À-VIS LOCATION

Incidents involving bulk carriers mostly occurred in the northern part of Chittagong (Anchorage A); incidents involving container ships mainly occurred between the middle part of Chittagong (Anchorage B) and the southern part (Anchorage C). However, incidents involving tankers were relatively scattered among Anchorages A, B and C. Refer to map below on the type of ships boarded off Chittagong Anchorages (A, B and C).



Map 4 - Incidents on board bulk carriers, container ships and tankers at Chittagong anchorage (2007-2018)

Type of ships

- Bulk carrier
- Container ship
- Tanker (chemical tanker, LPG tanker, oil tanker, product tanker)

TIME OF INCIDENTS

In 2018, all 11 incidents occurred during hours of darkness as follows:

| Time window (hrs) | Number of incidents |
|-------------------|---------------------|
| 0000-0059 hrs | 1 |
| 0100-0159 hrs | 3 |
| 0200-0359 hrs | 2 |
| 0400-0459 hrs | 2 |
| 2100-2359 hrs | 3 |

Time window of incidents reported during 2007-2018:

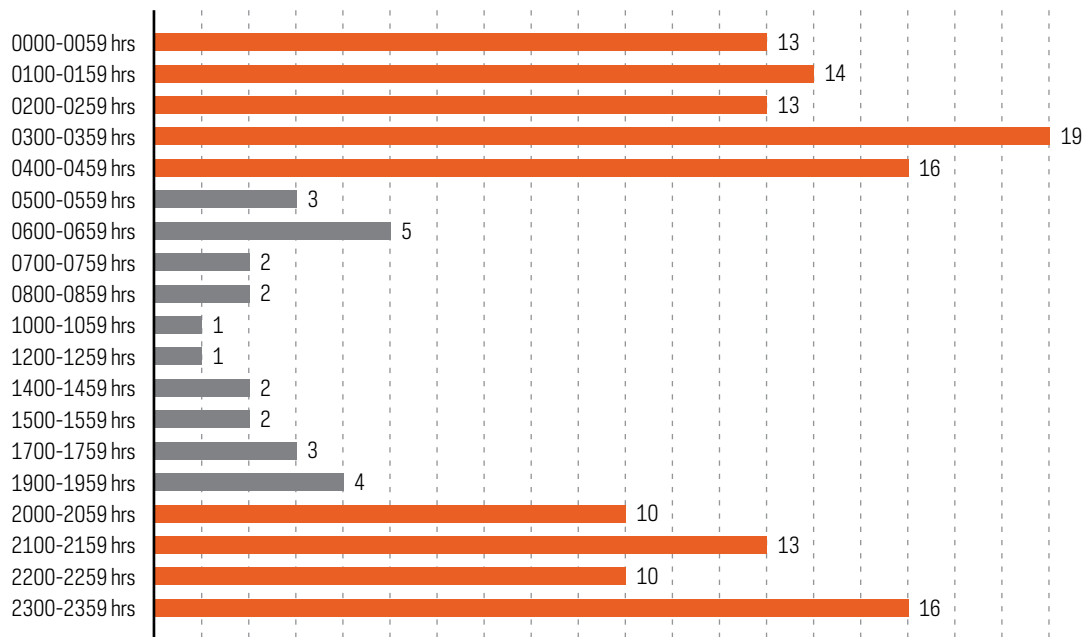


Chart 15 - Time window of incidents - Bangladesh (2007-2018)

For the past 12 years of 2007-2018, 83% of incidents occurred during hours of darkness and 17% during daylight hours.

ADVISORY TO SHIPS

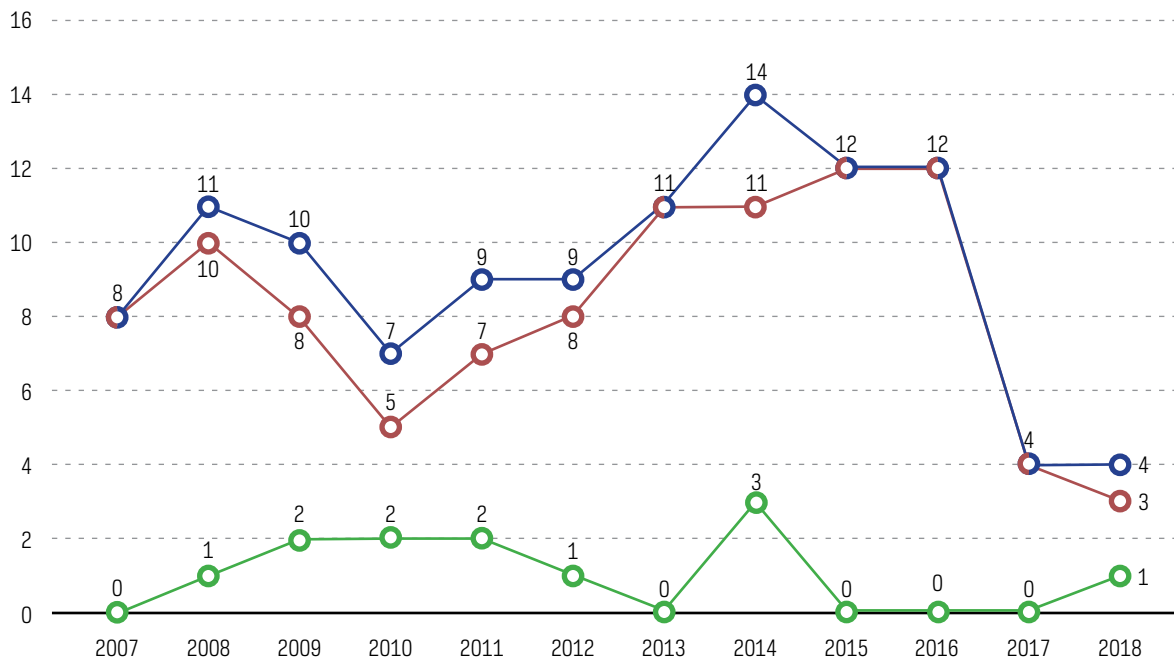
The advisory of the Bangladesh’s Department of Shipping (ReCAAP Focal Point) to ships bound for ports and anchorages in Bangladesh is as follows:

1. All ships are to exercise enhanced vigilance, alertness and report all incidents to the relevant authorities immediately.
2. Slow speed ships, deep draft ships, tug boats and towed vessels are to avoid the fishing zone. For ships sailing to Chittagong port and anchorages, they are to commence their voyage from Saint Martin Island to Cox’s Bazar areas and navigate on safe route.
3. Ships at ports/anchorages are advised to:
 - a. Maintain communication over VHF channel with the port control and law enforcement agencies when entering Bangladesh waters.
 - b. While at anchor, request for port-approved watchmen via the local shipping agent.
 - c. No barter trade or any types of business are permitted at anchorages and in the port and berthing areas
 - d. While at anchor, keep sharp lookout and do not allow any boats to come near ship.

INDIA

NUMBER OF INCIDENTS

The number of actual incidents reported (three) in India in 2018 was the lowest number during the 12-year period of 2007-2018.



Graph 4 - Number of incidents in India (2007-2018)

● Total ● Actual ● Attempted

INSIGHTS FROM DATA ANALYTICS

A total of four incidents were reported in India in 2018. The types of incidents reported in 2018 were consistent with past trends in terms of weapons carried by perpetrators (**not armed or not stated**), treatment of crew (**no injuries**), items lost (**ship stores**) and type of ships (**tankers**). However, two of the four incidents reported in 2018 occurred during daylight hours. This is a deviation from past trend where most incidents occurred during hours of darkness.

DETAILS OF ANALYSIS

Type of weapons. In 2018, three incidents (75%) reported no information on the weapons carried by the perpetrators; and one incident (25%) reported not armed. This is consistent with the past 11-year (2007-2017) trend where 75% of incidents involved perpetrators who were not armed or there was no information available.



Chart 16 - Type of weapons used - India (2007-2018)

Treatment of crew. All the incidents in 2018 reported crew had **no injuries**. This is consistent with the past 11-year trend (66%).

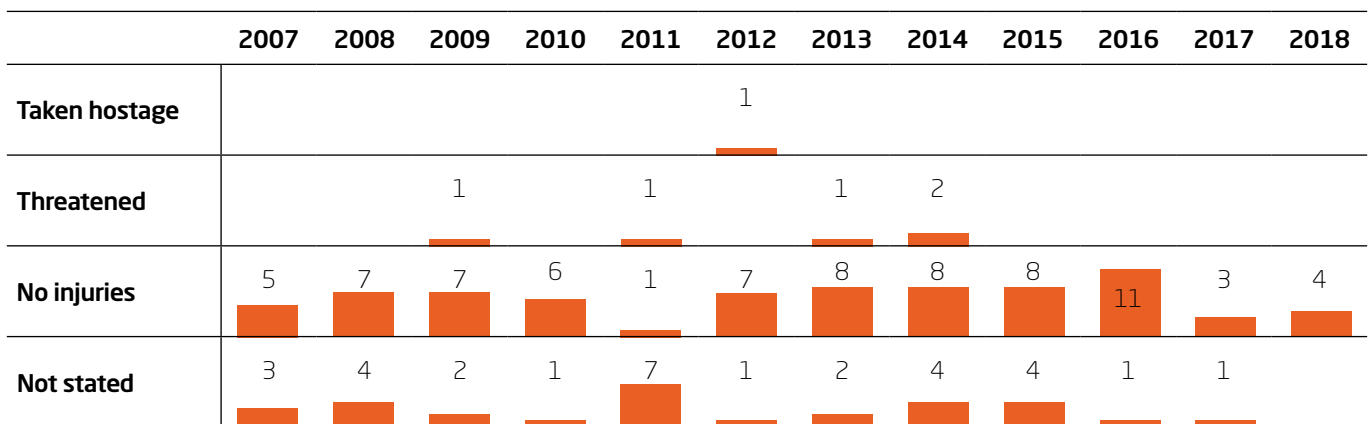


Chart 17 - Treatment of crew - India (2007-2018)

Type of losses. Stores were commonly targeted. Half of the incidents in 2018 reported **loss of stores** (50%) which is consistent with the past 11-year trend (62%).

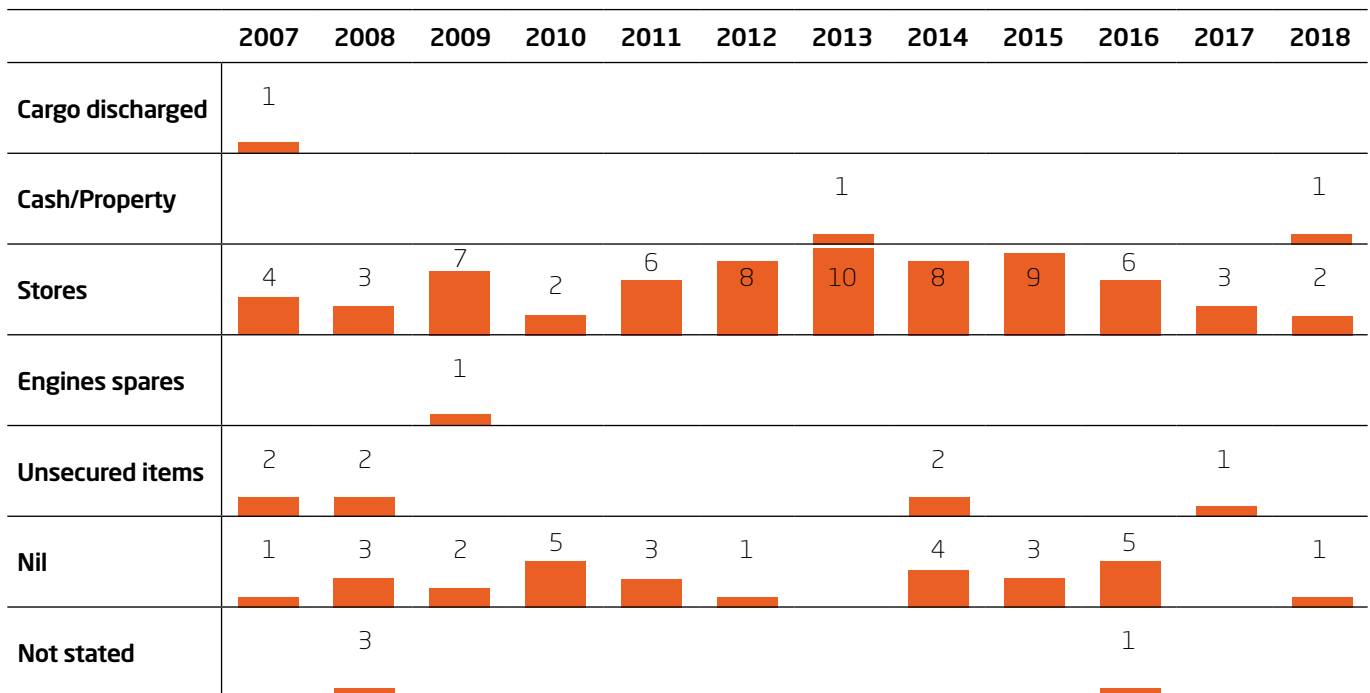


Chart 18 - Type of losses - India (2007-2018)

Type of ships. Majority (50%) of the incidents reported in 2018 occurred on board **tankers**. This is consistent with the past 11-year trend (59%).

