



**NATIONAL TRANSPORTATION SAFETY COMMITTEE
REPUBLIC OF INDONESIA**

FINAL REPORT

KNKT.22.10.12.03

Marine Accident Investigation Report

Grounding of *Young Yong* (IMO 9194127)

**Singapore Strait
Republic of Indonesia**

26 October 2022

2024

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1. Indonesian Shipping Act No. 17 Year of 2008, articles 256 and 257 as well as the explanatory memorandum;
2. Government Regulation No. 62 Year of 2013 Concerning Transport Accident Investigations;
3. Presidential Regulation of the Republic of Indonesia No. 2 Year of 2012 Concerning the National Transportation Safety Committee;
4. Resolution MSC.255(84) Adoption of the code of the international standards and recommended practices for a safety investigation into a marine casualty or marine incident (Casualty Investigation Code).

The final report is published by the National Transportation Safety Committee (KNKT), 3rd Floor, Transportation Building, Ministry of Transportation, Jln. Medan Merdeka Timur No 5, Jakarta 10110, Indonesia, in 2024.

NATIONAL TRANSPORTATION SAFETY COMMITTEE

Young Yong, Singapore Strait, 26 October 2022

FOREWORD

Praise to be given to the Almighty God with the completion of the preparation of the Final Report of the Investigation into the Grounding of *Young Yong* on 26 October 2022 in Singapore Strait.

The Completion of this Final Report of Marine Accident Investigation was mandated by Indonesian Shipping Act No 17 of 2008 Article 256—257 as well as Government Regulation of Transport Accident Investigations No 62 of 2013 Article 39 Paragraph 2 Letter c which states that “*The report of transport accident investigation as referred to the verse (1) consists of the final report.*”

The report is the final output of the entire investigation process which covers fact information, analysis of causal factors that most likely contributed to the accidents, recommendations for prevention and improvement, and appendix of other supporting documents. The report discusses the marine accident issues regarding what, how and why the accident occurred and findings about the cause of the accident along with the recommendations of shipping safety to the parties to minimise or prevent recurrences from the same factors in the future. The final report is issued or publicly published after requesting responses and/or feedback from regulators, operators, manufacturers of transportation facilities and other related parties. The last, but not least, the Final Report of Marine Accident Investigation was made so that the interested parties could learn and take lessons from the accident.

Jakarta, 2024
NATIONAL TRANSPORTATION
SAFETY COMMITTEE
CHAIRMAN



Dr. Ir. SOERJANTO TJAHJONO

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EXECUTIVE SUMMARY

In the late afternoon of 26 October 2022, a Djiboutian VLCC tanker departed the Eastern Outer Port Limits (EOPL) and headed to the Nipa Anchorage. After adjusting her heading to follow her Waypoint 13, she approached a shallow patch.

In the end, she successfully avoided the shallow patch by taking hard to port. However, her heading pointed to shallow waters in the Traffic Separation Zone. Afterwards, she ran aground on the shallow waters.

The accident resulted in the vessel sitting between two subsea pipes. Despite there was no record of the environmental pollution, damage to those pipes and fatality or injury, the vessel sustained minor damage in a few locations. In addition, there was no significant impact on the Singapore Strait traffic resulting from this accident.

The National Transportation Safety Committee (KNKT) identified several safety issues that had contributed to the accident and issued a safety recommendation to prevent a similar occurrence in the future. The lack of situational awareness amongst crew members and not applying navigational equipment properly have been found as the main issues in this accident. Therefore, a number of safety actions are essentially needed to prevent the recurrence of the same accident in the future.

GLOSSARY

Accident, investigating state and **substantially interested state** in this report refers to the definition of the marine casualty in the Resolution MSC.255(84) concerning the Adoption of The Code of The International Standards And Recommended Practices For A Safety Investigation Into A Marine Casualty or Marine Incident (Casualty Investigation Code).

Even keel draft is the condition where a ship's forward and aft drafts are identical, meaning the ship is floating evenly on the waterline.

Inshore traffic zone is a designated area between the landward boundary of a traffic separation scheme and the adjacent coast.

Rate of turn is the rate of a ship turning in degrees per minute ($^{\circ}/\text{min}$).

Crew member is any person who is employed or engaged in any capacity on board a maritime vessel and interchangeably with seafarer and shipboard personnel.

Passage Plan is a procedure to develop a complete description of a vessel's voyage from departure point to destination point.

Transducer is an electrical sensor device that is used to measure depth under the keel.

Waypoint is a reference point of a vessel's position in regards to the Passage Plan.

ABBREVIATION

2/O	:	Second Officer
3/O	:	Third Officer
AB	:	Able Bodied Seaman or Helmsman
ABS	:	American Bureau of Shipping
AIS	:	Automatic identification system
ARPA	:	Automatic Radar Plotting Aid (ARPA)
BMKG	:	Indonesian Meteorological, Climatological, and Geophysical Agency
BRG	:	Bearing
COC	:	Certificate of Competency
COG	:	Course Over Ground
CPA	:	Closest Point of Approach
DOC	:	Document of Compliance
DPA	:	Designated Person Ashore
ECDIS	:	Electronic Chart Display and Information System
ENC	:	Electronic Navigational Charts
EOOW	:	Engineer Officer on Watch
EOPL	:	Eastern Outer Port Limit
EPIRB	:	Emergency Position Indicating Radio Beacon
FT	:	Feet
GPS	:	Global Position System
GT	:	Gross Tonnage
DWT	:	Deadweight Tonne
IMO	:	International Maritime Organization
ITZ	:	Inshore Traffic Zone
KT	:	Knot
KW	:	Kilowatt
LOA/LBP	:	Length overall/Length between perpendiculars
LPS	:	Local Port Service
LT	:	Local Time
MCR	:	Maximum continuous rating of a ship's engine which describes its fuel consumption when cruising at maximum speed
MMSI	:	Maritime Mobile Service Identity
MPA	:	Maritime and Port Authority of Singapore
NAVTEX	:	NAVigational TELeX
Leg	:	Connecting line between two waypoints
MF/HF	:	Medium frequency/High frequency radio
MT	:	Metric Ton
MSC	:	Maritime Safety Committee, a committee in the IMO
NM	:	Nautical Mile
NOOW	:	Navigation Officer on Watch
NT	:	Nett Tonnage
Pushidrosal	:	Indonesian Hydrographic Office
RNG	:	Range
ROT	:	Rate of Turn
RPM	:	Revolutions per Minute
SIS	:	Substantially Interested State(s)
SMC	:	Safety Management Certificate
SOG	:	Speed Over Ground
S-VDR	:	Simplified Voyage Data Recorder
TCPA	:	Time to Closest Point of Approach
TSIB	:	Transport Safety Investigation Bureau
TSS	:	Traffic Separation Scheme
UTC	:	Universal Time Coordinated
VDR	:	Voyage Data Recorder
VHF	:	Very High Frequency, two way radio transceivers
VLCC	:	Very Large Crude Carrier is an oil tanker with a capacity between 200,000 and 400,000 tons
VTIS	:	Vessel Traffic Information Service
WIB	:	Western Indonesia Time (WIB = UTC+07:00)

I. FACTUAL INFORMATION

I.1. BACKGROUND OF INVESTIGATION

The National Transportation Safety Committee (KNKT) received an accident notification regarding the grounding of *Young Yong* in the Singapore Strait. Even though there was neither a notification nor a request to investigate the accident from the flag state, the KNKT decided to carry out the investigation by considering potential impacts on the marine traffic in the strait. In addition, the grounding location was between important subsea gas pipes.

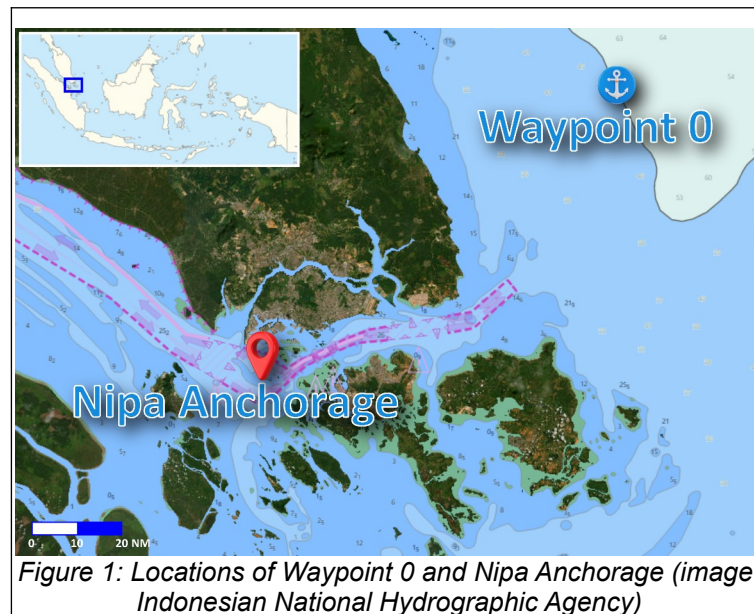
The investigation was done by a joint investigation between KNKT (Indonesia) as the investigating state and Transport Safety Investigation Bureau (Singapore) as the substantially interested state. The interview with the crew members was taken when the vessel was at the grounding location.

I.2. THE CHRONOLOGY

On 8 October 2022 at about 04.00 Local Time¹ (LT), a Crude Oil Tanker *Young Yong* departed Singapore in ballast condition.

On 15 October 2022 at about 19.00 LT, she arrived at Tanjung Pelepas Port, Malaysia to load fuel oil cargo.

On 20 October 2022 at about 05.00 LT, she departed the Tanjung Pelepas Port after completing the loading operation. She had 25 crew members on board.



¹ All local times in this report are in Western Indonesia Time (UTC+07:00) or usually called “WIB”, unless mentioned differently. Time format used in this report is hourminute. Hour is in a two-digit and 24-hour format, while minute is in a two-digit format.

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At about 1610 LT she anchored in Eastern Outer Port Limit (EOPL), even though the port clearance stated that her destination was the Nipa anchorage, Indonesia. Referring to the information from the crew members, the vessel was planned to receive some additional cargo there and to proceed her voyage to the Nipa anchorage.

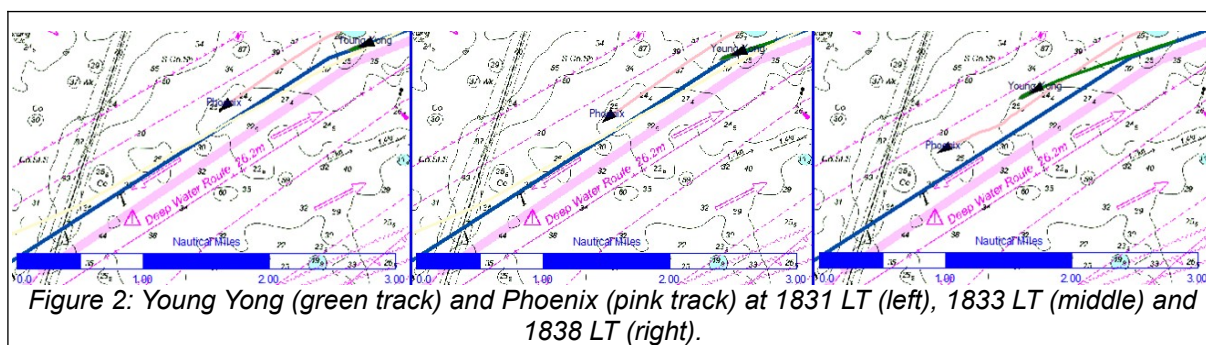
On 24 October 2200 at about 0000 LT the cargo loading operation commenced.

On 26 October 2022, the Second Officer (2/O) of *Young Yong* set the Passage Plan No. V2202 and agreed by the Master. The vessel was planned to depart from the EOPL to the Nipa Anchorage (westbound). Referring to the passage plan, all waypoints had been set onto the Electronic Chart Display and Information System (ECDIS). When she was passing through the Horsburgh Lighthouse, her speed was about 8.5 knots.

