Report of investigation into the man overboard accident on board the Hong Kong registered bulk carrier "*King Loong*" at Malacca Strait on 20 August 2020

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 Branch (MAIB) 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 MAIB 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

On 20 August 2020, the Hong Kong registered bulk carrier "King Loong" (*the vessel*) departed Port Dickson, Malaysia, and proceeded to Malacca strait heading to loading port Paranagua, Brazil. While deck crew were restoring the starboard side accommodation ladder after the pilot disembarked at about 1418 hours, the accommodation ladder wire broke. The Bosun and his team, including a deck cadet, recovered the accommodation ladder and temporarily fixed the accommodation ladder by the side of the main deck.

After dinner at around 1740 hours, the deck crew and the deck cadet resumed wire renewal work for the accommodation ladder. The work was about to be completed at 1930 hours. At the final testing and fine adjustment stage, the deck cadet standing by the shipside suddenly fell overboard.

When the crew were aware that the deck cadet had fallen into the sea, they threw a lifebuoy into the sea and informed the bridge. Rescue boat and lifeboat were lowered successively for the search and rescue. Vessel Traffic Center ("VTC"), Maritime Rescue Coordination Center ("MRCC"), and the management company were informed. Ships in the vicinity were also alarmed to assist in the search. The search continued for the next two days, but the missing cadet was nowhere to be found.

The investigation revealed that the main contributory factors of the accident were the non-compliance of the shipside guard rails with the Load Lines Convention; and the failure to strictly follow the safety instructions in *the vessel*'s safety management system ("SMS").

The investigation also identified that *the vessel* did not manage to return to the location around the man overboard position as soon as possible for search and rescue in accordance with IAMSAR III manual[1]. It was also found that the "permit-to-work and safety checklist" of the SMS did not fully meet the relevant requirements of the Code of Safe Working Practices for Merchant Seafarers[2] ("COP").

[1] International Aeronautical and Maritime Search and Rescue Manual (IAMSAR) Volume III is required to be carried on board to help with the performance of search and rescue.

[2] Section 4 of Cap.478M "Merchant Shipping (Seafarers) (Code of Safe Working Practices) Regulation" refers.

1. Description of the vessel

Ship name	:	*King Loong* (Figure 1)
Flag	:	Hong Kong, China
Port of registry	:	Hong Kong
IMO number	:	9304124
Type	:	Bulk Carrier
Year built, shipyard	:	2006, Oshima shipbuilding Co., Ltd.
Gross tonnage	:	40,080
Net tonnage	:	25,909
Summer deadweight	:	77,430
Length overall	:	225.00 metres
Breadth	:	32.26 metres
Engine power, type	:	9,319 kW, MAN B&W 5S60MC-C
Classification society	:	Bureau Veritas
Registered owner	:	Shunshui Maritime Limited
Management company	:	Amoysailing Maritime Co., Ltd.

Figure 1 *The vessel*

2. Sources of evidence

2.1 Statements of the crew of *the vessel*.

2.2 Information provided by the management company of *the vessel*.

3. Outline of events

(All times were local time UTC + 8 hours.)

3.1 At 1400 hours on 20 August 2020, *the vessel* departed from Port Dickson, Malaysia, and proceeded in ballast condition to loading port Paranagua, Brazil, through the Malacca Strait. *The vessel* was scheduled to arrive in Brazil a month later.

3.2 After the pilot disembarked *the vessel* at 1418 hours, the crew commenced recovering the starboard side accommodation ladder (*the gangway*). On the way to recovery, *the gangway* wire suddenly parted and caused the lower platform of *the gangway* to drop into the water. The Bosun immediately informed the Master and Chief Officer (C/O) on the bridge. The Master attended on the bridge when the C/O went down to the main deck beside *the gangway* to supervise the work.

3.3 Prior to *the gangway* repair work at 1430 hours, a toolbox meeting to brief the repair crew of the relevant safety issues of working over shipside was held by the C/O. A permit for working over shipside and risk assessment report were then signed by the C/O as agreed by the Master.

