



**NATIONAL TRANSPORT SAFETY COMMITTEE  
REPUBLIC OF INDONESIA**

# **FINAL REPORT**

**KNKT.20.11.11.03**

**Marine Casualty Investigation Report**

*Cape Kallia (IMO 9447160)*

and The Capsize of

*Kerinci Indah 02*

**Eastern Indian Ocean, Republic of Indonesia**

**17 November 2020**

**2022**



The report is based upon the investigation carried out by the National Transportation Safety Committee (KNKT) in accordance with IMO Resolution MSC.255(84) and Indonesian Shipping Act (UU No 17/2008).

Readers are advised that the KNKT investigates for the sole purpose of enhancing Transport safety. Consequently, KNKT reports are confined to matters of safety significance and may be misleading if used for any other purpose.

As KNKT believes that safety information is of greatest value if it is passed on for the use of others, readers are encouraged to copy or reprint for further distribution, acknowledging KNKT as the source.

When the KNKT makes recommendations as a result of its investigations or research, safety is its primary consideration.

However, the KNKT fully recognizes that the implementation of recommendations arising from its investigations will in some cases incur a cost to the industry.

Readers should note that the information in KNKT reports and recommendations is provided to promote transport safety. In no case it is intended to imply blame or liability.

The report is based on:

1. Indonesian Shipping Act No 17 Year 2008, articles 256 and 257 as well as the explanatory memorandum;
2. Government Regulation No 62 Year 2013 on Transportation Accident Investigations;
3. Presidential Regulation of the Republic of Indonesia No 2 Year 2012 on the National Transportation Safety Committee; and
4. IMO Resolution MSC.255(84) on the Casualty Investigation Code.

The report is published by the National Transportation Safety Committee (KNKT), 3<sup>rd</sup> Fl. Transportation Building, Ministry of Transportation, Jln. Medan Merdeka Timur No 5, JKT 10110, Indonesia, in 2022.

**NATIONAL TRANSPORTATION SAFETY COMMITTEE**

*Cape Kallia and Kerinci Indah 02, Eastern Indian Ocean—Indonesia, 17 November 2020*

---

## EXECUTIVE SUMMARY

---

In the early morning of 17 November 2020, a bulk carrier *Cape Kallia* was transiting the Lombok Strait heading for Port Hedland, Australia. At around 03.00 local time (LT), whilst she had passed the Lombok Strait, an unknown object appeared on the screen.

The unknown object was a fishing vessel *Kerinci Indah 02* heading westerly. The fishing vessel had no Automatic Identification System (AIS), therefore no information was received by the bulk carrier. At the time, the course overground (COG) and speed of *Cape Kallia* were approximately 167° and 10.3 knots, respectively.

Based on the previous experience, the crew members of bulk carrier felt confidence that the unknown object which was deemed as a fishing vessel would give way to the bulk carrier. The *Cape Kallia* was then kept on her course. Similarly, the fishing vessel did not show any change on her heading.

A half hour later, both vessels were approaching. In the close quarter situation, the *Cape Kallia* took the action hard to port. Shortly after, the *Kerinci Indah 02* listed to the port and capsized on the starboard side of the *Cape Kallia*.

The National Transportation Safety Committee (KNKT) identified several safety issues that had contributed to the accident and issued safety recommendations to prevent a recurrence in the future. The inappropriate mental model amongst the officer on watch of *Cape Kallia* regarding the habit of fishermen while dealing with the fishing vessels as well as serious issues on board the *Kerinci Indah 02*, particularly the insufficient manning of *Kerinci Indah 02* and the fatigue on the skipper on duty of *Kerinci Indah 02*, have shown as the contributing factors in this accident. Therefore, a number of safety actions are essentially needed to prevent the recurrence of the same accident because of the same factors in the future.

## NATIONAL TRANSPORTATION SAFETY COMMITTEE

*Cape Kallia and Kerinci Indah 02, Eastern Indian Ocean—Indonesia, 17 November 2020*

---

## FOREWORD

---

Praise to be given to the Almighty God with the completion of the Final Report on the investigation into the bulk carrier *Cape Kallia* and the capesize of fishing vessel *Kerinci Indah 02* on 17 November 2020 in Eastern Indian Ocean, 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 to the accidents, recommendations for prevention and improvement, and an appendix of other supporting documents. The report discussed the marine accident issues about what, how, and why the accident occurred and findings about the causes of the accident along with the recommendations of shipping safety to the parties aimed to minimize or prevent recurrence by the same factors in the future. The final report is issued or publicly published after requesting a response and/or feedback from regulators, operators, manufacturers of transportation facilities and other related parties.

The Final Report of the Marine Accident Investigation was made so that interested parties could learn and take lessons from the accident.

Jakarta, 8 March 2022

**KOMITE NASIONAL  
KESELAMATAN TRANSPORTASI**

CHAIRMAN

  
**Dr. Ir. SOERJANTO TJAHHONO**

## I. FACTUAL INFORMATION

### The Accident<sup>1</sup>

On 17 November 2020, both Second Officer (2/O) and Able Bodied Deck (ABD) of *Cape Kallia*, a Cypriot bulk carrier, were undertaking their duty on watch in period 24.00—04.00. *Cape Kallia* was heading for Port Hedland, Australia. On that day, it was the eleventh day since she departed from Qindao, China on 6 November 2020. She was expected to arrive the Port Hedland on 19 November 2020. Her fore, mid, and aft draft were 7.91, 8.07, and 8.23 m, respectively. In this voyage, she had no cargo on board.

At around 03.00 local time<sup>2</sup> (LT), she had just finished passing the Lombok Strait (around the waypoint #33). Both 2/O and ABD spotted an unknown object on the RADAR as a little dot. No information was appeared regarding the object RADAR. To ensure the object, they checked the object visually by using binoculars and found a light in the port bow of *Cape Kallia* in the approximate distance of 6 nautical miles (NM). Based on the interview, they thought it might be a fishing vessel as their previous experience. At the time, the bulk carrier was sailing with approximate course overground (COG) 167° in the speed of around 10.3 knots. Also, because all fishing vessel they ever met always give way to the merchant ship, they decided to keep *Cape Kallia* on her course.

