

Report of investigation into the collision between the Hong Kong registered bulk carrier *Silver Phoenix* and Chinese fishing vessel *Zhe Sheng Yu 05885* in the approximate position of 30°48.977'N 123°57.823'E in the East China Sea at 2340 on 29 October 2014



The Hong Kong Special Administrative Region
Marine Department
Marine Accident Investigation Section

Purpose of Investigation

This incident is investigated in accordance with the Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (the Casualty Investigation Code) adopted by IMO Resolution MSC 255(84).

The purpose of this investigation conducted by the Marine Accident Investigation and Shipping Security Policy Branch (MAISSPB) of Marine Department, in pursuant to the Merchant Shipping Ordinance Cap. 281, the Merchant Shipping (Safety) Ordinance (Cap. 369), the Shipping and Port Control Ordinance (Cap. 313), or the Merchant Shipping (Local Vessels) Ordinance (Cap. 548), as appropriate, is to determine the circumstances and the causes of the incident with the aim of improving the safety of life at sea and avoiding similar incident in future.

The conclusions drawn in this report aim to identify the different factors contributing to the incident. They are not intended to apportion blame or liability to wards any particular organization or individual except so far as necessary to achieve the said purpose.

The MAISSPB has no involvement in any prosecution or disciplinary action that may be taken by the Marine Department resulting from this incident.

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1. Summary

- 1.1 On 26 October 2014, the Hong Kong registered bulk carrier *Silver Phoenix* (*the bulk carrier*) departed Guangzhou and bound for Yantai, China in ballast condition.
- 1.2 At about 0800 on 29 October 2014, the Chinese fishing vessel *Zhe Sheng Yu* 05885 (*the FV*) completed fishing and started the return voyage to Zhoushan from the fishing ground at the East China Sea.
- 1.3 At about 2320 on 29 October 2014, *the bulk carrier* was north bound and met with *the FV* which was west bound in the East China Sea. At about 2340, *the bulk carrier* collided with *the FV* in the approximate position of 30°48.977'N 123°57.823'E. As a result, *the FV* sank, 2 of the 15 crew members were rescued by other fishing vessel. The other 13 crew members including the master were missing. No oil pollution was reported.
- 1.4 The investigation revealed the following probable contributory factors:
 - a) *The bulk carrier* did not comply with the following rules of the International Regulations for Preventing Collisions at Sea (COLREG):
 - i) Rule 6 (safe speed), *the bulk carrier* proceeded at full speed at all times throughout the incident and she did not take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and condition:
 - ii) Rule 7 (risk of collision), *the bulk carrier* did not use all available means appropriate to the prevailing circumstances and condition to determine if risk of collision existed. If there was any doubt such risk should be deemed to exists; and
 - iii) Rule 16 (action by give-way vessel), being a give-way vessel in a crossing situation, *the bulk carrier* did not take early and substantial action to keep well clear of *the FV*.
 - b) The FV did not comply with the following rule of the COLREG;
 - i) Rule 17 (action by stand-on vessel) (c), *the FV* took action of altering course to port for a vessel (*the bulk carrier*) on her port side in the crossing situation.

2. Description of the Vessels

2.1 Name of the vessel : Silver Phoenix

Nationality : Hong Kong, China

Port of Registry : Hong Kong

IMO No. : 9363455

Call Sign : VRCA5

Ship Type : Bulk Carrier

Keel Laid : 2004

Gross Tonnage : 40489

Net Tonnage : 25884

Length (Overall) : 225.00 m

Breadth (moulded) : 32.26 m

Depth : 19.60 m

Main Engine & Power : HD-B&W 5S60MC, 8550 KW

Classification Society : American Bureau of Shipping (ABS)

Owner : Oceanlink Incorporation

Management company : Valles Steamship (Canada) Ltd.



