Report of investigation into the fatal accident of an ordinary seaman on board the Hong Kong registered bulk carrier "*Ocean Gold"* at Calaca, Philippines on 12 September 2015

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

28 December 2016

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 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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1. Summary

1.1 On 10 September 2015, the Hong Kong registered bulk carrier "*Ocean Gold*" (*the vessel*), laden with 30,000 tonnes of coal in bulk, arrived at the pilot station in Calaca, Batangas of Philippines and dropped anchor.

1.2 In the morning on 12 September 2015, *the vessel* was shifting to a berth at Phoenix Pier 2 of Calaca Power Plant. The chief officer was the person in charge of the mooring operation at the forward station, assisted by other crew members including one ordinary seaman (OS).

1.3 *The vessel* was planned to moor with her starboard alongside berth. At about 0815 hours, the forward spring line was delivered to the shore mooring team and it was put on a shore bollard. While *the vessel* was moving closer to the berth, the forward spring line was slackened and it eventually passed beneath the berth fender. It was then stuck beneath the fender when the vessel's hull contacted with the berth fender. The chief officer did not report the situation to the master of *the vessel*.

1.4 Not being aware of the situation, the pilot ordered to tighten up the forward spring line, which in turn increased its tension, in order to maintain the ship's position. At about 0832 hours, *the vessel* swung out a short distance from the berth fender and moved forward causing the forward spring line being stretched further and its tension increased. The forward spring line bounced off from beneath the berth fender and ejected towards the OS. The OS's left side neck was hit and his safety helmet fell on the ground. He was bleeding and unconscious. He was sent to a hospital at shore and was declared dead at 0950 hours on the same day.

1.5 The investigation into the accident revealed the main contributory factors as follows:

(a) the communication among the mooring teams was ineffective - the chief officer failed to report the improper lining up of the forward spring line to the master of *the vessel* and continued to apply force on the rope causing it suddenly bounced off; and

(b) the supervision of crew members' safety during mooring operation was poor – the chief officer failed to remind the deceased OS to keep away from dangerous zone of a tensioned mooring rope during the mooring operation.

2. Description of the vessel

Name of vessel	:	*Ocean Gold* **(**Fig. 1)
IMO No.	:	9336751
Call Sign	:	VRJO8
Flag	:	Hong Kong, China
Port of Registry	:	Hong Kong
Classification Society	:	Nippon Kaiji Kyokai
Trade of Vessel	:	International Trading
Ship Type	:	Bulk Carrier
Gross Tonnage	:	20,221
Net Tonnage	:	10,948
Length (LOA)	:	177.13 m
Breadth (molded)	:	28.40 m
Depth (molded)	:	14.25 m
Draft (Design)	:	10.02 m
Main Engine & Power	:	Mitsubishi 6UEC52LA, MCO 6,620 kW x 1 set
No. of crew	:	23
Ship Builder	:	Kanda Shipbuilding Co., Ltd., Hiroshima Japan
Year of Built	:	2006
Management Company	:	Ocean Longevity shipping & Management Co., Ltd

Fig.1 –Ocean Gold (from Sea-web)

3. Sources of Evidence

3.1 The management company.

3.2 The ship's master and crew members of "*Ocean Gold*".

3.3 Autopsy report.

4. Outline of Events

All times are local (UTC+ 8) if not specified otherwise

4.1 At about 1230 hours on 10 September 2015, *the vessel* laden with 30,000 tonnes of coal in bulk, arrived at the pilot station in Calaca, Batangas of the Philippines, and dropped anchor in the anchorage at 1348 hours.

4.2 At 0640 hours on 12 September 2015, *the vessel* heaved up her anchor and prepared for shifting to the berth at Phoenix Pier 2 of Calaca Power Plant. While proceeding to the berth, a harbour pilot boarded *the vessel* at 0715 hours and two tug boats were made fast to *the vessel*'s portside forward and aft respectively. *The vessel* was planned to moor starboard side alongside berth. Two mooring teams were on standby at forward and aft mooring stations respectively. They were in charge of look-out and mooring operation. The mooring team at forward mooring station consisted of one chief officer, one carpenter, two able-bodied seamen (AB1 and AB2) and the OS.