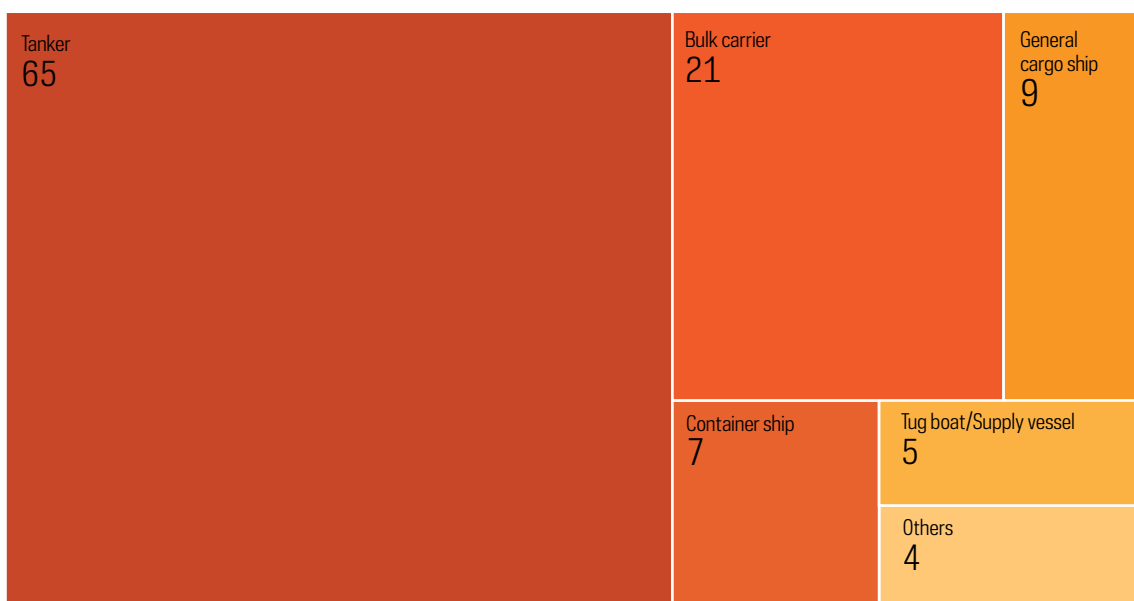


Chart 19 - Type of ships boarded - India (2007-2018)

CORRELATIONS BETWEEN TYPE OF SHIPS VIS-À-VIS LOCATION

Majority of incidents in India occurred on board tankers. Of the 111 incidents reported during 2007-2018, 65 incidents (59%) occurred on board tankers, 21 (19%) on board bulk carriers, nine (8%) on board general cargo ships, seven (6%) on board container ships, five (4%) on board tug boats/supply vessels and four (4%) on board other types of ships.

Tankers

Of the 65 incidents reported during 2007-2018, 26 incidents (40%) occurred at Kandla, 13 incidents (20%) at Kochi, 12 incidents (18%) at Visakhapatnam, 5 incidents (8%) at Kakinada and 5 incidents (8%) at Haldia/Sagar. The other four incidents occurred in other ports/anchorages in India.

Bulk carriers

Of the 21 incidents reported during 2007-2018, eight incidents (38%) occurred at Kandla, seven incidents (33%) at Kakinada, four incidents (19%) at Haldia/Sagar, one incident (5%) at Kochi and one incident (5%) at Visakhapatnam.

Of all locations, tankers were mostly boarded in Kandla, Kochi and Visakhapatnam; while bulk carriers were mostly boarded in Kakinada. As for Haldia/Sagar, there is no particular type of ships that perpetrators boarded as boarding occurred to tankers, bulk carriers and container ships.

The type of ships vis-à-vis location is tabulated as follows:

| | Kandla | Kochi | Kakinada | Haldia/Sagar | Visakhapatnam |
|--------------------|-----------|-----------|-----------|--------------|---------------|
| Tanker | 26 | 13 | 5 | 5 | 12 |
| Bulk carrier | 8 | 1 | 7 | 4 | 1 |
| General cargo ship | 3 | 2 | | 1 | |
| Container ship | | 2 | | 4 | |
| Tug boat/supply | | | 1 | | |
| Others | | | 2 | | |
| Total | 37 | 18 | 15 | 14 | 13 |

TIME OF INCIDENTS

Of the four incidents in 2018, two (50%) incidents occurred during hours of darkness (0100-0259 hrs) and two occurred during daylight hours (0800-1245 hrs).

In the past 12-years of 2007-2018, most incidents occurred during hours of darkness, particularly during 0000-0459 hrs when 59% of the incidents occurred.

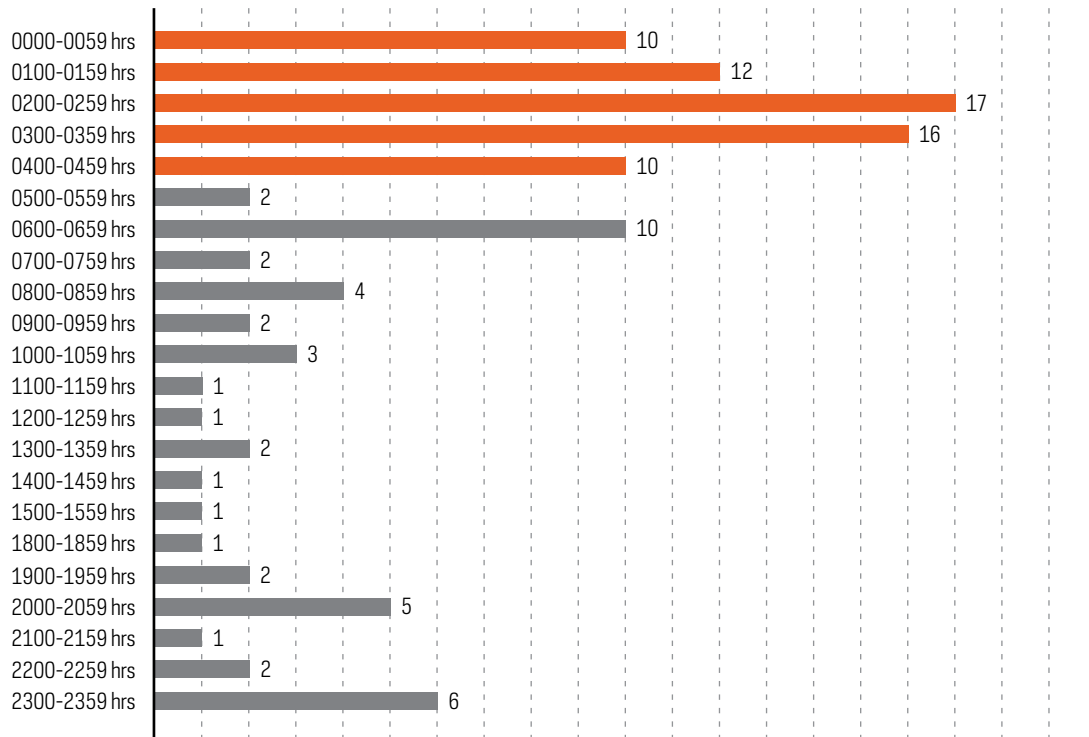
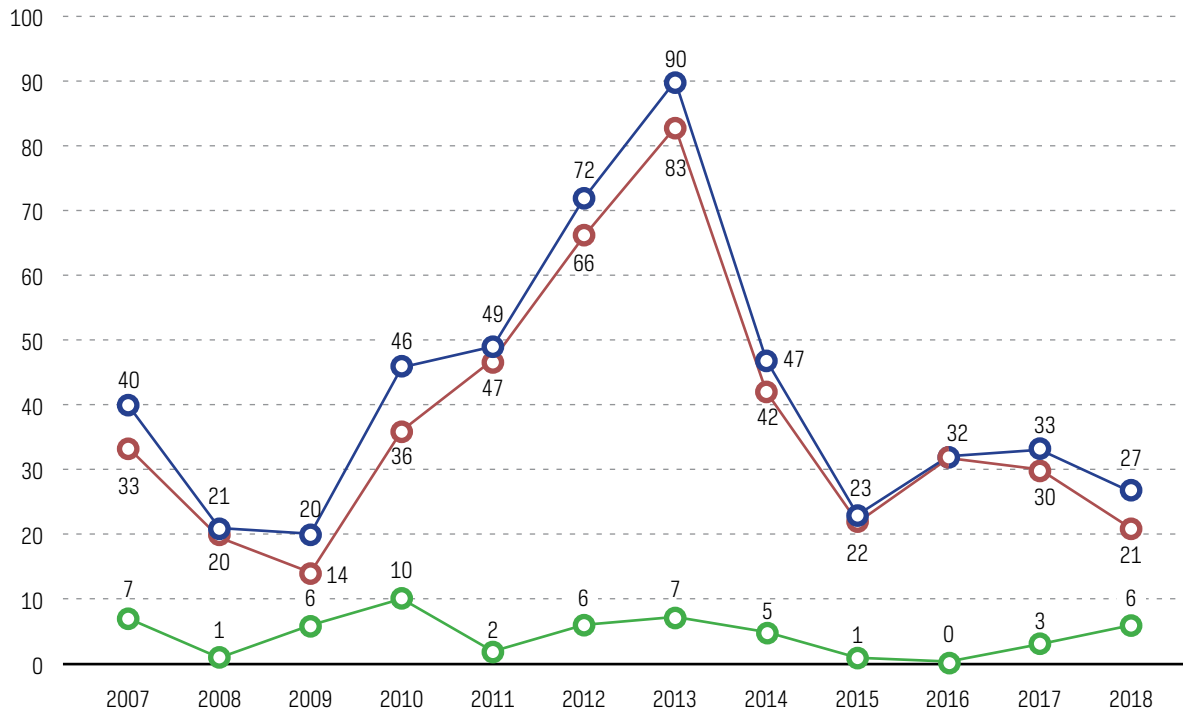


Chart 20 - Time window of incidents - India (2007-2018)

INDONESIA

NUMBER OF INCIDENTS

A total of 27 incidents (21 actual and six attempted) were reported in Indonesia in 2018. There was a decrease of 18% in the total number of incidents in 2018 compared to 2017.



Graph 5 - Number of incidents in Indonesia (2007-2018)

● Total ● Actual ● Attempted

INSIGHTS FROM DATA ANALYTICS

A total of 27 incidents were reported in Indonesia in 2018. These incidents were consistent with past trends observed during 2007-2017; in terms of number of perpetrators (**4-6 men**), treatment of crew (**no injuries or not stated**), items lost (**ship stores**), type of ships (**tankers and bulk carriers**) and time of incidents (**between 2200 hrs and 0559 hrs**). The analysis shows that incidents involving tankers occurred across various ports and anchorages in Indonesia, while incidents involving bulk carriers occurred mostly along the coast of East Kalimantan; and incidents involving tug boats/supply vessels occurred off Pulau Batam and Pulau Bintan.

DETAILS OF ANALYSIS

Number of perpetrators. Majority of incidents in 2018 involved **4-6 men** (37%) which is consistent with the past 11-year (2007-2017) trend where most incidents also involved 4-6 men (35%).

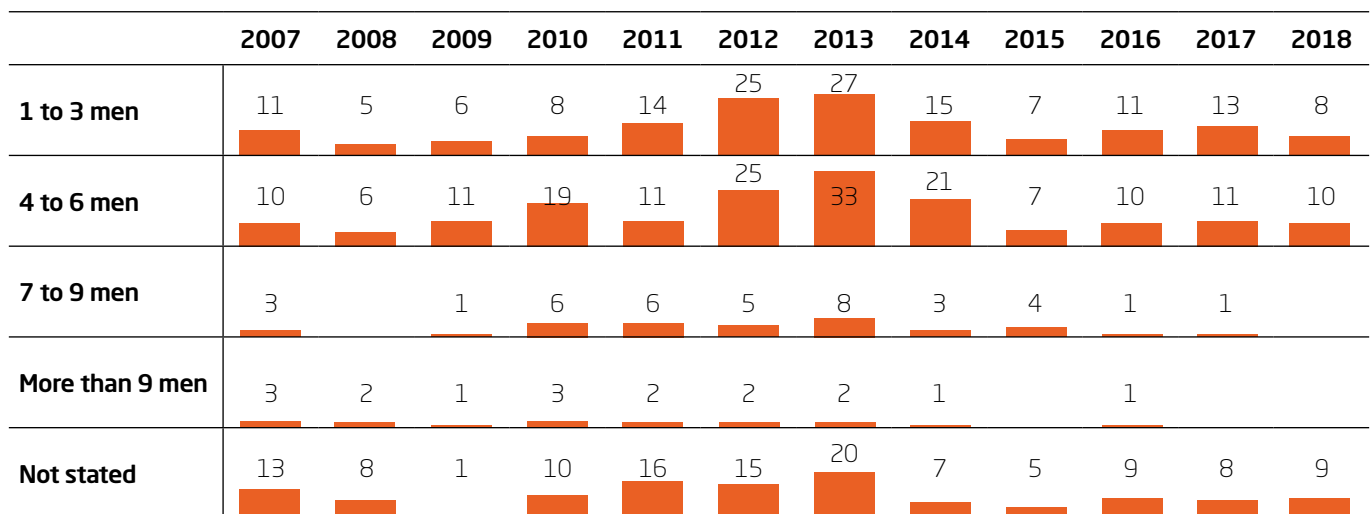


Chart 21 - Number of perpetrators - Indonesia (2007-2018)

Treatment of crew. Of the 27 incidents reported in 2018, majority (89 %) reported that either the crew did not suffer any injuries or there was no information. This is consistent with the trend observed for 2007-2017 where 74% of incidents reported that the crew either did not suffer from injuries or there was no information.