Figure 1- Silver Phoenix

2.2 Name of the vessel : Zhe Sheng Yu 05885

Nationality : China

Port of Registry : Shengsi (嵊泗) ,Zhoushan, Zhejiang

Ship Type : Stow Net fishing Vessel

Year of Built (Delivery) : 2013

Gross Tonnage : 240

Net Tonnage : 84

Length (Overall) : 48.8 m

Breadth (moulded) : 6.8 m

Depth : 3.5 m

Designed draft : 2.75 m

Material of construction : steel

Main Engine & Power : R6160ZC, 255 KW

Owner : private owned



Figure 2- Zhe Sheng Yu 05885

3. Sources of Evidence

- 3.1 The management company of *Silver Phoenix*;
- 3.2 Maritime Safety Administration (MSA) Shanghai, the People's Republic of China.

4. Outline of Events

All the times are local (UTC+8).

Account of Silver Phoenix

- 4.1 On 26 October 2014, the Hong Kong registered bulk carrier *Silver Phoenix* (*the bulk carrier*) departed Guangzhou and bound for Yantai, China in ballast condition.
- 4.2 At 2000 on 29 October 2014, *the bulk carrier* was sailing in the East China Sea in the approximate position of 29°57.4'N 123°58.1'E. She was sailing at a speed of about 14 knots in the course of about 000°. The third officer who was the officer of the watch (OOW) and a seaman II (SII) were keeping navigation watch at the bridge. *The bulk carrier* was equipped with two radars which were on and maintained at 6 and 12 nautical miles (nm) range scale respectively.
- 4.3 At about 2300, the master went to the radio room, which was located at the back of the bridge, to send messages.
- At about 2320, one fishing vessel (*the FV*) appeared on the screen of a radar. She was on the starboard bow of *the bulk carrier* at a distance of about 6 nm. Her bright deck lightings were on and could be seen visually by the OOW and SII. Using auto-plotting of the radar, the OOW found that *the FV*, which was sailing in the course of about 220-224° and at a speed of about 8 knots, would pass the bow of *the bulk carrier* from starboard to port side. The Closest Point of Approach (CPA) of *the FV* was about 0.8 to 1 nm.
- 4.5 *The bulk carrier* maintained her course at full speed of about 14 knots, despite there were about 25 fishing vessels in the vicinity.
- 4.6 At about 2329, *the bulk carrier* was in the approximate position of 30°46.4'N 123°57.2'E, sailing in the course of 003°and at a speed of 14.4 knots.
- 4.7 At about 2333, *the bulk carrier* was in the approximate position of 30°47.3'N 123°57.3'E, sailing in the course of 011° and at a speed of 14.5 knots.
- 4.8 At about 2339, the OOW found that *the FV* was altering course to port leading to a risk of collision. He took the wheel himself and altered the course to starboard by hand steering. He steered 5° to 10° helm and later increased to about 25° helm. When *the FV* was 5° to 10° on the port bow and at a distance of about 40 to 50 metres away from *the bulk carrier*, he called the master from the radio room to the bridge.

- 4.9 The master rushed to the bridge and found *the bulk carrier* turning quickly to starboard. Soon afterwards, he understood that the OOW was turning *the bulk carrier* to starboard to avoid collision with a fishing vessel. The master then asked the OOW to hand over the wheel to the SII and to check if the fishing vessel was clear from own ship.
- 4.10 According to the SII, when he was at the bridge wing he saw *the FV* abreast of No.3 cargo hold. The distance between the two vessels was about 40 to 50 metres. After that, *the FV* passed parallel to the shipside of *the bulk carrier* at a distance of about 20-25 metres while *the bulk carrier* was turning to starboard. Once *the FV* passed the stern, he came back to the wheelhouse to take over the wheel from the OOW.
- 4.11 At about 2342, after the OOW returned from the port bridge wing, he reported that *the FV* was about 200 metres at stern. The master ordered the SII to steady the course and continued the passage to her destination.