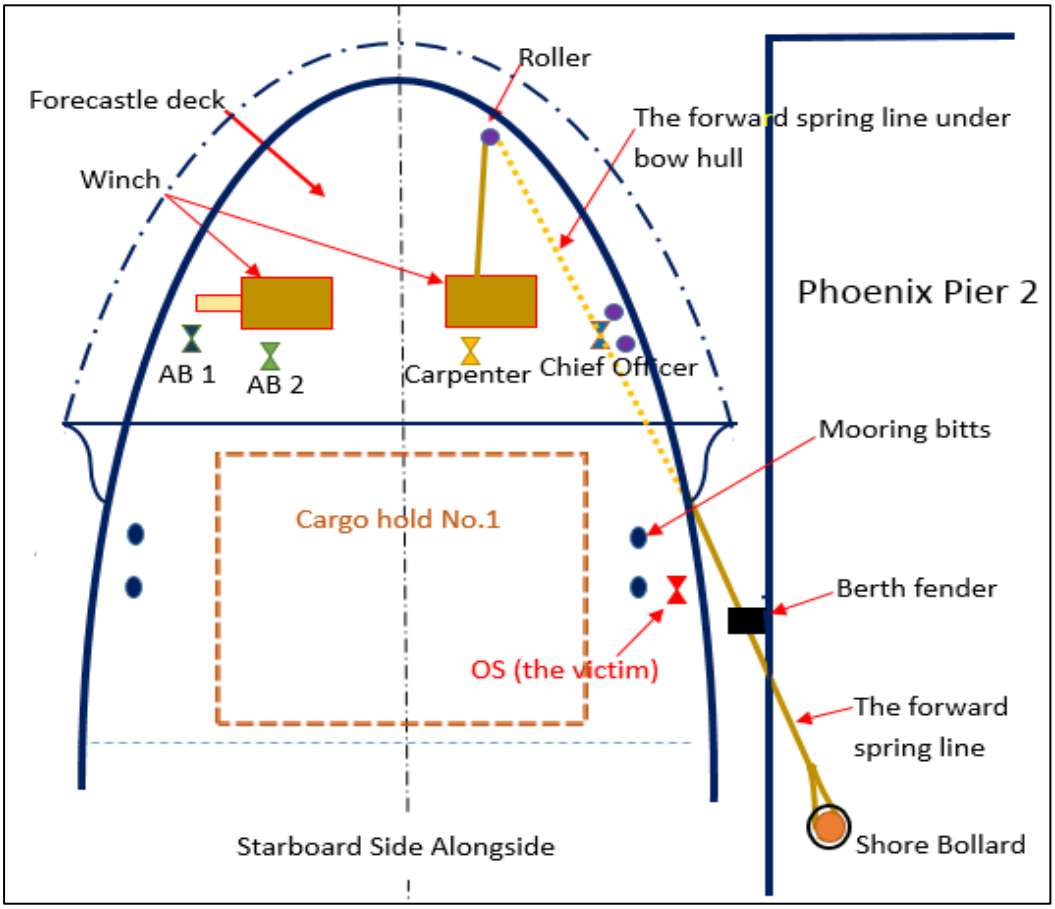

Fig.2 -berthing operation sketch plan when the accident happened.

4.3 At about 0815 hours, while *the vessel* was approaching the berth, a heaving line was sent out to shore for transferring the first forward spring line from the forecastle of *the vessel* to shore. The forward spring line was received and put on a shore bollard by

the shore mooring team. While *the vessel* was moving closer to the berth, the forward spring line was slackened and passed beneath a berth fender. The forward spring line was then stuck beneath the berth fender when *the vessel's* hull contacted with the berth fender (Fig.2).

4.4 The chief officer was in charge of the mooring operation on the forecastle deck. The carpenter operated the starboard mooring winch to adjust the tension of the rope under the instructions of the chief officer. The AB1 and AB2 were preparing to release mooring ropes from the drums of the port mooring winch. The OS was standing on deck in way of No.1 cargo hold and in between the starboard shipside rail and the mooring bitts (Fig.2) retrieving the heaving line which was sent back by the shore mooring team after they had received the forward spring line.

4.5 According to the statement taken, the chief officer noticed that the forward spring line was stuck beneath the berth fender but he did not report the situation to the bridge team (i.e. the master and the pilot). In order to hold *the vessel* in position, at the instruction of the pilot, the forward spring line was tightened up even though under such situation.