At about 1600 LT, the Master and 3rd Officer (3/O) as the Navigation Officer on Watch (NOOWs) and an able seaman (AB1²) overtook the duty from the previous crew members. The Master was around the front windows, the 3/O was next to the VHF radio, while the AB1 was on the steering.

At about 1640 LT, she departed from the EOPL along the westbound lane of the TSS. Her mean draft was 21.5 m with the even keel condition upon departure.

At about 1831 LT, she approached the Waypoint 12 and was behind a container vessel named *Phoenix*. At the time, the speed of *Young Yong* and *Phoenix* were 9.9 and 6.7 knots, respectively.



At about 1832 LT, she had just passed the isolated danger mark (Buffalo Rock) on manual steering and without Pilot on board. The Master asked the 3/O about the speed. At the time, her speed was about 9.9 knots and heading of 251°.

at about 1833 LT, she was at the Waypoint 12. The speed of *Young Yong* and *Phoenix* were 9.9 and 6.7 knots, respectively.

At about 1835 LT, the Master gave an order to the AB1³ to change the course to 250°. By one minute later, the Master asked to change the course again to 248°. Soon after, the Singapore Vessel Traffic Information System (VTIS⁴) Central called the crew members of *Young Yong* over the Channel 14. The 3/O then replied to the call from the VTIS Central. Accordingly, the VTIS Central warned the Officer on the *Young Yong* of the collision risk with another tanker vessel ahead of her. The 3/O heeded VTS' warning and altered *Young Yong*'s heading to port.

² There were more than one ABs. The AB who was on duty with the Master called the AB1.

³ All Master's orders to the AB were instantly replied by the AB as a closed-loop communication.

⁴ All VTIS in this report refers to the VTIS West (Sector 7).

At the same time, whilst the 3/O was talking to the VTIS Central, the Master ordered the AB1 again to change the course to 245°. Her heading at the time was 251°.

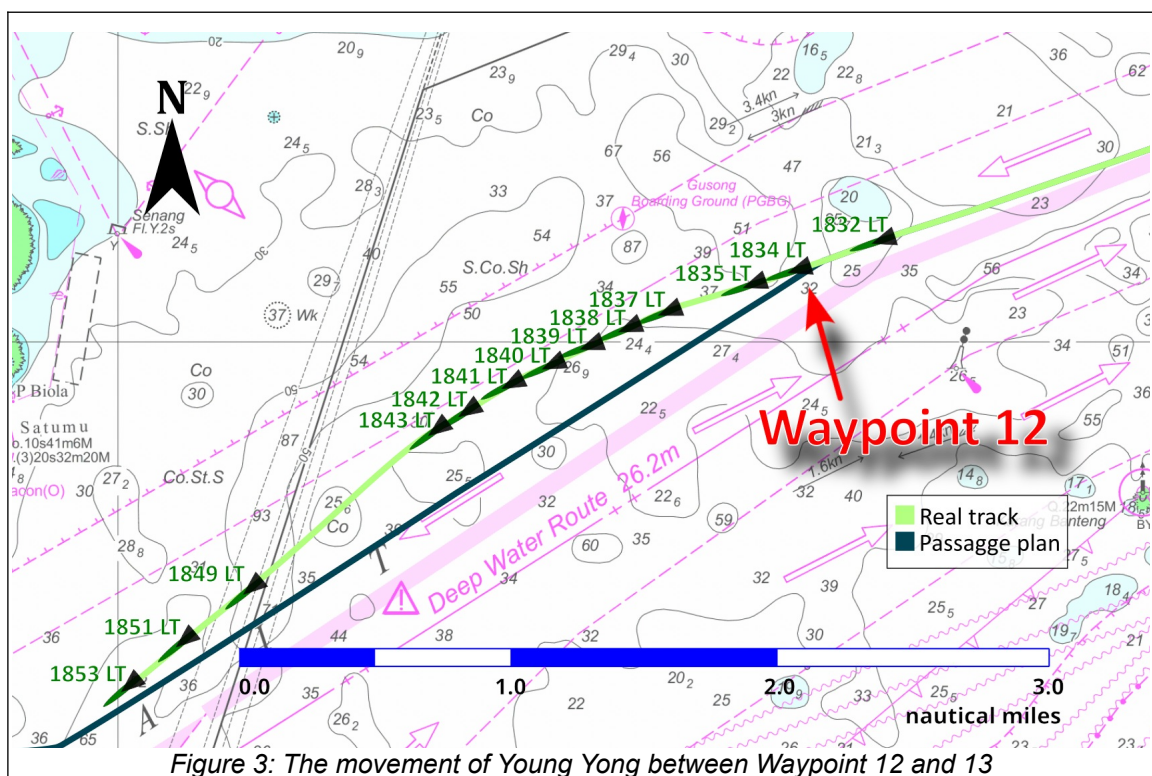
At about 1837 LT, the Master ordered the AB1 again to change the course to 241°. Her heading at the time was 249°.

At about 1838 LT, the Master ordered the AB1 again to change the course to 240°. Her heading at the time was 245°. The 3/O informed the Master that *Young Yong's* speed was 10.0 knots. At the time, the *Phoenix* was still moving at a speed of 6.8 knots and was still ahead of *Young Yong*.

At about 1839 LT, the Master and 3/O discussed in short about which accommodation ladder would be used for *Young Yong's* Pilot. The 3/O informed that the port ladder was ready for the Pilot. The Master ordered the AB1 again to change the course to 240°. Her heading at the time was 244°. The Master asked again to the 3/O about the speed which remained the same.

At about 1840 LT, *Phoenix* asked the VTIS Central to request *Young Yong* to alter her heading to port because of collision risk.

At about 1841 LT, *Young Yong* was called several times by the VTIS Central. The 3/O immediately replied to the call. The VTIS Central then requested *Young Yong* to go more to port. The 3/O confirmed the VTIS Central's request. Knowing the request, the Master asked the AB1 to go more to the port.



At about 1842 LT, Master ordered the AB1 to change the course to 220°. Her heading at the time was 240°. Several seconds later, the Master repeated the same command.

At about 1843 LT, the Master ordered the AB1 to change the course to 225°. The 3/O and AB1 replied to the command immediately. Several seconds later, the Master asked the AB1

to change the course to 230°. The heading and speed of *Young Yong* were 233° and 9.3 knots, respectively.

At about 1844 LT, the Master ordered the AB1 to change the course to 235°.

At about 1849 LT, the VTIS Central asked *Young Yong* to change the radio communication to the Channel 73 as the vessel was entering the West Sector. The 3/O immediately confirmed the request. The heading and speed of *Young Yong* were 230° and 8.9 knots, respectively.

At about 1851 LT, the Master ordered the AB1 to change the course to 235°. The heading and speed of *Young Yong* were 230° and 8.8 knots, respectively.

At about 1853 LT, the Master repeated his command to change the course to 235°. Shortly after, the Master ordered the AB1 to change the course to 241°. *Young Yong* was very close to the Waypoint 13 in the westbound lane of the TSS. The heading and speed of *Young Yong* were 231° and 8.5 knots, respectively.

At about 1856 LT, the Master ordered the AB1 to change the course to 265°. A few seconds later, the Master asked the AB1 to change the course to 268°. The heading and speed of *Young Yong* were 241° and 8.0 knots, respectively.

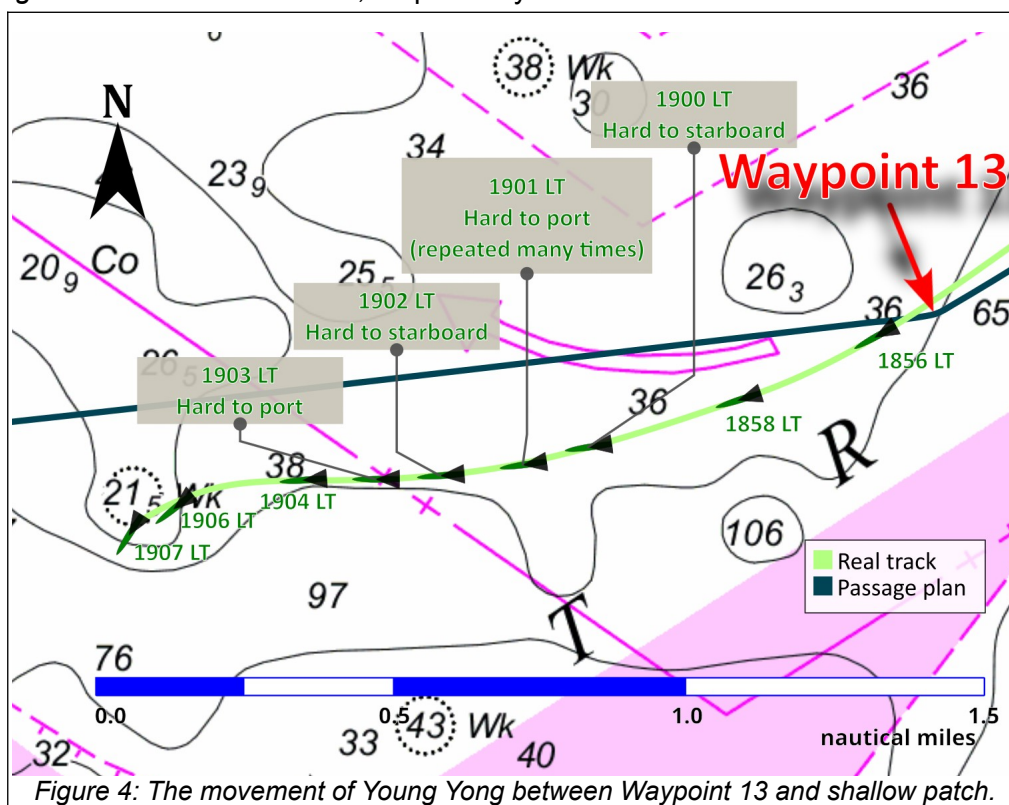


Figure 4: The movement of *Young Yong* between Waypoint 13 and shallow patch.

At about 1857 LT, the Master ordered the AB1 to change the course to 270°. The heading and speed of *Young Yong* were 247° and 7.8 knots, respectively.

At about 1858 LT, the Master repeated his command to change the course to 270°. Shortly after, 3/O called the VTIS West. The VTIS West asked about how *Young Yong* would pass a shallow patch⁵ ahead of her with a depth of 21.5 m. Her heading and speed were 252° and

⁵ Shallow patch has the same meaning as shoal. In this report, the term of “shallow patch” is used to maintain the original term used in the conversation between the VTIS and *Young Yong*.

7.7 knots, respectively. At the time, the Master was in a conversation with another crew member over the intercom.

After the question from the VTIS West, there was no reply from the 3/O. In accordance, the VTIS West asked *Young Yong* again about how she would pass the shallow patch on her starboard. Shortly after, the VTIS West asked *Young Yong* to take early actions to avoid the shallow patch.

The question from the VTIS West was not answered by the 3/O. The VTIS West then repeated the question. Replying to the question, the 3/O acknowledged that the shallow patch was on the starboard side and *Young Yong* would pass it on her starboard side.

Immediately after, the Master had just finished his conversation over the intercom and the 3/O paused the conversation with the VTIS West. Afterwards, the 3/O told the Master about the situation. The Master then asked the 3/O several times to tell more about the shallow patch. The Master also asked the AB1 why the turning took a very long time. At the time, the distance to the shallow patch was less than one nautical mile.

Knowing the situation, the Master immediately ordered the AB1 to “hard to starboard”.

The Master asked the AB1 why it took so long to make a turn. This question was repeated several times, but the AB1 did not answer it.

At 1900 LT, the VTIS West called *Young Yong* again. This time, the VTIS West asked the 3/O to talk directly to the Master. The VTIS West immediately warned *Young Yong* about the grounding possibility. At the time, the 3/O could not hand over the radio to the Master because the Master was repeating the order to “hard to port” to the AB1 many times. The Master asked the AB1 again about why the turning took so long. The heading and speed of *Young Yong* were 261° and 9.2 knots, respectively.