Account of Zhe Sheng Yu 05885

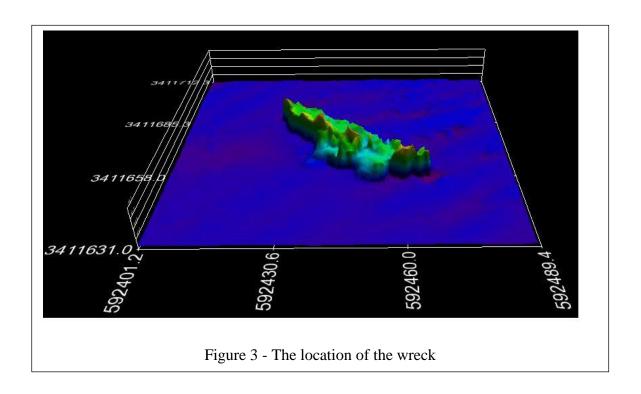
- 4.12 At 1430 on 15 October 2014, the Chinese registered fishing vessel *Zhe Sheng Yu* 05885 (the FV) departed from her home port at Shengsi, Zhoushan and bound for the fishing ground in the East China Sea for fishing. There were 15 crew members on board including one master, one chief engineer, one first engineer and 12 ordinary seamen. She arrived at the fishing ground in the afternoon on 16 October 2014 and commenced fishing operations.
- 4.13 At about 0800 on 29 October 2014, *the FV* completed fishing operations. She was fully loaded and started the return voyage. She maintained a course of 220° to 240°.
- 4.14 At about 2326 on 29 October 2014, *the FV* was in the approximate position of 30°50.7'N 123°59.5'E, sailing in a course of 246° and at a speed of 10.1 knots.
- 4.15 At about 2337 on 29 October 2014, *the FV* was in the approximate position of 30°49.7'N 123°57.9'E, sailing in a course of 182°and at a speed of 8.3 knots.
- 4.16 At about 2340 on 29 October 2014, *the FV* collided with a cargo vessel. The crew members heard a loud sound and found sea water rushing into the crew accommodation from the damaged hull. Two ordinary seamen were flushed out to the sea and they at last managed to grab a floating buoy. They could see a cargo ship leaving the scene and *the FV* sank in a few minutes.

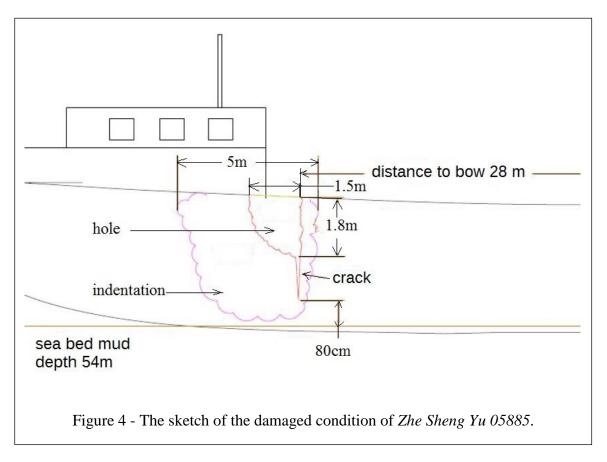
Search and rescue (SAR) operation

- 4.17 At about 0700 on 30 October 2014, the two ordinary seamen of *the FV* were rescued by a nearby fishing vessel.
- 4.18 At 0805 on 30 October 2014, the collision was reported to the Maritime Rescue Coordination Centre (MRCC) Shanghai via the Zhejiang Shengsi Fisheries Bureau. Then the search and rescue (SAR) operation was immediately launched and coordinated by the MRCC Shanghai.
- 4.19 A number of vessels were involved in the SAR operations, including the rescue vessels from the China Maritime Safety Administration (MSA) and the East China Sea Rescue Bureau, merchant ships, fishing vessels, vessels from fisheries Bureau and Navy ships in the vicinity.
- 4.20 At about 1100 on 4 November 2014, the SAR operation was stopped and no survivor was found. 13 out of 15 crew members of *the FV* were missing.