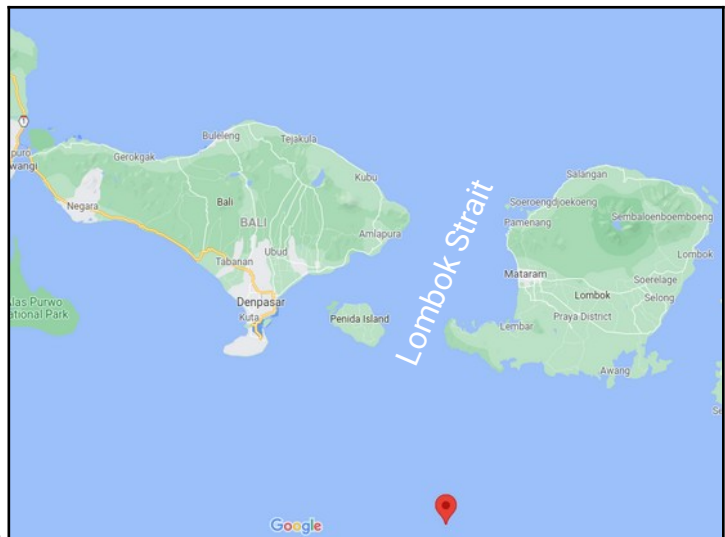


Figure 1: The position of CP at around 03.00 LT

At the same time, on a fishing vessel, named *Kerinci Indah 02*, the crew members had just finished their work to pull up their fishing line. Afterwards, some of them had dinner and had sleep. A few of them did not directly go to sleep, they had a chat amongst them, instead. The *Kerinci Indah 02* was moving to another spot in the west to obtain more fish. This fishing vessel was the unknown object appeared on the RADAR of *Cape Kallia*.

1 All the chronology was based on the interview with the crew members of *Cape Kallia*, VDR data of *Cape Kallia* (without recording of VHF and bridge communication) and data of Benoa VTS.

2 Local time is Central Indonesia Time (WITA) = UTC + 08.00.



## NATIONAL TRANSPORTATION SAFETY COMMITTEE

Cape Kallia and Kerinci Indah 02, Eastern Indian Ocean—Indonesia, 17 November 2020



Figure 2: The positions of *Kerinci Indah 02* (yellow circle)

One crew member of *Kerinci Indah 02* took the role as Helmsman because the Skipper already worked since the midday of 16 November 2020 (the day before). The Skipper asked the Helmsman to steer the wheel and undertake lookout every 10 minutes to ensure there was no light of any other vessels as the form of hazards. Based on the interview with survivors, *Kerinci Indah 02* was heading towards west (around 270°) with the approximate speed of 4.3 knots. The Skipper then slept at the steering room.

When the range of *Kerinci Indah 02* was around 4 NM, the 2/O tried to warn the *Kerinci Indah 02* by using aldis light towards the object. However, after five times of flashing, there was no response. The OOW could not confirm the object as there was no AIS data transmitted from it. They were not sure whether the object was moving or floating. Each vessel was still moving towards their respective directions.

At 03.31 LT, the 2/O changed the RADAR range from 6 nautical miles (NM) to 3 NM. At the time, there was no rain. The wave was swell approximately 2.4 m. From the data appeared on RADAR, the wind blew towards 026° with the strength of 34.1 knots, whilst the current was 0.5 knots easterly. From the visual inspection, the wind was E4 (moderate breeze from east), the swell around 0.5 m and the sky was partly cloudy.

The Chief Engineer (CE) of *Kerinci Indah 02* went to the engine room to clean the engine bilge. When he went out from the starboard door of engine room, he saw that fore of *Kerinci Indah 02* was shone by another vessel (*Cape Kallia*). The distance between *Kerinci Indah 02* at the moment was close. Knowing the situation, the CE rushed up to steering room and shouted to helmsman that there was a vessel approaching the *Kerinci Indah 02* from the starboard. The CE also wake the Skipper up. Both the skipper and helmsman went out of the starboard door steering room to see the situation on the starboard side.

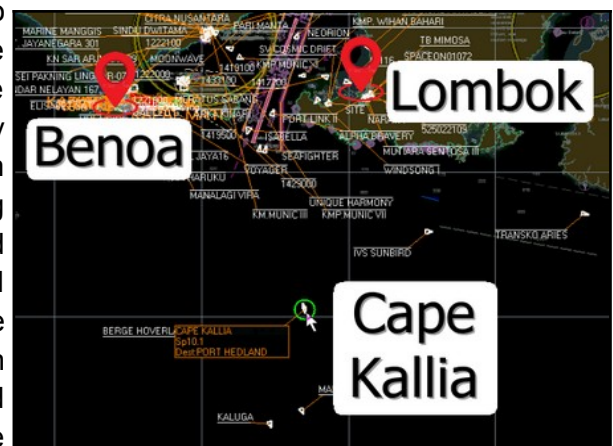


Figure 3: The position of *Cape Kallia* (green circle) at 03.32 LT (image: Bena VTS, annotated by KNKT)



Due to the distance between both vessels was decreasing, the Skipper took the decision to push the steer hard to port side. By the time, position of *Kerinci Indah 02* had just passed the bow of *Cape Kallia*.

At around 03.33 LT, the crew members of *Cape Kallia* saw the *Kerinci Indah 02* crossed the bow towards the starboard of Cape Kallia. Afterwards, immediately they turned *Cape Kallia* hard to port and her heading changed to 127°. At the same time, a crew member activated the whistle and reduced engine rpm and speed. Within the next three minutes, the heading of *Cape Kallia* was set back to around 163°. The coordinate of *Cape Kallia* was at 09° 28.886' S 115° 51.037' E at the moment.



Figure 4: The *Kerinci Indah 02* was set as target (image: VDR *Cape Kallia*; radar time)

At around 03.46 LT, the 2/O set the *Kerinci Indah 02* as the target on the RADAR view for the first time. The range between them was around 1.4 NM (see Figure 4).

