



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

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MAB-22/12

Flooding and Sinking of Towing Vessel *Proassist III*

On December 24, 2020, about 1742 local time, the towing vessel *Proassist III* was transiting the Caribbean Sea, 3 miles off the coast, near Puerto Yabucoa, Puerto Rico, when its stern compartments began flooding.¹ The three crewmembers aboard attempted to pump out the water but were unsuccessful and subsequently abandoned the vessel. They were rescued by a responding Good Samaritan vessel, and the *Proassist III* later sank about 0.25 miles from shore. No injuries were reported. An oil sheen was visible after the vessel sank. The vessel was later recovered but was considered a constructive total loss valued at \$968,000.



Figure 1. *Proassist III* before the sinking. (Source: Proassist III Incorporated)

¹ (a) In this report, all times are Atlantic standard time, and all miles are nautical miles (1.15 statute miles). (b) Visit [ntsb.gov](https://www.ntsb.gov) to find additional information in the [public docket](#) for this NTSB investigation (case no. DCA21FM011). Use the [CAROL Query](#) to search investigations.

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|-----------------------------|---|
| Casualty Type | Flooding/Hull Failure |
| Location | Caribbean Sea, near Puerto Yabucoa, Puerto Rico 18°01.14' N, 065°49.61 W |
| Date | December 24, 2020 |
| Time | 1742 Atlantic standard time (coordinated universal time -4 hours) |
| Persons on board | 3 |
| Injuries | None |
| Property damage | \$968,000 est. |
| Environmental damage | Slight sheen after vessel sank |
| Weather | Visibility low (1-2 mi in rain squalls), winds east 15 kts, seas east 6 ft, air temperature 79°F, water temperature 81°F, sunset 1754 |
| Waterway Information | Sea, depth 5 fathoms |



Figure 2. Area where the *Proassist III* sank, as indicated by a red X. (Background source: Google Maps)

1. Factual Information

1.1 Background

The 111.3-foot-long towing vessel *Proassist III* was constructed of welded steel by Nashville Bridge Company in Nashville, Tennessee, in 1949. Originally built as an inland rivers line-haul towboat, the vessel was converted into a harbor tug in 1989. Modifications included rounding and adding sheer to the bow. The *Proassist III*'s hull was originally constructed with seven compartments separated by bulkheads that were designed to be watertight and had watertight doors (see figure 3). The vessel operated on the Mississippi River until it was purchased by Puerto Rico Operations in 1992. The *Proassist III* was then operated by American Tugs & Barge (ATI) and homeported in San Juan and then Puerto Yabucoa, Puerto Rico. The vessel typically operated along the south coast of Puerto Rico between Puerto Yabucoa and Laguna de las Mareas, Guayama, three to five times per month. During the last quarter of 2020, the *Proassist III* transited between Puerto Yabucoa and Laguna de las Mareas 11 times, assisting 39 vessels during docking and undocking maneuvers.

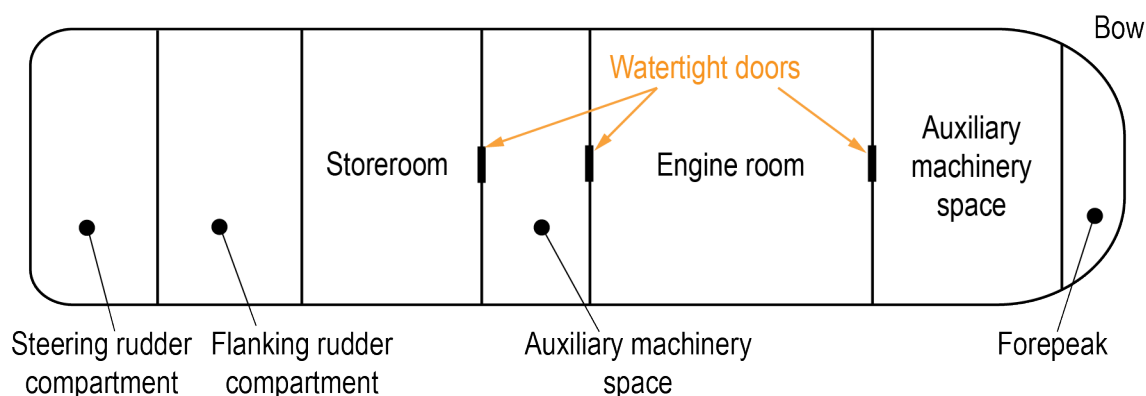


Figure 3. Compartments of the *Proassist III*, with approximate door locations. Scale approximate. (Source: Drawings and statements by *Proassist III* deckhands)