Detecting and identification of *Zhe Sheng Yu 05885*

- 4.21 After the SAR operation, *Hai Xun 166* from MSA detected a wreck in the approximate position of 30°49.338'N 123°57.972'E which lied on the seabed in a depth of water of about 53 metres. Its dimension was about 46 metres in length, 10 metres in breadth and 9 metres in height (figure 3).
- 4.22 On 5 November 2014, *Ju Li Hao* from Shanghai Salvage Bureau was assigned to conduct underwater survey and took video recording of the wreck. The divers confirmed that the wreck was *the FV*. She sustained damage with a hole, cracks and indentations on the starboard side hull as shown in figure 4.





5. Analysis

Certificate and experience of personnel

Silver Phoenix

- 5.1 Silver Phoenix (the bulk carrier) was registered in Hong Kong and classed by the American Bureau of Shipping. All statutory and classification certificates were valid at the time of the incident.
- The master held a Certificates of Competency (COC) as a master issued by the Government of India and valid until 31 December 2016. He started his seafarer career in year 1996 and was promoted to the capacity as a master of ship in 2008. He joined *the bulk carrier* on 10 October 2014 and had, at the time of the accident, submitted the application for a Hong Kong licence for him to serve on board Hong Kong registered ship.
- 5.3 The third officer held a COC as a third officer issued by the Government of India and valid until 31 December 2016. He also held a Hong Kong licence issued by Hong Kong Marine Department on 17 July 2014 for him to serve on board Hong Kong registered ship. Since 3 July 2014 he had joined *the bulk carrier* and carried out bridge watch keeping duty together with a senior third officer. Until 26 October 2014, he started to work independently as a third officer. He was fresh to conduct navigation watch individually under heavy marine traffic situation.

Zhe Sheng Yu 05885

- 5.4 Zhe Sheng Yu 05885 (the FV) was registered in Shengsi, Zhoushan, Zhejiang, China. The Certificate of Tonnage, Certificate of Nationality and Certificate of Safety of the fishing vessel were all valid at time of the incident.
- 5.5 There were 15 crewmembers on board including one master, one chief engineer, one first engineer and 12 ordinary seamen. After the accident, only two ordinary seamen were rescued and the other 13 persons including the master, who was the owner of *the FV*, were missing.

The evidence of collision

5.6 The recorder of Bei Dou Navigation Satellite System (BDS) indicated that the ship's station of *the FV* stopped transmission at 23 hours 37 minutes 17 seconds on 29 October 2014. According to the BDS recorder, the ship's status of *the FV* before the collision were as follows:

time	Course(°)	Speed(kts)	latitude	longitude
23:20:28	246	9.9	30°51.182'N	124°00.457'E
23:23:29	232	9.7	30°50.972'N	123°59.935'E
23:26:29	246	10.1	30°50.696'N	123°59.477'E
23:29:17	230	9.7	30°50.450'N	123°59.027'E
23:32:17	232	9.5	30°50.164'N	123°58.582'E
23:35:17	240	9.7	30°49.874'N	123°58.142'E
23:36:25	226	9.3	30°49.773'N	123°57.972'E
23:37:17	182	8.3	30°49.652'N	123°57.943'E

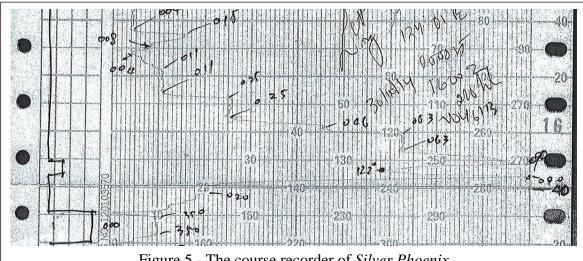
Table 1 status of Zhe Sheng Yu 05885 from the BDS recorder

