Report of investigation into the man overboard accident on the Hong Kong registered bulk carrier *"SUNNY HORIZON"* in position 21°29.8'N 123°17.0'E on 11 August 2017

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

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Purpose of Investigation

The purpose of this investigation conducted by the Marine Accident Investigation and Shipping Security Policy Branch (MAISSPB) of Marine Department is to determine the circumstances and the causes of the incident with the aim of enhancing the safety of life at sea and avoiding similar incidents in future.

It is not intended to apportion blame or liability towards 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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Summary

At about 1505 hours on 11 August 2017, an accident of man overboard happened on board the Hong Kong registered bulk carrier "*SUNNY HORIZON*" (*the vessel*) during her voyage from Ningde, China to Surigao, the Philippines. The carpenter fell into the sea and disappeared afterwards at about 140 nautical miles east of Taiwan (21°29.8'N 123°17.0'E).

Upon completion of cargo cleansing for No. 2 cargo hold (No. 2 Hold), an able bodied seaman (the AB) and an ordinary seaman (the OS) assisted in closing hatch covers. At the same time, the bosun operated No. 2 crane to place the crane hook back to its designated stowage position. To assist the operation of the bosun, the carpenter held a rope tied to the crane hook of the crane and stood by the shipside handrail on the port main deck. The crane hook swung heavily due to rolling of *the vessel* and the carpenter tried to stop the hook swinging by fastening the rope to the handrail nearby. However, the carpenter was tangled with the rope which pulled him overboard. Search and rescue operation lasted for 53 hours and the carpenter still went missing. *The vessel* continued her voyage to the Philippines afterwards.

The investigation revealed that heavy swinging of the crane hook caused by the rolling of *the vessel* was the main contributory factor to the accident. The investigation also identified that the carpenter was probably a lack of situation awareness and failed to keep his body clear from the rope. The investigation also revealed that the lifting operation carried out on open deck under bad weather condition had not been properly considered and planned in advance.

1. Description of the vessel

Ship name	:	*SUNNY HORIZON*
Flag		Hong Kong, China
Port of registry	:	Hong Kong
IMO number	:	9597379
Type	:	Bulk Carrier
Year built, shipyard	:	2011, Xiamen Shipbuilding Industry Co., Ltd., China.
Gross tonnage	:	32,987
Net tonnage	:	19,225
Summer deadweight	:	56,686.2 tonnes
Length overall	:	189.99 metres
Breadth	:	32.26 metres
Engine power, type	:	9,480 kW, MAN B&W 6S50MC-C7
Classification society	:	RINA Services S.P.A.
Registered owner	:	CM Trans Copious Shipping Company Limited
Management company	:	MSI Ship Management (Qingdao) Co., Ltd.

Figure 1 *The vessel*

2. Sources of evidence

2.1 Information provided by the master, the crew and the ship management company of *the vessel*.

3. Outline of events

(All times were local time UTC + 7 hours)

3.1 On 10 August 2017, *the vessel* departed from Ningde, China and bounded for loading port Surigao, the Philippines. After departure, some deck crew had to carry out cargo hold cleansing to prepare for loading at next port.

3.2 After lunch break on 11 August 2017, the cleansing work for No. 2 Hold resumed at 1230 hours. The bosun operated No. 2 crane inside the crane control room to lift up cargo residue in No. 2 Hold to the port main deck. In order to prevent the crane hook from swinging, a rope was tied to the crane hook. The carpenter who stood on the port main deck was holding the rope during the lifting operation. The AB and the OS were also on the deck to handle the cargo residue on the port main deck.

3.3 At about 1420 hours, the lifting operation was suspended due to heavy rolling of *the vessel,* which caused the crane hook to swing heavily. The bosun then requested the watchkeeping officer (i.e. the second officer) on the bridge to adjust the ship's heading to reduce rolling. *The vessel*'s heading was then adjusted from 165° to 190°. The lifting operation resumed at 1433 hours when *the vessel*'s rolling was reduced.