At the time, all crew members did not know what occurred. They were not sure whether it was a collision with the *Kerinci Indah 02* or something else.

Afterwards, the 2/O woke up the Captain and called immediately to go to the bridge. All crew members on the bridge could not see anything on the sea regarding the unknown object. The Master then decided to turn back to the occurrence location to figure out what happened. The engine crew members were told to be ready for manoeuvre.



Figure 5: Some survivors of *Kerinci Indah 02* were found (image: crew of *Cape Kallia*)

After several attempts to figure out what already occurred, they made no results. Because the Master worried if there was a collision, it was decided to stay at around the location to keep searching for survivors.

At 04.22 LT, the Master sent several distress call via VHF Radio. The Master initially made a radio call to Labuan Lombok Coast Guard through radio channel 16. Lombok VTS was the listed as the reporting point on their voyage plan. Nonetheless, there was no response from Labuan Lombok Coast Guard after the Master had tried many

## NATIONAL TRANSPORTATION SAFETY COMMITTEE

*Cape Kallia and Kerinci Indah 02, Eastern Indian Ocean—Indonesia, 17 November 2020*

times. He then tried to make a radio call to Labuan Lombok VTS. This attempt resulted response from neither Labuan Lombok Coast Guard nor Labuan Lombok VTS.

The Master then received a response, but it was from penang VTS, Malaysia. The VTS operator then asked the Master to change the radio channel from 16 to 68. As the location of Penang VTS was extremely far, the Master only reported that *Cape Kallia* was going to make another attempt to call Coast Guard and try to locate the survivors.

At 04.30 LT, finally the Benoa VTS made the first response to the *Cape Kallia*. Afterwards, the Benoa VTS gave contact number of Coast Guard and the Master of *Cape Kallia* explained the situation at the moment. At the time, position of *Cape Kallia* was at 09° 28.253 S 115° 50.094 E (around 60 NM from Benoa VTS).

Unfortunately, the number given by the Benoa VTS could not be connected by the Master. The Benoa VTS then gave another number to the Master. After several minutes another crew member tried to contact the Coast Guard, the given number did not work as well.

At 04.55 LT, the Benoa VTS informed the Master of *Cape Kallia* that the local Coast Guard had been contacted by Benoa VTS. The Master explained that the a boat was finally found in capsized condition and some people were on the floating starboard side. *Cape Kallia* intended to evacuate them.

At 05.18 LT, the Benoa VTS informed the Master of *Cape Kallia* that the Maritime Rescue Coordination Center (MRCC) team from Benoa was preparing a search operation using rescue boat KN CHUNDAMANI P-116.

At 05.52 LT, the Master reported the Benoa VTS that evacuation was on going. After the seven people were evacuated on board the *Cape Kallia*, the crew member of *Cape Kallia* issued the information to the Benoa VTS that the object appeared on RADAR was a fishing vessel named *Kerinci Indah 02*. The Benoa VTS then asked the Master of *Cape Kallia* to stay at a specific coordinate whilst waiting for the MRCC. The *Cape Kallia* then moved to the asked location and left the *Kerinci Indah 02*.

*Cape Kallia* had been conducting Search & Rescue operation until 13.45 LT, when she was ordered by SAR Branch of Mataram to stop SAR operation. Afterwards, *Cape Kallia* was asked by the SAR Mataram to proceed to Lembar Port in Lombok City to transfer the seven survivors to the local Coast Guard.



Figure 6: The location where survivors (*penyintas*) were found (image: Google, annotated by KNKT)

After seven days in searching the missing people from *Kerinci Indah 02*, the BASARNAS declared that four people were still missing. The fishing vessel of *Kerinci Indah 02* was also not found by the MRCC team. Therefore, only seven people were saved.

### Technical Information of Fishing Vessel

The *Kerinci Indah 02* is a wooden long line vessel with her gross tonnage of 26. She was owned individually, not by a company, and no special unit established to oversee the compliance of the fishing vessel regulations. She departed from Benoa Port on 2 November 2021. The investigation team could not retrieve her exact dimension, but in average, the long line vessels in similar gross tonnage have the length of deck of 17–18 m, breadth of 4–5 m, depth of 2–2,5 m and draft of 1.5–1,9 m. However, referring to a source, her length was around 15 m.

The *Kerinci Indah 02* used the Mitsubishi 6D14 engine as her main engine with maximum power output of 160 PS<sup>3</sup> at 2,900 rpm<sup>4</sup>. She also used another Mitsubishi engine as auxiliary engine, Mitsubishi 4D35, with maximum Power output of 140 PS.



Figure 7: *Kerinci Indah 02* whilst departing Benoa Port

The fishing vessel had two 2 single side band (SSB) radio communication and two units of Furuno Gp 32 GPS as her navigation equipment. The SSB radio was usually used to communicate with the other fishing vessels, for example in supplying fuel or water. The vessel also had twelve life jackets and two lifebuoys. When the survivors were found by *Cape Kallia* in the first place, most of them donned life jackets. However, there was no lifebuoy found in the vicinity of their location. They relied on their capsized vessel to keep afloat.

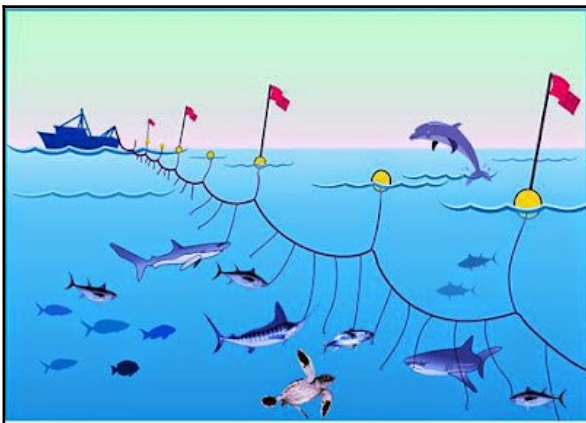


Figure 8: Illustration of a long line (image: Melek Perikanan, Brawijaya University, 2015)

The lights on board the fishing vessel, in general, is for fishing purposes only in which the colour is white. Navigational lights (green and red) are usually installed on each side. However, compared to the fishing lights, the navigational lights are difficult to be seen when the fishing lights are in operation due to the significant difference of the brightness. There was no compulsory for them to install any type of light with the same function as the aldis light.