3.4 The Bosun equipped himself with a lifejacket, safety harness and fall arrestor, and then walked over the shipside and down *the gangway.* The Bosun secured *the gangway* lower part with a rope. After the Bosun returned to the main deck, *the gangway* was lifted up by winches and chain blocks. At around 1700 hours, *the gangway* was tightly secured to the main deck. The crew then left for dinner.

3.5 At 1740 hours, after the crew had finished their dinner, they arrived at the main deck to renew *the gangway* wire. The repair crew included the Bosun, the Carpenter, two able seafarers (AB1 and AB2), and the deck cadet (*the cadet*). The C/O was on the bridge as a duty officer.

3.6 The Bosun and the Carpenter were both equipped with lifejackets, safety harnesses and fall arrestors. They were working on *the gangway* while the others were responsible for handing over tools and

wire materials.

3.7 At around 1930 hours, the C/O received a report from the repair crew that the *gangway* repair work was about to finish. At around 1943 hours, the Third Officer came on the bridge and prepared to take over the navigation watch from the C/O.

3.8 At around 1948 hours, the C/O was informed by the Bosun that *the cadet* had fallen overboard during fine adjustment of *the gangway* wire. The AB1 traced *the cadet* to the aft poop deck and threw a lifebuoy into the water. The C/O immediately informed the Master to attend to the bridge for making an emergency announcement. Ship crew were then mustered for searching. As instructed by the C/O, the Third Officer released the man overboard lifebuoy on the starboard side bridge wing. The man overboard position was 02°56'.35 N, 100°53'.79 E, about 18.5 nautical miles away from the closest land.

3.9 At around 1953 hours, the starboard side rescue boat carrying the Third Officer, the Carpenter and AB1, was lowered into the water for the search and rescue operations. Meanwhile, a distress message was sent, and ships in the vicinity were alarmed. VTC, MRCC, and the management company were informed of the incident.

3.10 *The vessel* finally stopped the engine to look for *the cadet* at position 02°56'.16 N, 100°53'.42 E at 2130 hours where was about 0.25 nautical miles away from the man overboard position. Meanwhile, the crew in the rescue boat suffered from nausea and returned to *the vessel*. Subsequently, the port side lifeboat was lowered into the water with the Second Officer, the Fourth Engineer, the Bosun, and AB2 to continue the search and rescue operations at 2140 hours.

3.11 Due to heavy traffic in the channel, at 2320 hours, *the vessel* anchored at position 02°57'.94 N, 100°50'.01 E, about 3.98 nautical miles away from the man overboard position.

3.12 At 2400 hours, the sea condition had worsened and the lifeboat returned to *the vessel*.

3.13 On the next two days, 21 and 22 August, the search and rescue operations continued, but *the cadet* was still not found. At 2030 hours on 23 August 2020, *the vessel* abandoned the search and rescue operations and resumed her voyage to Brazil.

4. Analysis

Certification and experience of the crew

4.1 *The vessel* was manned by a total of 21 crew members from China. The manning scale complied with the Minimum Safe Manning Certificate issued to *the vessel* on 7 November 2017. The certificates of *the vessel* were valid and in order.

4.2 The Master had served in the current rank for 8 months. He held a certificate of competency as master on ships issued by the People's Republic of China and a Class 1 License (Deck Officer) issued by the Hong Kong Marine Department valid until 14 March 2021. He signed on *the vessel* as a Master for about 4 months before the accident.

4.3 The Chief Officer had served in the current rank for about 38 months. He held a certificate of competency as chief officer on ships issued by the People's Republic of China and a Class 2 License (Deck Officer) issued by the Hong Kong Marine Department valid until 12 May 2021. He signed on *the vessel* as a Chief Officer for about 4 months before the accident.

4.4 The Bosun had served in the current rank for about 54 months. He held a certificate of proficiency issued by the People's Republic of China on 16 November 2016 and valid until 20 February 2051. He signed on *the vessel* as a Bosun about 4 months before the accident.