4.6 At about 0832 hours, *the vessel* swung out a short distance from the berth and moved forward. The forward spring line was stretched further and subjected to higher tension. Suddenly, the forward spring line bounced off from beneath the berth fender hitting the left side neck of the OS. The OS was bleeding and unconscious with his safety helmet fell on the ground. At the time of the accident, the level of the main deck of *the vessel* was slightly below that of the berth (Fig.3).

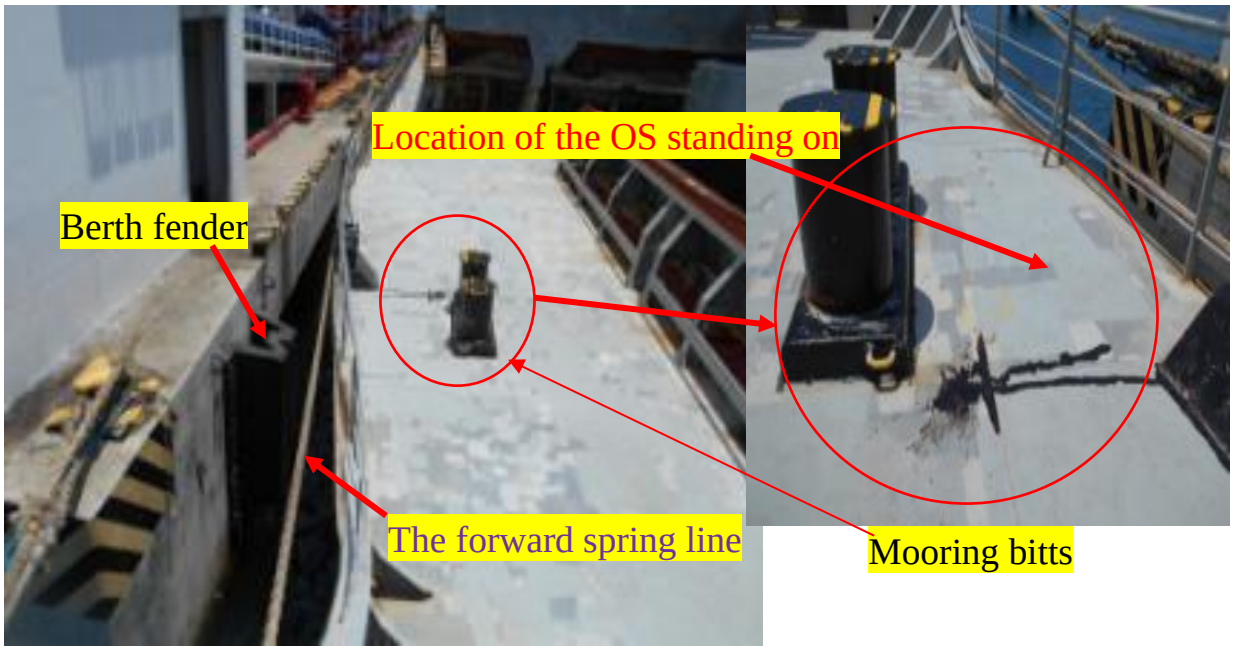

Fig.3 -The relative levels of the main deck and the berth at the time of the accident.

4.7 The chief officer and other crew members on the forecastle deck of *the vessel* rushed to rescue the OS. They found that the neck of the OS was seriously injured with very weak vital signs. The master called shore emergency medical rescue immediately. The OS was sent to a local hospital for treatment. However, he was declared dead in the hospital at 0950 hours on the same day.

5. Analysis

Certification and experience of the master and crew

5.1 All the statutory certificates of the vessel were valid at the time of the accident.

5.2 The master held a valid Certificate of Competency as Master issued by Shenzhen Maritime Safety Administration of the People's Republic of China and a Licence (Deck Officer) Class 1 issued by the Hong Kong Marine Department. He served as master since April 2007. He joined *the vessel* on 6 June 2015.

5.3 The chief officer held a valid Certificate of Competency as Master issued by Shenzhen Maritime Safety Administration of the People's Republic of China and a Licence (Deck Officer) Class 1 issued by the Hong Kong Marine Department. He served as chief officer since May 2013 and joined *the vessel* on 20 January 2015.

5.4 The deceased OS graduated from a maritime college in Mainland China. He had no shipboard working experience before joining *the vessel* on 6 June 2015.