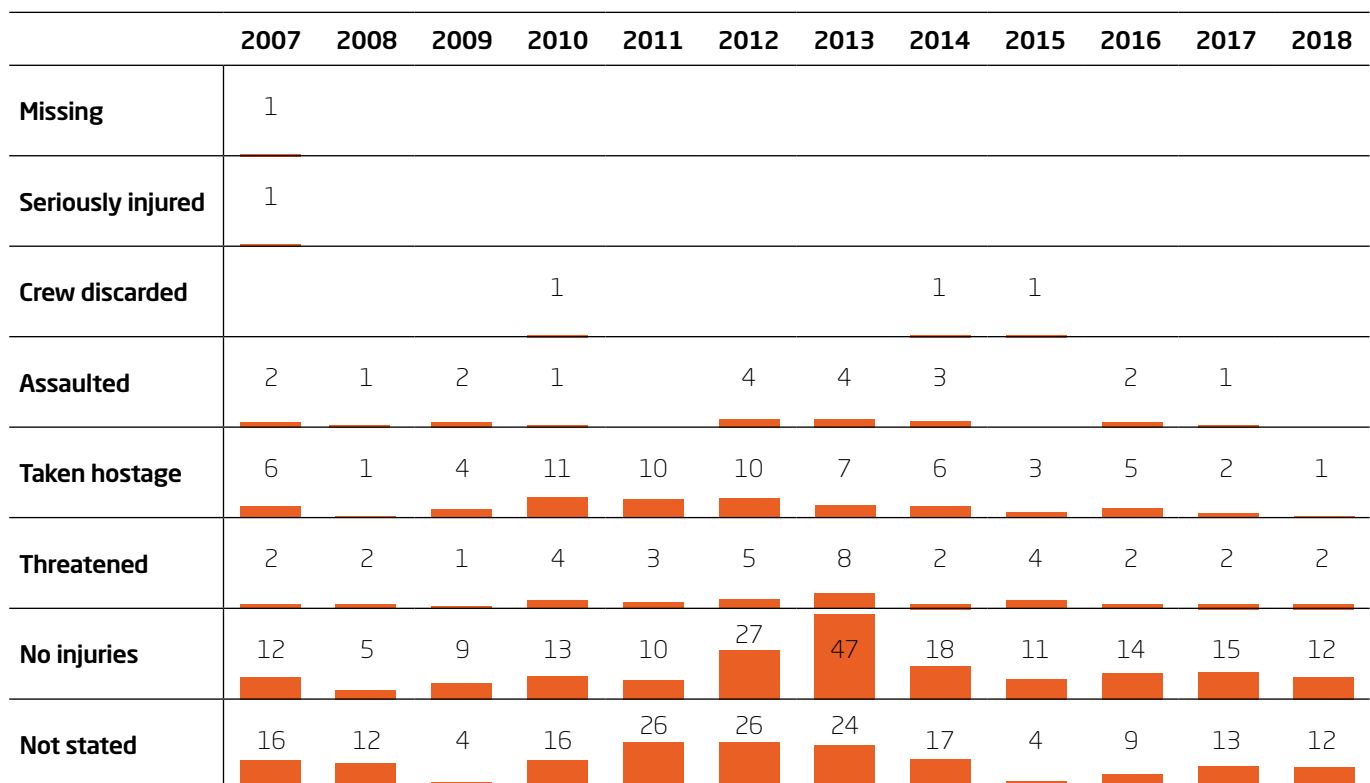


Chart 22 - Treatment of crew - Indonesia (2007-2018)

Type of losses. Of the 27 incidents reported in 2018, nothing was stolen in 10 incidents (37%). In incidents where losses were reported, loss of stores was the most common (33%), followed by engine spares (15%) and unsecured items (4%). This is consistent with the past trend during 2007-2017 where 36% of the incidents reported loss of stores and 33% reported that nothing was stolen from the ship.

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Hijack/Missing of ship | 2 | 1 | | 1 | 1 | | | | 1 | 1 | | |
| Cargo discharged | | | | | 1 | | | 1 | | | 1 | |
| Cash/Property | | 2 | 3 | 12 | 3 | 6 | 10 | 9 | 1 | 1 | | |
| Stores | 8 | 11 | 4 | 14 | 20 | 32 | 36 | 10 | 9 | 16 | 11 | 9 |
| Engines spares | 7 | 1 | 2 | 5 | 6 | 10 | 10 | 9 | 2 | 7 | 4 | 4 |
| Unsecured items | 4 | | 1 | 1 | 1 | 1 | | | | | 4 | 1 |
| Nil | 12 | 4 | 10 | 12 | 16 | 22 | 33 | 18 | 10 | 7 | 13 | 10 |
| Not stated | 7 | 2 | | 1 | 1 | 1 | 1 | | | | | 3 |

Chart 23 - Type of losses - Indonesia (2007-2018)

Type of ships. Majority of the incidents (74%) reported in 2018 occurred on board bulk carriers. During 2007-2017, 43% of the incidents occurred on board tankers and 34% occurred on board bulk carriers. There is a slight deviation as more tankers than bulk carriers were boarded in the past 11 years (2007-2017).



Chart 24 - Type of ships boarded - Indonesia (2007-2018)

CORRELATION BETWEEN TYPES OF SHIPS VIS-À-VIS LOCATION

There is no evidence to suggest that a particular type of ship is being targeted by perpetrators at certain ports and anchorages. Tankers and bulk carriers are two most frequently boarded ships in Indonesia. There is no concentration of locations where tankers were boarded. Map 5 show the location of incidents involving tankers which were scattered across various ports and anchorages and waters in Indonesia.



Map 5 - Incidents involving tankers in Indonesia (2007-2018)

Incidents involving bulk carriers occurred mostly along the coast of East Kalimantan as shown in Map 6.



Map 6 - Incidents involving bulk carriers in Indonesia (2007-2018)

Incidents involving **tug boats/supply vessels** mostly occurred in the vicinity of Pulau Batam/ Pulau Bintan (as shown in Map 7).



Map 7 - Incidents involving tug boats/supply vessels in Indonesia (2007-2018)

TIME OF INCIDENTS

Of the 27 incidents reported in 2018, 22 occurred during hours of darkness (between 1900 hrs and 0559 hrs) and five occurred during daylight hours (between 0700 hrs and 1559 hrs).

This is consistent with the past trend of 2007-2018 where more than three-quarters of the incidents occurred between 2200 hrs and 0559 hrs.

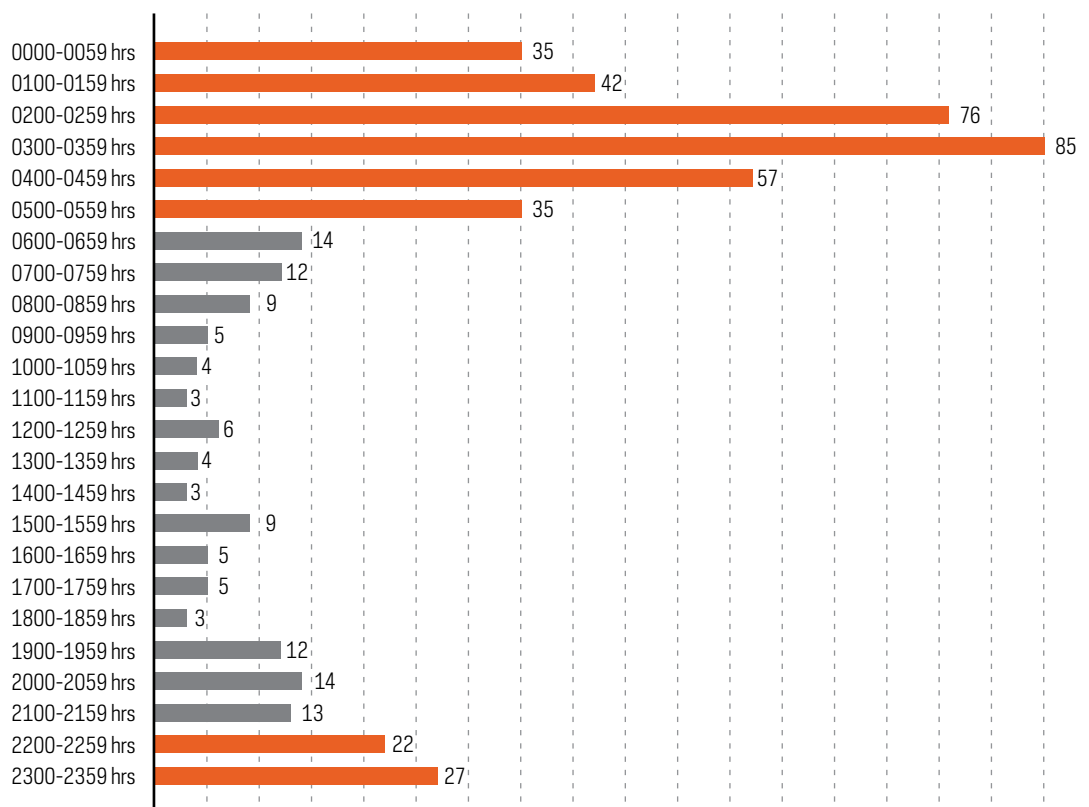
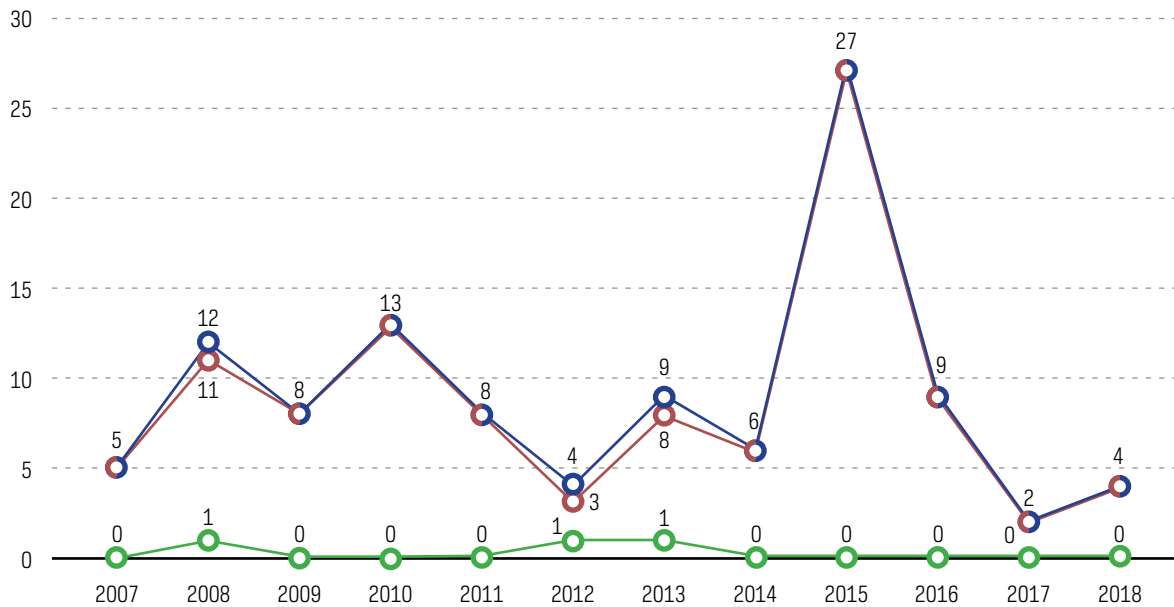


Chart 25 - Time window of incidents - Indonesia (2007-2018)

VIETNAM

NUMBER OF INCIDENTS

Four actual incidents were reported in Vietnam in 2018. This was an increase of 50% compared to 2017 when two incidents were reported. However, there was an improvement of the situation in Vietnam over the past three years (2016-2018).