About a half minute later, the VTIS West called *Young Yong* again. After the VTIS West repeated the call, the 3/O replied to the VTIS West. The VTIS West conveyed that he needed to talk to the Master immediately. He also warned *Young Yong* again about the grounding possibility at a shallow patch ahead of her.

At the same time, the Master was still busy ordering the AB1. The Master ordered the AB1 to “hard to port” and repeated the order several times.

The VTIS West warned *Young Yong* that there was no obvious action taken by *Young Yong* to avoid grounding.

Shortly after, there was a busy and noisy parallel conversation. One was the Master order to the AB1 and another one was the warning from the VTIS West. The VTIS Operator also warned of a grounding risk. The 3/O then informed the VTIS West that the Master had ordered “hard to port”. At the time, the VTIS West was still unable to talk to the Master. Again, the VTIS West warned the 3/O of the shallow patch ahead of the *Young Yong*, but the Master was still repeating the “hard to port” order several times to the AB1.

The AB2⁶ came up to the bridge. He asked the Master to learn about what was going on. At the same time, the Master was still repeating the “hard to port” order several times to the AB1. This time, the orders were in a higher tone.

At 19.03 LT, the Master shortly ordered the AB2 to “hard to starboard”. The order was repeated several times with short intervals. The heading and speed of *Young Yong* were

6 Since this time, the role of helmsman was handed over from the AB1 to the AB2.

267° and 7.0 knots, respectively. The VTIS West warned *Young Yong* again about the shallow patch.

Just right before 19.04 LT, the Master changed his order back to “hard to port” again. The VTIS West was still calling *Young Yong* to talk to the Master.

At 19.05 LT, the Master asked the 3/O to report to the VTIS West that the shallow patch was clear. *Young Yong* passed the shallow patch safely on her starboard side. The 3/O then reported the situation to the VTIS West. The heading and speed of *Young Yong* were 243° and 6.8 knots, respectively.

Afterwards, the VTIS West warned another container vessel behind *Young Yong*, named *Ever Lively*. The VTIS West also warned *Ever Lively* about the shallow patch.

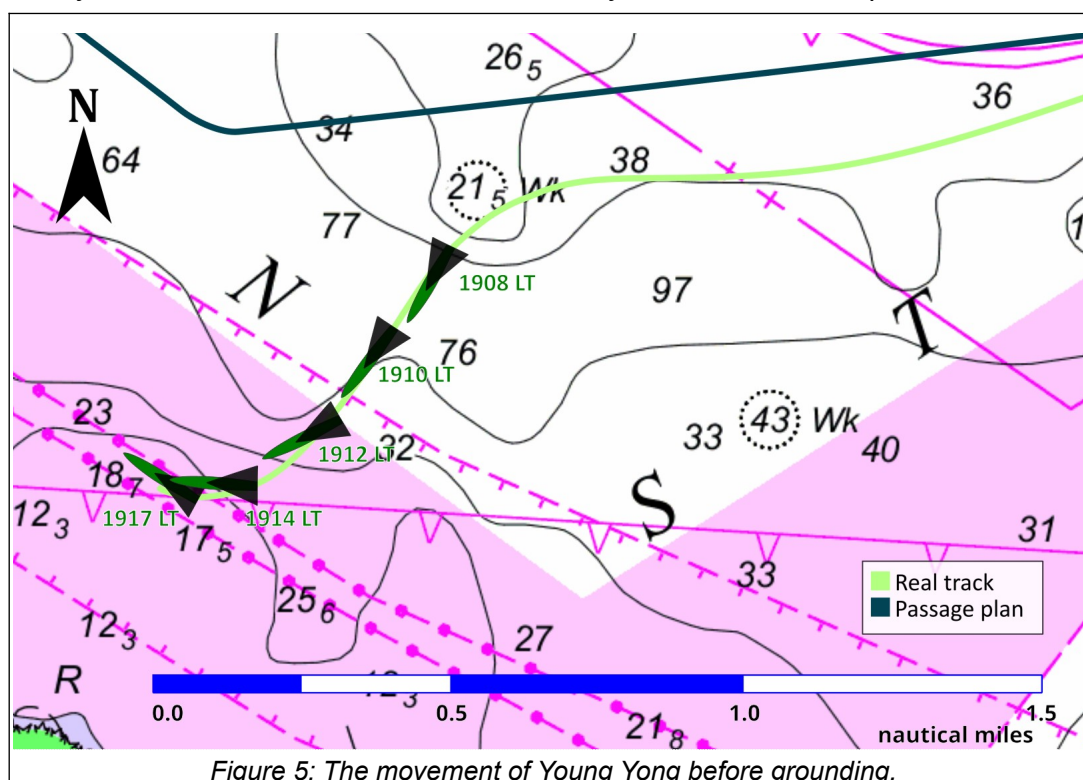


Figure 5: The movement of *Young Yong* before grounding.

At 19.07 LT, the VTIS West asked the container vessel to reduce her speed and keep a safe distance from *Young Yong*. At the time, the heading and speed of *Young Yong* were 214° and 5.6 knots, respectively.

By 19.08 LT, the VTIS West asked the 3/O of *Young Yong* whether the vessel was really free from the shallow patch and whether there was an issue. The 3/O confirmed that *Young Yong* was free from the shallow patch. He also informed that *Young Yong* continued to the original leg. The VTIS West warned *Young Yong* that *Young Yong* was approaching the shallow waters in the Inshore Traffic Zone (ITZ). The VTIS West also asked *Young Yong* to take another immediate action. The VTIS West, again, asked the 3/O to talk to the Master directly. While waiting for the Master, the VTIS West warned *Young Yong* again about the shallow waters and her draft. There was no reply from any of the NOOWs.

Subsequently, the VTIS West warned *Young Yong* that she was approaching shallow waters. This time, the 3/O replied to the warning by informing that the vessel was turning to the starboard.

At 19.09 LT, the Master shouted that the vessel was late to take a turn. The Master then asked the AB2 to speed up the turning. The Master repeated the order by shouting to the AB2 several times. The heading and speed of *Young Yong* were 213° and 5.1 knots, respectively. The VTIS West still asked the 3/O whether the Master was still on the bridge. The 3/O confirmed the question.

At 19.11 LT, the VTIS West asked *Young Yong* whether the speed had increased and was making “hard to starboard”. The 3/O confirmed that question. Immediately after, the VTIS West shouted the shallow waters warning to *Young Yong*. Concurrently, the Master yelled in Chinese several times. The heading and speed of *Young Yong* were 225° and 5.2 knots, respectively. Since then, there had been no clear record in English about the Master’s command to the AB2.

At about 19.16 LT, the Master asked the other crew members on the bridge several times whether *Young Yong* was grounded.

At about 19.17 LT she ran aground at the coordinates of 1.1278233° N and 103.7155983° E.



Figure 6: Young Yong whilst aground.

The summary of key events, including some additional information, before the grounding is provided in the table below.

Table 1: Key events.

Time (LT)	Heading COG (Deg)	SOG (knot)	Depth⁷ (m)	Remarks
1833	251 251	10.0	30.5	She was at the Waypoint 12 of the Passage Plan.
1835	250 250	10.0	30.5	She went off the passage plan. The Master ordered a heading of 250°. The VTIS Central asked <i>Young Yong</i> to alter her heading to keep on the westbound lane.
1853	231 229	8.5	27.1	<i>Young Yong</i> approached the Waypoint 13.

⁷ Depth below transducer.

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Time (LT)	Heading COG (Deg)	SOG (knot)	Depth (m)	Remarks
1856	241 239	8.0	11.0	<i>Young Yong</i> went off the passage plan again. The Master ordered heading of 268°.
1858 and 1859	252 250	7.7	10.6	The VTIS West asked <i>Young Yong</i> about how to pass the shallow patch ahead of her. The question was repeated several times because <i>Young Yong</i> did not answer it. The 3/O told the Master about the situation. The Master ordered the AB1 to “hard to starboard” several times. The distance between <i>Young Yong</i> and the shallow patch was less than one nautical mile. The VTIS West repeated the request to take an early action.
1900	256 252	7.6	52.5	The VTIS West asked to talk directly to the Master. <i>Young Yong</i> ’s heading was still aiming for the shallow patch. The VTIS West repeated the request to take an immediate action. The Master ordered the AB1 to “hard to port” several times.
1903	267 269	7.0	61.4	The Master ordered the AB1 to “hard to starboard” again.
1904	259 269	6.9	45.7	The Master ordered the AB1 to “hard to port” again.
1905	243 261	6.8	41.4	<i>Young Yong</i> was assumed to have safely passed the shallow patch.
1908	210 219	5.2	20.1	The 3/O acknowledged the warning from the VTIS about shallow waters. The distance between <i>Young Yong</i> and the shallow waters was less than a half nautical mile.
1909	212 215	5.2	14.1	The Master asked the AB2 to “hard to starboard”. The bow of <i>Young Yong</i> began to enter the shallow waters.
1917	309 181	0.0	58.8	<i>Young Yong</i> ran aground.

I.3. THE AFTERMATH

I.3.1. Human

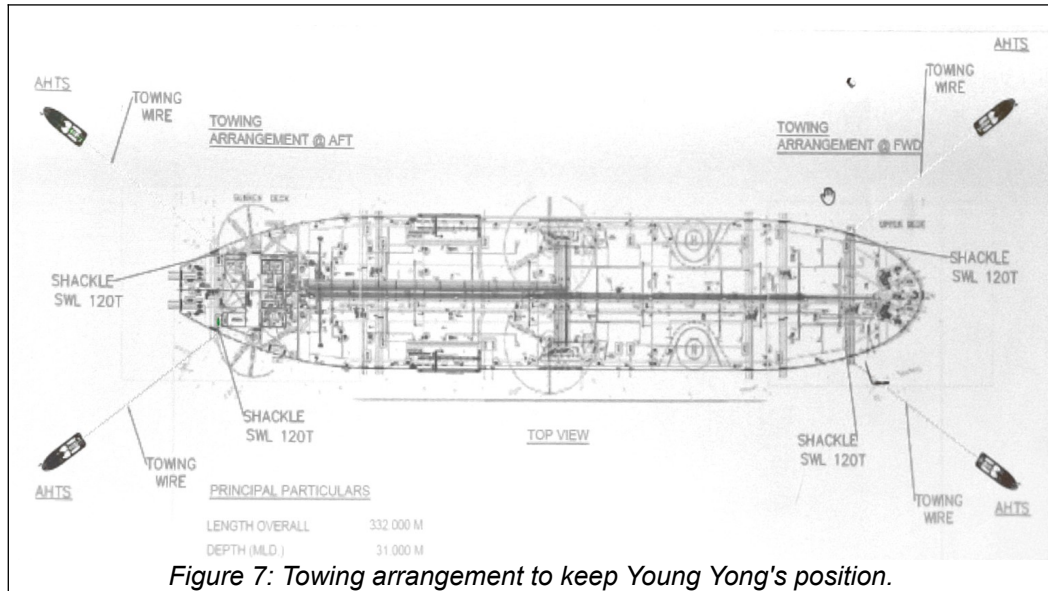
There was no report in regards to any injury or fatality occurring to any persons onboard *Young Yong*.

I.3.2. Vessel

The investigation team obtained some initial information during a refloating operation carried out by the salvor team. From the initial underwater inspection, some parts of the vessel sat on the sea bed. None of them sat on rock dump lines protecting gas subsea pipes. She suffered a hull breach which led to intermittent bubbles at two locations.