Recruitment and training of the OS

5.5 The management company established Safety Management System (SMS) with procedures of recruiting and engaging of competent seafarers through a dedicated manning agency to serve the company's fleet.

5.6 A one-day pre-sea training for the familiarization of the company's SMS was provided to the deceased OS on 29 April 2015 in the office of manning agency. In accordance with the Seafarer's Employment Agreement, the deceased OS was employed by *the vessel*'s owner on 4 June 2015.

5.7 The deceased OS was provided with the on board familiarization training upon joining *the vessel* on 6 June 2015. It was completed on the same day before sailing.

5.8 Shipboard trainings for all crew members on board *the vessel* were conducted once or twice a month, covering the aspects of fire-fighting, life-saving, environmental protection and shipboard operations. However, there was no record to show that the deceased OS had received proper training to enhance his safety awareness of ship's mooring operation.

Physical condition of the OS

5.9 The deceased OS passed medical examination before joining *the vessel*. On 12 September 2015 when involved in the mooring operation, he just started his daily work on that day. Hence, he should be physically fitted for the mooring duties and without suffering from fatigue at work.

Autopsy

5.10 The autopsy report indicated that the death of the OS was caused by a blunt traumatic injury to his head. No narcotics and psychotropic substances were found.

Weather condition

5.11 On 12 September 2015, the weather condition was good with easterly gentle breeze of force 3 in the Beaufort scale. The sea condition was smooth. It was cloudy and the visibility was about seven nautical miles. The weather condition was not a contributing factor to the accident.

Condition of the forward spring line

5.12 The forward spring line used in the mooring operation was a nylon rope of 65 mm in diameter with a nominal breaking load of 903 KN. The forward spring line was in a good condition (Fig.4).

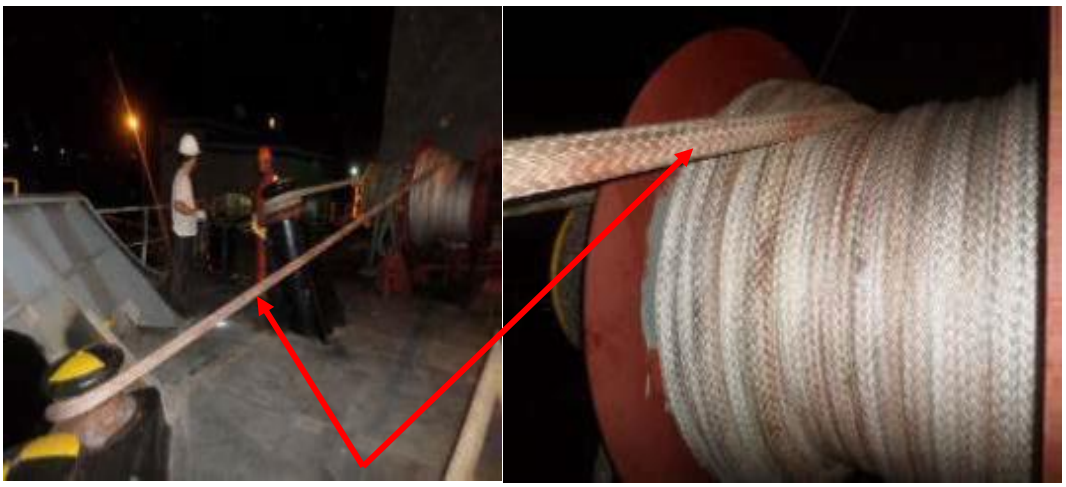

Fig.4-The forward spring line was in good condition.

The mooring operation and risk assessment

5.13 Ship mooring is a systematic team-work operation under the command of ship's master on the bridge (the bridge team) and assisted by mooring teams at the forward and aft stations of a ship. Mooring operation should be well planned and be executed in accordance with plan, whilst maintaining with effective cooperation and communication among crew members of the mooring teams, shore side and tug boats workers. During mooring operation, the master and persons in charge of forward and aft stations should closely monitor and supervise the work to ensure safety of ship and crew.

5.14 In the incident, the risk assessment of the mooring operation was carried out by the

chief officer and verified by the master of *the vessel* in accordance with the SMS requirement. The hazard of personal injuries was rated "High". As such, crew members should keep well clear of dangerous zone during the operation, as far as practicable. However, there was no evidence to indicate that the deceased OS had been briefed before the commencement of the mooring operation.