3 PS equals 4,500 kilogram-metres per minute, which rounds to 32,550 foot-pounds per minute, or 0.9863 of a horsepower.

4 Revolutions per minute.



## NATIONAL TRANSPORTATION SAFETY COMMITTEE

*Cape Kallia and Kerinci Indah 02, Eastern Indian Ocean—Indonesia, 17 November 2020*

Therefore, those fishing lights are used as multifunction for searching as well. Based on the witness from the survivors, working lights (7 x 500 W) were still on as they had finished their works.

The *Kerinci Indah 02* had 18 long lines (called “blong” by local people) which the length each them approximately 30 m. Each line has many lines in which the lines connected to around 6 fish hooks. On the edge of each long line, there was a radio detection finder (RDF), which was installed on a buoy with light to help the fishermen in locating the long line. At the time of accident, *Kerinci Indah 02* had already completed catching and all long lines were pulled up on board the deck.

### **Technical Information of Bulk Carrier**

Whereas, *Cape Kallia* (IMO 9447160) is a Cypriot bulk carrier which was built in 2012 by Bohai Shipbuilding Heavy Industry Co. Ltd. In Huludao, China. She is classed into Nippon Kaiji Kyokai (NKK) and is registered in Port of Limassol. Her GT is 106,804, while her length is 293.05 m, her breadth is 49 m and her depth is 24.98 m. In the tropical water, her maximum draft is 18.754 m.



Figure 9: *Cape Kallia* whilst anchoring in Lombok waters (image: KNKT)

She is equipped GMDSS A1, A2, A3, SSAS. She also has navigation equipment, specifically GYRO and magnetic compass, ECDIS, GPS, X-Radar, S-Radar, ARPA, AIS, VDR, LRIT, as well as BNWAS. The X-Radar was connected to the VDR at the time of the accident.

Her main engine of Dalian 6RT-flex 68D (2 stroke single acting, 6 cylinders) is able to deliver a maximum output power of 18,780 kW from her single screw propeller. Her estimated service speed is 15.6 knots. She is

equipped with 4x auxiliary engines and all of them are able produce a total power of 3,664 kW.

Transmed Maritime, Ltd. is registered as both ISM and commercial Manager, while Atlantic Galaxy Marine, Ltd., is listed as registered owner of *Cape Kallia*. The company has complied the ISM Code proven by the SMC and DOC certificates. Also, there was no issue in terms of the classification certificates.

### **Weather**

At the time of accident, there was fine and clear. The night visual was clear. The sea state was swell with the height of 2.0

—2.5 m towards south-south-west. The sea current data recorded on RADAR was moving towards

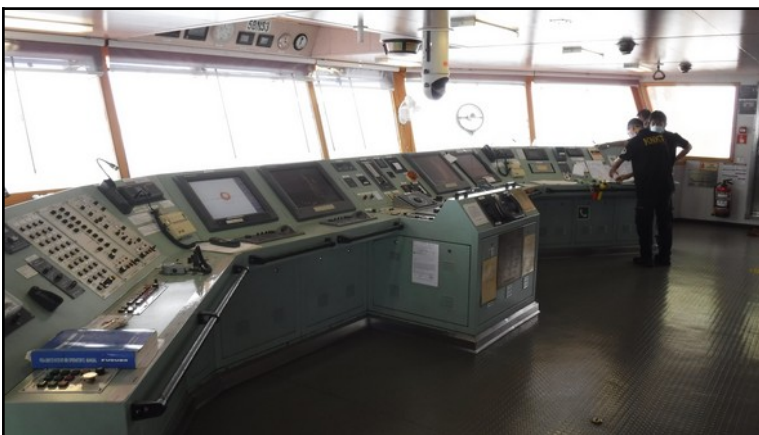


Figure 10: The bridge of *Cape Kallia* (image: KNKT)

south-west with the strength of 2.8 knots. Whereas, the wind flew from east with the Beaufort force category of light breeze (4–5).

### ***Crew Members of Both Vessels***

At the time of accident, there were 11 crew members on board the *Kerinci Indah 02*, including the Master. All of them were Indonesian. Based on interview with some survivors, the Skipper held certificate of proficiency, named ANKAPIN III, since 2001. He had an experience as skipper for seven years. Meanwhile, the Helmsman had no certificate at all. The accident was his first sailing experience working on board a fishing vessel. The Helmsman was one of the missing fishermen.

Whereas, there were 9 officers on the bulk carrier. In total, they were 22 crew members on board the *Cape Kallia*, including the Master. Master had a long experience in various types of ships. Most of the crew members are Filipinos and only one Ukrainian crew. All of them were on their first contract several days ago. It was their first sailing after long postpone in the pandemic period.

Most of them acknowledged their successful experience in dealing with fishing vessels in China waters where fishermen always give way to the bigger vessels. They had no experience in crossing with fishing vessel in Indonesian waters.

### ***Navigational Procedures of Bulk Carrier***

The Transmed Maritime as both ISM and commercial Manager has set the Bridge Standing Orders (Refer to Navigating Procedures Manual) for the crew members of *Cape Kallia*. In regards to the sailing in the night and facing a fishing vessel, the officer on watch (OOW) has to be fully alert to navigational hazards or potential dangers the vessel is required to pass and to obey the COLREGs.

Specific to ECDIS operation, the procedure requires the OOW to inform the Master immediately when there is a doubt with the accuracy of the available data shown on the device. That procedure later had been detailed as Master's night orders dated 16 November 2020. One of those asked the OOW to call the Master if there is a doubt.

### ***Regulations of Fishing Vessel***

In terms of fishing vessel regulations, Indonesia splits them to two different entities, namely Ministry of Transport and Ministry of Marine Affairs and Fisheries. Minister of Transport regulates the navigational and communication equipment, while Minister of Marine Affairs and Fisheries regulates the training of fishermen as well as the equipment and activities of fishing vessels.

