



NATIONAL TRANSPORTATION SAFETY COMMITTEE
REPUBLIC OF INDONESIA

FINAL
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Marine Accident Investigation Report
Collision between Cargo Ship *TAY SON 4* (IMO 9370587)
and Fishing Vessel *MULYA JATI*
Tuban Waters, East Java
Republic of Indonesia
19 November 2016



2019

FOREWORD

Praise to be given to the Almighty God with the completion of the Final Report on the Investigation into the Collision between Cargo Ship **TAY SON 4** and Fishing Vessel **MULYA JATI** on 19 November 2016 in Tuban Waters, East Java, Republic of Indonesia.

The completion of this Final Report of Marine Accident Investigation was mandated by Indonesian Shipping Act No. 17 Year of 2008 Articles 256 and 257 as well as Government Regulation of Transport Accident Investigations No. 62 Year of 2013 Article 39 paragraph 2 Letter c which states that "*The report of transport accident 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 the accidents, recommendations for prevention and improvement, and appendix of other supporting documents. The report discussed the marine accidents issues about 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 recurrence by 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 the least, the Final Report of Marine Accident Investigation was made so that the interested parties could learn and take lessons from the accident.

Jakarta, 29 May 2019

NATIONAL TRANSPORTATION
SAFETY COMMITTEE
CHAIRMAN



Dr. Ir. SOERJANTO TIAHJONO

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FACTUAL INFORMATION

The Accident

On 18 November 2017 at about 17.30 local time¹ (LT), an Indonesian fishing vessel *Mulya Jati*² was on its way had left Juwana port to Kangean fishing ground.

On 19 November 2016, a Vietnamese flagged general cargo ship *Tay Son 4* was heading for Surabaya. She departed from Singapore on 16 November 2016. After passed the Singapore Strait and Karimata Strait, she proceeded to the Java Sea. At about 02.50 LT, where she was in the Tuban Waters, Indonesia, her heading was around 108° T in autopilot mode.



¹ Indonesian Western Time (*Waktu Indoneisa Barat/WIB*) is UTC + 07.00.

² Name of *Mulya Jati* is based on the crew members of *Mulya Jati*. Mass media and crew members of *Tay Son 4* reported as "*Mulya Sejati*".



Figure 1: Mulya Jati (red circle) on Tay Son 4's radar (in sequential order)

The bridge was manned by Second Officer (2/O) as Officer on Watch and Helmsman on duty. The radar variable range marker (VRM) was set to 1.54 nautical mile (NM), while the radar range was set to 6 NM. Both crew were eating and discussing about many topics.

While discussing, based on the acknowledgment from the crew, the Helmsman on duty saw a white light in a distance of about 10 NM. Afterwards, the Helmsman told about it to the 2/O. The 2/O then checked it out through the radar, but it was out of the radar range. The 2/O could not ensure what the unidentified object was. Other than the white light, the other lights were seen surrounding the *Tay Son 4*. Followed the situation, the 2/O gave a daylight signal towards the unidentified white light by using an aldis light. However, there was no response from that light object. They eventually went back to their conversation.

At about 02.54 LT, an object appeared in the radar image at the range of 1.5 NM and bearing of 30°. The object, later known as the *Mulya Jati*, did not have any identification as appeared on AIS target data, but was moving with her heading approximately 080°.

At about 03.00 LT, the object was getting closer with the range of 1.3 NM and bearing of 27°. There was still no change on either the *Tay Son 4*'s or *Mulya Jati*'s heading. At that time, the speed over ground of *Tay Son 4* was around 9 knots, while the longitudinal water speed was around 7 knots.

Meanwhile, there was only the Master of *Mulya Jati* on duty in the bridge. The rest of the crew were sleeping.

At about 03.10 LT, both the *Tay Son 4* and the *Mulya Jati* were approaching each other with the distance was around 0.7 NM. Both vessels kept their headings.

At about 03.18 LT, when the *Mulya Jati* was around 0.2 NM from the *Tay Son 4*, she steered her heading a little bit to approximately 090°. Afterwards, the *Mulya Jati* kept their heading approaching the *Tay Son 4*.

A couple of seconds later, *Tay Son 4* made an attempt by steering the heading to 106° to avoid collision. The *Tay Son 4* then collided *Mulya Jati* at her port quarter off the coast of Tuban Waters, Indonesia. The location was 6.55 S and 112.15 E or approximately 21 NM northern Tuban Beach, East Java.

