# Heavy load carrier YU ZHOU QI HANG Major Marine Occurrence

## Executive Summary

On October 29, 2024, at 0730 hours local time, the ship departed Keelung Port bound for the Pearl River Estuary near Guangzhou to seek shelter from an approaching typhoon. The ship was carrying one gantry crane and two coal unloaders on deck. At departure, the ship's main engines, steering gear, and navigational equipment were reported to be operating normally. While underway, the ship encountered Beaufort force 5 to 7 wind and sea conditions. At 2029 hours, the master ordered the abandonment of the ship. By 2210 hours, all 17 crew members had been safely rescued by a Coast Guard patrol boat. In the early morning of October 31, the ship grounded on the coastal rocks off Yehliu, resulting in a starboard list and seawater ingress. No oil pollution was observed.

In accordance with the Taiwan's Transportation Occurrence Investigation Act and the Casualty Investigation Code of the International Maritime Organization, the TTSB is an independent transportation occurrence investigation agency responsible for conducting this investigation. The investigation team also included members from the Maritime and Port Bureau of the Ministry of Transportation and Communications, the Coast Guard Administration of the Ocean Affairs Council, the Taiwan International Ports Corporation, Ltd., the Keelung Port Pilot Office, Hainan Yu Zhou International Shipping Co., Ltd., Pacific Shipping Corporation, and Ji Sheng Shipping Agency Co., Ltd.

After comprehensive investigation and analysis of the factual data, a total of 16 findings and 6 safety recommendations were obtained.

**The findings related to probable causes are as follows:**

1. After departure, at approximately 1200 hours, as wind and sea conditions deteriorated, the master assessed that the ship's propulsion and maneuvering capabilities were insufficient to return to the Keelung Port anchorage as advised by the Keelung Port Vessel Traffic Service (VTS) and the ship's company. The master, therefore, decided to anchor the ship in deep water.

2. After anchoring at 1421 hours, although both engines remained operational, the ship continued to drift northward while dragging both anchors. The master did not mark a swinging circle to monitor the ship's position and misjudged the ship's drift toward the shore. He also failed to recognize that the ship still had sufficient propulsion power to return to the Keelung Port anchorage. At approximately 2015 hours, after learning that no large tug was available that day, the master decided to abandon the ship. The prevailing conditions included Beaufort force 6 to 7 winds, gusting to force 9, with waves approximately 3 meters high.

3. After the ship was abandoned, weather conditions continued to worsen. Because the anchorage area had a rocky seabed and the length of the deployed anchor chain was less than three times the water depth, the ship dragged its anchors and drifted southward. Approximately 30 hours later, it grounded on the coastal rocks near Yehliu.

**The findings related to risk are as follows:**

1. The ship maintained adequate stability; however, due to limited propulsion power and increased wind resistance caused by the oversized deck cargo, it exhibited reduced maneuverability when navigating in winds of Beaufort force 7 or higher.

2. The ship's two main engines were capable of delivering only about half of

their designed maximum power (approximately 430 RPM). After departure, adverse weather and engine issues caused high exhaust gas temperatures and reduced the ship's speed. To prevent overheating, the crew lowered the RPM on both engines, further decreasing speed. The reduced speed impaired the ship's maneuverability, prompting the master to request tug assistance.

3. During pre-voyage maintenance, rust and fouling were detected in the air passages of the starboard main engine's air cooler, likely contributing to insufficient air intake and reduced combustion efficiency. While underway, the absence of a water deflector in the air cooler may have allowed seawater ingress, leading to elevated cylinder temperatures and lower RPM compared to the port engine.

4. The crew did not adequately consider the potential risks associated with the northeast monsoon and the vessel's limited propulsion power when planning the voyage, resulting in an insufficient risk assessment of the voyage planning.

5. After departure, the ship navigated into the inbound fairway of Keelung Port. The Vessel Traffic Service (VTS) failed to provide timely warnings or corrective instructions, thereby increasing the risk of collision with inbound traffic.

6. Several previous incidents at Keelung Port involved ships failing to use the designated outbound fairway and instead taking shortcuts. When strong northeast monsoon winds prevail, this practice significantly increases the risk of grounding.

7. When the ship urgently required towing assistance before and after abandonment, no large rescue tug capable of handling the situation was available domestically. Consequently, the company sought assistance from authorities in China; however, the requested assets were unable to arrive in

time to prevent the grounding.

**The other findings are as follows:**

1. The ship held valid statutory certificates issued by the China Maritime Safety Administration, as well as a Safety Management Certificate issued by the China Classification Society. All certificates and related procedures were valid with no anomalies.

2. The master and all 16 crew members held valid certificates of competency issued by the China Maritime Safety Administration.

3. During departure operations, the involvement of two pilots and two assisting tugs was determined to be unrelated to the occurrence. The crew's work-rest schedule within the 72 hours prior to the accident was compliant, and fatigue was ruled out as a contributing factor.

4. The United Kingdom, Japan, the United States, and the China Maritime Safety Administration maintain emergency towing vessel capabilities to provide timely assistance to vessels in distress. Their technical specifications typically include 12,000–18,000 horsepower, a bollard pull of 90–150 tonnes, an overall length of 65 meters or more, and the ability to operate in wind conditions up to Beaufort force 10.

5. Following the contact with a quay gantry crane at Keelung Port on October 14, the ship's departure was delayed due to prolonged negotiations over financial security arrangements between the company and the port operator, as well as delays in completing the underwater structural damage assessment. Consequently, a compensation settlement could not be finalized in a timely manner.

6. A compensation agreement could not be reached between the two parties, causing a delay in the ship's departure.

## Safety Recommendations

### To Hainan Yu Zhou International Shipping Co., Ltd.

1. Strengthen the training and evaluation system for the company's fleet, particularly in enhancing crew proficiency in responding to adverse weather conditions, to ensure that all crew members are familiar with the ship's condition and standard operating procedures; review the accuracy and adequacy of emergency response plans and external contact information.
2. Before dispatching ships for operations, conduct a comprehensive assessment of the main propulsion systems and critical equipment of the fleet, the characteristics and stowage configuration of the cargo, the prevailing weather conditions in the intended voyage area, and possible sea state variations along the route, to ensure that vessels have sufficient power and stability.

### To Taiwan International Ports Corporation Ltd.

1. Re-examine Article 72 of the Commercial Port Law to balance the needs of port safety management and emergency response with the protection of legal and compensation rights.
2. Ensure strict implementation of the Vessel Traffic Service (VTS) Guidelines by requiring all inbound and outbound vessels at Keelung Port to comply with the designated separation scheme, to maintain navigational safety within the port approaches.

### To the Maritime and Port Bureau, Ministry of Transportation and Communications

1. In accordance with the Disaster Prevention and Protection Act and its related regulations, establish a large-scale emergency towing vessel capability in the waters off northern Taiwan to enhance maritime emergency response effectiveness.

**To the Coast Guard Administration, Ocean Affairs Council**

1. Review the construction plans for high-latitude offshore patrol ships to ensure that their towing capacity and seakeeping performance are sufficient to conduct maritime casualty response and rescue operations in Taiwan's surrounding waters.

**Note:** The final report of this occurrence investigation is published in Chinese. To facilitate understanding for non-Chinese readers, the Executive Summary has been translated into English. While every effort has been made to ensure accuracy, discrepancies may occur. In the event of any inconsistency, the Chinese version shall prevail.