

Executive Summary

Major marine occurrence report for working boat “Dongyang No.6”

1. Brief description of the marine occurrence

At approximately 13:01 Taipei local time (UTC 05:01) on April 9th, 2022, a Taiwanese working boat Dongyang No.6 (Figure 1, official no. 910878, Gross Tonnage 18.42) towed a Taiwanese non-powered dredger Hong Lue No.801 (official no. 005481, Gross Tonnage 95) from Badouzi Fishing Port to Keelung Islet for a building materials supply mission.

At approximately 13:23, Dongyang No.6 and Hong Lue No.801 met the Taiwanese shuttle boat Mingxing (Official No. 912400, Gross Tonnage 19.88) on the sea outside Bachimen Fishing Port. Dongyang No.6 and Mingxing jointly towed Hong Lue No.801 to Keelung Islet Pier. At approximately 14:00, Dongyang No.6 suddenly sank about 0.1 nautical miles outside Keelung Islet Pier (see Figure 2 for a sinking photo).

The accident caused two sailors of Dongyang No.6 to sink into the sea with the hull. They were later rescued separately from the surface of the sea but died after emergency medical treatment. Dongyang No.6 sank completely without oil pollution.



Figure 1 The photo of Dongyang No.6



Figure 2 The sinking photo of Dongyang No.6

2. Findings

The TTSB presents the findings derived from the factual information gathered during the investigation and the analysis of the occurrence. The findings are presented in three categories: **findings related to probable causes**, **findings related to risk**, and **other findings**.

Findings related to probable causes

- (1) Dongyang No.6 is only allowed to navigate in the harbor and she is not a tugboat. When she was towing outside the harbor with moderate wind and wave conditions. Dongyang No.6 towing behavior exceeded the stress load of the boat's aft structure, resulting in damage to the stern hull and significant water ingress. The hull tilted to the portside and the drainage system was either ineffective or insufficient, resulting in the boat sinking.
- (2) Dongyang No.6 was an old working boat, and the shipwreck showed signs of severe corrosion and damage to the aft steel plate. Cracks and steel plate deformation were also present at the site of stern welding repair.
- (3) Two sailors on Dongyang No.6 sank into the sea with the hull. They drowned because they took too long to surface from the sunken boat.

Findings related to risk

- (1) During the annual inspections of Dongyang No.6 in 2019 and 2021, inspectors conducted visual inspections and did not find serious corrosion on the aft deck, starboard stern, and port stern. However, many holes were later discovered that could not have been caused by

sinking or the impact of sinking.

- (2) Neither special nor regular inspections of Dongyang No.6 included shell steel plate thickness detection items, and these defects were not discovered in time. Additionally, one sailor's license has expired and one sailor did not hold a license.
- (3) When Dongyang No.6 entered and exits Keelung Port, the Taiwan Coast Guard¹ security inspectors only checked two sailor's identity card and may not realize their names did not match the list approved by Keelung City Government and working boat is only allowed to navigate in the harbor.
- (4) Keelung City Government did not confirm that the working boat Dongyang No.6 is not allowed to operate outside the port.
- (5) When Haiyang Maritime Engineering Co. Ltd. filled out the application form, it did not provide a specific description of the towing operation. Keelung City Government approved Dongyang No.6 to berth at Badouzi Fishing Port in response.
- (6) According to the contract for the disaster reconstruction proposal of Keelung Ridge Pier (Fireworks Typhoon), the Keelung City Government believed that the bidding manufacturer (Haiyang Maritime Engineering Co. Ltd) should be responsible for implementing safety and environmental protection measures for ground vehicles or ships transporting materials. Keelung City Government believed that

¹ The Coast Guard Administration, Ocean Affairs Council ◦

he had no supervisory obligation outside the reconstruction area.

- (7) One sailor of Dongyang No.6 did not hold a personnel pass in the Keelung Port area and he evaded inspection at the Keelung Port outpost. He boarded Mingxing from the CSBS Corporation of Taiwan's Keelung plant and transferred to Dongyang No.6 during the towing operation.

Other findings

- (1) The rest hours for two sailors of Dongyang No.6 before the occurrence is unknown.
- (2) The main engine of Dongyang No.6 was functioning normally on the day of the occurrence.
- (3) At the time of the occurrence, the Beaufort Wind Scale was 5-6, with gusts up to 7, and wave heights of 1-2 meters.
- (4) Exclude main engine failure and external factors that could have caused the sinking of Dongyang No.6.

3. Safety Recommendations

Maritime and Port Bureau, MOTC

- (1) Review the current inspection mechanism for steel boats older than 12 years and add hull steel plate thickness as an inspection item. Provide necessary training courses for inspectors. (TTSB-MSR-23-06-001)
- (2) Coordinate with the Taiwan International Ports Corporation Ltd. to register and manage the boats in Keelung Port Area. Prevent these

boats from engaging in business inconsistent with licenses and operating outside the port. Request assistance from the TAIWAN Coast Guard to report the boat violations. (TTSB-MSR-23-06-002)

- (3) Assist the Taiwan International Ports Corporation Ltd. in strengthening security checks of Keelung International Commercial Port's control boundary and implementing the boat entry and exit area management. Request assistance from the Taiwan Coast Guard to report the boat violations. (TTSB-MSR-23-06-003)

Coast Guard Administration, Ocean Affairs Council

- (1) Assist in reporting violations of the boats in Keelung Port, based on information provided by the Maritime and Port Bureau, MOTC regarding their registration. (TTSB-MSR-23-06-004)

Taiwan International Ports Corporation, Ltd

- (1) Based on information provided by the Maritime and Port Bureau, MOTC regarding the registration of boats in Keelung Port, prevent these boats from engaging in business inconsistent with licenses and operate outside the port. (TTSB-MSR-23-06-005)
- (2) Assist the Taiwan International Ports Corporation Ltd. in strengthening security checks of the Keelung International Commercial Port's control boundary, implementing management of boat entry and exit areas, and requesting assistance from the Taiwan Coast Guard to report vessel violations. (TTSB-MSR-23-06-006)

Keelung City Government

- (1) Review the audit mechanism for the “application form for non-fishing

boats berthing in fishing ports” to require applicants to provide information of ship, captain and crew members. Strengthen inspection measures by verifying applicant licenses, ship’s certifications and relevant work plans. (TTSB-MSR-23-06-007)

- (2) Strengthen the quality plan for contracts, particularly regarding construction materials and machinery for maritime transport. Ensure detailed supervision and implementation of safety and environmental protection measures to prevent occupational or ship accidents. (TTSB-MSR-23-06-008)

To the CSBS Corporation, Taiwan (Keelung Plant)

- (1) Review the personnel control and inspection mechanism for the Keelung plant area, with a focus on personnel boarding and disembarking through the harbor plant area. (TTSB-MSR-23-06-009)