The survived crew of *Mulya Jati* were divided into two groups. Each group members were sitting on the floating wreckage and waited for some help.



Figure 2: Mulya Jati after the collision

Right after the accident, the OOW informed the accident to the Master of *Tay Son 4*. The Master then rushed to the bridge and activated the alarm and informed all crew about the accident. The Master also made a distress call to the surrounding vessels and the Local Harbour Master via VHF radio.

Shortly after, the *Tay Son 4* made a turning circle manoeuvre to assist the crew of *Mulya Jati*. At the first turning circle, the *Tay Son 4* missed a group of survivors. Since the group yelled to the *Tay Son 4*, the *Tay Son 4* made another turning circle. About one hour after the collision, the *Tay Son 4* dropped her anchor as well as deployed lifebuoys, two lifeboats and a rescue boat to evacuate a group of survivors floating on a wreckage.

At about 05.16 LT, 6 survivors were evacuated from water and were taken on board the *Tay Son 4*.

Another fishing vessel, *Dian Radianse*, which was passing nearby also helped in evacuating the other survivors from wreckages to the *Tay Son 4*. None of the crew of *Mulya Jati* donned life jacket or brought something which could emit or reflect a light. They also had no whistle, radio or emergency distress locator such as Emergency Position Indicating Radiobeacon (EPIRB) or Personal Locator Beacon (PLB).

At about 13.00 LT, all survivors were transferred to a crew boat and Local Agency of National Search and Rescue (BNPP) boat, afterwards they were taken to a medical clinic onshore in Lamongan, East Java.

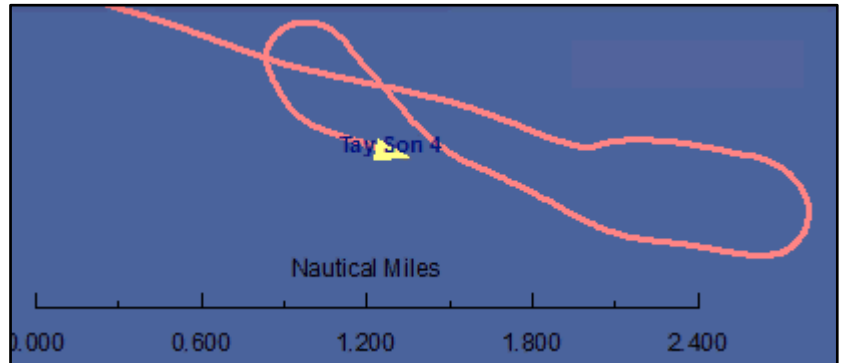


Figure 3: Turning circle of *Tay Son 4* in evacuating crew of *Mulya Jati*

The Aftermath



Figure 4: *Mulya Jati* was broken apart

As the result of the accident, *Mulya Jati* was broken into two parts. About one week later, the floating wreckages of *Mulya Jati* were found in Rembang Waters, Central Java. However, there was no sign of survivors in alive or death in the wreckages.

Initially, the survivors were only 12 people who were rescued by *Tay Son 4*, while 15 crew members of *Mulya Jati* were missing. Four days after the accident, 3 crew were found death. The search operation involved the BNPP, Indonesian Navy (TNI AL), Water Police (Satpolair), Disaster Management Branch of Tuban (BPBD), Sea and Coast Guard (KPLP) of Tuban and Lamongan as well as Tanjung Perak. On the seventh day, another death crew was found. Therefore, the total of missing crew was 11 people.

There was no fatality and injury experienced by crew members of *Tay Son 4*. *Tay Son 4* had no scratch at all.

Ship Information

Tay Son 4

The *Tay Son 4* (IMO 93770587) was a general cargo ship registered in Hai Phong, Viet Nam. The steel vessel was built in 2005 by Ha Long Shipyard in Quang Ninh, Vietnam and classed with VietNam Register and NK. Her length overall, breadth and draught max were 136.40, 20.20 and 8.365 m, respectively. She had 4 cargo holds and 4 ship cranes with a maximum 2-ton-load on each crane. She was owned and managed by Vinalines Shipping Co. Vlc.

The main engine could produce 3,965 kW power to empower her with 13.0 knot of service speed.

At the time of accident, she was en route from Singapore Port, Singapore to Tanjung Perak Port, East Java, Indonesia and was transporting tapioca starch in jumbo bags as much as 8,400 freight tonnes in total.