Referring to the regulations of Minister of Fisheries No. 58/PERMEN-KP/2020 on Capture Fisheries, the *Kerinci Indah 02* falls into non-small fishing vessel. Therefore, the owner of *Kerinci Indah 02* should hold two types of permit to operate the fishing vessel. The first permit is the fishing business license (SIUP) which lasts for thirty years. The second is the permit to catch the fish (SIPI). The SIPI last for one year only and is attached to each fishing vessel. The SIUP and SIPI for fishing vessels with GT between 10 and 30 are issued by the government of province.

## NATIONAL TRANSPORTATION SAFETY COMMITTEE

*Cape Kallia and Kerinci Indah 02, Eastern Indian Ocean—Indonesia, 17 November 2020*

Based on the regulations of government No. 8 year of 2000 on Seafarers, this set of regulations only apply on the mid-to-big vessels. One of the criteria is the gross tonnage of 35 and upwards. The regulations are already detailed by regulations of Minister of Transport No. 9 year of 2005 on Training and Certification of fishermen.

Crew members of a fishing vessel which match those criteria, are obliged to undertake three training. First, the professional training or to acquire a certificate of proficiency as a fisherman (ANKAPIN for deck fisherman; ATKAPIN for engine fisherman), either as the deck or engine fisherman. Each professional training comprises three level. Each level defines the authority and maximum range of fishing ground. For example, a holder of ANKAPIN II is not allowed to cross the Indonesian exclusive economic zone (EEZ), which is 200 NM from the shore.

Second, the functional training which acts as a bridge from a lower level to the higher one. For instance, a Master holds ANKAPIN Level II should undertake a functional training in order to obtain the ANKAPIN Level I.

Third, the skill training. There is a number of skill trainings that should be taken by fishermen to allow them work as professional fishermen, e.g. basic safety training, fire fighting, medical emergency first aid, RADAR, ARPA, survival craft, lookout, COLREGs and some others.

### **Indonesian Fishing Grounds**

In regards to the fishing area, currently there are 11 areas of fishing (WPPNRI) set by the Minister of Fisheries. The area where fishermen were in the accident was called WPPNRI 573.

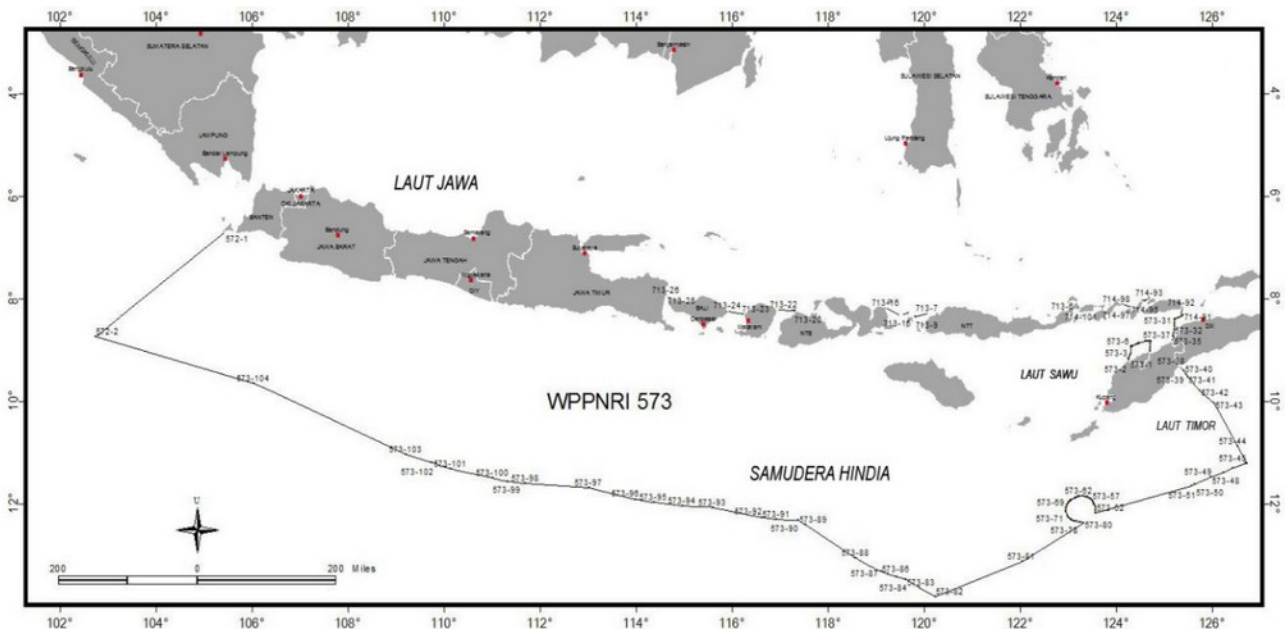


Figure 11: WPPNRI 573



## II. ANALYSIS

### *The Capsized of The Fishing Vessel*

There were two hypotheses spread up related to the capsized of the fishing vessel. First one was when the fishing vessel collided by the bulk carrier. The investigation team has analysed the witness from both vessels. None of the survivors declared a sound akin to the collision. Moreover, the crew members of bulk carrier also saw no typical debris when a collision occurred on a wooden vessel.

The path of *Cape Kallia* prior to the collision was straight as proven by the RADAR images stored on the VDR. In this circumstance, the port bow should have had collided the fishing vessel. As the position of the capsized fishing vessel was listed to its port side, the collision supposed to be between port side of *Cape Kallia* and starboard side of *Kerinci Indah 02*. However, this hypothesis was not strong enough to support due to some factors as follows.



Figure 12: The condition of both vessels after the occurrence

The photos of latest condition of fishing vessel taken by a crew of *Cape Kallia* shown that the condition of the *Kerinci Indah 02* was not broken, only capsized to port side. If it was a collision, the fishing vessel would have been broken up into some pieces. Also, if it was a contact between both hulls, there should be an exchange of paint. Nonetheless, there was no paint of *Kerinci Indah 02* found on *Cape Kallia*.

