Executive Summary

1. Brief description of the marine occurrence

At 1113LT(local time) on Feb. 21, 2022, a container ship Hong Kong registered “BLUE OCEAN”, with a gross tonnage of 9949 and the official no. 8813611, was at the pilot boarding area of Taichung Port to meet with the pilot boat “GTIE 101”. The pilot planned to embark the “BLUE OCEAN” via the pilot ladder from the “GTIE 101” to perform inbound navigation services. While the “GTIE 101” was alongside the right side of the “BLUE OCEAN” at the pilot ladder placement location, the pilot fell into the sea while attempting to climb the pilot ladder to embark the “BLUE OCEAN”, and was rescued but unfortunately died after medical treatment. The occurrence did not cause any damage to the ship structure or environmental pollution.

At 2212 LT on Feb. 19, 2022, the ship "BLUE OCEAN" departed from Keelung Port for Taichung Port. Due to the influence of the northeast monsoon, the "BLUE OCEAN" was stranded outside Port of Taichung waiting to enter on February 21st, 2022 at 0754 LT. At 1030 LT, the "BLUE OCEAN" received a radio notification from the port authority, Taichung VTS. At 1111 LT, the ship arrived at the pilot boarding area of the Port of Taichung.

While the "BLUE OCEAN" was berthed on the starboard side of the "GTIE 101" pilot ladder placement at 1113 LT, an accident occurred where the pilot fell into the sea while attempting to climb the pilot ladder onto the ship. The captain of "GTIE 101" immediately reported to Taichung VTS by radio, and a VTS officer

of the Port of Taichung immediately dispatched the pilot boat "YONGKANG 611" and tugboat " YONGKANG 620" to assist in the rescue.

At 1115 LT, a VTS officer of the Port of Taichung contacted the captain of "BLUE OCEAN" and learned that the ship was approaching the Taichung Port breakwater and unable to turn around. At 1117 LT, another pilot on duty that day contacted the captain of "BLUE OCEAN" by radio and provided advice to assist the captain in navigating into port on his own. After entering the port, the ship could board the pilot boat to continue berthing operations.

At 1123 LT, the master of "GTIE 101" jumped into the sea for rescue but was unable to pull the pilot back onto the ship. At 1135 LT, "YONGKANG 611" arrived at the accident scene and transferred one crew member to "GTIE 101" for assistance before returning to Taichung Port's shallow water boat channel to connect with firefighters for rescue operations. At the same time, three people on "GTIE 101" tried to pull the pilot back onto the ship but failed.

Around 1158 LT, " YONGKANG 620" arrived at the accident scene and supported two crew members to board "GTIE 101". A total of five crew members worked together to rescue and pull the pilot back onto "GTIE 101". They then returned to Taichung Port's shallow water boat channel. At 1210 LT, firefighters boarded "GTIE 101" to take over rescue operations. At 1219 LT, after "GTIE 101"berthing, the pilot was sent to hospital by Taichung Port's fire department ambulance but unfortunately passed away after

emergency treatment. This accident did not cause any damage to ship structures or environmental pollution.

2. Findings

On the basis of comprehensive factual information and analyses, TTSB proposes the following 15 findings from the final report, and 8 safety recommendations issued to the related organizations. 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. The reason for the pilot involved in the marine causality fell overboard involves two factors: waves and the behavior standards, operating procedures, and cooperation mode of the pilot (boat) boarding safety.

    (1) At the time of the occurrence, the weather was poor, with a Beauport scale of 7 and waves about 2 to 3 meters, causing the ship to sway. The pilot lost balance while climbing the ladder with one hand and one foot and fell into the water.

    (2) The overall operation of the pilot boat and pilot did not comply with the behavior standards for pilot (boat) boarding safety, as well as the operating procedures and cooperation mode for pilot boarding/disembarking, which increased the difficulty of pilot boarding/disembarking operations. This includes the method of the pilot boat approaching the large ship and the professionalism of its

crew in assisting in climbing the ladder, the waiting, climbing, and methods of the pilot at the side of the pilot boat.

Findings related to risk

1. The Taichung Harbor Pilot Office stated that after the pilot involved in the marine causality was rescued, the inflatable life jacket he was wearing was fully inflated. However, the pilot was wearing a raincoat on the outside of the inflatable life jacket, which does not comply with the precaution to "wear a life jacket on the outermost layer of all clothing."
2. The pilot involved in the marine causality was still wearing a mask after falling into the water. A wet mask may hinder breathing through the mouth and nose, which is not conducive to self-rescue after falling into the water.
3. The pilot boarding area of Taichung Port is only 0.6 nautical miles from the south breakwater entrance, which does not meet the safety conditions for pilots to board ships. This has caused the pilot involved in the incident to rush board the ship, which is a long-term risk. If a similar incident occurs again, the ship's captain entering the port may not be able to safely navigate the vessel into the main channel, resulting in significant risks for Taichung Port's navigation control.
4. The pilot boats of Taichung Port are all used for transportation and do not have dedicated pilot boats. The current rescue equipment on Taichung Port pilot boats is unable to rescue an unconscious pilot who has fallen into the water. Compared with

international pilot rescue equipment, there is still room for improvement.