5.7 According to the record of Electronic Chart Display & Information System (ECDIS) of *the bulk carrier*, her status before the collision were as follows:

time	Heading(°)	Course(°)	Speed(kts)	latitude	longitude
23:28:00	002.3	352.7	14.7	30°46.135'N	123°57.187'E
23:29:00	011.3	003.2	14.4	30°46.381'N	123°57.182'E
23:33:00	018	010.9	14.5	30°47.338'N	123°57.339'E
23:39:00	025.1	015	14.5	30°48.753'N	123°57.739'E
23:40:00	041.9	021.1	14.2	30°48.977'N	123°57.823'E
23:41:00	075.1	040.5	12.5	30°49.164'N	123°57.968'E

Table 2 status of Silver Phoenix from her ECDIS

5.8 It could be verified from the course recorder of the bulk carrier that her heading was largely altering to starboard from 020° at 2339 to 122° at 2347 on 29 October 2014 (figure 5).



- Figure 5 The course recorder of Silver Phoenix
- 5.9 The interval of the BDS station transmission of ship's status was in the range of one to three minutes. The FV sank in position 30°49.338'N 123°57.972'E, which was about 580 metres south of her last position where signal was transmitted at 2337. Therefore, it was deduced that the FV sank shortly after 2337 on 29 October 2014.
- 5.10 By chart plotting the ship's positions of both the FV and the bulk carrier, it was noted that the distance between the two ships at 2337 was about 1.3 nm (figure 6) and it should be further reduced to about 0.16 nm (296 metres) in 3 minutes (that was the next BDS station transmission at the maximum interval of three minutes after 2337). Considering the length of both ships, i.e. 225 metres and 48.8 metres respectively, it was deduced that Silver Phoenix took the collision avoidance action at 2339 on 29 October 2014 was to give way to Zhe Sheng Yu 05885.
- 5.11 After the bulk carrier arrived Yantai on 1 November 2014, an inspection of the ship's hull was carried out. It was found that, on the bulbous bow port side, there were some fresh scratch marks and a dent estimated of 1500 mm in length, 500 mm in width and 40mm in depth in way of the draft marks between 6.2 to 6.8 Some blue-gray color paint coating not originated from the bulk carrier was found on the shell plate while the original red color paint coating on the

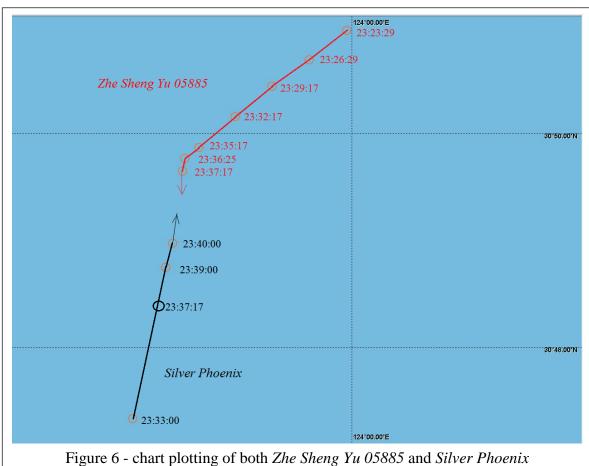




Figure 7- Silver Phoenix arrived Yantai

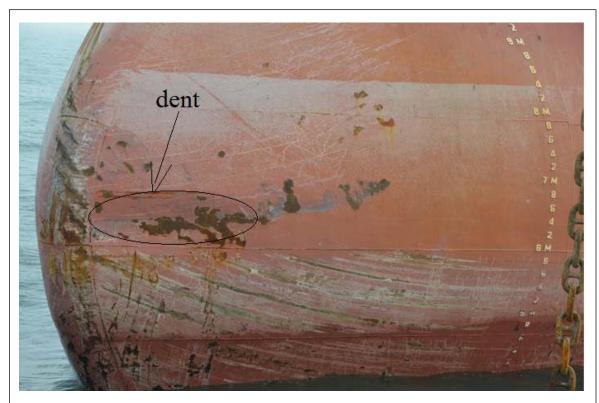


Figure 8- Bulbous bow of *Silver Phoenix* - a dent length 1500mm, width 500mm and depth 40mm