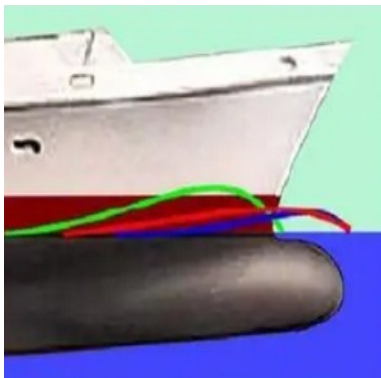


Figure 13: Illustration of impact of bow wave with and without bulbous bow

Another hypothesis was about the bow wave. The *Cape Kallia* has no bulbous bow. The impact on movement of non-bulbous bow vessel is a big wave created during her sailing (Bui, et. al. 2021). The bow wave created a greater resistance for the ship due to the pressure difference of water while vessel moves ahead in a certain speed.

In contrast, a vessel equipped with bulbous bow will have a relatively smaller bow wave. The bulbous bow works to break the bow wave before the wave comes to the hull. Without the bulbous bow, the brake wave along the hull will create a bigger wave as well as speed reduction.

## NATIONAL TRANSPORTATION SAFETY COMMITTEE

*Cape Kallia and Kerinci Indah 02, Eastern Indian Ocean—Indonesia, 17 November 2020*

Having looked at the dimension of the fishing vessel, *Kerinci Indah 02* has a low freeboard, approximately 100 cm. The bow wave from *Cape Kallia*, particularly on her port side, was highly likely forced the *Kerinci Indah 02* listed to the port side.

This hypothesis was confirmed by the angle shaped by both vessels. The trail of *Kerinci Indah 02* if extended forward would cross the heading direction line of *Cape Kallia* which had an angle around  $50^\circ$  (see Figure 14). At this situation, when the *Kerinci Indah 02* had already passed the bow of *Cape Kallia*, the fishing vessel would have had the impact of bow wave. This hypothesis was also supported by the witness of survivors which mentioned that the aldis light of bulk carrier shone the bow of long liner vessel. After that, as explained by the survivors, the bow wave hit the starboard of their vessel.

The listing of the *Kerinci Indah 02* to her port side, further, created another chain negative occurrences.

Right after this, the sea water filled up cargo spaces of vessel (such as cargo holds and steering room) began from her port side. Fish in a great number in cargo

holds which acted as a fluid also contributed to keep her tilting. When sea water filled the port side, stack of fish flew to the port side. Along the time, more sea water came fill in the spaces. Those conditions were likely made the *Kerinci Indah 02* capsized to her port side.

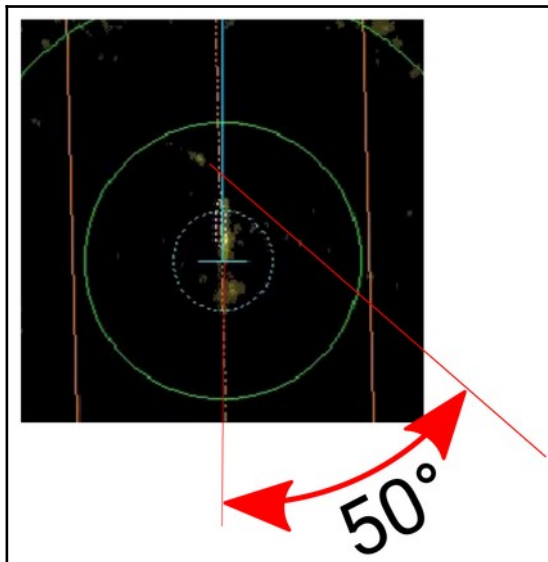


Figure 14: The angle between both vessels at 03.31 LT

### **Proper Lookout on The Bulk Carrier**

The OOW of *Cape Kallia* saw the unknown object, which later was known as *Kerinci Indah 02*, at around a half hour before the collision occurred. However, there was no AIS data broadcasted from the unknown object. Only a light which could be seen visually by the OOW. At this circumstance, there was a doubt whether it was a vessel or something else. They also did not know whether it was moving approaching them or in the same direction.

At this stage, the RADAR image did not show that the unknown object was marked as a target on the screen. Even though the unknown object has no AIS on board, the radar still could inform the Closest Point of Approach (CPA) and Time to Closest Point of Approach (TCPA). Those information are critical as the consideration in making a decision to prevent a collision. The first time the object appeared on RADAR screen as target was several minutes after the occurrences. Therefore, the OOW lost the substantial information in the ample time.

As per the Master's Night Order, the OOW were asked to inform the Master immediately when there is a doubt with the accuracy of the available data shown on the RADAR. Also, the Master asked them to follow the COLREGs.

Recognising an object in further was a good action took by the OOW in the beginning of appearance of the unknown object. This situation meant the fishing vessel should alter the direction, instead of the bulk carrier. However, the bulk carrier noticed that the fishing vessel kept

on her direction in an insufficient time. Referring to the Rule 8 COLREGs, when the give way vessel did not change the direction, the stand on vessel should take an immediate action to avoid collision. This action was also covered by the Rule 15 COLREGs which allows any action taken as long as the result is to avoid collision.



Figure 15: Timeline of Cape Kallia's position

Referring to the Rule 7 of COLREGs, when the OOW were not sure whether the unknown object was moving approaching them or stay (e.g. catching sea products) and whether the object was power driven or not, they should deem the worst possibility exists. By applying this worst case scenario, the OOW would make decision to take much wider gap whilst passing it, instead of relying the object to move away from its position/direction. Further, the Rule 5 of COLREGs also requires the OOW to apply all appropriate and significant action to the prevailing circumstances and conditions to determine if risk of collision exists or deemed exists.

There were two assumptions made up at the time. First, the OOW thought that the object in the port bow was a fishing vessel. Based on their experience, the fishing vessels always give way to the merchant vessel, regardless the direction or status (static or moving). Second, based on their understanding, the vessel in the port bow should give way to the Cape Kallia. Therefore, they thought the Cape Kallia should maintain its course. The RADAR images (see Figure

15) confirmed this situation that the bulk carrier maintained her course, despite the direction changed in an injury time.