4.5 *The cadet* joined *the vessel* about 4 months before the accident, and it was his first sailing ship. He had basic training, security awareness training, and seafarers with designated security duties training in accordance with STCW[3] Convention, and held the certificate of proficiency issued on 16 July 2019.

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

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[3] International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended.

Fatigue, alcohol and drug abuse

4.7 According to the rest hour record, *the cadet* and other crew concerned had well rested before the accident. There was no evidence showing that the crew suffered from fatigue at work or alcohol or drug abuse.

Weather and sea condition

4.8 At the time of the accident, the wind was south-easterly of Beaufort Wind Scale force 4, and the sea had a strong current. Weather and sea conditions increased the difficulty of the search and rescue operations.

Shipside guard rails and chains

4.9 Paragraph 2 of Regulation 25 "Protection of the Crew" in Annex I to the International Convention on Load Lines, 1966 and Protocol of 1988, as amended in 2003 ("the LLC") requires that guard rails shall be fitted around all exposed decks and the height shall be at least 1 metre from the deck. Paragraph 3(d) of the same regulation of the LLC further states that where necessary for the ship's normal operation, chains fitted between two fixed stanchions and/or bulwarks are acceptable in lieu of guard rails.

4.10 *The vessel* appeared to meet the above regulation in such a way that certain guard rails around *the gangway* on the main deck were replaced by chains (Figure 2), since it was necessary for lowering *the gangway*, to facilitate normal operation of *the vessel*.

4.11 The investigation, however, revealed that the chains running through the guard rail stanchions were sagging that failed to comply with the above regulation to give protection of at least 1 metre from the deck. Therefore the arrangement of the shipside guard rails should not be considered as in full compliance with the LLC.

Figure 2 *The gangway* and the suspected overboard site

4.12 Nobody noticed how *the cadet* fell overboard. The suspected spot where *the cadet* fell overboard was located just at the aft end of *the gangway* (Figure 2). Without sufficient experience and supervision, *the cadet* could have been unaware of the hazard and leaned on to the chains instead of the fixed guard rail, thus causing him to lose his balance falling overboard.

Instructions for working over shipside

4.13 The investigation revealed that the "Document No.: I-29: Instruction for working aloft/ overboard/ on the water" of SMS (*the instruction*) was not properly implemented resulting in the accident:

(a) *The vessel* was underway at about 11 knots (i.e., 339.5 metres per minute) throughout the repair work. It was not in compliance with the requirements of Sections 2.1 and 2.3 of *the instruction*, i.e. working over shipside is prohibited when vessel is sailing, or the water current is more than 3 metres per minute.

(b) During the repair work, the cadet was not warned of the risk of staying at the shipside. It revealed that nobody was assigned to monitor the repair crew throughout the work, to provide assistance, alert and rescue as appropriate. It was not in compliance with the requirements of Section 6.9 of *the instruction*, i.e. someone should be assigned to monitor the repair crew throughout the work, to provide assistance, alert and rescue.

(c) No lifebuoy was on standby at the repair site while working over shipside. It was not in compliance with Section 4.2 of *the instruction*, i.e. lifebuoys should be on-site while working over shipside.

Plans and procedures for rescuing man overboard

4.14 The "man overboard" guidelines of the IAMSAR volume III manual (i.e., the "Plans and procedures for recovery of persons from the water" (*the plans and procedures*)) were adopted in *the vessel*'s SMS.

4.15 In order to allow a ship to go back to the man overboard position as soon as possible, *the plans and procedures* recommend using

Scharnov turn or Williamson turn (Figure 3) as an alternative when a man overboard happened at night.

4.16 The investigation revealed that the Master and duty officer failed to follow *the plans and procedures* to carry out proper search and rescue operations due to the following findings:

(a) as the sunset began after 1900 hours on the accident day, *the vessel* might consider following either the Scharnov turn or the Williamson turn depending on the field of vision. However, the AIS[4] record of *the vessel* (Figure 4) showed that *the vessel* followed neither the Scharnov turn nor the Williamson turn for conducting the search and rescue operation;

(b) whilst failing to follow *the plans and procedures* for search and rescue operation, *the vessel* was busy to lower rescue boat instead; and

(c) as *the vessel* failed to conduct search and rescue operation in a proper manner, she only managed to return to the location around the man overboard position about 90 minutes later. The prolonged time of returning to the man overboard position had minimized the chance of finding the missing cadet.