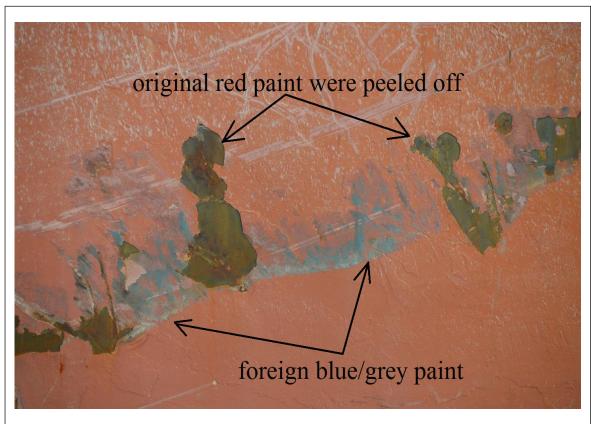


Figure 9- Bulbous bow of Silver Phoenix foreign blue-gray paint and its red paint

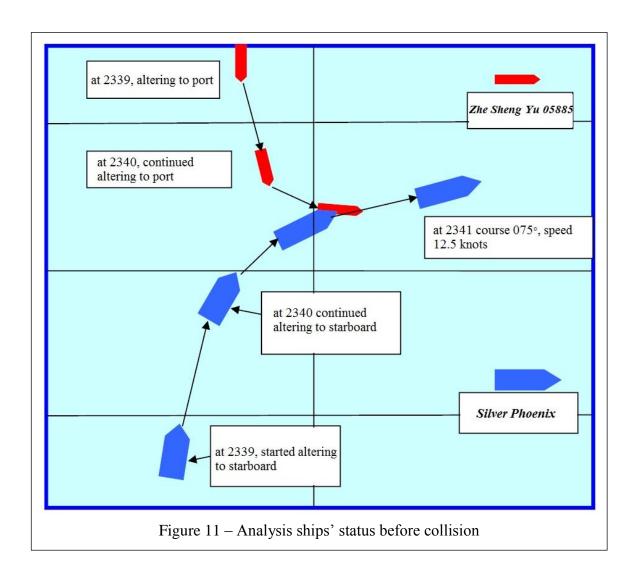
5.12 A sample of steel plate near to the edge of the hole on the damaged hull of the sunken *FV* was collected (Figure 10). There was some red color paint coating not originated from the fishing vessel could be seen on it.



Figure 10 - Sample of steel plate cut from hole of the sunk Zhe Sheng Yu 05885

- 5.13 Paint samples were taken from the bulbous bow of *the bulk carrier* and from the plate cut out from *the FV*. They were sent to the Evidence Identification Centre, Shanghai Municipal Bureau of Public Security for testing.
- 5.14 The said paint samples were examined by "SEM/EDX test Methods for SHXJ034-2009 Paint" a criminal legal norm category under Shanghai Municipal Bureau of Public Security; and by "GA/T823.2-2009 Test Methods for Paint Evidence-Part 2: Infrared spectroscopy" one of the Public Safety Industry Standards of the People's Republic of China.
- 5.15 It was found that the blue-gray color paint coating on the bulbous bow on the port side of *the bulk carrier* matched with the blue-gray color paint coating applied on the hull of *the FV* in terms of their color, texture and infrared spectra. They shared the major elements of Calcium, Titanium, Chlorine, Silicon, Sulphur, and Iron.