Graph 6 - Number of incidents in Vietnam (2007-2018)

● Total ● Actual ● Attempted

INSIGHTS FROM DATA ANALYTICS

Incidents reported in 2018 in Vietnam were consistent with the past trends observed during 2007-2017; in terms of number of perpetrators (**1-3 men**), treatment of crew (**no injuries**), items lost (**ship stores**) and type of ships (**container ships and bulk carriers**). However, there is a slight deviation regarding the time of incidents as two-thirds of the incidents reported in 2018 occurred during daylight hours; while majority of the incidents in past 11-years occurred during hours of darkness. Incidents on board container ships and tankers occurred more frequently in the southern part of Vietnam than in the northern part.

DETAILS OF ANALYSIS

Number of perpetrators. Majority of incidents in 2018 had no information available on the number of perpetrators (50%) which is consistent with the past 11-year trend where most incidents indicated that there is no information available on the number of perpetrators (34%). However, when such information is available, the perpetrators are usually in groups of 1-3 men (31%).

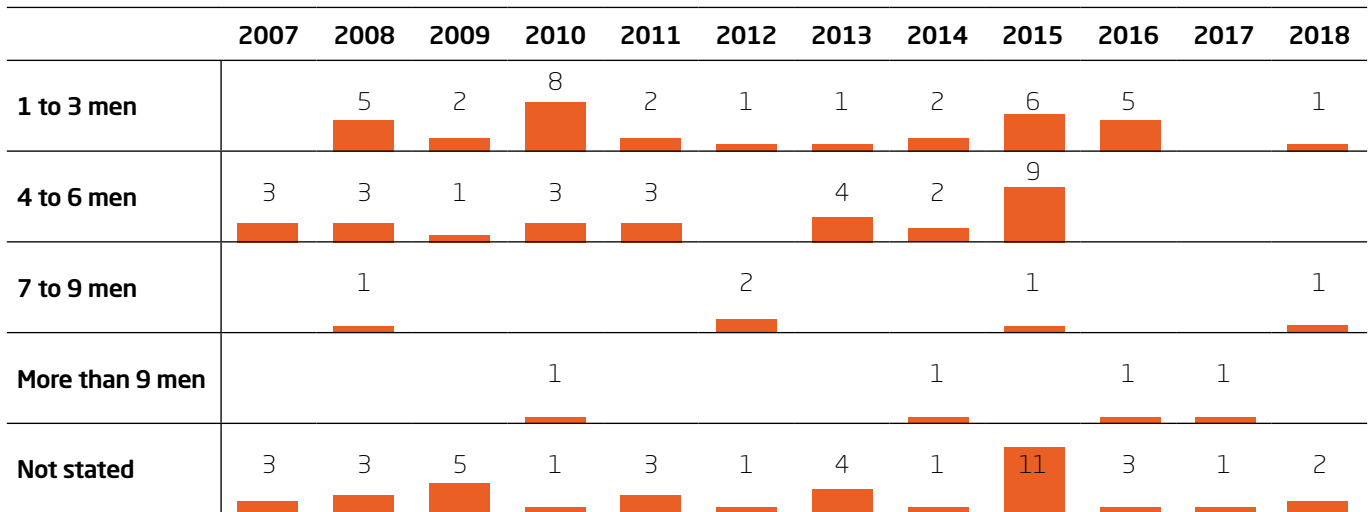


Chart 26 - Number of perpetrators - Vietnam (2007-2018)

Treatment of crew. In 2018, three-quarters of the incidents reported that the crew did not suffer from any injuries. During 2007-2017, close to three-quarters of the incidents reported that the crew did not suffer from any injuries.

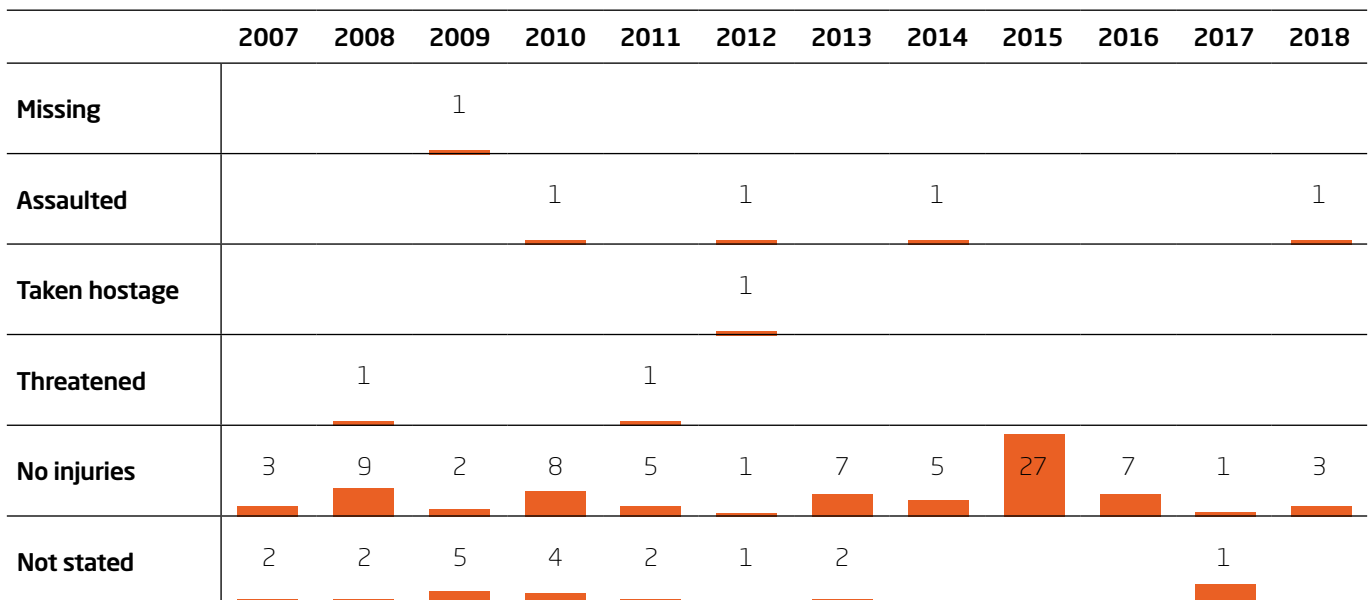


Chart 27 - Treatment of crew - Vietnam (2007-2018)

Type of losses. All four incidents in 2018 reported the loss of stores. The stores stolen included lubricating oil, grease, paints and jacket lights. During 2007-2017, three-quarters of the incidents reported that the perpetrators stole ship stores.

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Stores | 4 | 3 | 7 | 11 | 5 | 3 | 8 | 4 | 22 | 7 | 2 | 4 |
| Engines spares | | | | | 1 | | | | | | | |
| Unsecured items | 1 | 4 | | | | | | | | | | |
| Nil | | 4 | 1 | 2 | 1 | 1 | 2 | 5 | 2 | | | |
| Not stated | | 1 | 1 | 1 | | | | | | | | |

Chart 28 - Type of losses - Vietnam (2007-2018)

Type of ships. All four incidents reported in 2018 involved bulk carriers. During 2007-2017, 39 incidents (38%) were reported on board container ships, 35 (34%) on board bulk carriers and 18 (17%) on board tankers.

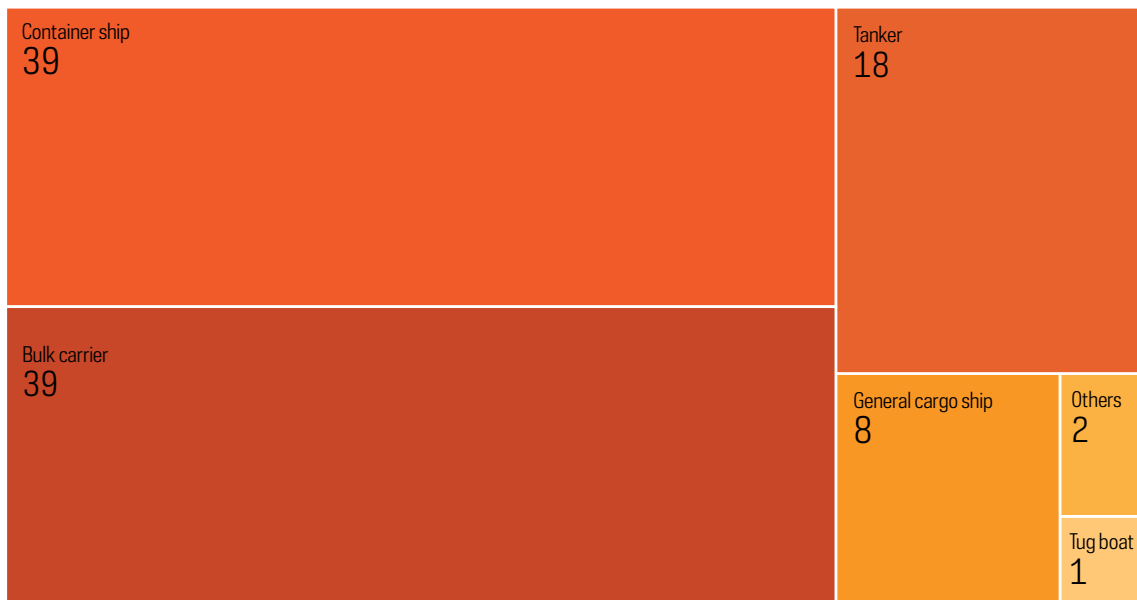


Chart 29 - Type of ships boarded - Vietnam (2007-2018)

CORRELATION BETWEEN TYPES OF SHIPS VIS-À-VIS LOCATION

During 2007-2018, 39 incidents (36%) occurred on board container ships, 39 (36%) on board bulk carriers, 18 (17%) on board tankers, eight (8%) on board general cargo ships, two (2%) on board other types of ships and one (1%) on board tug boat.

Container ships. Of the 39 incidents reported during 2007-2018, 29 incidents were reported in the southern part of Vietnam and 10 incidents were reported in the northern part of Vietnam.



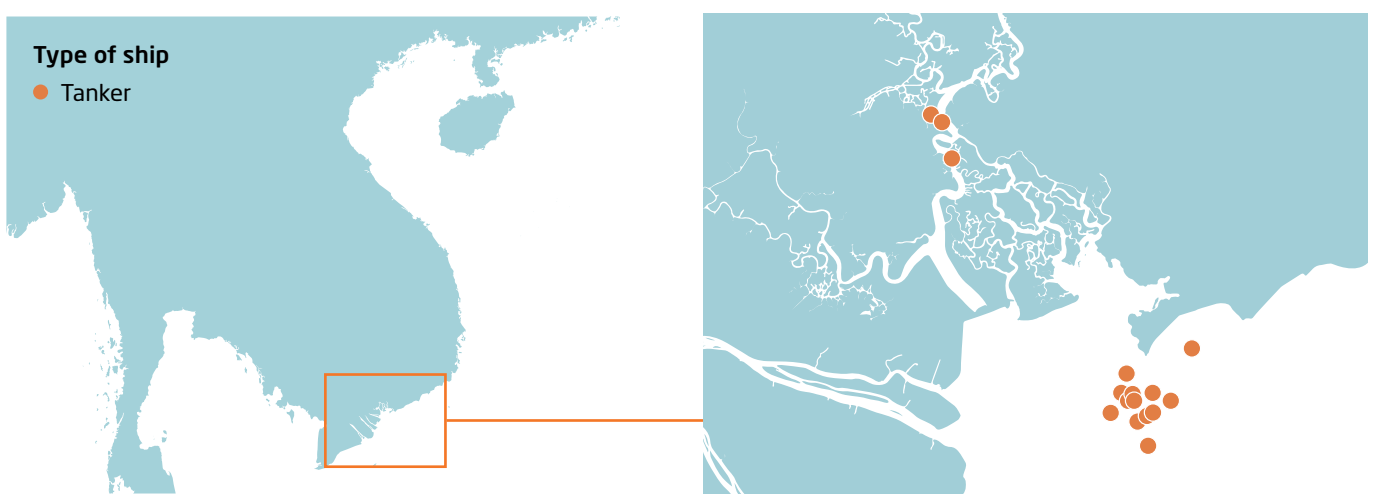
Map 8 - Incidents involving container ships in Vietnam (2007-2018)

Bulk carriers. Of the 39 incidents reported during 2007-2018, 21 incidents were reported in the southern part of Vietnam and 18 incidents were reported in the northern part of Vietnam.



Map 9 - Incidents involving bulk carriers in Vietnam (2007-2018)

Tankers. All 18 incidents involving tanker during 2007-2018 were reported in the southern part of Vietnam. Of these incidents, 14 occurred in the anchorage of Vung Tau.