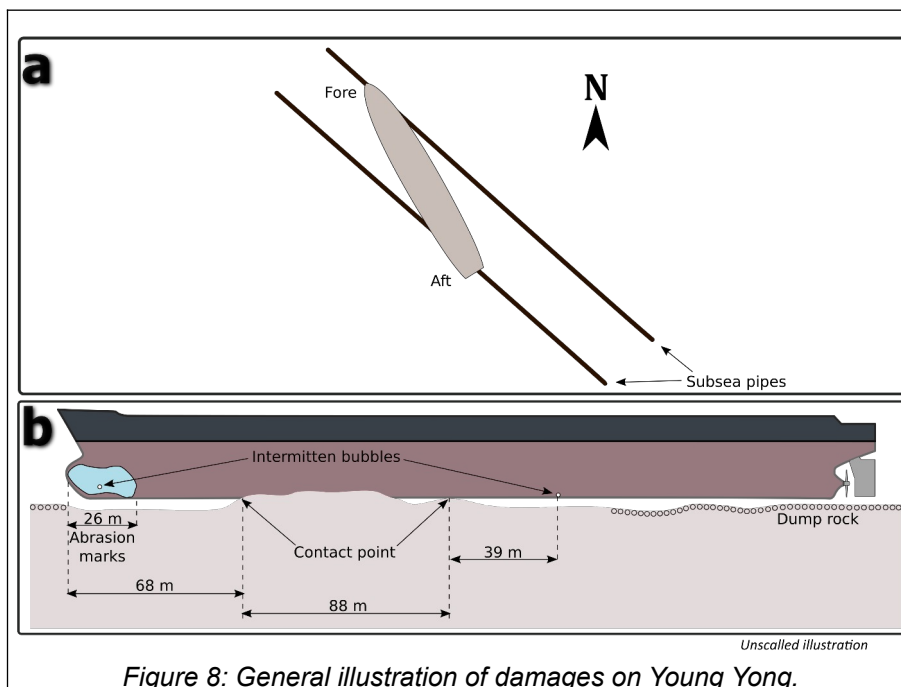
To prevent any worse situation, some measures had been taken immediately. The vessel was planned to be assisted by four tugs (two on aft, two on fore) to maintain her position.

Although her position was safe from the subsea lines when she ran aground, she needed to stay in her position. At the same time, the gas company reduced the gas pressure to mitigate any risks in this situation. Another action taken by the vessel owner was to undertake a ship-to-ship cargo transfer to reduce the vessel's draft.



In the next days, the coordination meetings were held. Accordingly, some fuel cargo was transferred to another vessel to allow a sufficient clearance for her to free.

On 10 November 2022, she was successfully refloated. To conduct a thorough damage survey, she was anchored in the Nipa anchorage area.



Until the publishing of this final report, the KNKT received no damage survey report from the ship company, even though the KNKT had asked for it several times.

Based on the accident report made by *Young Yong* Master, the water ingress into some areas due to damage on fore peak tank 1P and 2P. Furthermore, her hull structure at 3P, 4P and 5P also deformed (some photos are attached in the appendix).

I.3.3. Environment

There was no report in regards to the environmental pollution.

Navigation through the Traffic Separation Scheme in the Singapore Strait was not affected as explained by a circular of Maritime & Port Authority (MPA) of Singapore.

I.4. VESSEL INFORMATION

I.4.1. General Information

Young Yong (IMO 9194127, MMSI 314717000, call sign J2JZ) was a Djiboutian crude oil tanker⁸. This steel vessel was made⁹ by Daewoo Shipbuilding & Marine Engineering Co. Ltd. in Seoul, South Korea in 1998. She was classed with the American Bureau of Shipping (ABS) at the time of the accident. Her last annual survey before the accident was in January 2022 in China.

With overall length, breadth and max depth of 332 m, 58 m and 22.49, respectively, she has a gross tonnage of 153,911 and a dead weight of 306,344 tonnes. Therefore, she is categorised as the VLCC. At the accident time, she was owned by Technology Bright Intl. Co. Ltd.; managed and operated by East Wind Ship Management Ltd.

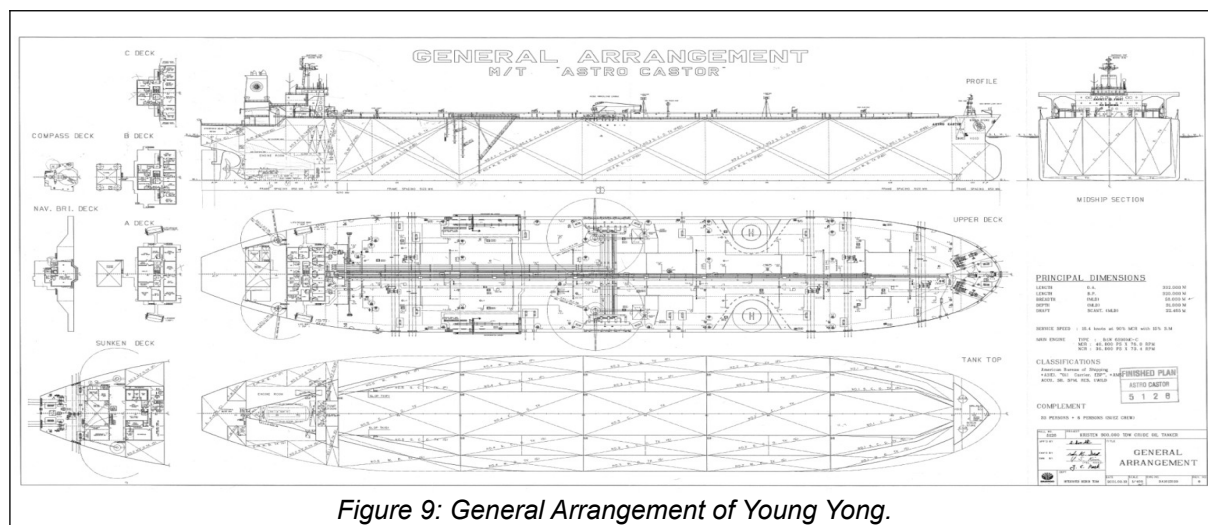


Figure 9: General Arrangement of *Young Yong*.

I.4.2. Propulsion and Engine Systems

Her single propeller is driven by a main engine B&W diesel engine 6S90MC-C. Her engine is able to empower a maximum power of 29,422 kW at 76.0 RPM¹⁰ and service speed of 14.6

⁸ Since 18 March 2022

⁹ Date of keel laid.

¹⁰ Maximum continuous rating (MCR).

knots. She has a triplet Wärtsilä generator diesel engine with type, output power and output voltage are 8L20C, 1280KW and 450 V, respectively.

Referring to the interview with the relevant crew members and log record, there was no issue on engine or propulsion system prior to the accident.

I.4.3. Cargo Information

Referring to the Malaysian Port Clearance document, after completing the loading of 133,000 MT of fuel oil, *Young Yong* departed from Tanjung Pelepas Port, Malaysia on 20 October 2022 at 0300 Malaysia time. She was planned to arrive in the Nipa anchorage area, Indonesia after having been at Tanjung Pelepas Port for around five days. The investigation team did not receive any document informing her draft when left Tanjung Pelepas Port.

After departing from Tanjung Pelepas Port, she did not go directly to Nipa anchorage area, but anchored in the EOPL for 11 days to receive additional cargo¹¹. The investigation team did not find any document or information from crew members regarding her draft and how much additional cargo when she left the EOPL.

I.4.4. Passage Plan and Procedures

After completing a cargo operation at the EOPL she was planned to depart to the Nipa Anchorage through 17 waypoints (from Waypoint 0 to 16) with a total distance of 95.6 NM. All relevant checklists had been checked on the Passage Plan No. V2202, including the navigation marks, navigational warnings and sensitive area. The Plan prepared by the Second Officer¹² (2/O) on 26 October 2022 was signed by the Master, Chief Officer, 2/O, 3/O and another 3/O. The Passage Plan of *Young Yong* was set to ensure the movement from the EOPL to the Nipa Anchorage Area was safe as planned.

Referring to the Passage Plan, the lowest under keel clearance along the passage was defined as 3.5 m. Also, each waypoint has the same remarks with “clear shallow water”.

¹¹ Until this report is published, the investigation team had no information about how much additional cargo received by *Young Yong* at the EOPL.

¹² As mandated by the SQM-03 on Shipboard Operation and Management Manual ver3.0 in English.

NATIONAL TRANSPORTATION SAFETY COMMITTEE

Young Yong, Singapore Strait, 26 October 2022

WAY - POINT CHECKLIST																			
Vessel name : M.T. YOUNG YONG																			
Voy No.			2202			From: EOPL			To: NIPAH			Est. Speed:			8.0 kts				
Date Commence			26-Oct-22									RFA Time:							
WPT	Latitude			Longitude			Co.	Dist.	ETA - WP Steaming time	TTD	DTG nm'	UKC m'	Fixing Interval (not More Than)		Recommended Position Fixing Method			Remarks and watch levels	
000	02	01.10	N	104	46.50	E					95.9	3.5	15	mins	V	R	G	EOPL	BWL-1/SL-1
001	01	51.90	N	104	46.80	E	178	9.2	00d 00h:44m	9.20	86.7	3.5	15	mins	V	R	G	S.C.S	BWL-1/SL-1
002	01	30.60	N	104	33.70	E	212	25.0	00d 02h:44m	34.25	61.6	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
003	01	25.00	N	104	26.60	E	232	9.1	00d 03h:28m	43.33	52.5	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
004	01	18.60	N	104	19.10	E	230	9.9	00d 04h:15m	53.23	42.6	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
005	01	17.40	N	104	12.20	E	260	7.0	00d 04h:49m	60.28	35.6	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
006	01	16.70	N	104	06.50	E	263	5.8	00d 05h:17m	66.06	29.8	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
007	01	15.50	N	103	59.90	E	260	6.8	00d 05h:49m	72.81	23.1	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
008	01	14.10	N	103	56.30	E	249	3.9	00d 06h:08m	76.69	19.2	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
009	01	13.20	N	103	54.00	E	249	2.5	00d 06h:20m	79.18	16.7	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
010	01	11.40	N	103	50.40	E	244	4.0	00d 06h:39m	83.22	12.6	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
011	01	10.90	N	103	49.30	E	246	1.2	00d 06h:45m	84.44	11.4	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
012	01	10.30	N	103	47.60	E	251	1.8	00d 06h:54m	86.25	9.6	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
013	01	08.50	N	103	44.80	E	237	3.3	00d 07h:10m	89.60	6.3	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
014	01	08.30	N	103	43.00	E	264	1.8	00d 07h:18m	91.42	4.4	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
015	01	10.70	N	103	39.80	E	307	4.0	00d 07h:38m	95.44	0.4	3.5	5	mins	V	R	G	SAFE SPEED/CLEAR SHALLOW WATER	BWL-2/SL-1
016	01	10.40	N	103	39.50	E	225	0.4	00d 07h:40m	95.86	0.0	3.5	5	mins	V	R	G	NIPAH P/S	BWL-2/SL-1

Figure 10: Waypoints of Young Yong.

Figure 10: Waypoints of Young Yong.

The plan also contains the Other Important Information such as to pay attention to shallow water areas and prohibition to enter shallow water areas whilst giving way to the other vessels.