- 5.16 Besides, the red color paint coating taken from *the FV* matched with the red color paint coating applied on of the bulbous bow of *the bulk carrier* in terms of their color, texture and infrared spectra. They shared the major elements of Copper, Chlorine, Iron, Silicon, Titanium, Calcium, Magnesium and Sodium.
- 5.17 Taken all the above analysis into account, it was deduced that at about 2340 on 29 October 2014, while *the bulk carrier* altering to starboard, the port bow collided with the starboard side of *the FV* which was altering to port at the same time (Figure 11). The approximate position of the collision was 30°48.977'N 123°57.823'E.



Voyage Data Recorder (VDR)

5.18 At 1102 on 30 October 2014, the management company of *the bulk carrier* was informed the incident and requested the master of *the bulk carrier* to back up the VDR data. The USB flash disk capacity was 1.83G that could save data of 15 hours and 1 minute. However, the actual VDR data saved was from 0611 to 2112 on 31 October 2014, while the data of the incident time was overwritten. The VDR data was not properly saved on time by the master of *the bulk carrier* without reasonable explanation.

Actions taken of collision avoidance

- 5.19 According to the statement of the OOW of *the bulk carrier*, there were approximately 25 fishing vessels in the vicinity. One of the fishing vessels was 6 nm away with less CPA and caused his concerned later. However, the maximum sea speed of *the bulk carrier* was maintained throughout the event. Eventually *the bulk carrier* did not take proper and effective action to avoid collision. The OOW did not comply with Rule 6 (safe speed) of the COLREG.
- According to the record of ship's course, speed and position from BDS of *the FV* and ECDIS of *the bulk carrier*, it was noted through chart plotting (Figure 6) that the two vessels met in a crossing situation in which *the bulk carrier* was the give-way vessel while *the FV* was stand-on vessel. At about 2329, *the bulk carrier* steered a course 003° and her speed was 14.4 knots while *the FV* steered a course 230° and her speed was 9.7 knots. The distance of the two vessels was about 4.4 nm. By chart plotting, the CPA was about 0.44 nm and the time to the closest point of approach (TCPA) was 11.6 minutes.
- 5.21 At about 2333, *the bulk carrier's* course was 010.9° and her speed was 14.5 knots while *the FV* steered a course 232° and her speed was 9.5 knots. The distance of the two vessels was about 2.9 nm. By chart plotting, the CPA was about 0.40 nm and TCPA was 7.9 minutes.
- 5.22 Before the collision, the OOW of *the bulk carrier* observed visually and by radar that *the FV* would pass the bow from starboard to port side. However, a small CPA may cause doubt to *the FV*. The OOW simply deemed that there was no risk of collision and did not take positive action to increase the CPA. At 2336, *the FV* solely took action of altering course to port. At 2339, about one minute before the collision, the OOW of *the bulk carrier* just noticed the action of *the FV* and the risk of collision. Therefore the OOW of *the bulk carrier* failed to comply with the Rule 7 (risk of collision) of the COLREG. He did not use all

- available means appropriate to the prevailing circumstances and condition to determine if risk of collision existed. If there was any doubt such risk should be deemed to exists.
- 5.23 Being a give-way vessel, *the bulk carrier* did not take early and substantial action to keep well clear of *the FV*. Until at about 2339, when the distance of the two vessels was about 0.24 nm (450 metres), the OOW of *the bulk carrier* started to alter course to starboard. He failed to comply with Rule 16 (action by give-way vessel) of the COLREG.
- 5.24 The duty officer of *the FV* was missing in the incident. However, the record of BDS indicated that he took action of altering course to port for a vessel on his port side in a crossing situation. He failed to comply with Rule 17 (action by stand-on vessel) (c) of the COLREG.

Action taken after the collision

5.25 The master of *the bulk carrier* did not make an adequate assessment on the situations and the condition of *the FV* after the collision. He failed to know the occurrence of the collision and was unable to render immediate assistance to rescue the crew members of *the FV*.