Master night order regarding the safe navigation could not be found in specific. The only night order was in general terms.

Crew Members of Tay Son 4

There were 22 crew members and all of them were Vietnamese. The master had been working on board *Tay Son 4* for 5 months and had worked nearly 10 years for the shipping company. The second officer was working on board *Tay Son 4* for 3 months and had worked 5 years for the shipping company. That was his first time as second officer. The AB duty was working on board *Tay Son 4* for 1 month. That was his first time working at sea.

Safety management

The shipping company established safety management system which was implemented on *Tay Son 4* which was engaged on the international voyage. However, master's night order was made in Vietnamese language, without translation into English.

Mulya Jati

The *Mulya Jati* was a purse seine fishing vessel which made of wood in a traditional method in Central Java. Her length overall, breadth and depth were 19.99, 7.28 and 2.20 m. She was registered in the local fishing authority of Juwana Port with number of GT. 76 No. 1196/Gc.

Propulsive power was provided by two four stroke, single acting, Daihatsu 8DKM-28 diesel engines each with a maximum continuous rating of 2,500 kW at 750 RPM. Each engine was clutched into a reduction gearbox which, in turn, drove a fixed pitch propeller. The ship had a service speed of 13.5 knots at a shaft rotation speed of 190 RPM.

She had very limited equipment on board as there was no compulsory to do so. Therefore, she had neither automatic identification system (AIS) nor radar. However, she had a GPS and fish finder. The working lights on the foremast masts and top of superstructure were for fishing purposes, instead for navigation. She had navigation lights for preventing collisions at sea, but were dimmer than the lights on a big ship.



Figure 5: Tay Son 4



Figure 6: Mulya Jati

There were 27 crew on board the ship at the accident time. All of them were Indonesians. The Master and engineer were the only officers on board. Whereas, the others were fishermen.

Relevant rules and regulations

In accordance with part B, rule 5 of the international regulations for preventing collisions at sea (COLREGs), a proper look-out shall be maintained at all times. Rule 8 on action to avoid collision, rule 16 on action by give-way vessel and rule 17 on action by stand-on vessel are relevant to this accident.

The voluntary bridge procedures in the International Chamber of Shipping (ICS) Bridge Procedures Guide have the following suggestion that may be relevant to this accident:

Collision avoidance detection

...Care however must be taken when approaching very large ships, ships under tow or ships at close range. An appreciable bearing change may be evident under these circumstances but in fact a risk of collision may still remain.

The plotting period

...The estimation of the course and speed of the target and risk of collision is only valid up to the time of the last observation. The situation must therefore be kept closely under review.

Calling the master

The OOW should notify the Master immediately:

...if traffic conditions or the movements of other ships are causing concern.

Weather Information

According to Tay Son 4 log book there was south-westerly moderate breeze (11 – 16 knots), a cloudy sky and wave height of 1 meter at the time of the accident. The barometer pressure was 1015 mbar, the air temperature 29 °C and the sea temperature was 27°C. In the vicinity of the accident site, at about the accident time, the wind was 5 knots with the direction was from south-west. The wave condition was swell. It was cloudy without rain. There was no report of any haze or fog.

ANALYSIS

Since the weather condition had no contribution in the collision between *Tay Son 4* and *Mulya Jati*, the analysis will not discuss further about it. Also, there was no affirmation about any engine or steering failure on both vessels. The radar images confirmed it which show that both vessels maintained their heading without any obstacles or any distractions, such as other vessels. The KNKT's analysis is largely based on its assessments on the *Tay Son 4*'s VDR data, statement from the crew of *Tay Son 4* and statement from survived crew of *Mulya Jati*.

From the interview to crew members on both vessels, each vessel did not realise about the potential of collision. The position of *Mulya Jati* was relatively in the front of the *Tay Son 4* made *Mulya Jati*. This obstructed *Mulya Jati* crew to see the situation behind her. In addition, *Mulya Jati* had neither radar, radio nor AIS. In the early morning when the accident occurred, most of the fishing vessel crew were sleeping in the forecastle and on the deck. As a common practice, the Master of *Mulya Jati* held the steer and did navigation tasks just by himself which was hard for him to stand up from his seating to look around.