Map 10 - Incidents involving tankers in Vietnam (2007-2018)

TIME OF INCIDENTS

Of the four incidents reported in 2018, two occurred during daylight hours (0700-0759 hrs), and two during hours of darkness (0200-0259 hrs and 2300-2359 hrs). During 2007-2018, 68% of the incidents occurred between 2300 hrs and 0459 hrs. The incidents observed in 2018 are not consistent with past trends.

It is noted that during 2007-2018, all incidents reported in the northern part of Vietnam occurred between 2100 hrs and 0959 hrs.

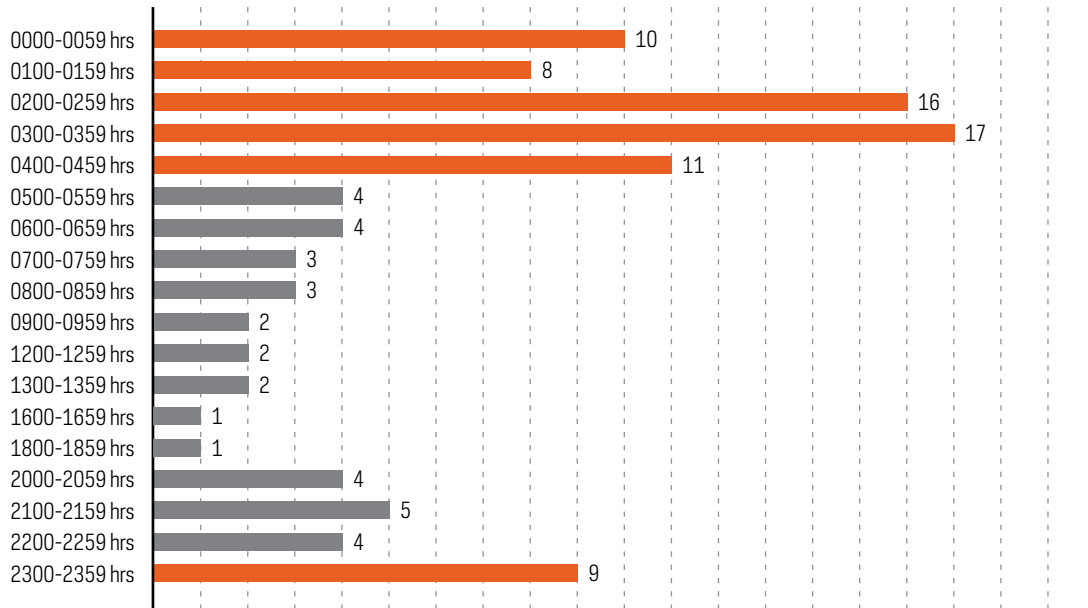
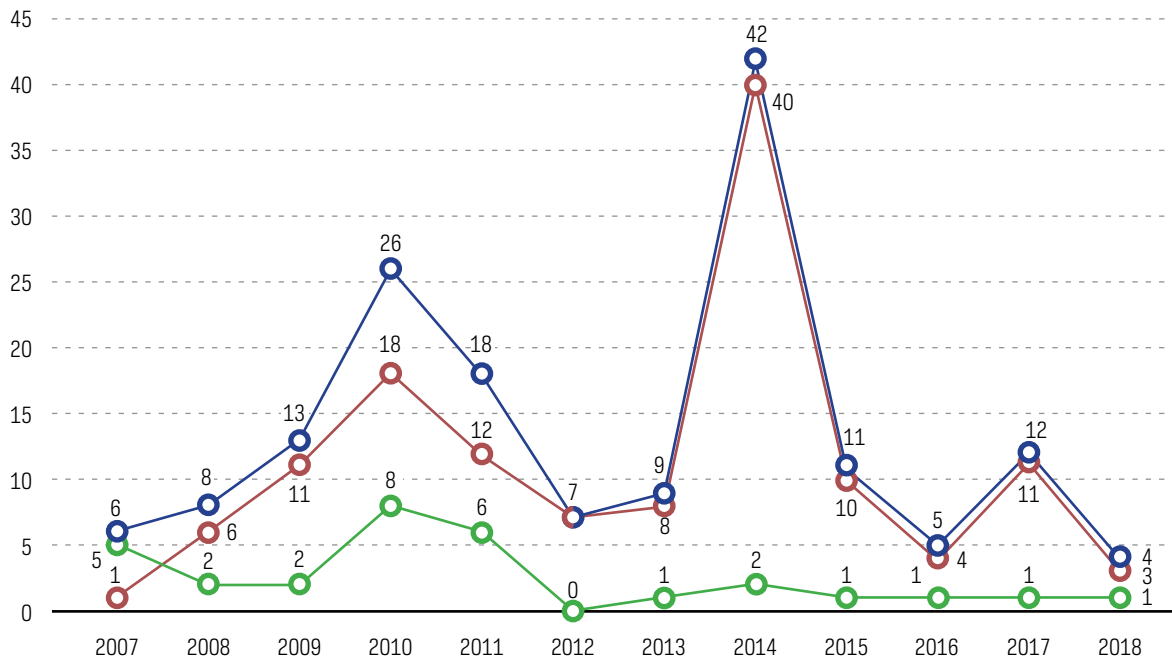


Chart 30 - Time window of incidents - Vietnam (2007-2018)

SOUTH CHINA SEA (SCS)

NUMBER OF INCIDENTS

A total of four incidents (three actual and one attempted) were reported in SCS in 2018. Compared to 2017 there has been a 67% decrease in the number of incidents reported in 2018. In 2017, 12 incidents (11 actual and one attempted) were reported. 2018 reported the lowest number of incidents among the 12-year period of 2007-2018.



Graph 7 - Number of incidents in SCS (2007-2018)

● Total ● Actual ● Attempted

INSIGHTS FROM DATA ANALYTICS

Incidents reported in 2018 in SCS were consistent with the past trends observed during 2007-2017; in terms of number of perpetrators (**4-6 men**), treatment of crew (**no injuries**), and time of incidents (**between 0000 hrs and 0559 hrs**). However, there is a slight deviation regarding the weapons carried by perpetrators and items lost. Majority of incidents in 2018 had no information on whether the perpetrators were armed while during 2007-2017, more than half of the incidents involved armed perpetrators. As for the loss of items, majority of incidents in 2018 reported nothing was stolen while the loss of cash and personal belongings were prevalent in incidents reported during 2007-2017. Incidents were relatively less violent in 2018 compared to the past 11-years.

DETAILS OF ANALYSIS

Number of perpetrators. Of the four incidents reported in 2018, half of them reported the perpetrators were in groups of 4 to 6 men. During 2007-2017, 31% of the incidents involved perpetrators in groups of 4 to 6 men. The incidents observed in 2018 are consistent with past trends.

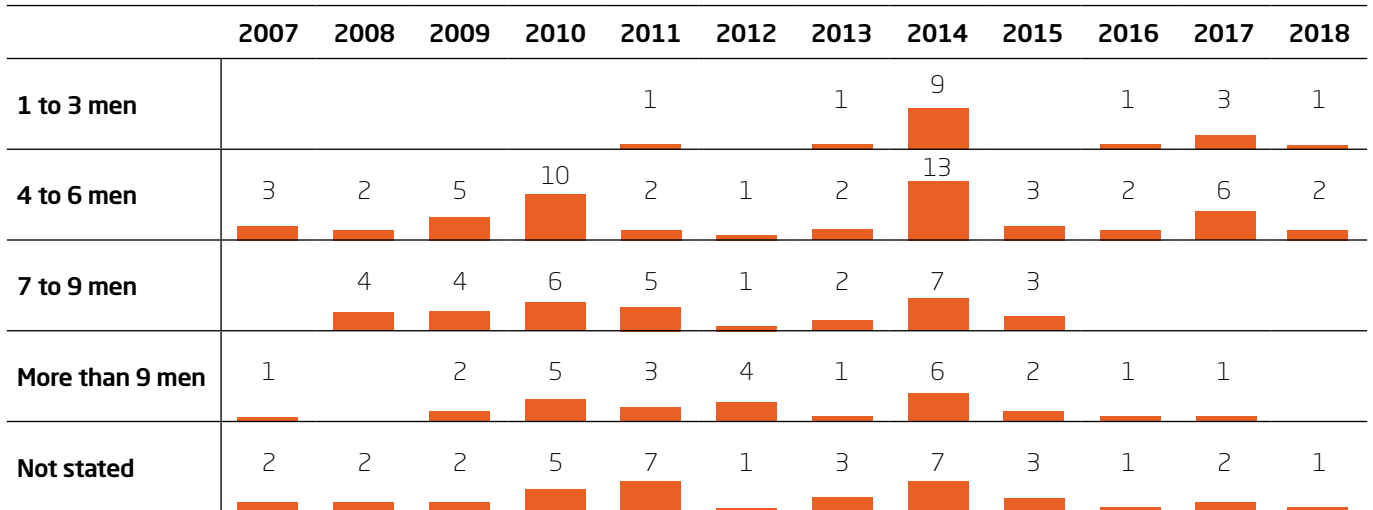


Chart 31 - Number of perpetrators - SCS (2007-2018)

Type of weapons. Of the four incidents reported in 2018, three incidents had no information on arms. During 2007-2017, more than half of the incidents (57%) involved perpetrators with arms and 38% had no information on arms.

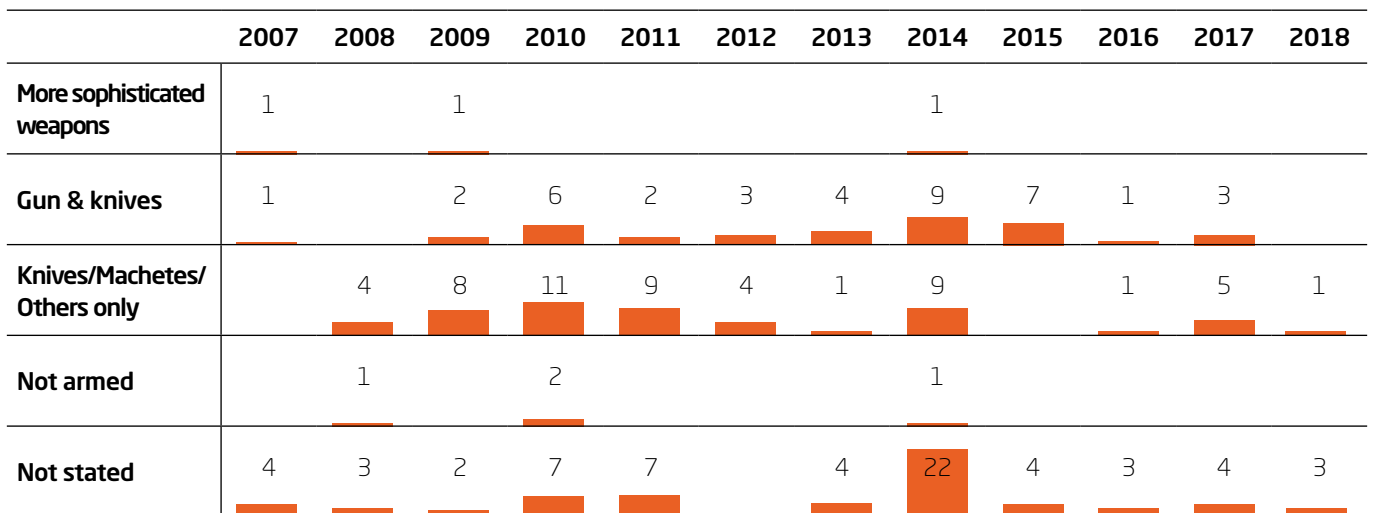


Chart 32 - Type of weapons used - SCS (2007-2018)

Treatment of crew. Of the four incidents reported in 2018, three incidents reported that the crew did not suffer from injuries, and one incident reported that the crew was tied up and taken hostage by perpetrators who demanded cash. During 2007-2017, 32% of the incidents reported that the crew did not suffer from any injuries and 25% of the incidents had no information. Among the incidents where the crew suffered from injuries, majority reported that the crew was tied up and taken hostage.