富裕水深 计算表			
UNDER KEEL CLEARANCE			
日期 Date:2022-10-26		航次 Voyage No.:2202	
航线 Voyage leg:		EOPL-NIPAH	
Port/Channel/Area 港口/水道/水域:		EASTERN BANK	
控制吃水Controlling draft			
A 港口/泊位/水道水深 Port/Berth/Channel depth	25.00	M	
B 潮汐 Tide	Time 1300LT	2.20	M
C 涌高 Swell		0.00	M
控制吃水Controlling Draft (A + B - C)		27.20	M
最大航行吃水Deepest Navigational Draft			
A 最大吃水 Max. Draft (考虑纵倾considered trim)	21.50	M	
B 横倾 List		0.00	M
C 下沉量 Squat		0.69	M
最大吃水 Deepest Draft (A + B + C)		22.19	M
下沉量 Squat			
A 船速 Ship Speed (在静水中 in calm water)	8.00	Kts	
B 船舶方形系数 Ship' s Block Coefficient	0.5400	Cb	
下沉量 Squat (B * A²)/100		0.69	M
所保留的富裕水深 Anticipated Under Keel Clearance			
A 控制吃水Controlling Draft	27.20	M	
B 最大吃水 Deepest Draft	22.19	M	
富裕水深 Under Keel Clearance (A - B)		5.01	M

富裕水深 计算表			
UNDER KEEL CLEARANCE			
日期 Date:2022-10-26		航次 Voyage No.:2202	
航线 Voyage leg:		EOPL-NIPAH	
Port/Channel/Area 港口/水道/水域:		SINGAPORE STRAIT (BUFFALO ROCK)	
控制吃水Controlling draft			
A 港口/泊位/水道水深 Port/Berth/Channel depth	25.60	M	
B 潮汐 Tide	Time 1430LT	2.00	M
C 涌高 Swell		0.00	M
控制吃水Controlling Draft (A + B - C)		27.60	M
最大航行吃水Deepest Navigational Draft			
A 最大吃水 Max. Draft (考虑纵倾considered trim)	21.50	M	
B 横倾 List		0.00	M
C 下沉量 Squat		0.69	M
最大吃水 Deepest Draft (A + B + C)		22.19	M
下沉量 Squat			
A 船速 Ship Speed (在静水中 in calm water)	8.00	Kts	
B 船舶方形系数 Ship' s Block Coefficient	0.5400	Cb	
下沉量 Squat (B * A²)/100		0.69	M
所保留的富裕水深 Anticipated Under Keel Clearance			
A 控制吃水Controlling Draft	27.60	M	
B 最大吃水 Deepest Draft	22.19	M	
富裕水深 Under Keel Clearance (A - B)		5.41	M

Figure 11: Under keel calculations.

Figure 11: Under keel calculations.

There are several points in the Master's Standing Order¹³ which related to Young Yong's Passage Plan as follows.

¹³ SQM-03 on Shipboard Operation and Management Manual ver3.0 in English.

2. *The relieving officer shall be conscious and highly vigilant, and be familiar with the following conditions:*
 - 1) *the general weather conditions and forecast;*
 - 2) *visibility;*
 - 3) *progress of the ship during the previous watch;*
 - 4) *present geographic position of the ship;*
 - 5) *present course and speed;*
 - 6) *any visible navigation marks and light quality;*
 - 7) *navigational hazards and potential hazards, sea condition of the area where the ship is to pass during this watch, including that one hour after hand-over;*
 - 8) *own ship's manoeuvring characteristic, in particular, stop distance and turn circle under the prevailing condition, different manoeuvring characteristic of other ships shall taken into account;*
 - 9) *relative course and speed of the other ship and own ship;*
 - 10) *radio emergencies and related navigation warnings;*
 - 11) *crew's safety shall be ensured when conducting deck work;*
 - 12) *special descriptions concerning navigation on Night Order Book by the Master;*
 - 13) *only when the relieving officer clearly understand the ship's position and the above content, and take over the watch can the relieved officer leave the bridge;*
 - 14) *the time of watch changeover shall be recorded into deck log book;*
 - 15) *the shift relief cannot be conducted when the ship is in manoeuvre.*
4. *During voyage, the ship's position shall be frequently determined by means of visual landmark bearing, radar positioning, GPS positioning and celestial observations. The position obtained shall be checked by another way as far as possible.*
6. *The OOW shall observe the course and speed defined by the Master, which shall not prevent the OOW from taking effective actions with his judgments to avoid incident and to ensure safety.*
14. *When the Master manoeuvres the ship, the OOW shall assist the Master to look out, supervise the steering and roll the telegraph, as well as other work as assigned by the Master.*
15. *The OOW shall bear in mind the principle of "Safety First" and call the Master any time in need.*
20. *The OOW should notify the Master immediately on bridge:*
 - 1) *if restricted visibility is encountered or expected;*
 - 2) *if traffic conditions or the movements of other ships are causing concern;*
 - 3) *if difficulties are experienced in maintaining course;*
 - 4) *on failure to sight land, a navigation mark or obtain soundings by the expected time;*
 - 5) *if, unexpectedly, land or a navigation mark is sighted or a change in soundings occurs;*

- 6) *on breakdown of the engines, propulsion machinery remote control, steering gear or any essential navigational equipment, alarm or indicator;*
- 7) *if the radio equipment malfunctions*
- 8) *in heavy weather, if in any doubt about the possibility of weather damage;*
- 9) *if the ship meet any hazard to navigation, such as ice or a derelict;*
- 10) *if any vessel security concerns arise;*
- 11) *in any other emergency or if in any doubt.*

Also, the Instruction for Ship Routine Operation during Voyage¹⁴ defines the role of OOW during watch-keeping as follows.

- 2) *The OOW shall correctly use navigational equipment for accurate positioning in accordance with requirements in "SQM-03".*

The Manual also defines the types of waters into several watch levels based on the visibility and traffic density. The Singapore Strait at the time which falls under restricted waters (limited manoeuvring room, good visibility and high traffic density) should be at watch level II or III. The details of both levels are as follows.

- Level II: two licensed officers and one qualified AB on the bridge.
- Level III: three licensed officers and one qualified AB on the bridge and/or extra lookout on the bridge.

The manual also defined the Instruction for Management and Operation of Ship's ECDIS

I.4.5. Radio, Navigation and Communication Equipment

Young Yong was equipped with various radio and communication equipment. For instance, VHF radio, MF/HF radio, NAVTEX, EPIRB, satellite phone and email. All those equipment were in good order at the time of the accident.

Her Electronic Navigational Charts (ENC) was updated on 23 October 2022. ECDIS, Paper chart, Echosounder, RADAR ARPA, AIS were also in good order.

I.5. RECORDERS

The investigation team was given the raw Simplified Voyage Data Recorder (S-VDR) Rutter 100G2 data by the ship company. The data contains various text, radar images and voice data covering for about half an hour prior to the accident¹⁵. The S-VDR was in good order and its last time inspection was in January 2022. However, the S-VDR only recorded a limited number of data parameters compared to the full VDR.

¹⁴ SQM-03 on Shipboard Operation and Management Manual ver3.0 in English.

¹⁵ There was no additional data (longer period than S-VDR data which was already given) provided by the vessel company, despite the KNKT asked the company for it.

I.6. CREW MEMBERS

Young Yong held a Minimum Safe Manning Certificate. Total crew members, including the Master, were 25 people (17 Chinese and 8 Burmese). During navigation in the Singapore Strait prior to the accident, the roster of crew members was categorised as “Watch-Keeping Arrangement During Port Entry And Departure, Confined Water And Bad Weather”¹⁶ which required three persons (combination of officers and ratings). In the on duty period of 1600-2000, roles of the Chief Officer and the AB1 on duty were carried out according to the procedure, while the role of Bosun/OS was replaced by the Master.

The Master (Chinese) had been nearly two months on board *Young Yong*. He joined the vessel in China. The Master acknowledged that it was his first time transiting westbound lane through the Singapore Strait on board a fully loaded VLCC. He had been Master in 2006 and since then he led the crew members in various tanker vessels. He is experienced in transiting the Singapore Strait.

The 3/O (Burmese) had been nearly one month on board *Young Yong*. He joined the vessel in Singapore. He had been a Third Officer in various tanker vessels for more than five years and had passed Singapore Strait several times before the accident.

The AB1 (Burmese) had been nearly one month on board *Young Yong*. He joined the vessel in Singapore. He had been an AB1 for more than three years on board various tanker vessels.

During the interview, the Master several times expressed his disappointment with the AB1’s work performance. He assessed that the AB1 was too slow in undertaking actions ordered by him, particularly during turning.

None of them on the bridge has any relationship issues.

I.7. Pilot

There was no Pilot on board the vessel at the accident time. The Pilot was planned to embark at the position advised by the Nipa Pilot.

I.8. METEOROLOGICAL INFORMATION

I.8.1. Based On Crew Report

Referring to the Report on Marine Casualty made by the Master of *Young Yong*, the weather at the time of the accident was sunny. The seas were reported in slight condition.

I.8.2. Based On Meteorological Agency

Referring to the weather analysis from the Meteorological, Climatological, and Geophysical Agency (BMKG) of the Republic of Indonesia, the weather information when *Young Yong* grounded was as follows.

- i. Wind conditions on 26 October 2022 at 19:00—22:00 LT were between 10—15 knots or medium on BMKG scale (category Moderate Breeze on Beaufort Wind Scale).

16 SQM-03 on Shipboard Operation and Management Manual ver3.0 in English.

- ii. Wave on 26 October 2022 at 19:00—22:00 LT was between 0.5—0.75 m or low on BMKG scale (category Slight on WMO sea state code).
- iii. Surface current on 26 October 2022 at 19:00—22:00 LT was between 10—20 cm/s or weak on BMKG scale.
- iv. Weather based on the satellite image data and radar on 26 October 2022 at 19:10—19:30 LT was light to medium rain.

I.9. THE TRAFFIC SEPARATION SCHEME IN THE STRAITS OF SINGAPORE

The marine traffic along the Traffic Separation Scheme (TSS) in the Singapore Strait is managed by the VTIS Singapore which provides marine information and advice to enhance marine safety in the area. The TSS in the Singapore Strait comprises three sectors, namely Sector 7 (west sector), Sector 8 (central sector) and Sector 9 (east sector). A few minutes before the grounding, *Young Yong* was in Sector 7 where the communication between her and the VTIS West was carried out using VHF Radio Channel 73.

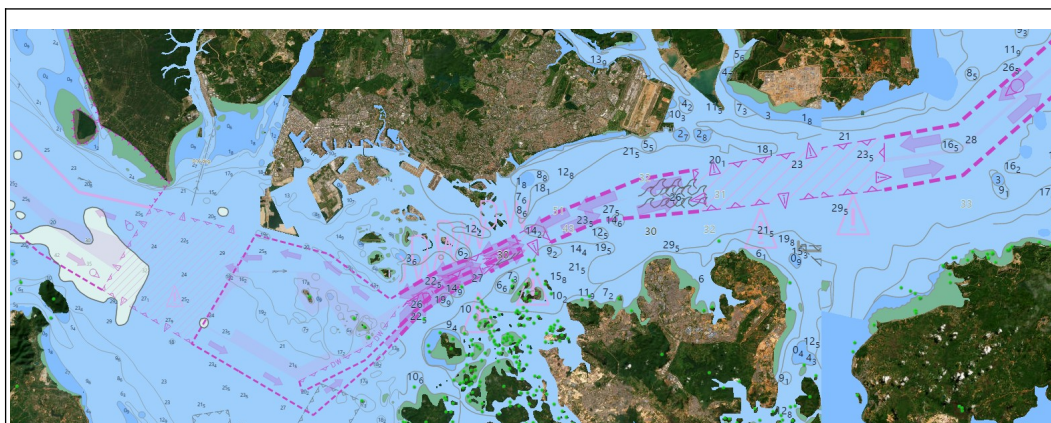


Figure 12: Eastbound and westbound lanes in the Singapore Strait (image: Pushidrosal).

Based on the traffic direction, the TSS in the Singapore Strait is divided into two lanes. The westbound lane is located in the upper of the TSS, while the eastbound lane is located in the lower of the TSS.

The TSS in the Singapore Strait has a variety of depth. There is a deep water route in the eastbound lane (middle side of the TSS) to make room for large vessels passing the TSS safely. In Sector 7, there is Nipa Anchorage Area (Indonesian waters) between westbound and eastbound lanes.