Weather condition

5.26 At the time of the accident, the sky was overcast. The wind was easterly force 5 to 6 on Beaufort scale and the wave height was about 1.5 to 2 metres. The visibility was about 8 nm. The weather condition was not considered to have any bearing on the occurrence of the accident.

6. Conclusions

- 6.1 On 26 October 2014, the Hong Kong registered bulk carrier *Silver Phoenix* (*the bulk carrier*) departed Guangzhou and bound for Yantai, China in ballast condition.
- 6.2 At about 0800 on 29 October 2014, the Chinese fishing vessel *Zhe Sheng Yu* 05885 (the FV) completed fishing operation and started the return voyage to Zhoushan from fishing ground in the East China Sea.
- At about 2320 on 29 October 2014, *the bulk carrier* was north bound and met with *the FV* which was west bound in the East China Sea. At about 2340, *the bulk carrier* collided with *the FV* in the approximate position of 30°48.977'N 123°57.823'E. As a result, *the FV* sank, 2 of the 15 crew members were rescued by other fishing vessel. The other 13 crew members including the master were missing. No oil pollution was reported.
- 6.4 The investigation revealed the following probable contributory factors:
 - a) The bulk carrier did not comply with the following rules of the COLREG:
 - i) Rule 6 (safe speed), *the bulk carrier* proceeded at full speed at all times throughout the incident and she did not take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and condition;
 - ii) Rule 7 (risk of collision), *the bulk carrier* did not use all available means appropriate to the prevailing circumstances and condition to determine if risk of collision existed. If there was any doubt such risk should be deemed to exists; and
 - iii) Rule 16 (action by give-way vessel), being a give-way vessel in a crossing situation, *the bulk carrier* did not take early and substantial action to keep well clear of *the FV*.
 - b) The FV did not comply with the following rules of the COLREG;
 - i) Rule 17 (action by stand-on vessel) (c), *the FV* took action of altering course to port for a vessel (*the bulk carrier*) on her port side in the crossing situation.
- 6.5 The investigation reveals the safety factors as follows: -

- a) in a considerable heavy traffic situation at night, no adequate guidance or supervision had been provided to the officer of the watch on board *the bulk carrier*, who had not enough experience; and
- b) the master of *the bulk carrier* did not make an adequate assessment on the situations and the condition of *the F/V* after the collision.

7. Recommendations

- 7.1 The management company of *Silver Phoenix* should issue a safety circular informing all masters and officers of the findings of this accident investigation. Particular attentions should be borne in mind as the following:
 - a) Strictly comply with the COLREG at all times, in particular, Rule 6 (safe speed), Rule 7 (risk of collision) and 16 (action by give-way vessel);
 - b) Ensure sufficient bridge resource appropriate to the prevailing circumstances and conditions for safe navigation; and
 - c) Ensure the proper response to the accident and emergency situation involving the vessel.
- 7.2 The Ministry of Agriculture Fisheries Bureau, the People's Republic of China, should be advised of the findings of this accident, to take appropriate action as deemed necessary.

8. Submissions

- 8.1 In the event that the conduct of any person or organization is criticized in an accident investigation report, it is the policy of the Marine Department that a copy of the draft report should be given to that person or organization so that they can have an opportunity to express their comments on the report or offer evidence not previously available to the investigating officer.
- 8.2 Copies of the draft report have been sent to the following parties for comments:
 - a) The management company, the master and third officer of *Silver Phoenix*.
 - b) The two survivors of *Zhe Sheng Yu 05885*, via Maritime Safety Administration, Shanghai.
 - c) The Shipping Division of Hong Kong Marine Department.
 - d) The Ministry of Agriculture Fisheries Bureau, the People's Republic of China.
 - e) Maritime Safety Administration, the People's Republic of China.
- 8.3 Submissions were received from the management company of *Silver Phoenix* and the Maritime Safety Administration, Shanghai. The report was amended as appropriate according to the submissions.