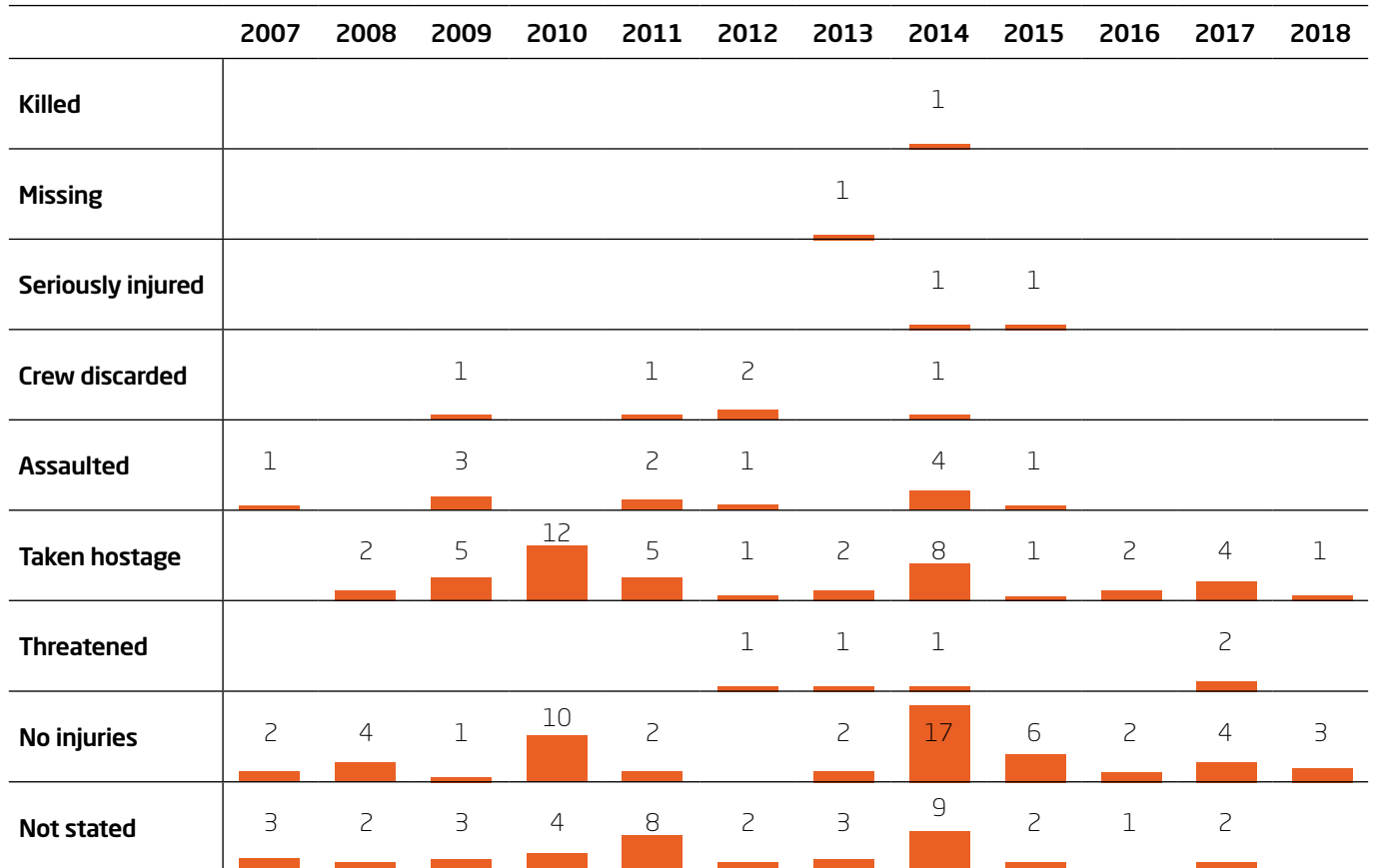


Chart 33 - Treatment of crew - SCS (2007-2018)

Type of losses. Of the four incidents in 2018, three incidents reported nothing was stolen. There was a deviation from the past trend. During 2007-2017, 35% of the incidents reported the loss of cash and personal belongings such as mobile phones, jewellery and laptops.

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Hijack/Missing of ship | 1 | | 1 | 1 | 2 | 2 | | 1 | 1 | | | |
| Cargo discharged | | | | | 1 | | 1 | 10 | 5 | 1 | 2 | |
| Cash/Property | | 5 | 9 | 13 | 8 | 4 | 5 | 5 | 2 | 1 | 3 | 1 |
| Stores | | 1 | 1 | 1 | | | | 3 | 1 | | 1 | |
| Engines spares | | | | | | | | 3 | 1 | 1 | 2 | |
| Unsecured items | | | | 1 | | | | 1 | | | | |
| Nil | 3 | 1 | 2 | 10 | 6 | | 3 | 19 | 1 | 2 | 4 | 3 |
| Not stated | 2 | 1 | | | 1 | 1 | | | | | | |

Chart 34 - Type of losses - SCS (2007-2018)

Type of ships. Of the four incidents reported in 2018, one occurred on board a bulk carrier, one on board a tanker, one on board a general cargo ship and one on board a catamaran. This is different from the past 11-year trend where 82 incidents (52%) occurred on board tankers, 28 (18%) occurred on board tug boat/supply vessels and 19 (12%) on board bulk carriers.

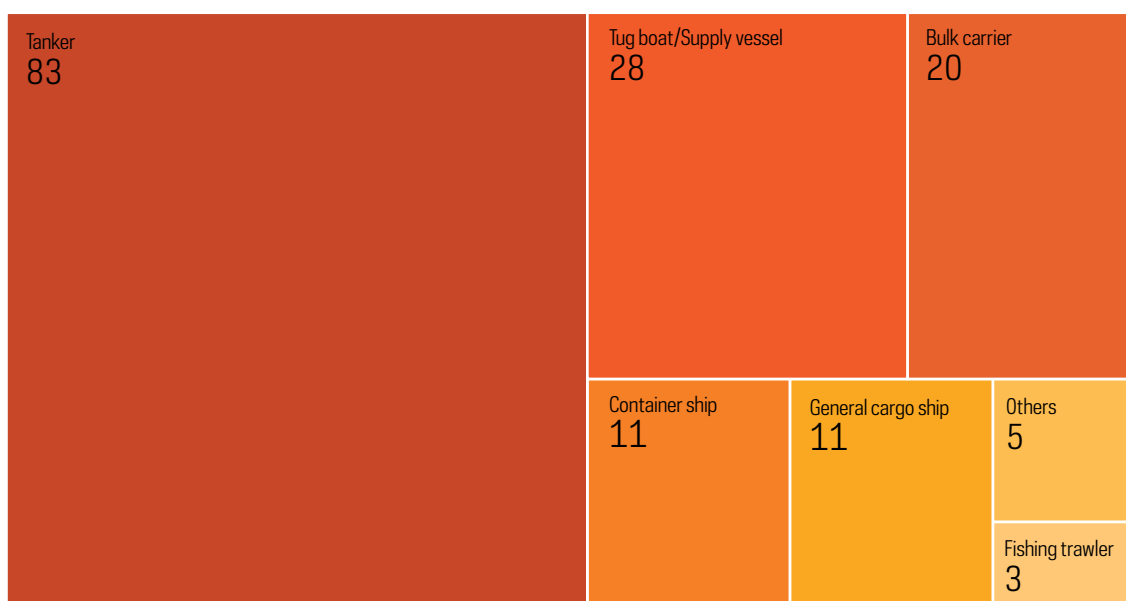


Chart 35 - Type of ships boarded - SCS (2007-2018)

TIME OF INCIDENTS

All four incidents reported in 2018 occurred during hours of darkness between 0000 hrs and 0559 hrs. During 2007-2018, 135 incidents (84%) occurred during hours of darkness between 2000 hrs and 0559 hrs. The incidents in 2018 are consistent with past trends.

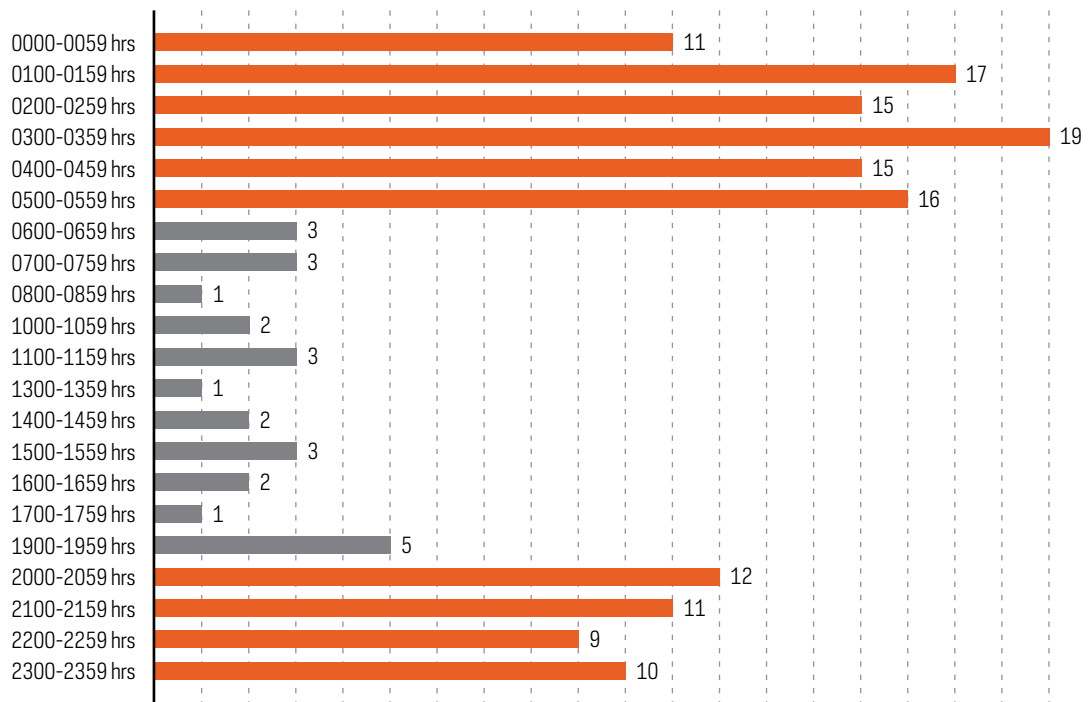
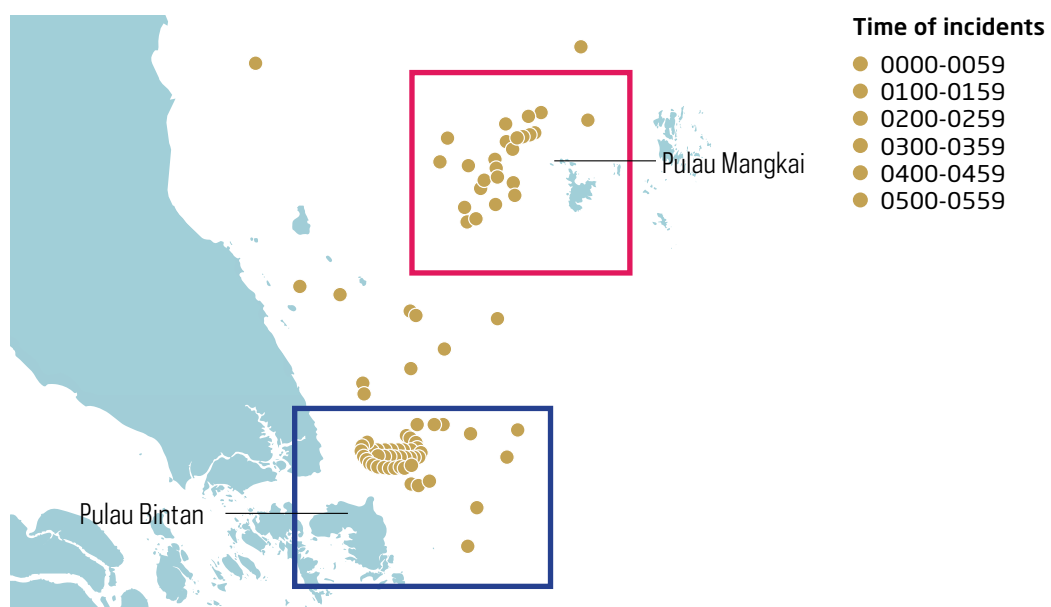


Chart 36 - Time window of incidents - SCS (2007-2018)

CORRELATION BETWEEN TIME VIS-À-VIS LOCATION

During the past 11-years, incidents in the SCS occurred in two clusters – off Pulau Mangkai and off Pulau Bintan during hours of darkness, between 0000 hrs and 0559 hrs. The bulk of the incidents in the vicinity of Pulau Mangkai occurred during 2007-2011 while incidents in the vicinity of Pulau Bintan mostly occurred during 2011-2018.