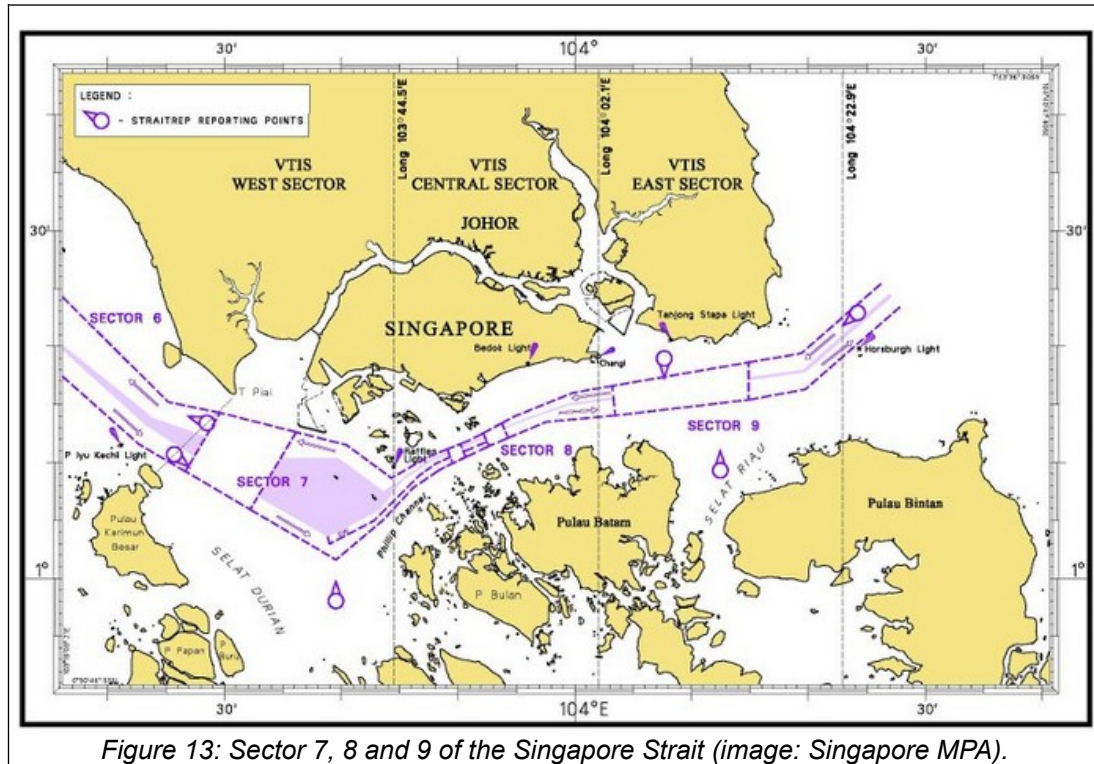


Figure 13: Sector 7, 8 and 9 of the Singapore Strait (image: Singapore MPA).

II. ANALYSIS

II.1. ACTIONS TAKEN ON THE BRIDGE

There was no engine or communication issue between bridge and engine control room prior to the accident. Therefore, the analysis covers only the actions taken on the bridge prior to the grounding into several action groups as follows.

II.1.1. Vessel Movement at the Waypoint 12

At about 18.33 LT, the movement of *Young Yong* showed that she was at the Waypoint 12 of her Passage Plan. Several minutes later, she exceeded the leg and approached the TSS border (dash line in Figure 14).

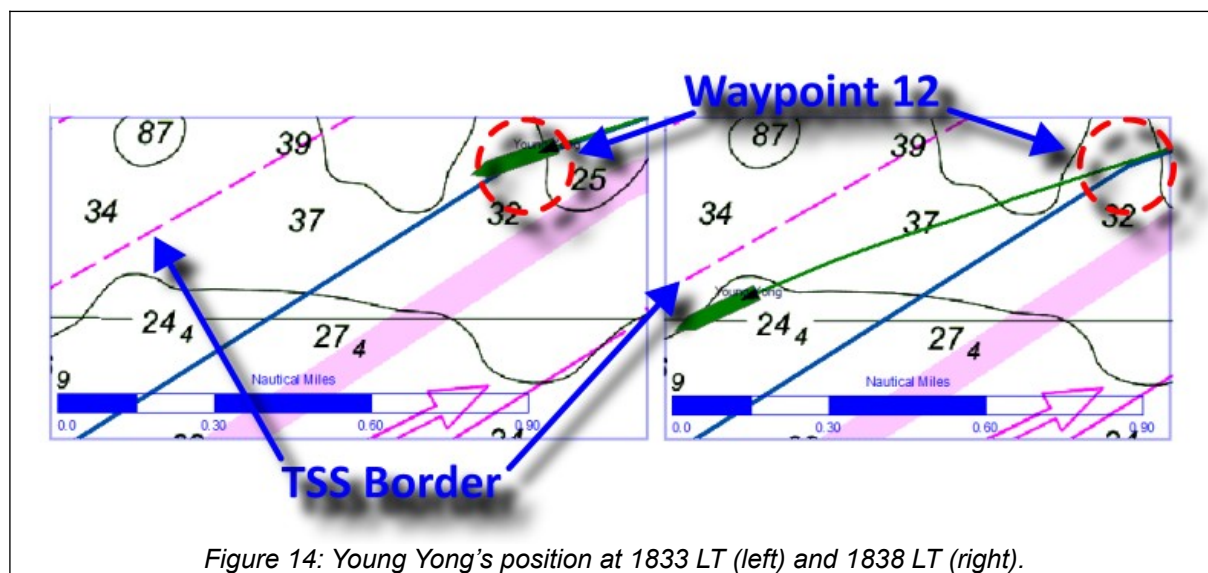


Figure 14: *Young Yong*'s position at 1833 LT (left) and 1838 LT (right).

From the recorded conversation, at about 1835 LT the VTIS Officer warned *Young Yong*. Afterwards, the Master began to order the AB to take a port turn (following the leg) where *Young Yong*'s heading was about 251° and she was off from the Waypoint 12. Because the position and heading did not show significant change, the Master repeated his order several times with various heading intended to go to port in the next two minutes. Until at about 1843 LT, finally her heading (235°) was approximately parallel with the Passage Plan, but her position was off about 0.2 NM from her Passage Plan. In this situation, she was too close to the TSS border for several minutes. In the end, The Master ordered the AB to change the course after he received advice from the VTIS Central.

From the movement of *Young Yong* which was off to the starboard from her intended course for several minutes, it was highly likely because she was overtaking the *Phoenix* as seen in Figure 2. Having looked at their positions at about the Waypoint 12, *Young Yong* intended to go more to starboard to overtake *Phoenix*. Unfortunately, *Phoenix* was moving to the starboard as well because her destination was a port in the western of Singapore. This possibility was not taken into account by the NOOWs on board *Young Yong*.

Another factor that made the off-track was that the Master relied on the information from the 3/O to take action to turn to the port, while at the same time, the 3/O relied on the Master's order. In the end, the 3/O forwarded the VTIS' advice to the Master, and subsequently the Master ordered a change of heading. This was demonstrated by the absence of order from the Master prior to the 1835 LT to adjust the vessel's heading. Therefore, the circumstance indicated that the NOOWs did not adequately implement the SQM-03 Procedure.

II.1.2. Vessel Movement at the Waypoint 13

At about 1844 LT, the Master began to order the AB to change the course to starboard in preparing an alteration of heading at the Waypoint 13. However, until *Young Yong* passed the Waypoint 13 at about 1855 LT, there was only about 10° of heading change obtained.

From this situation, it is highly likely that the ECDIS had not been optimised to assist the NOOWs during navigation. Should the ECDIS be used at the time, the Master would know when to alter the heading and how much degree had to take to follow the Passage Plan safely. This could have happened along the passage from the beginning of the voyage.

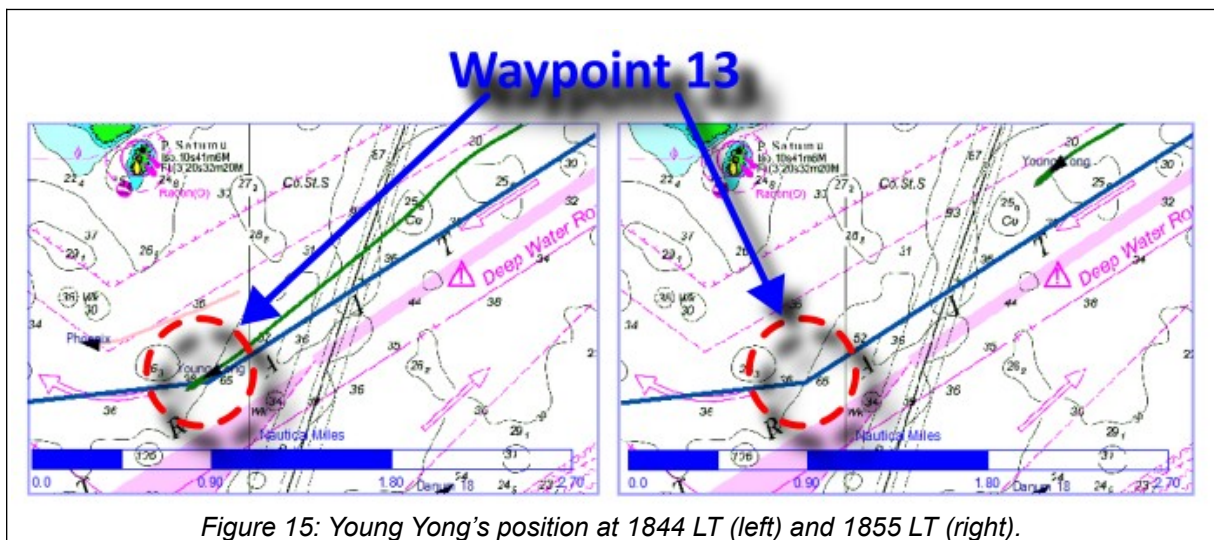


Figure 15: *Young Yong*'s position at 1844 LT (left) and 1855 LT (right).

Referring to the SQM-03 Procedure, the NOOWs were required to confirm the vessel's position by any means. Undoubtedly, visual sighting at night when the accident occurred was insufficient to ensure navigation safely. Therefore, the poor application of the navigational equipment indicated another inadequate procedure implementation.

II.1.3. Vessel Movement Towards The Shallow Waters

After *Young Yong* lost the opportunity to make a heading alteration to starboard before the Waypoint 13, she exceeded the leg again. At about 1858 LT, after being asked by the VTIS West, the 3/O told the Master about the shallow patch with a depth of 21.5 m.

At 1855 LT, when *Young Yong* was turning starboard, she already passed Waypoint 13. After that, *Young Yong* still took a starboard turn, but the heading alteration still could not follow her Passage Plan. The Master's order to alter the heading from 254 to 270 (since 1858 LT) could achieve 270° at 1901 LT. This alteration was too slow to follow her Passage Plan. In this situation, the Master could give an order of more than 270° to increase the rate of turn.

When the Master was aware of the shallow patch, *Young Yong* actually could pass it. In addition, the Master ordered the hard to starboard right after she knew the shallow patch. However, the fickleness of Master's order made *Young Yong* passed the shallow patch on her starboard, instead of on her port side as planned in the Passage Plan.

After this circumstance, *Young Yong* went closer to the shallow waters. The situation became worse because of the lack of awareness among the NOOWs. They did not realise the shallow waters ahead of *Young Yong*. This was indicated by the warning from the VTIS West about the shallow waters.

The ECDIS has some features to assist the NOOWs passing the strait safely. For example, anti-grounding warnings. It seems that the NOOWs did not optimise the ECDIS feature to assist the navigation.

II.2. HUMAN FACTORS ON BRIDGE RESOURCE MANAGEMENT

II.2.1. Fatigue and Work Relationships

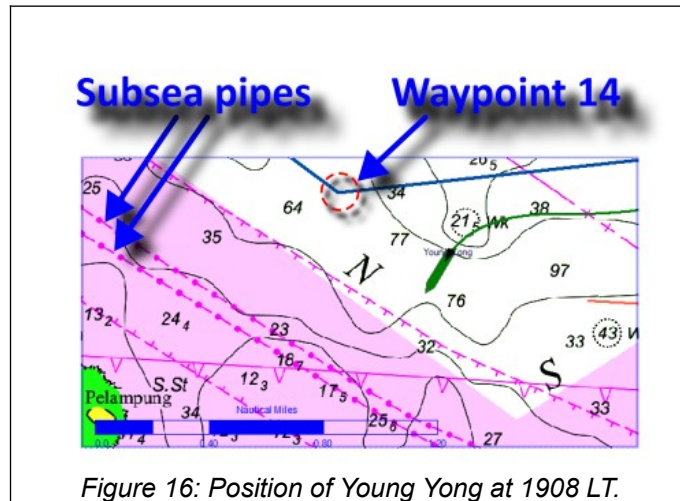
There was no evidence that the Master, 2/O, 3/O and AB were in a fatigue condition. They felt that they had enough rest prior to their roster. The effect of weather on their work performance also was insignificant.