3.4 After cleansing No. 2 Hold at 1500 hours, the OS went to start the hatch cover hydraulic pump and the AB was prepared to close the hatch cover. Meanwhile, the bosun operated the crane to place the crane hook back to its designated stowage position while the carpenter who stood next to shipside handrail on the port main deck forward of No. 2 Hold assisted the operation by holding the rope.

3.5 *The vessel* began to roll moderately again, causing the crane hook to swing heavily. The bosun stopped the crane and shouted to the carpenter to warn him to hold the rope firmly as well as to keep his position safely. However, the carpenter was not aware of the bosun's warning and tried to fasten the rope to the nearby shipside handrail. Before the rope was fastened to the shipside handrail, the heavy swinging of the crane hook caused the rope to entangle the carpenter and the carpenter was pulled overboard (Figure 2). The AB heard the bosun's yell and ran to catch the carpenter but in vain.

The carpenter eventually fell into the sea.

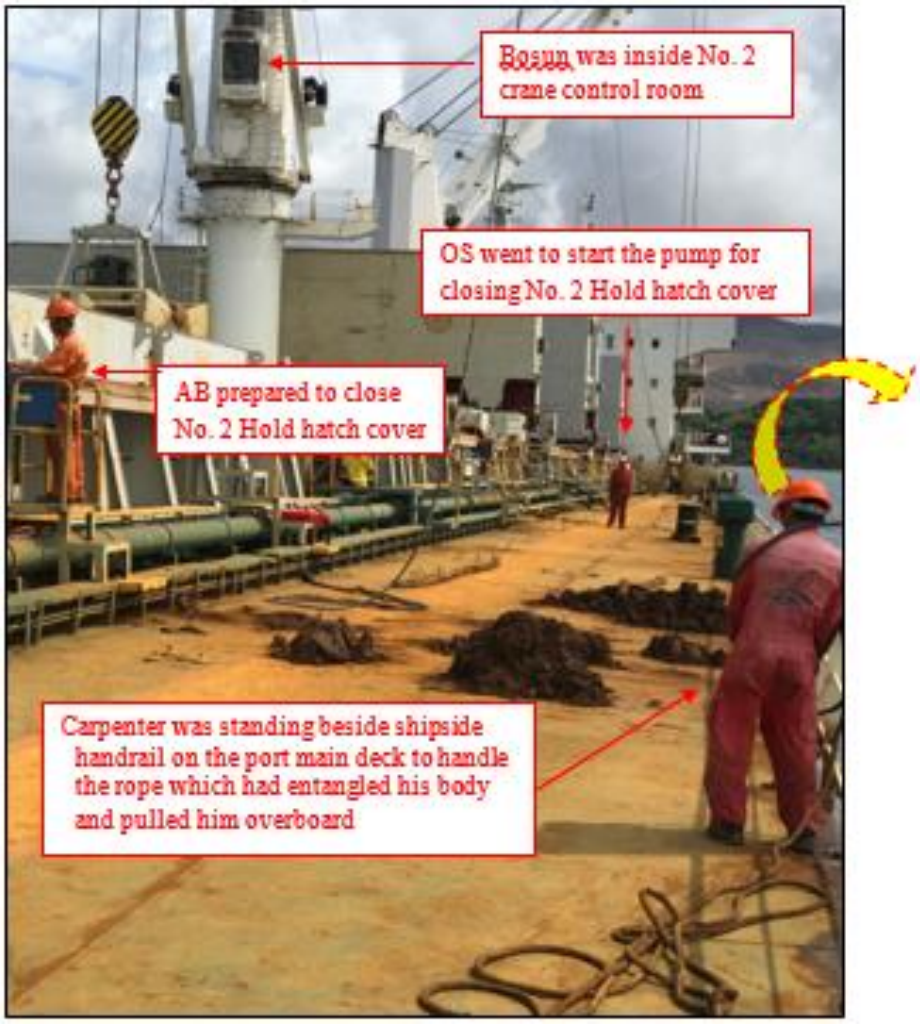

Figure 2 – Reconstruction diagram showing the locations of the deck crew and the carpenter entangled by the rope