The only reason behind this accident was the lookout duty. The crew members on duty of *Tay Son 4* did not pay serious attention to the surrounding not even observing the radar. The *Tay Son 4*'s X-band radar had detected the moving target (*Mulya Jati*) which was on the starboard bow from beginning. They were talking about many topics other than the surrounding situation until they were late to realise about an object very close to the *Tay Son 4*. Actually, the crew of *Tay Son 4* could recognise the fishing vessel through radars. Even though the radars will not show the identification of the *Mulya Jati*, such as name, speed, heading of vessel and others, the crew could track the movement of an

unidentified object. By this way, they will have sufficient time to avoid the collision. The movement of unidentified object might be useful to raise the awareness amongst the crew on duty. The crew actually could mark the object using the ARPA system on the radar to know about the potential of collision.

However, the moving target was not plotted on the *Tay Son 4*' radar which had ARPA capability. There was 20 minutes before the accident for the navigating Officer of *Tay Son 4* to make an evasive manoeuvre to avoid collision since the moving target (*Mulya Jati*) had reached 1.5 NM set VRM. According to the COLREGs, the *Tay Son 4* should give way to allow *Mulya Jati* to keep a steady course and speed.

The Master of *Tay Son 4* should give a night order in more specific way. Since the northern of Java Island was full with fishing activities, either for fishing or passing. Therefore, the Master night order should warn the OOW to be more aware with the situation.

In regards the look out, the OOW on board the *Tay Son 4* should do a proper look out. Rule 5 of COLREGs requires that *"every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision."*

Nonetheless, the image radar at the sequence of event shows that *Tay Son 4* changed its course to port (from COG 108° to 101°) during period from 03.12 to 03.14 LT with distance to moving target approximately 0.5 nm. Then the vessel swung back to starboard (from COG 101° to 110°) during period from 03.14 to 03.18 LT. Shortly after, the vessel heading was changed rapidly to port, in which seemed the steering mode has switched to hand/manual.

To increase the awareness amongst the crew of *Tay Son 4*, the guard ring feature on the radar could be activated. This allows the radar to warn the crew if an object is approaching the *Tay Son 4* within the range set up.

On the other hand, the duty on board the *Mulya Jati* should be more than one person. The single man watch made the Master unable to do many tasks by himself. Another crew beside him would enable him to check the surrounding and increase his awareness about the other vessels and surrounding. Another way to prevent the collision is by involving light alert. *Tay Son 4* had a chance to utilise necessary light, such as the Aldis lamp to alert the fishing vessel. By doing this, although the Master of *Mulya Jati* did not see any vessel behind his vessel, he would be aware that there was another big vessel in crossing direction.

CONCLUSION

The KNKT concludes that the factor resulted the collision between *Tay Son 4* and *Mulya Jati* was the negligence of both vessels to keep a proper look out. As the consequence, both vessels kept their heading and speed. This occurred until they were in close quarter situation when the time was insufficient to prevent the collision.

Contributing Factors³

- The situational awareness (proper lookout) was not demonstrated correctly on board the *Tay Son 4* as the radars were not properly paid by the crew.
- Moving targets around *Tay Son 4* which might cause concern were not plotted by radar.
- The OOW of *Tay Son 4* did not notify the captain when the situation arose or when it became critical.

³ Contributing factors are anything which might be the source of an accident. In terms of any act, negligence, condition or situation in which avoided or diminished would prevent an accident or reduce the impacts.

RECOMMENDATION

Based on analysis and conclusion aforementioned, the KNKT recommends following matters to interested parties to be applied to prevent the recurrence of an accident by the same factors in the future. According to the Government Regulation of Transport Accident Investigations No. 62 Year of 2013 Article 47 stipulates that the interested parties must follow up the safety recommendations on this report and report the progress of those recommendations to the chairman of the KNKT.

Vinalines Shipping Co. Vlc.

1. To ensure the crew members on duty always maintain proper lookout by involving navigational equipment such as radars and AIS, particularly to ensure safe navigation.

Until the final report is issued, the KNKT had not received safety actions yet following the recommendations.

Status: Open

The Owner of Mulya Jati

1. To ensure that the number of crew on duty is always sufficient to carry out proper lookout for surrounding situation.

Until the final report is issued, the KNKT had not received safety actions yet following the recommendations.

Status: Open

SOURCES OF INFORMATION

Crew members of *Mulya Jati*;

Crew members of *Tay Son 4*;

Harbour Master of Tanjung Perak, Surabaya.

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