[4] Automatic Identification System (AIS) is an automated tracking system designed to automatically provide the ship's information to other ships and coastal authorities.

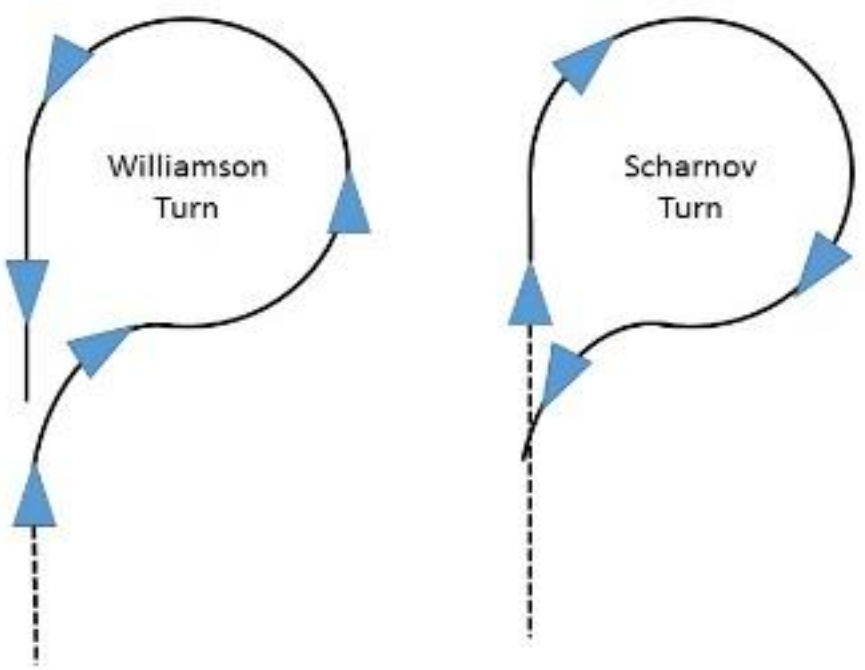

Figure 3 Williamson turn and Scharnov turn

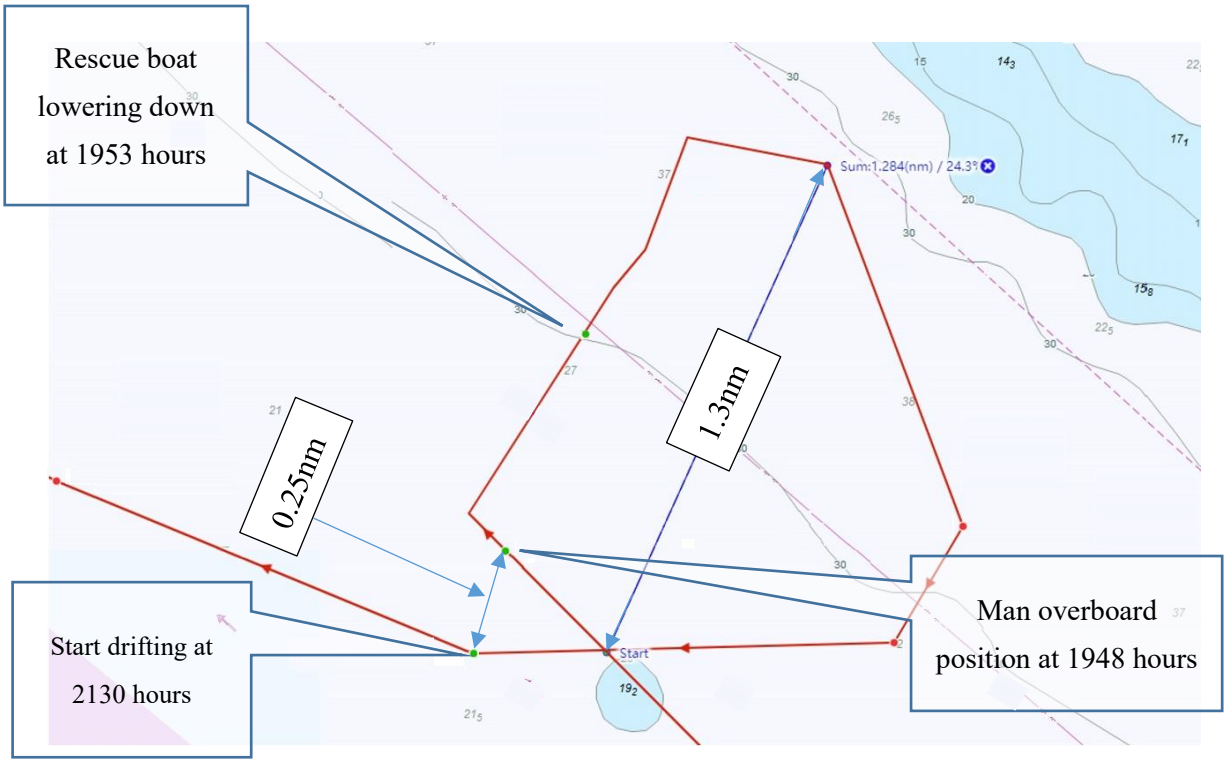

Figure 4 AIS record of *the vessel* from 1948 hours to 2130 hours

Safety Management System of the vessel

4.17 The permit-to-work in *the instruction* did not follow the safety instructions as recommended in Annex 14.1 to the COP as follows:

(a) the validity period of the permit;

(b) all the permit-to-work and safety checklist items have to be confirmed by both the competent person and the authorized officer; and

(c) all safety arrangements to be maintained throughout the work.

5. Conclusions

5.1 At around 1948 hours on 20 August 2020, a man overboard accident happened on board *the vessel* at Malacca Strait. *The cadet* fell overboard from the main deck during the final stage of *the gangway* repair work. His body was not found eventually.

5.2 The investigation identified the following contributory factors:

(a) the use of chains for the replacement of shipside guard rails was set at a sagging position, thus failing to comply fully with the LLC Regulation 25 "Protection of the Crew" in respect of the height requirement;

(b) the crew failed to strictly follow the safety instructions in the SMS with regard to work over shipside, i.e., there was no stoppage of work in sailing condition; no safety monitoring throughout the work; and no standby lifebuoys on-site of the repair work.