Even though the Cape Kallia was the stand on vessel, Rule 17 of COLREGs stipulates the action when there is no significant action taken by the give way vessel. Based on the RADAR and VTS images, there was no obstacle in the surrounding of the Cape Kallia. Therefore, should the early action in altering the heading of Cape Kallia was taken to avoid the point of approaching between both vessels, the accident would be avoided. Equally important, the Rule 17 does not relieve the give way vessel of her obligation to keep out of the way.

Referring to the Rule 34 of COLREGs, when the situation becomes more danger, any action to avoid collision shall be taken in accordance with the Rules and made in ample time and with due regard to the observance of good seamanship. The OOW already did this by using the whistle and light signal, but the timing of doing these actions did not successfully attract the attention from the fishing vessel. On the other hand, the investigation team could not verify this explanation due to the VDR data given to the team was without the bridge and radio communication (audio data) and there was no CCTV record.

The incorrect assumption of the ability of the object was as a result of mental model from previous experience of the OOW. When they went to another waters, the fishermen understood the COLREGs regulations. Despite their number were many, the fishermen gave way to the vessel they working on. That successful experience then tried to apply to pass the unknown object. They

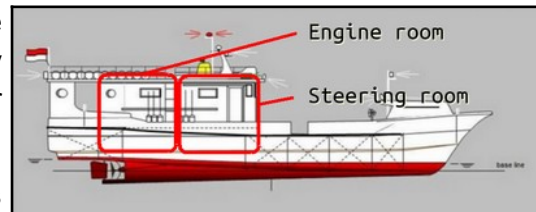
## NATIONAL TRANSPORTATION SAFETY COMMITTEE

*Cape Kallia and Kerinci Indah 02, Eastern Indian Ocean—Indonesia, 17 November 2020*

deemed that the object was fishing vessel and its crew understood as good as fishermen in the waters they met before. However, this mental model then led them to worse the situation when the distance of both vessels became closer.

### ***Proper Lookout on The Fishing Vessel***

On board the long liner vessel, the Helmsman played critical role. Nonetheless, the Helmsman of *Kerinci Indah 02* could not witness to the investigation team as he is one of the missing people. Based on the explanation from the survivors, he was the only fisherman awoke in the steering room at the time prior to the collision.



*Figure 16: An example layout of typical fishing vessel*

Based on the layout of engine and steering rooms was really poor. In the typical vessels, usually both rooms only separated by a few metres and most of them area located adjacent. The door used had no requirement to reduce the loud of engine noise. The very loud noise from both main and auxiliary engines made the Skipper unable to hear clearly the sound of the wave and whistle of vessel approaching.

The *Kerinci Indah 02* layout made them unable to check the situation on their starboard. The steering room did not allow any skipper to see the surrounding, unless the skipper had to leave his seat at the steering room. At the accident time, it was highly possible the Helmsman did not check the situation every 10 minutes as requested by the Skipper. Also, there was no other crew member assist him to look the surrounding. This phenomenon answered why the fishing vessel did not change its direction, even though light signals and whistle have been given to the fishing vessel. This was occurring until when the CE coincidentally saw a light on the starboard bow of fishing vessel.

Actually, the Helmsman could still see the forward from the steering room. However, the working lights which were still in operation (towards fore, starboard and port) made the shine from aldis light of *Cape Kallia* mostly probable could not be seen clearly. This was parallel with the witness from the CE that he saw the light on the hull, instead of on the deck.

Should the Helmsman did the order from the Skipper, he would know the situation early. Further, he would alter direction to allow a big gap with the big vessel or to call the Skipper about what to do appropriately. This prevention was highly possible to be done because there was no obstacles in the vicinity, such as islands or shallow waters.

The ability of proper looking by the Helmsman was hampered by the work load on board the long liner vessel. The Helmsman was highly experiencing the fatigue at the time prior to the collision. He had worked since midday, one day before. He was involved in managing the long lines until around 03.00 LT. After long line works were completed, the Skipper handed the authority and job to steer the vessel to the Helmsman (not the real skipper). The first experience working on board the long liner vessel to release the long lines, pull them up and to steer the vessel made most likely made him nervous to leave the steering room to focus in ensuring the direction of the vessel.



Indeed, the tiredness also made him reluctant to go back and forth to check the situation on the waters.

### **Regulations on The Fishing Vessel and Fishing Ground**

The poor lookout also has worsened by the too general regulations on the fisherman of small vessels. Most of the fishermen had no certificate of competency nowadays. The centralised training centres and high costs made them to be reluctant to undertake the formal training and to follow the guidance of a proper manning. This situation then shaped the common practice as their unwritten regulation, including how the proper lookout should be done.

This situation was really different than the fishermen in an overseas waters as experienced by the crew members of *Cape Kallia*. In that area, the fishermen always prioritise the merchant ships. Therefore, the fishing vessels always act as give way vessels, regardless the situation.

Also, the fishermen as told by Cape Kallie crew members had certain fishing ground and certain season. This unique activities then announced via circular which issued globally, especially for merchant ships visiting or passing the area.

Other than those differences, the fishermen in that particular location also had AIS on board. By this, the merchant vessels are able to notice the appearance of those fishing vessels.

Meanwhile in Indonesia, the application of regulations regarding equipment of fishing vessel was based on the size. In this case, the *Kerinci Indah 02* had no compulsory to equip the AIS. The lack of this device has brought several substantial issues related to the safety.

Although currently the Ministry of Fisheries has already the Vessel Monitoring System, this policy cannot touch the vessels which GT falls below 30. The system which relies strongly on the

performance of the AIS device is able to track the movement of fishing vessels wherever it goes, is expected to control the fishing activities and prevent illegal, unregulated and unreported (IUU).