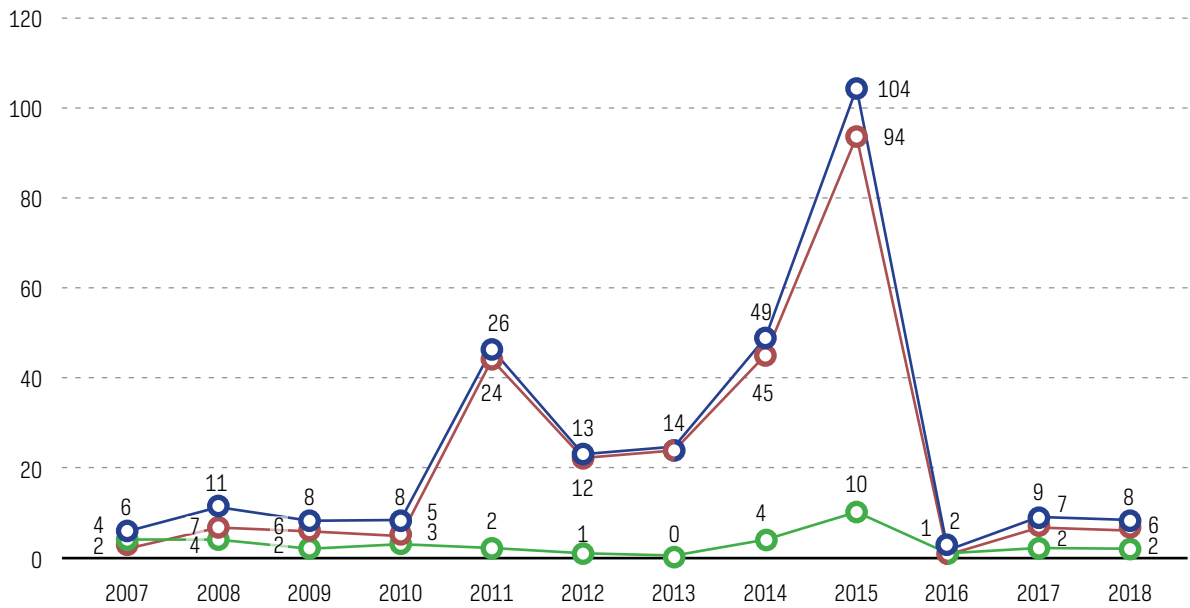


Map 11- Incidents in SCS (2007-2018)

STRAITS OF MALACCA & SINGAPORE (SOMS)

NUMBER OF INCIDENTS

A total of eight incidents (six actual and two attempted) were reported in SOMS in 2018. Compared to 2017 where nine incidents were reported, the number of incidents reported in 2018 had remained similar.



Graph 8 - Number of incidents in SOMS (2007-2018)

● Total ● Actual ● Attempted

INSIGHTS FROM DATA ANALYTICS

Incidents reported in 2018 in SOMS were consistent with the past trends observed during 2007-2017; in terms of number of perpetrators (**4-6 men**), weapons carried by perpetrators (**not stated**), treatment of crew (**no injuries**), items lost (**50% reported nothing stolen**), type of ships mostly boarded (**tug boats/supply vessels, bulk carriers and tankers**) and time of incidents (**between 2300 hrs and 0459 hrs**).

Incidents involving tug boats/supply vessels in the Singapore Strait occurred in both western and eastern sectors; while incidents on board bulk carriers and tankers occurred in the western sector. Also, a larger number of incidents were reported in the western sector of Singapore Strait during 0300-0559 hrs. However, incidents in the eastern sector of the Strait occurred more often between 2000 hrs and 0100 hrs.

DETAILS OF ANALYSIS

Number of perpetrators. Of the eight incidents reported in 2018, three incidents (38%) reported groups of 4-6 perpetrators, two (25%) involved groups of 1-3 perpetrators, one involved (12%) a group of more than 9 perpetrators and two (25%) had no information. During 2007-2017, majority of the incidents (44%) reported groups of 4-6 men. The incidents in 2018 are consistent with the past trend.

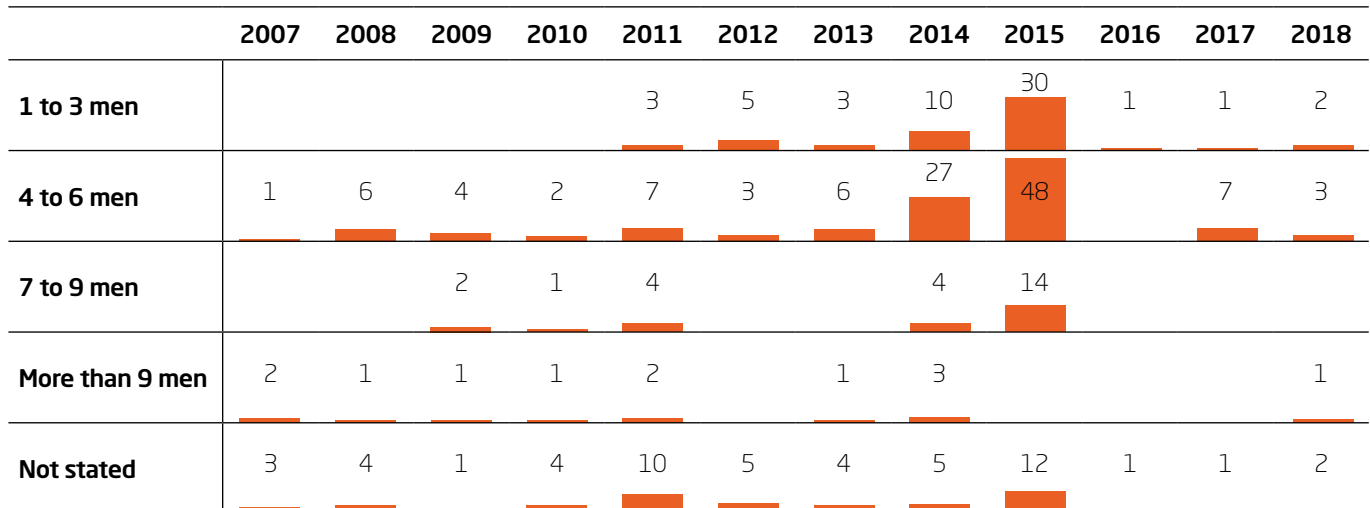


Chart 37 - Number of perpetrators - SOMS (2007-2018)

Treatment of crew. In 2018, three-quarters of the incidents (75%) reported that the crew did not suffer from any injuries. There is no deviation from the trend as 78% of incidents in the past 11 years reported that the crew did not suffer from injuries.

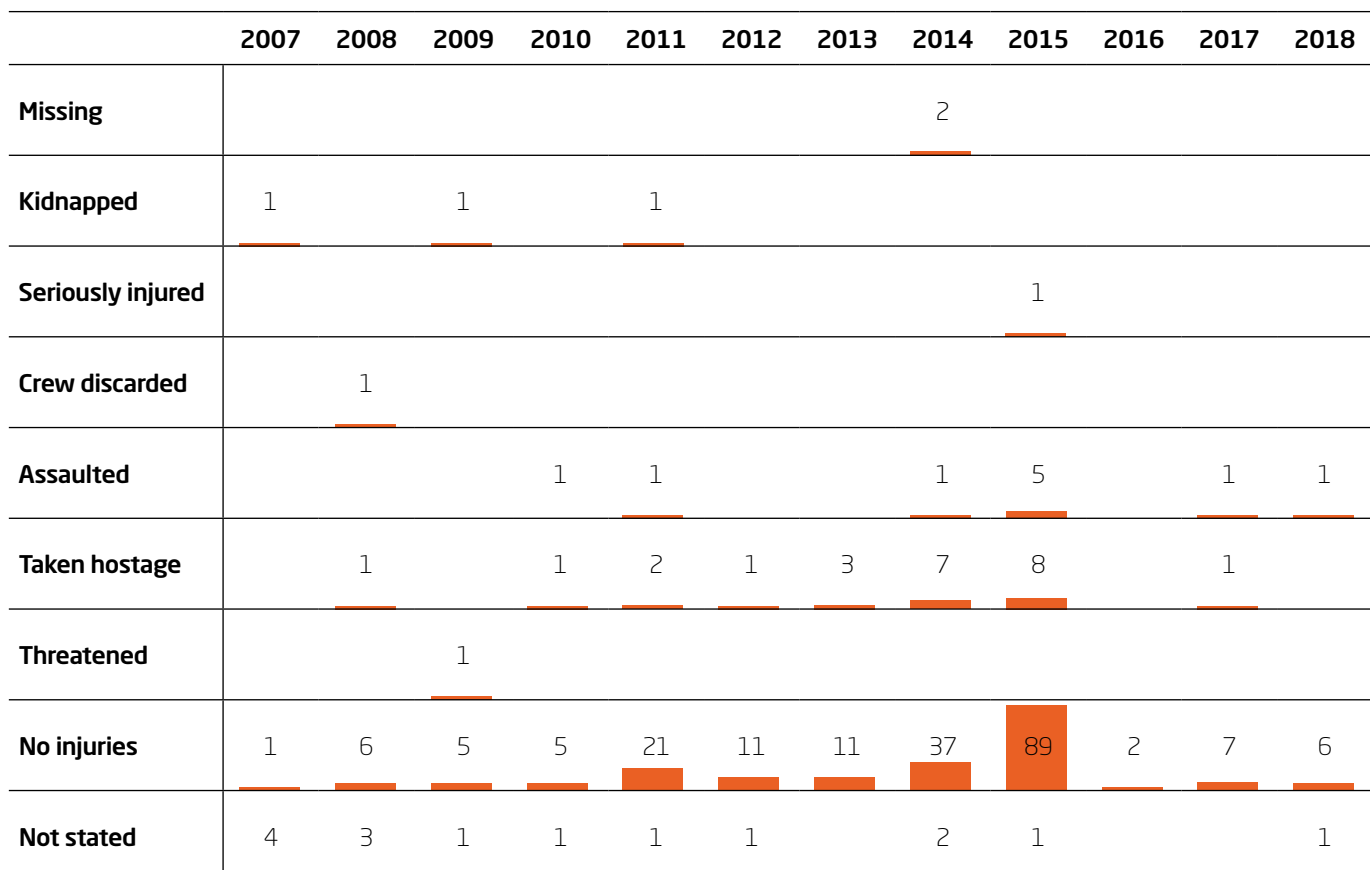


Chart 38 - Treatment of crew - SOMS (2007-2018)

Type of losses. Half of the eight incidents in SOMS in 2018 reported that nothing was stolen. There is no deviation from the trend as 48% of incidents in the past 11 years reported that nothing was stolen from the ships.

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Hijack/ Missing of ship | | 1 | | | 1 | | | | | | | |
| Cargo discharged | | | | | 2 | 4 | 3 | 4 | 6 | | | |
| Cash/Property | 1 | 6 | 4 | 3 | 12 | 3 | 1 | 8 | 3 | | 1 | 1 |
| Stores | | | 1 | 2 | 6 | 2 | 2 | 1 | 9 | | | 1 |
| Engine spares | | | | | | 1 | 1 | 7 | 16 | | 3 | |
| Unsecured items | | | | | | | 2 | 1 | | 1 | | 2 |
| Nil | 3 | 4 | 3 | 3 | 5 | 2 | 3 | 27 | 65 | 1 | 4 | 4 |
| Not stated | 2 | | | | | 1 | | 1 | 5 | | 1 | |

Chart 39 - Type of losses - SOMS (2007-2018)

Type of ships. Of the eight incidents reported in 2018, three occurred on board tug boats towing barges, two on board bulk carriers, two on board tankers and one on board a workboat. There is no deviation from the trend as 33% of incidents in the past 11 years occurred on board tug boats/supply vessels, 28% on board bulk carriers and 25% on board tankers.