5.3 The investigation also revealed that *the vessel* did not manage to return to the man overboard position as soon as possible for better search and rescue in accordance with *the plans and procedures* of IAMSAR as adopted by the SMS. It was also found that the permit-to-work of the SMS did not fully meet the relevant requirements of the COP.

6. Recommendations

6.1 The management company should issue circulars informing all Masters, officers and crew of its fleet of the findings of the investigation, and the lessons learnt from this accident and instruct them to:

(a) ensure effective guard rails for the shipside openings in complying with the Load Lines Convention in order to provide better protection in preventing the crew from falling overboard;

(b) strengthen the supervision in particular of junior seafarers and monitoring the work over shipside strictly in compliance with the relevant safety instructions;

(c) enhance familiarization with the permit-to-work procedures and safety instructions on working over shipside; and

(d) enhance man overboard rescue training and drill.

6.2 The management company should also consider to:

(a) review the SMS with regard to the permit-to-work of working over shipside; and

(b) conduct internal audits on *the vessel* to confirm the compliance with the shipboard SMS requirements in performing key operations, including working over shipside, man overboard rescue, safety training and drills.

6.3 A Hong Kong Merchant Shipping Information Note is to be issued to promulgate the lessons learnt from this accident.

7. Submission

7.1 The draft investigation report, in its entirety, had been sent to the management company and the Master of *the vessel* as well as the Quality Assurance Section of the Marine Department for their comments.

7.2 By the end of the consultation, no comment was received from the above-mentioned parties.