3.6 The bosun immediately informed the second officer on the bridge by walkie-talkie about the overboard of the carpenter. Meanwhile, the third officer working on port quarter main deck threw a lifebuoy overboard to the carpenter. However, the carpenter could not catch the lifebuoy. After receiving the report of man overboard from the bosun at 1505 hours, the master came to the bridge and sounded an alarm to muster all crew to carry out search and rescue operation. The second officer marked the man overboard position (21°29.8'N, 123°17.0'E) on the Electronic Chart Display and Information System. However, the carpenter could not be located when *the vessel* returned to that position.

3.7 At about 1540 hours, *the vessel* sent out a distress alarm and contacted the nearby Naha Rescue Control Centre (RCC) in Japan. At about 1740 hours, Naha RCC dispatched an aircraft to the scene to assist in searching the carpenter. The aircraft suspended the search and left the scene at about 1840 hours due to darkness. *The vessel* continued the search and rescue operation (SAR) throughout the night. An aircraft and a search vessel of Naha RCC returned to the scene for searching the carpenter on 12 and 13 August 2017. After searching for more than 53 hours, the master and Naha RCC decided to stop the SAR at 2100 hours on 13 August 2017. *The vessel* continued her voyage to the Philippines.

4. Analysis

Manning of *the vessel*

4.1 *The vessel* was manned by 23 Chinese crew, including the master. The manning scale complied with the Minimum Safe Manning Certificate.

4.2 The master had served as a shipmaster for about 21 months. He possessed a Class 1 Licence (Deck Officer) issued by the Hong Kong Marine Department (HKMD) on 16 June 2016. He signed on *the vessel* as a master at Ningde i.e. only a few days before the accident happened.

4.3 The second officer had served as a second officer for about 15 months. He possessed a Class 3 Licence (Deck Officer) issued by HKMD on 2 June 2017. He signed on *the vessel* as a second officer about 4 months before the accident.

4.4 The third officer had served as a third officer for about 18 months. He possessed a Class 3 Licence (Deck Officer) issued by HKMD on 9 November 2015. He signed on *the vessel* as a second officer about 9 months before the accident.

4.5 The bosun had served as a bosun for about 29 months. He possessed a valid certificate of proficiency (CoP) issued by China as able seafarer deck on ships of 500 gross tonnage or more. He signed on *the vessel* as a bosun about 4 months before the accident.

4.6 The carpenter had served as a carpenter for about 31 months. He possessed a valid CoP issued by China as able seafarer deck on ships of 500 gross tonnage or more. He signed on *the vessel* as a carpenter about 4 months before the accident.

4.7 The AB had served as an able bodied seaman for about 16 months. He possessed a valid CoP issued by China as a rating forming part of a navigational watch on ships of 500 gross tonnage or more. He signed on *the vessel* as an AB about 4 months before the accident.

4.8 The OS had served as an ordinary sailor for about 3 months and he signed on *the vessel* as an OS about 3 months before the accident.

4.9 There were no abnormalities noted with regard to the certification and experience of the crew concerned.

Working hours and alcohol abuse

4.10 There was no evidence showing that any crew on board, including the carpenter, suffered from alcohol abuse or fatigue at work.

Weather and sea conditions

4.11 On the day of the accident, the weather was cloudy with a southwesterly strong breeze (Beaufort Wind Scale force 5-6) rough sea, moderate swell and a good visibility of 12 nautical miles. Under such weather conditions, *the vessel* was rolling and pitching moderately thus causing the crane hook to swing heavily. The weather and the sea conditions were considered to be the contributory factors to the accident.