The vessel's bulwarks had four freeing ports—openings on each side of the vessel for draining water from the main deck. The openings each measured an estimated 36 by 6 inches (total opening size of 1.5 square feet). The height of the bulwark measured 43 inches at the bow, tapering to 16 inches near amidships, and rising again to 32 inches at the stern.

1.2 Casualty Events

At 0720, on December 24, the *Proassist III* departed Puerto Yabucoa en route to Laguna de las Mareas Harbor with a crew of three, including a captain and two deckhands. The vessel arrived at 1030 and began conducting tug assist operations. At

1407, after the vessel had finished assisting a ship, the first deckhand, who also served as the vessel's engineer (deckhand/engineer), made a round of the vessel and engine room in preparation for the return trip to Puerto Yabucoa. He stated that he opened the quick-acting flush access hatch to the steering rudder compartment and saw the compartment's 15-gallon sump was full. The deckhand/engineer told investigators that this amount of water in the sump was normal. Additionally, he stated that water regularly leaked from the rudder packing glands and down into the steering and flanking rudder compartment sumps, and each sump was fitted with a small independent, submersible electric pump that was automatically activated (by float switch) to discharge water.

The *Proassist III* departed Laguna de las Mareas about 1420, and the crew stated that all deck openings were closed at that time. About 30 minutes after departing, the weather conditions worsened because of squalls that produced strong and gusty winds and 5-to-6-foot seas. The captain stated that the *Proassist III* pitched and rolled in following "waves"; he described the severity of the conditions, stating, "Usually I have all the waves breaking in front of me....That was not our typical day, and by my experience it was not our typical weather."

About 1640, when the vessel neared the Punta Tuna Lighthouse, the second deckhand said he noticed that the stern "was riding a little low." The deckhand/engineer said that he and the second deckhand removed the quick-acting flush access hatch for the flanking rudder compartment near the centerline of the vessel to see if the vessel was taking on water. (There were additional quick-acting flush access hatches on the starboard and port sides of the deck; the starboard-side hatch was encompassed by a rectangular cutout of the deck plate measuring about 27 inches wide by 40 inches long, which the captain believed was welded in place.) They stated that they saw about 3 feet of water in the compartment. The deckhand/engineer said he then checked for water in the vessel's other compartments, including the steering rudder compartment and engine room, and found none.