5. The Maritime Port Bureau, MOTC disaster prevention and rescue operation plan and the Port of Taichung, Taiwan International Ports Corporation, Ltd disaster prevention and rescue operation plan did not consider the severity of pilots falling into the water during navigation and contingency provisions.
6. The competent port authority has not established standards for filling out the "Pilot Physical Examination Form" and has not provided guidance documents for examining physicians to evaluate the qualifications of each item on the form. It is unclear which instruments and specimen inspection items should be included, which may lead to differences in examination results among different hospitals or inaccurate examination results, thereby affecting pilot navigation safety.

Other findings

1. The “BLUE OCEAN” is equipped with one captain and 19 crew members at various levels, all of whom hold valid certificates issued by the competent authority.
2. The Pilot Boat “GTIE 101” is equipped with one captain and one crew member, both of whom hold valid certificates issued by the competent authority.
3. The pilot involved in the marine causality holds a professional certificate and registration certificate for pilots in the Republic of China and has served in Taichung Port for about 10 years.

There were no abnormalities in the rest hours of the pilot before the incident.

4. The pilot involved in the marine causality suffered from coronary artery blockage/narrowing disease. Compared to those with completely normal heart function, the risk index of falling into the sea under extreme conditions of hypothermia, tension, and pressure would be higher before and after undergoing bypass surgery.

5. GTIE CO., Ltd and the Taichung Harbor Pilot Office have held two man-overboard exercises, but the gap between the content of the exercises and the actual situation was too large, and the rescue procedures were not carefully considered. This resulted in a lack of standard operating procedures for the pilot boat captain and increased the difficulty of rescue.

6. The Maritime Port Bureau, MOTC and the Port of Taichung, Taiwan International Ports Corporation, Ltd. did not arrange joint educational training or exercises for pilot fell overboard events, which may have affected the response to emergency situations.

7. The Port of Taichung, Taiwan International Ports Corporation, Ltd. has established regulations for handling maritime accidents, general and routine disasters, and VTS and monitoring center responsibilities. However, the implementation details are not clear enough, which may affect the efficiency of emergency communication and rescue results. The on-duty personnel at the monitoring center of Taichung Port Authority lacked educational

training and were unable to fulfill their duties to assist in requesting rescue resources.

8. The Australian Maritime Safety Authority (AMSA) has developed comprehensive medical examination standards for seafarers and provided guidance documents that outline the inspection focus and evaluation process. These documents are intended to be followed by examining physicians when conducting physical examinations. For pilots and seafarers who are elderly or whose health conditions have changed, examining physicians can adjust the frequency of medical examinations, validity period of medical certificates, additional conditions, re-examinations, and follow-up based on these guidelines to ensure that their physical fitness and health are sufficient to perform maritime work safely and efficiently. This is worth considering for our country.

3. Transportation Safety Recommendations

To Maritime Port Bureau, MOTC

1. Referring to IMO Resolution A.960(23) and taking into account the port facilities and hydrological conditions of the Port of Taichung, the location of the pilot boarding area for incoming cargo ships at the Port of Taichung should be reviewed and improved as appropriate.

2. Review the equipment of international commercial port pilot boats and align with international standards, taking into account the geographical relationships and weather conditions of each port, to establish pilot boats suitable for the port to ensure the

safety of pilots boarding and departing ships and to achieve the goal of mandatory pilotage to ensure the safety of navigation and shipping in Taiwan's international commercial ports.

3. Using this case as an example, all of national pilots shall be informed that "life jackets must be worn on top of all clothing" to ensure that life jackets can be used effectively in case of accidental falling into the sea.
4. Referring to the practices of other countries' pilot associations, formulate operational guidelines for pilots boarding and departing ships to protect the safety of pilots and crew members.
5. Evaluate and improve Taiwan's physical examination system and supporting measures for national pilots, including at least:
    - Strengthening relevant standards for pilot physical examinations, providing guidelines to explain the focus of various inspections and evaluation processes for examining physicians to ensure consistency in physical examination results.
    - Increasing the level of detail in pilot physical examinations to ensure that their health is sufficient to perform their work and maintain the safety of themselves and ships entering and leaving ports.

To Port of Taichung, Taiwan International Ports Corporation, Ltd.

1. Review the contents of the disaster prevention and rescue operation plan of each port subsidiary under its jurisdiction, to

ensure that VTS officer and monitoring center duty personnel have the necessary abilities to deal with various disasters.

2. Develop standard communication terms for the disaster emergency response procedures of the maritime disaster prevention and rescue operation plan, in order to enhance communication efficiency and rescue results for maritime disasters and emergencies.
3. Re-examine the drill plan for man overboard in the port area, to ensure that the drill content is close to real crisis situations.

Full final report is in Chinese only and available for download at website: https://www.ttsb.gov.tw