The lifting operation (Figure 3)

4.12 Paragraph 19.11.6 of Chapter 19 "Lifting Plant and Operations" of the Code of Safe working Practices for Merchant Seafarers (the Code) [1] states that *"*Weather conditions can play a significant part in lifting operations. High winds or wave action may cause suspended loads to swing dangerously or mobile equipment to topple. Consideration should be given to the effects of weather conditions on all lifting operations, whether inside the ship or outside on deck, and such operations should be suspended before conditions deteriorate to the extent that lifting becomes dangerous.". The Code also states that all lifting operations must be properly planned after risk assessment and the operation must be appropriately supervised and carried out to protect the crew.

4.13 In this accident, the deck crew did not adhere to the above guideline. Although the lifting operation was suspended for a short while due to heavy rolling of *the vessel*, the bosun considered the condition suitable for resuming the operation after the adjustment of the ship's heading. It appeared that proper consideration or planning had not been made in advance by conducting an appropriate risk assessment for the lifting operation under *the vessel*'s rolling condition.

[1] In accordance with Section 4 of Cap. 478M "Merchant Shipping (Seafarers) (Code of Safe Working Practices) Regulation", Hong Kong registered vessels are required to carry the "Code of Safe working Practices for Merchant Seafarers".

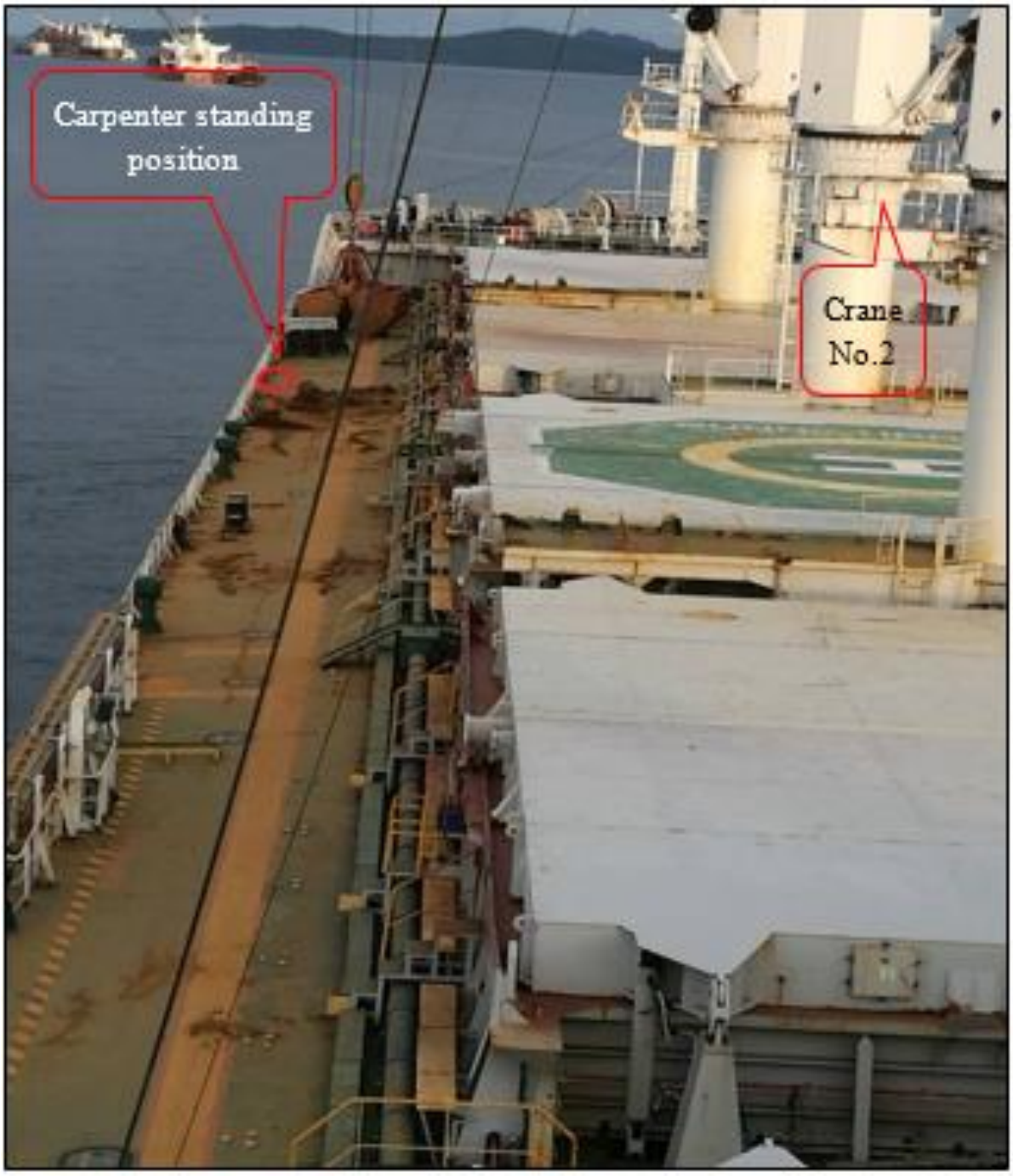

Figure 3 – Overview of the port main deck of No.2 cargo hold

Situation awareness

4.14 The situation awareness of the carpenter was probably inadequate by not keeping his body clear from the rope. He might have underestimated the risk that he himself could be entangled with the rope due to *the vessel*'s rolling and pitching movements.

Action taken by the ship management company after the accident

4.15 The company promulgated the accident to their fleet for lessons learnt, and enhanced the vessels' safety by requiring all critical operations and high risk jobs to be monitored and continuous supervised by dedicated persons. Furthermore, risk assessment should be conducted with consultation of senior deck officer. Masters were also instructed to carry out additional training to improve crew's safe working practice/situational awareness and to remind them to follow safe working procedures.