Referring to the Master's complaint to the AB1 regarding the slow turning, it was not an indication of bad work relationship between them. Moreover, the roster of their duty together several times on the bridge suggests that there was neither communication nor relationship issue between them.

II.2.2. Situational Awareness

Situational awareness among crew members on duty is crucial in ensuring safe navigation. Good situational awareness means the ability to recognise hazards and risks surrounding the vessel as well as having a correct perception about what is going to happen in the near future. Therefore, the crew members, including the Master, need to know position, speed, heading, surrounding traffic, weather and other safety matters. To deal with those situations, the crew members, particularly the NOOWs, need to apply all available equipment, such as ECDIS, to assist them in enhancing their situational awareness because relying on visual sight has big limitations.

In allowing situational awareness to be shared properly amongst the crew members, teamwork amongst them is substantially needed. Communication barriers are major issues in shaping good team work. One common issue is a reluctance of a lower rank of crew member to convey an idea or to criticise a higher rank of crew member about wrongdoing. As a result, they will have a serious difficulty to warn each other about what to do when an unusual or unexpected situation comes up.



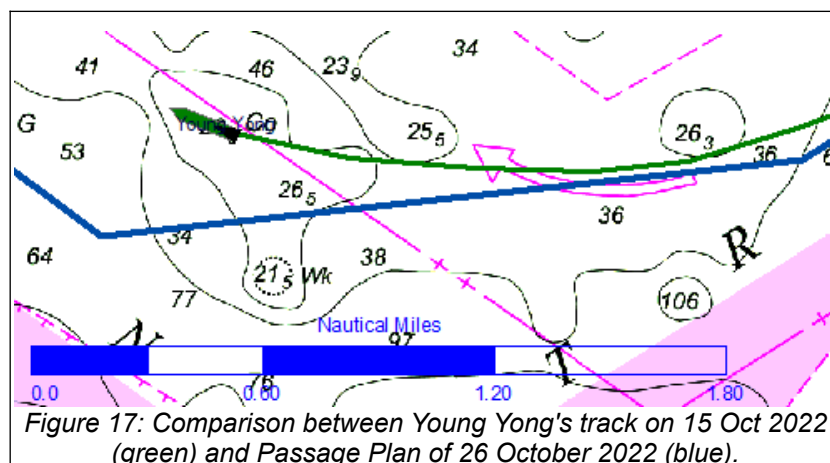
Right after *Young Yong* passed Waypoint 13 at about 1855 LT, there was a lack of situational awareness. The NOOWs thought that the only risk was the shallow patch. Three minutes later (Figure 16), they realised another risk (shallow waters in the inshore traffic zone) after the West VTIS warned them again. The void of command or action to alter the vessel's heading away from shallow waters strongly indicate that there was a lack of situational awareness of the upcoming risk.

One most likely factor behind the lack of situational awareness amongst crew members of *Young Yong* were the superiority and seniority. Superiority is a state where someone is considered as better than others, while seniority is the state of being senior in terms of age and rank. Even though respecting the elderly is a positive way, too much respect in some situations can be a disobedience of rules.

A study by Chen and Chung (2022) has suggested that the presence of both factors are distinct in the public and private organisation, including workplace. Asian people tend to apply seniority and superiority more obviously compared to the western people (Mosavi 2020 and Liu 2018). Despite the Asia region consisting of many countries, most of them have similarity in terms of respecting the senior culture.

In the accident of *Young Yong*, the Master, 3/O and AB are Asians. The seniority was seen lucidly several times prior to the accident. For example, the 3/O did not interrupt the Master's communication over the phone when the VTIS was asking the Master to talk to him. On another occasion, the 3/O did not warn the Master that *Young Yong's* heading was pointing a shallow patch. Similarly, the AB did not inform the Master about the slow rate of turn in numerous efforts to alter the heading. In the accident time, the Master was the most senior compared to the 3/O and AB.

In addition, the AB1 and Master had met on board a couple of weeks before the accident. In a cross-cultural workplace such on board *Young Yong*, the short interaction less than one month between superior and lower rank of crew members, particularly who are not Chinese, affect the way they interact. Besides, this issue will be more obvious when the gap of age between superior and lower rank crew members is considerably big. Wang, et al. (2017) suggested that when someone is in a new environment, that person will automatically learn new skills and new behaviours, but need some time.



In the previous trip from EOPL to the Port Klang (Figure 17), it is likely that the situational awareness worked well. The track of Young Yong shows that the heading alteration around the shallow patch was done without any issue. Having looked at their roster¹⁷ (see Error: Reference source not found) at about 1404 LT during that trip, the NOOWs were 2/O and assisted by another AB and Bosun in which they were not really much different in terms of their age. In that circumstance, situational awareness seemed to ran effectively due to the age gap amongst them was insignificant. In contrast, the circumstance prior to the accident (roster period of 1600-2000) shows the opposite situation.

Referring to the point 6.7 on Resources and Personnel of the ISM Code¹⁸, the company should ensure effective communication amongst the crew members. Although the company has provided clear guidelines by sets of procedures, the company still has the obligation to ensure the implementation of those procedures on board by the crew members.

¹⁷ SQM-03 on Shipboard Operation and Management Manual ver3.0 in English.

¹⁸ International Safety Management Code.

III. SUMMARY

III.1. FINDINGS

1. There was neither engine nor communication issues prior to the accident.
2. The vessel draft was 21.5 m in even keel condition.
3. The actions taken to avoid the shallow patch with a depth of 21.5 m changed a few times.
4. *Young Yong* grounded at shallow waters out in the Traffic Separation Zone and she sat between two subsea pipelines.
5. The vessel sat between two gas lines without touching them.
6. There was no environmental issue resulting from the accident.

III.2. CONTRIBUTING FACTORS¹⁹

1. The situational awareness on the bridge did not work to mitigate the shallow patch with a depth of 21.5 m.
2. The ECDIS was unlikely to have been optimised by the Navigation Officers on Watch during navigation.

¹⁹ Contributing factors are anything which might be the source of an accident, including any acts of negligence, conditions or situations that, if avoided or mitigated, would prevent or reduce the impact of an accident.

IV. RECOMMENDATIONS

IV.1. EAST WIND SHIP MANAGEMENT, Ltd.

1. To ensure the navigational equipment is applied and situational awareness is implemented properly by the Navigational Officers On Watch during navigation.

Regarding this recommendation, the East Wind Ship Management, Ltd. has not initiated any safety action yet.

Status: Open

V. SOURCES OF INFORMATION

Crew members of *Young Yong*.
East Wind Ship Management, Ltd.
Harbour Master of Tanjung Balai Karimun.
Batam Vessel Traffic Service.

VI. REFERENCES

- Chen, G. & Chung, J. (2002). Seniority and Superiority: A Case Analysis of Decision Making in a Taiwanese Religious Group. *Intercultural Communication Studies*, 41-55. <https://www-s3-live.kent.edu/s3fs-root/s3fs-public/file/03-Guo-Ming-Chen-Jensen-Chung.pdf>
- Liu, Zixuan. (2018). The Influence of Confucianism on East Asian Countries, *International Conference on Arts, Design and Contemporary Education*, 232(1), 77-79. <http://dx.doi.org/10.2991/icadce-18.2018.14>
- Moosavi, Leon. (2020). "'Can East Asian Students Think?': Orientalism, Critical Thinking, and the Decolonial Project". *Education Sciences*, 10(10), 1-20. <https://doi.org/10.3390/educsci10100286>
- Selmer and Luring. (2013). Linguistic Diversity and Language Use in Multicultural Organizations: Is There a Moderating Effect of the Age of Organizational Members?, *The International Journal of Human Resource Management*. 24(10). 1985-1996.
- Wang, et.al. (2017). Exploring cross-cultural skills for expatriate managers from Chinese multinationals: Congruence and contextualization, *Asia Pacific Journal of Management*, 34(1), 1-41.

APPENDICES

Weather Forecast from the BMKG



BADAN METEOROLOGI KLIMATOLOGI DAN GEOFISIKA
Stasiun Meteorologi Hang Nadim - Batam
 Alamat : Jl. Hang Nadim, Batu Besar - Batam, Riau 29431
 Telp : 0778-761507 , 0788-761415 Email : stamet.hangnadim@bmkg.go.id

PRAKIRAAN CUACA WILAYAH PELAYANAN

Berlaku 26 Oktober 2022 pukul 19:00 WIB - 27 Oktober 2022 pukul 07:00 WIB
 Nomor : ME.01.02/173/FCT-KBTH/X/2022

I. Peringatan

Waspada potensi hujan disertai petir/ kilat, dan Angin kencang berdurasi singkat yang dapat terjadi di wilayah perairan Lingga pada dini hari.

II. Kondisi Sinoptik

Adanya pola siklonik yang masih persisten di wilayah Natuna serta kelembapan udara lapisan atas yang basah mendukung peningkatan pertumbuhan awan hujan di wilayah Kep. Riau.

III. Prakiraan Wilayah Pelayanan

Panduan Tinggi Gelombang					
Gelombang	Tenang	Rendah	Sedang	Tinggi	Sangat Tinggi
	0.0 - 0.5 m	0.5 - 1.25 m	1.25 - 2.5 m	2.5 - 4 m	4 - 6 m

Kode	Nama Wilayah Pelayanan	Cuaca	Angin		Gelombang
			Arah	Kec.(kt)	
E.01	Peraian Riau	Hujan Ringan	Barat - Utara	2 - 15	Rendah
E.02	Peraian Batam	Hujan Ringan	Barat - Utara	2 - 15	Rendah
E.03	Peraian Bintan	Hujan Ringan	Barat - Utara	2 - 15	Rendah
E.04	Peraian Lingga	Hujan Petir	Barat - Utara	2 - 15	Rendah
E.05	Selat Berhala	Hujan Ringan	Barat - Utara	2 - 15	Rendah
E.06	Peraian utara Bangka	Hujan Ringan	Barat - Utara	2 - 15	Rendah

Catatan : Gelombang Maksimum dapat mencapai dua kali tinggi gelombang yang tertera diatas..