5.15 During the mooring operation, the chief officer noticed that the forward spring line was stuck beneath the berth fender rendered it not being lined up properly. However, he did not report the situation to the master (the bridge team). Not being aware of the situation, the pilot ordered to tighten up the forward spring line, which in turn increased its tension, in order to maintain the ship's position.

5.16 Meanwhile, *the vessel* swung out from the berth and moved forward thus creating a clearance or gap between the berth fender and the hull and therefore causing the forward spring line being stretched further under increased tension. Ultimately, the forward spring line bounced off from beneath the berth fender. At the time of the accident, the main deck of *the vessel* was slightly below that of the berth. The dangerous zone covered a wide area on the starboard side main deck of *the vessel* whereon the deceased OS was standing.

5.17 The company established a mooring/unmooring station checklist in the SMS to instruct crew members to stay clear of snap back zone (dangerous zone) of mooring ropes or mooring wires. In this incident, the deceased OS was standing inside the dangerous zone but his supervisor (the chief officer) did not remind him to stay away from that zone.

5.18 It was evident that communication among the mooring teams was ineffective (i.e. the chief officer failed to report the improper lining up of the forward spring line to the master of *the vessel*) and that the chief officer failed to supervise crew members' safety during mooring operation.

Personal safety equipment

5.19 The deceased OS was equipped with proper personal protective equipment, including boiler suit, safety helmet, safety gloves and anti-skid safety shoes.

Fatigue, alcohol and drugs abuse

5.20 The vessel had stayed in the anchorage for more than 36 hours before berthing. The record of hours of work and rest indicated that the master, officers and ratings, including the deceased OS had taken enough rest before the mooring operation. There was no evidence of alcohol and narcotics effects for the master and crew members.

6. Conclusions

6.1 In the morning on 12 September 2015, the Hong Kong registered bulk carrier "*Ocean Gold*" was mooring to a berth at Phoenix Pier 2 of Calaca Power Plant in Calaca, Batangas of Philippines. The chief officer was the person in charge of the mooring operation at the forward station, assisted by other crew members including the OS. During the mooring operation, the forward spring line was stuck beneath the berth fender. Not being in awareness of the situation, the pilot ordered to tighten up the forward line in order to maintain the ship's position. The forward spring line suddenly bounced off from beneath the berth fender and ejected towards the OS hitting the left side neck of the OS. The OS sustained serious injury and was declared dead at 0950 hours on the same day in a hospital at shore.

6.2 The investigation into the accident revealed the main contributory factors as follows:

(a) the communication among the mooring teams was ineffective - the chief officer failed to report the improper lining up of the forward spring line to the master of *the vessel* and continued to apply force on the forward spring line causing it suddenly bounced off; and

(b) the supervision of crew members' safety during mooring operation was poor – the chief officer failed to remind the deceased OS to keep away from dangerous zone of a tensioned mooring rope during the mooring operation.

6.3 The investigation revealed the safety factors as follows :

(a) safety briefing was not provided to crew members before commencement of mooring operation; and

(b) training to enhance the safety awareness in ship's mooring operation was not provided in shipboard trainings.

7. Recommendations

7.1 A copy of the investigation report into the accident should be provided to the management company and the master of *"Ocean Gold"* informing them the findings of the investigation.

7.2 The management company should

(a) issue safety circular to inform all masters, officers and ratings on board ships of the lessons learnt from the accident; and

(b) review the relevant safety procedures and guidelines in the Safety Management System in order to ensure that:

(i) effective communication among the various mooring teams should be maintained during mooring operation and any abnormal situation must be immediately reported to the master of the vessel for consideration;

(ii) officers in charge of ship's mooring stations and senior crew members should closely monitor and supervise the safety at work of other crew members during mooring operation; and

(iii) shipboard trainings to enhance the safety awareness of dangers engaged in mooring operations should be provided as soon as possible to new crew members after they joined the vessel. Also safety briefing should be provided to all crew members before commencement of mooring operation.

7.3 A copy of this report should be sent to the Shipping Division of Marine Department for their information.

7.4 A Merchant Shipping Information Note (MSIN) should be issued to promulgate the lessons learnt from this accident.

8. Submission

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 in entirely or in part, 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 the chief officer of *"Ocean Gold"*; and

b) the Shipping Division of Marine Department as the flag administration.

8.3 At the end of the consultation, there was no comment received from them.