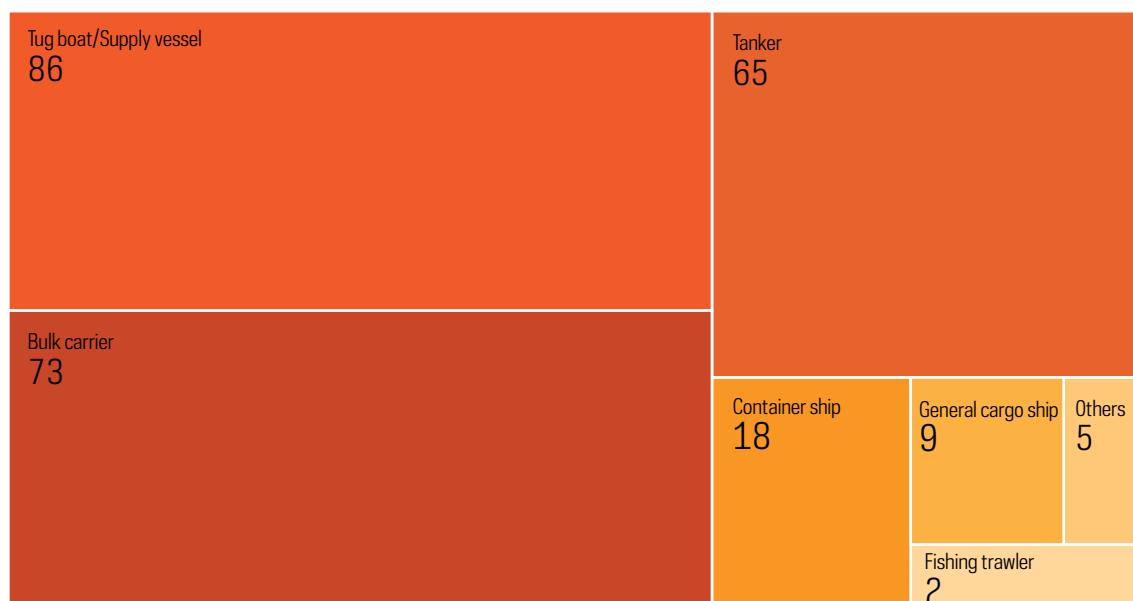
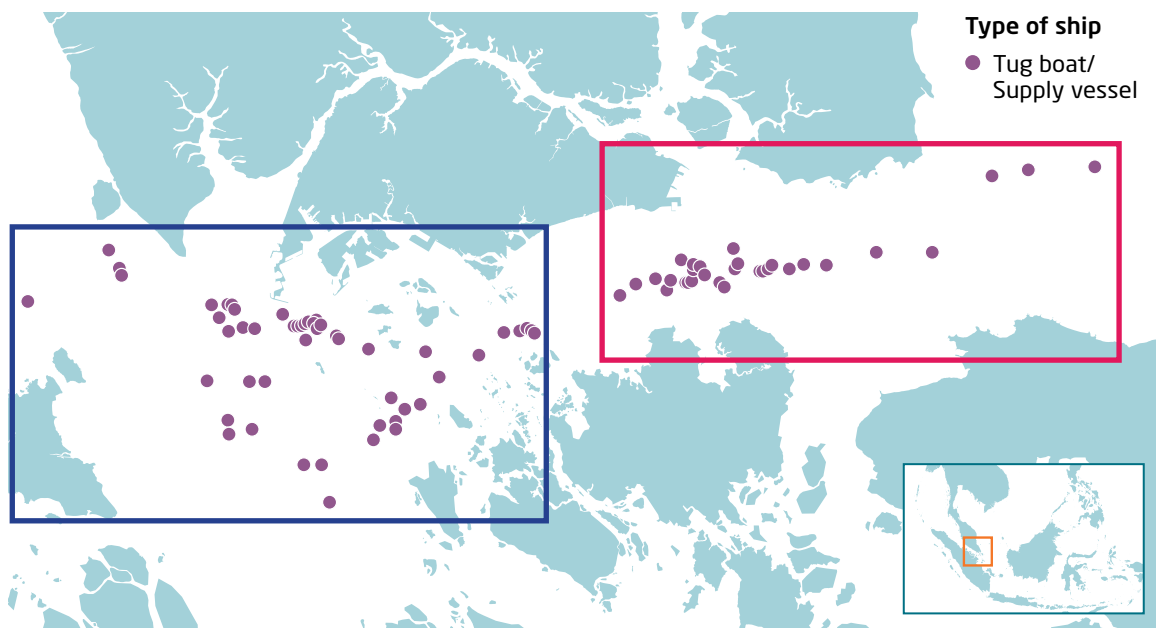


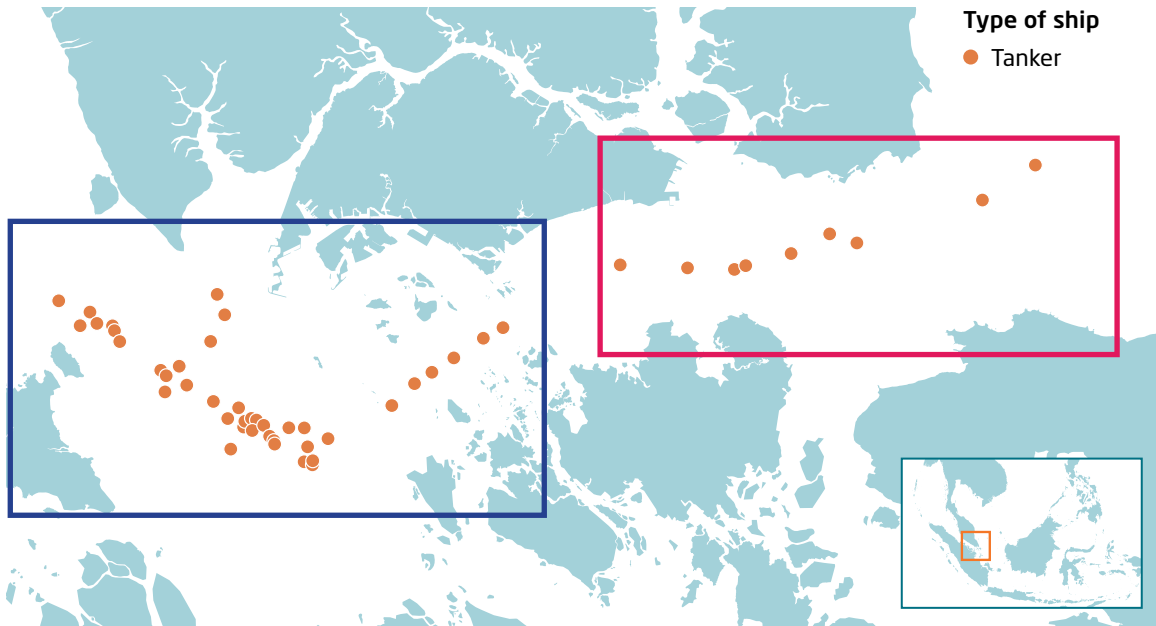
Chart 40 - Type of ships boarded - SOMS (2007-2018)

CORRELATION BETWEEN TYPE OF SHIP VIS-À-VIS LOCATION

Most of the incidents reported in SOMS occurred in the Singapore Strait. Based on the three types of ships most frequently boarded in the Singapore Strait during 2007-2018, the following were observed:

- Incidents involving **tug boats/supply vessels** occurred in both the western sector (blue rectangle) and eastern sector (red rectangle) of Singapore Strait, with most incidents off Pulau Batam, Indonesia.
- Incidents involving **bulk carriers** and **tankers** mostly occurred in the western sector of Singapore Strait.





Map 12- Incidents in Singapore Strait (2007-2018)

TIME OF INCIDENTS

Of the eight incidents reported in 2018, five occurred during hours of darkness (between 2300 hrs and 0459 hrs) and three occurred during daylight hours (between 1300 hrs and 1559 hrs).

During the past 11 years, most of the incidents in SOMS occurred during hours of darkness, particularly during 0300-0559 hrs when 43% of the incidents occurred.

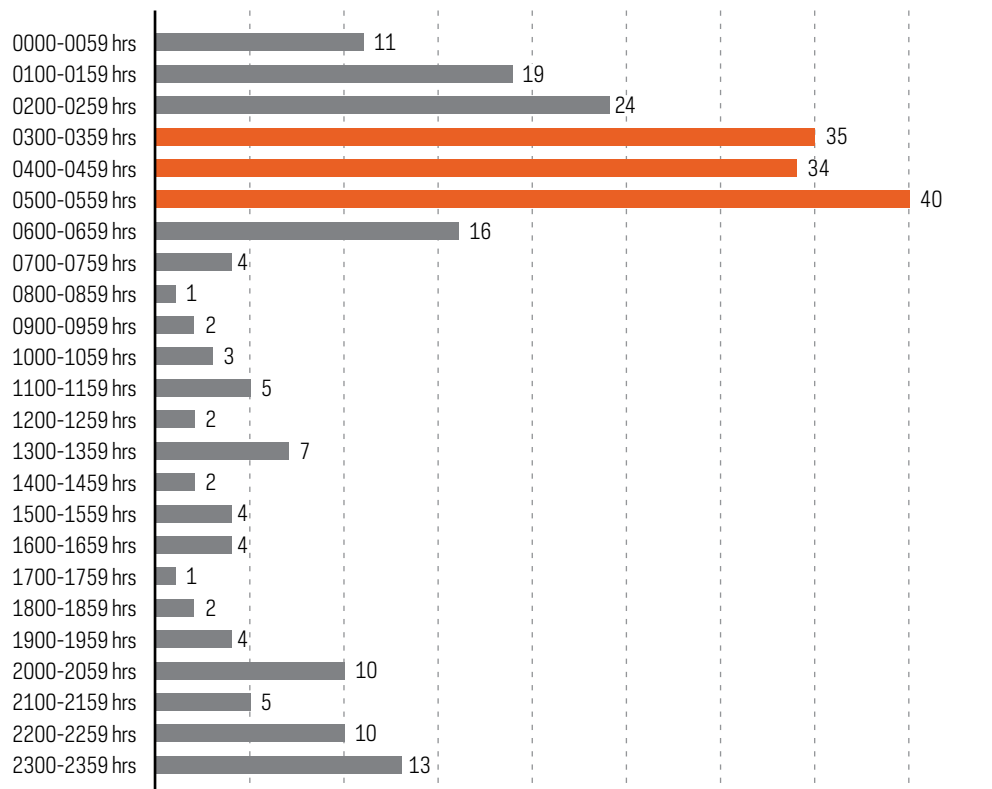
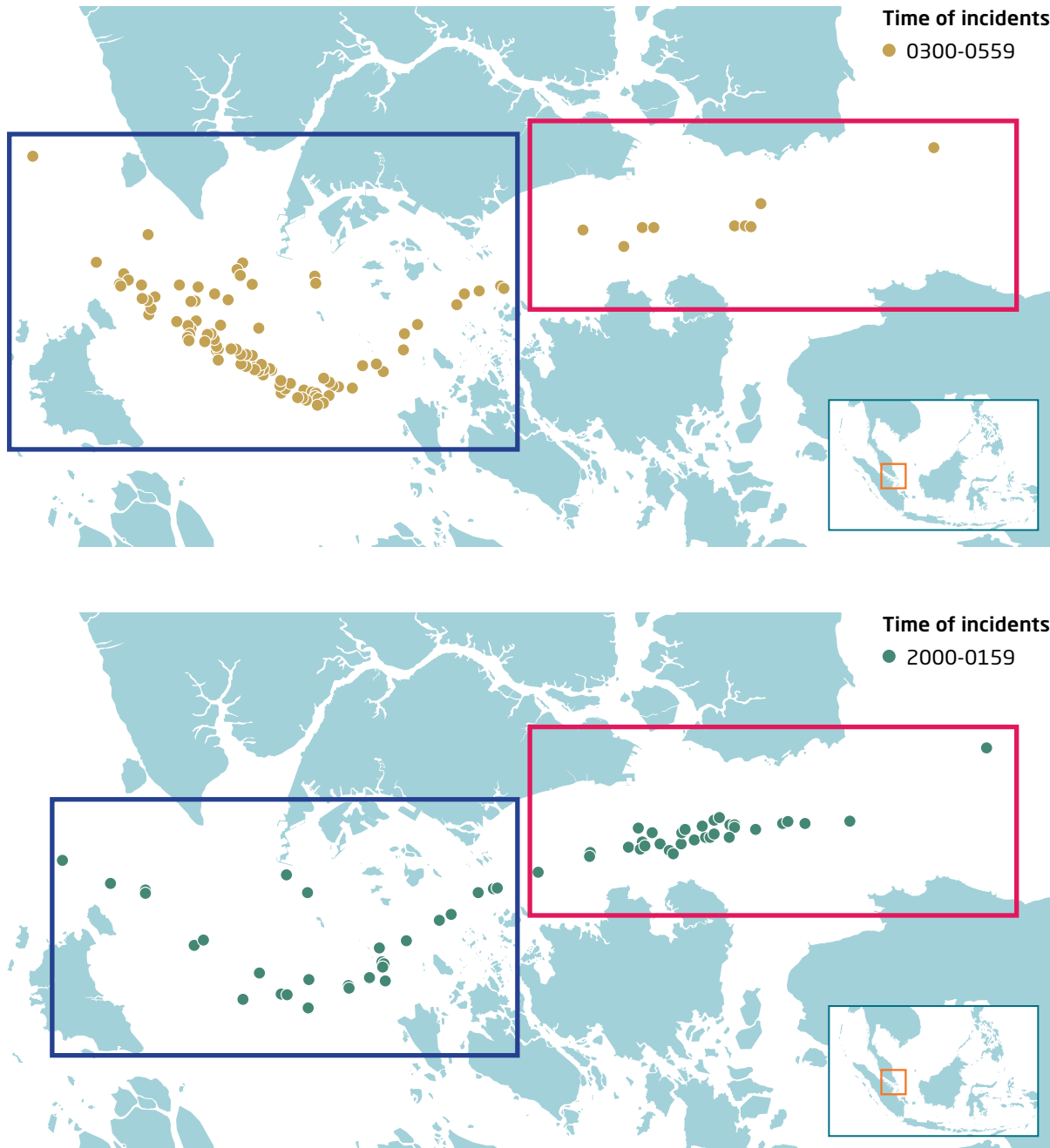


Chart 41 - Time window of incidents - SOMS (2007-2018)

CORRELATION BETWEEN TIME OF INCIDENTS VIS-À-VIS LOCATION

The bulk of the incidents in the SOMS occurred during 0300-0559 hrs, and these incidents mostly occurred in the western sector (blue rectangle) of Singapore Strait. However, the incidents in the eastern sector of the Singapore Strait occurred mostly between 2000 hrs and 0100 hrs.



Map 13- Time of incidents in Eastern and Western sectors of Singapore Strait (2007-2018)