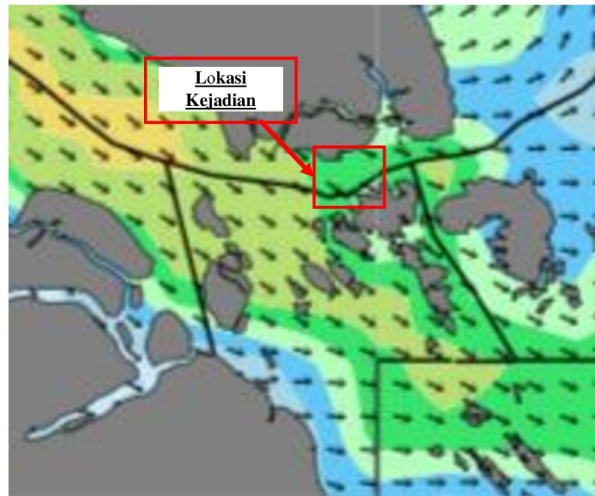
IV. Remark

NIL

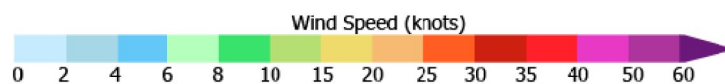
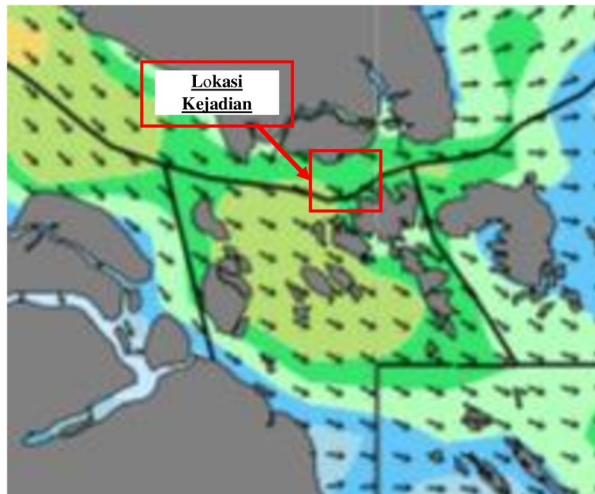
Batam, 26 Oktober 2022
 Prakerawan,

Rizky Fatimahtuzzuhro W.
 NIP. 199508142014112001

Gambar 2. Peta Arah dan Kecepatan Angin Tanggal 26 Oktober 2022 Pukul 19.00 WIB



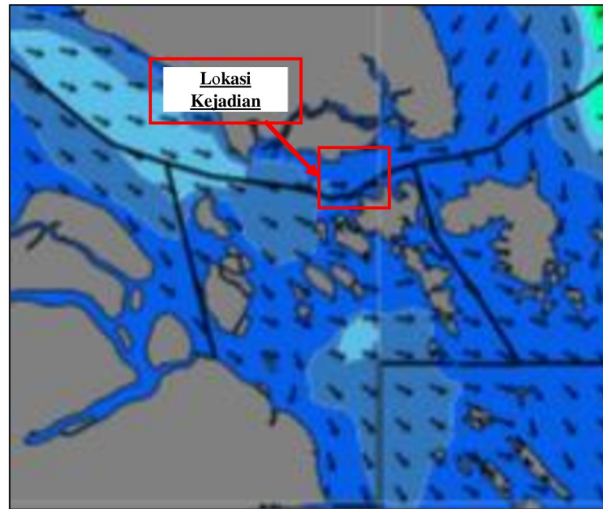
Gambar 3. Peta Arah dan Kecepatan Angin Tanggal 26 Oktober 2022 Pukul 22.00 WIB



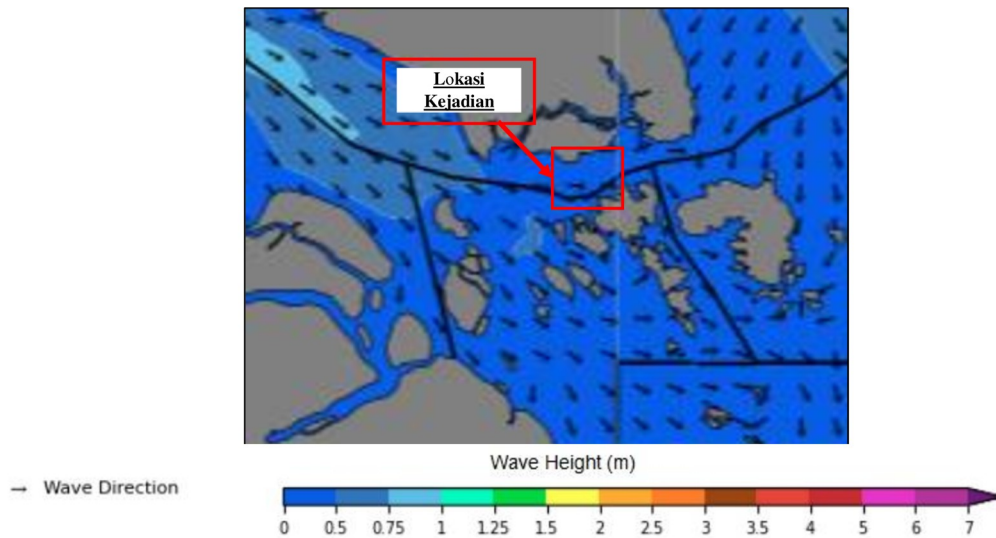
Klasifikasi Kecepatan Angin:

<10 knot	10 - 15 knot	16 - 30 knot	>38 knot
Lemah	Sedang	Kencang	Sangat Kencang

Gambar 4. Peta Tinggi Gelombang Laut Tanggal 26 Oktober 2022 Pukul 19.00 WIB



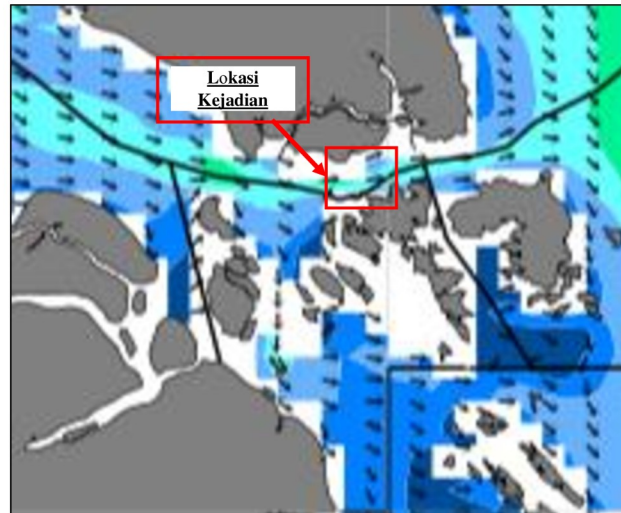
Gambar 5. Peta Tinggi Gelombang Laut Tanggal 26 Oktober 2022 Pukul 22.00 WIB



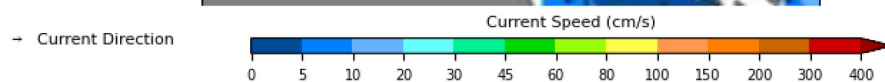
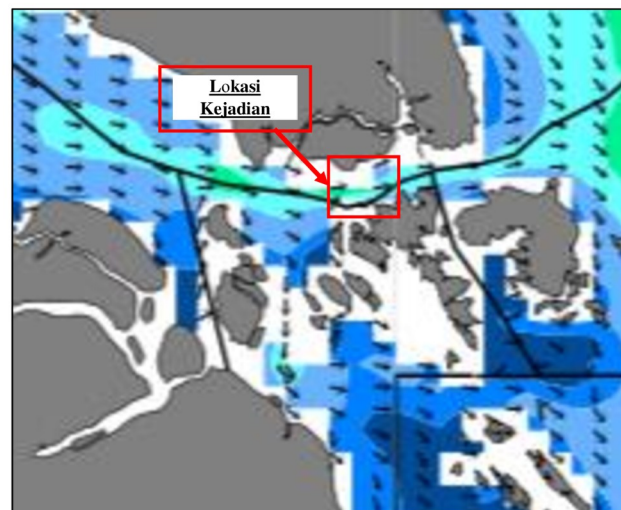
Klasifikasi Gelombang:

0.1 - 0.5 m	0.5 - 1.25 m	1.25 - 2.5 m	2.5 - 4.0 m	4.0 - 6.0 m	> 6.0 m
Tenang	Rendah	Sedang	Tinggi	Sangat Tinggi	Ekstrem

Gambar 6. Peta Arus Laut Tanggal 26 Oktober 2022 Pukul 19.00 WIB



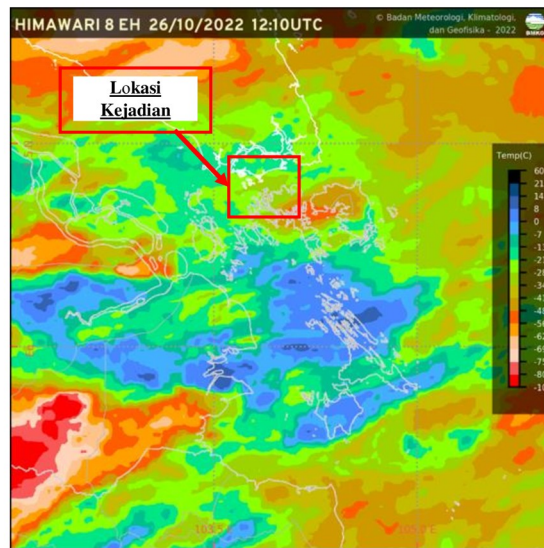
Gambar 7. Peta Arus Laut Tanggal 26 Oktober 2022 Pukul 22.00 WIB



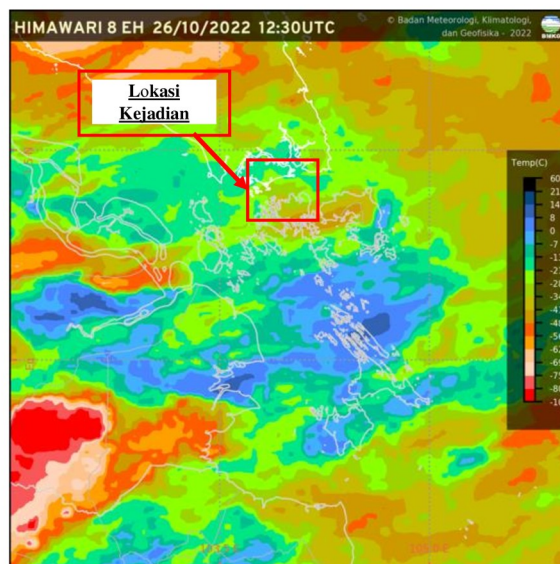
Klasifikasi Kecepatan Arus:

<45 cm/s	46 - 100 cm/s	101 - 150 cm/s	>151 cm/s
Lemah	Sedang	Kencang	Sangat Kencang

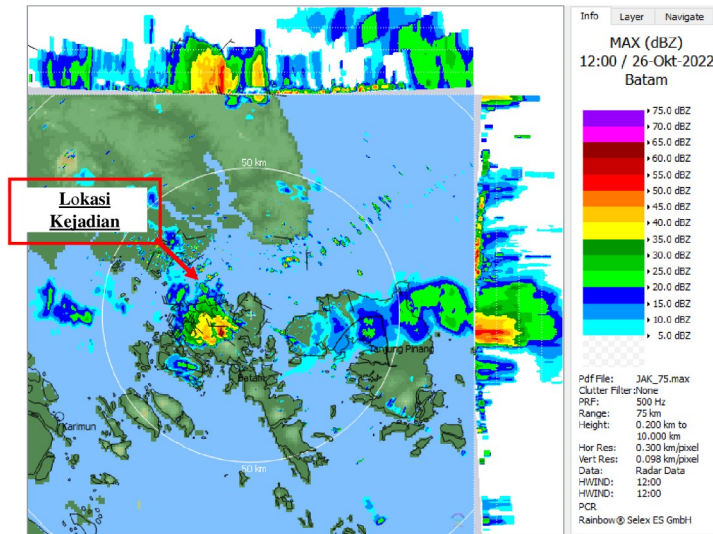
Gambar 8. Citra Satelit Tanggal 26 Oktober 2022 Pukul 19.10 WIB



Gambar 9. Citra Satelit Tanggal 26 Oktober 2022 Pukul 19.30 WIB



Gambar 10. Citra Radar Tanggal 26 Oktober 2022 Pukul 19.00 WIB



Gambar 11. Data Observasi AWS Maritim Batam Tanggal 26 Oktober Pukul 19.00 – 22.00 WIB

DATA OBSERVASI CUACA MARITIM AWS MARITIM BATAM TANGGAL 26 OKTOBER 2022							
Tanggal	Waktu	Arah, Kec. Angin (dari, m/s)	Water Level (m)	Curah Hujan (mm)	Suhu Permukaan Laut (°C)	Kelembapan (%)	Tek. Udara (mbar)
26 Oktober 2022	19.00 WIB	Barat – Barat daya, 6.60	3.605	3.40	29.00	79.80	1008.60
	20.00 WIB	Barat – Barat daya, 4.10	4.177	3.40	29.00	77.80	1009.30
	21.00 WIB	Barat – Barat daya, 3.60	4.947	3.40	29.10	73.90	1009.30
	22.00 WIB	Barat Daya, 5.30	5.533	3.40	29.10	72.90	1009.80

Info Selengkapnya: <http://202.90.199.132/aws-new/>

The Damage





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