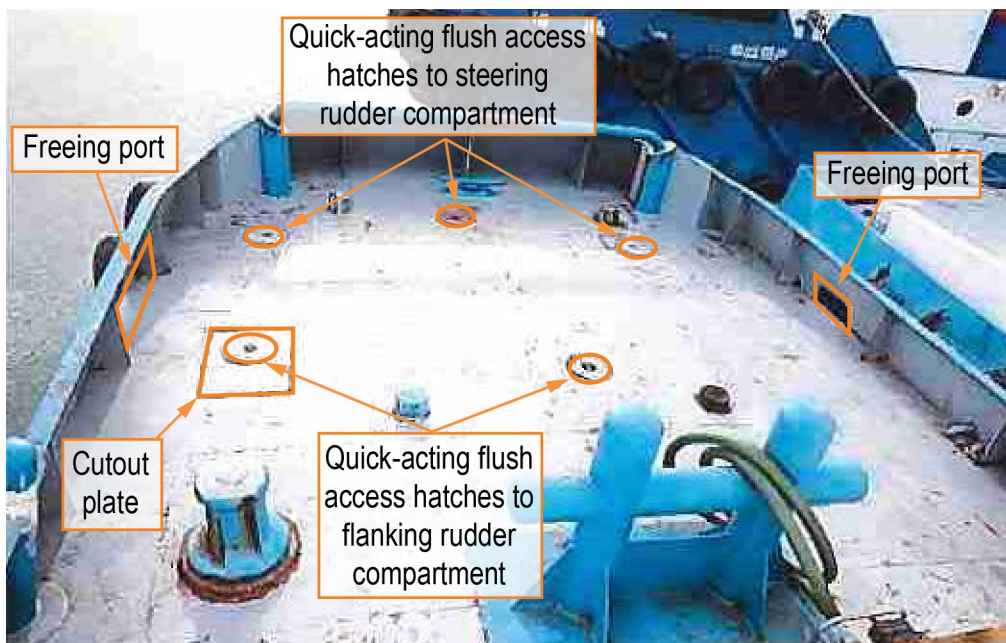


Figure 4. Main deck at the stern of the *Proassist III*. (Background source: Coast Guard)

About 1645, the deckhand/engineer radioed the captain to inform him of the water in the flanking rudder compartment and that the stern was riding low; he then went to the wheelhouse. Because the primary bilge pump installed on board the tug only served the engine compartment (which was also the only compartment fitted with a high bilge [water] level alarm), the captain had the two deckhands deploy an emergency portable, diesel engine-powered, 3-inch-diameter pump, rated at 250 gallons per minute (gpm), which was stored nearby in a deck locker. According to the captain, the deckhands placed the suction hose into the flanking rudder compartment through the flush access hatch near the centerline of the vessel and began using the pump to dewater the compartment. The deckhands stated that the pump stopped working shortly after they started it when a wave struck the pump.

The deckhands stated that water on deck (estimated at 4-6 inches) covered their feet as they tried to restart the pump, and although water drained through the freeing ports, waves kept washing over the bulwark onto the aft main deck. The captain stated that about 15-20 minutes after passing the Punta Tuna Lighthouse, the weather conditions further deteriorated with heavy rain and winds and seas from the east. As more waves washed over the stern of the vessel, the captain tried to steer a course to reduce the amount of water on deck from the seas.

About 30-40 minutes after directing the crew to use the emergency pump, the captain told them to come to the wheelhouse. The captain said that, at that time, the vessel was down by the stern with about a foot of water on deck, and he thought the flanking rudder compartment was filled with water.

When the vessel was 2 miles south of Puerto Yabucoa and 0.5 miles offshore, the captain radioed the US Coast Guard over VHF channel 16 at 1742 and said he and the crew were abandoning the vessel. He then used a cell phone to call the owner of the *Proassist III* and inform him of the situation. The Coast Guard also received a signal from the vessel's emergency position indicating radio beacon shortly after speaking with the captain by radio. About 1750, the Coast Guard issued an urgent marine information broadcast.

The crew prepared to abandon the vessel and donned personal flotation devices. The captain and deckhand/engineer threw the vessel's only liferaft canister into the water and pulled the painter line, which they had tied to one of the bitts. The carbon dioxide cylinder valve opened to inflate the liferaft; however, two straps around the center of the canister did not break, restricting the expansion of the liferaft. Seeing this, the captain went inside the vessel to search for a knife to cut the straps. While searching, he stopped in the engine room to look for evidence of flooding but saw none. In the meantime, the deckhands hauled in the painter line to bring the liferaft alongside the vessel. After finding a knife, the captain jumped into the water, and cut the two straps. After the liferaft inflated, he briefly entered the liferaft before crawling back on board the *Proassist III*, deciding it was better to be on the vessel to await rescue.

With the propulsion and generator engines still operating, the captain tried to move the vessel closer to shore. However, he found that the steering did not respond. He stated that the rudder was stuck at 10° to starboard, and he believed that water had reached the fuse box in the steering rudder compartment, causing the circuit breaker to open and thus losing electrical power for the steering motors.

About 1830, about an hour after sunset and now in darkness, with the *Proassist III*'s engines still running and in neutral, a 15-foot-long Good Samaritan fishing vessel responded to a call from the *Proassist III* owner and the Coast Guard's urgent marine information broadcast and approached the sinking vessel to rescue the crew. The captain and crew jumped into the water from the starboard bow. The captain observed that the *Proassist III* was listing to port, and, on the starboard side, the tires used as fenders were out of the water. All three crewmembers were pulled from the water by the operator of the fishing vessel.