5. Conclusions

5.1 At about 1505 hours on 11 August 2017, an accident of man overboard happened on board the Hong Kong registered bulk carrier "*SUNNY HORIZON*" (*the vessel*) during her voyage from Ningde, China to Surigao, the Philippines.

5.2 When the carpenter was assisting to place No. 2 crane hook back to its designated stowage position on the port main deck, he was accidently tangled with the rope attached to the crane hook. Subsequently, he was pulled overboard and fell into the sea at about 140 nautical miles east of Taiwan (21°29.8'N 123°17.0'E). After 53 hours of search and rescue operation, the carpenter still went missing.

5.3 The investigation into the accident found that:

(i) heavy swinging of the crane hook caused by the rolling and pitching of *the vessel* in rough sea was the main contributory factor to the accident;

(ii) the carpenter was probably lack of situation awareness and failed to keep his body clear from the rope; and

(iii) the lifting operation in bad weather was not properly considered and planned in advance.

6. Recommendation

6.1 After the accident, the ship management company of *the vessel* had circulated the accident with lessons learnt to their fleet. Enhanced training was provided to their crew for following up the lifting operation procedures as stipulated in the Code. Apart from the actions that had been taken as stated in paragraph 4.15, the ship management company is recommended to review the onboard procedures/guidelines taking the following aspect into considerations:

- under adverse weather, any lifting operation should be avoided. If the lifting operation is unavoidable, a full risk assessment should be conducted before the operation. The risk assessment should include the factors such as the weather and sea conditions, measures of downgrading the risk level of the lifting operation and measures to be taken to avoid dangerous swinging of the crane hook and/or the lifting object.

7. Submission

7.1 The draft investigation report had been sent to the following parties for their comments:

(i) the ship management company and the master of *the vessel*; and
(ii) the Ship Safety Branch of HKMD.

7.2 Cargo Ship Safety Section, Safety Ship Branch of HKMD replied that it had no comments. At the end of the consultation period, no comment was received from the ship management company or the master of *the vessel*.