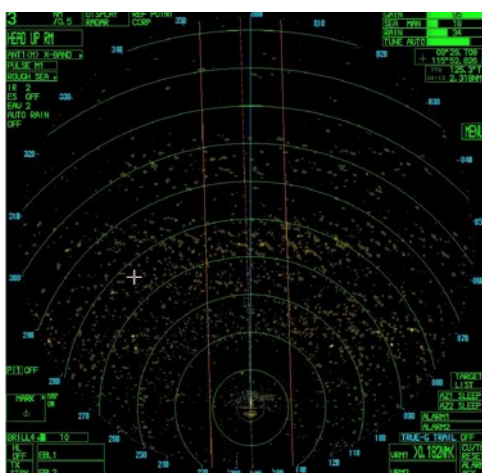


Figure 17: An example of difficulty in checking fishing vessel on RADAR

The absence of AIS on board the wooden fishing vessel means the vessel was hard to be spotted by RADAR. The other vessels in the night will need a time to ensure about something with the lighting on board. The Ministry of Fisheries actually had developed a lite version of AIS, named AIS Wakatobi. Although the capability has been reduced, but if it is installed on board a fishing vessel, the other vessels would be able to see the data transmitted by the lite AIS. This function would clearly enhance the safety with an affordable cost for the fishermen. However, the device has not come to the market until this report has been completed.

The wooden hull and structure made her difficult to be seen on the RADAR, sometimes it appears, sometimes it disappears. There was no regulation to install special metal part to reflect the RADAR

## NATIONAL TRANSPORTATION SAFETY COMMITTEE

*Cape Kallia and Kerinci Indah 02, Eastern Indian Ocean—Indonesia, 17 November 2020*

---

signal from big vessels, so that the fishing vessel could be seen easily. Therefore, there should be a policy to solve this issue.

Another issue, there was a difference on the radio used on board the fishing vessels and general vessels. The *Kerinci Indah 02* used the SSB radio, while usual vessels are using VHF radio. This discrepancy has not been solved for a long time. Therefore, regardless how many times they called each other, the fishing vessel will not be able to communicate with the merchant vessels.

The fishing grounds called WPPNRI are extremely huge. Although there are several zones on each WPPNRI, the overseeing is useless without any device akin to the AIS. The Indonesian Ministry of Fisheries has no ability to ensure the fishing vessels are working on the appropriate fishing ground. This circumstance has answered why the vessel below GT 30 like *Kerinci Indah 02* sailed around 60 NM from its base.

## III. SUMMARY

---

### **Findings**

- The officer on watch of *Cape Kallia* saw the fishing vessel at an ample time both visually and on RADAR.
- The seven working lights of *Kerinci Indah 02* were still in operation until the fishing vessel was capsized.
- The fishing vessel went to a fishing ground around 60 NM from its home port.
- The gross tonnage (GT) of the fishing vessel was less than 30.
- There was no obligation to equip location and data transmitters on board fishing vessels under GT 30.
- Both vessels did not take any action to prevent the occurrence.
- Only Helmsman was on duty in the steering room of the *Kerinci Indah 02* prior to the accident.
- Four fishermen were missing, while seven were evacuated by *Cape Kallia* safely.
- Helmsman had no certificates as skipper.
- Skipper had seven years experience as skipper on board the fishing vessel.
- The capsize of the fishing vessel was most likely due to the bow wave of the bulk carrier.
- The *Kerinci Indah 02* rolled heavily to the port before capsized.
- Most of the survivors donned life jacket, but there was no life raft.
- The occurrence was in the midnight.
- The Master of *Cape Kallia* was called after the situation went worse.



- There was no weather issue for the visibility or navigation.
- There are 11 fishing grounds in Indonesia without clear restrictions regarding the vessel's ability and size.
- The fishing vessels use SSB radio, but the used frequency was unknown.
- The VTSSs' roles to communicate with fishing vessels has not been established.

### ***Contributing Factors***

- The inappropriate mental model amongst the officer on watch of *Cape Kallia* regarding the habit of fishermen.
- The insufficient manning of *Kerinci Indah 02*.
- The fatigue on the skipper on duty of *Kerinci Indah 02*.

## **IV. RECOMMENDATION**

---

### ***Transmed Maritime, Ltd.***

1. To ensure the crew members treat an uncertain hazard as exists and to take precautionary actions in an ample time.

Regarding this recommendation, the Transmed Maritime, Ltd. has done the safety action by revising the navigation procedures, specifically at the Bridge Standing Orders and the Collision Avoidance.

**Status: Closed**

### ***Directorate General of Marine and Fisheries Resources Surveillance, Ministry of Marine Affairs and Fisheries***

1. To coordinate with the Directorate General of Sea Transportation, Minister of Transportation in in providing a transmitter of locator and vessel data with affordable conditions for most fishermen to support the Vessel Monitoring System (VMS) for fishing vessels under GT 30.

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

**Status: Open**

## NATIONAL TRANSPORTATION SAFETY COMMITTEE

*Cape Kallia and Kerinci Indah 02, Eastern Indian Ocean—Indonesia, 17 November 2020*

---

### ***Directorate General of Capture Fisheries, Ministry of Marine Affairs and Fisheries***

1. To revise the existing regulations on fishing ground with respect to the vessel's size and survivability.

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

**Status: Open**

### ***Human Resource Development Agency, Ministry of Marine Affairs and Fisheries***

1. To ensure the fishermen of small vessels are provided with sufficient pertinent trainings.

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

**Status: Open**

### ***Directorate General of Sea Transportation, Ministry of Transportation***

1. To revise the existing regulations on fishing vessels to include the small vessels as well, particularly regarding a transmitter of locator and vessel data as well as life saving equipment.

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

**Status: Open**

## V. SOURCES OF INFORMATION

---

Benoa Vessel Traffic Service.

Crew members of *Cape Kallia*.

Crew members of *Kerinci Indah 02*.

Management of Transmed Maritime, Ltd.

Directorate General of Capture Fisheries, Ministry of Marine Affairs and Fisheries.

## KOMITE NASIONAL KESELAMATAN TRANSPORTASI REPUBLIK INDONESIA

Jl. Medan Merdeka Timur No.5 Jakarta 10110 INDONESIA

Phone : (021) 351 7606 / 384 7601 Fax : (021) 351 7606 Call Center : 0812 12 655 155

website 1 : <http://knkt.dephub.go.id/webknkt/> website 2 : <http://knkt.dephub.go.id/knkt/>

email : [knkt@dephub.go.id](mailto:knkt@dephub.go.id)

ISBN  
BARCODE