About 1840, as the fishing vessel departed with the crew en route to Puerto Yabucoa, the captain saw the *Proassist III* sink by the stern. The vessel came to rest upright in 30 feet of water about 450 yards (0.25 miles) off the coast near Puerto Yabucoa.

1.3 Additional Information

1.3.1 Postcasualty Examination

After the sinking, divers hired by the owner examined the vessel under water. After the examination, the NTSB reviewed the video, which showed the starboard-side rectangular cutout plate to the flanking rudder compartment laying on the deck next to its opening. The quick-acting flush access hatch opening that the plate encompassed was missing its cover (see figure 5). A portable pump hose, which the deckhands said had been used to pump water from the compartment out through the center flush hatch opening, could be seen extending into the compartment through the cutout plate opening. The cutout plate did not appear to have securing device or bolts to keep it in place, nor a gasket or gasket material, and the edges of the plate and the plate frame appeared wasted (corroded). Additionally, the center quick-acting flush hatch cover to the flanking rudder compartment was found unseated.

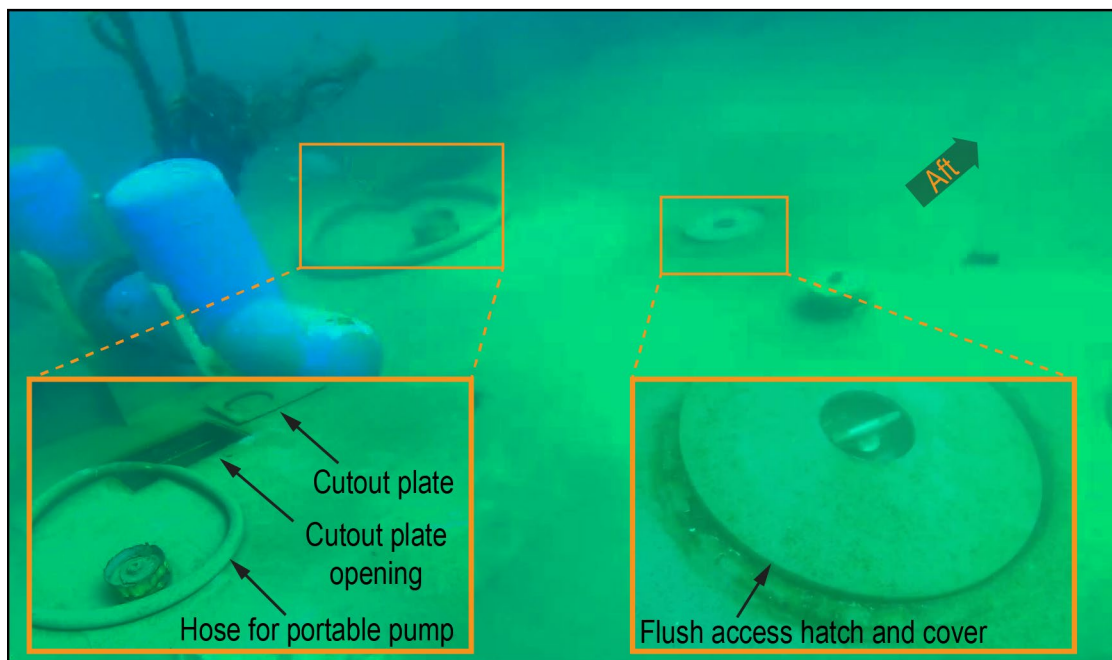


Figure 5. Starboard-side cutout plate with missing quick-acting flush access hatch cover (*left*) and unseated center quick-acting flush access hatch cover (*right*) to flanking rudder compartment. (Background source: Jorge Oller Reyes)

Video of the two quick-acting flush access hatches for the steering rudder compartment showed that the portside hatch cover was upside down and laying so that it covered more than half of the opening (see figure 6). A gasket was missing, and the underside of the cover was absent any dogs or mechanism to secure it in place.

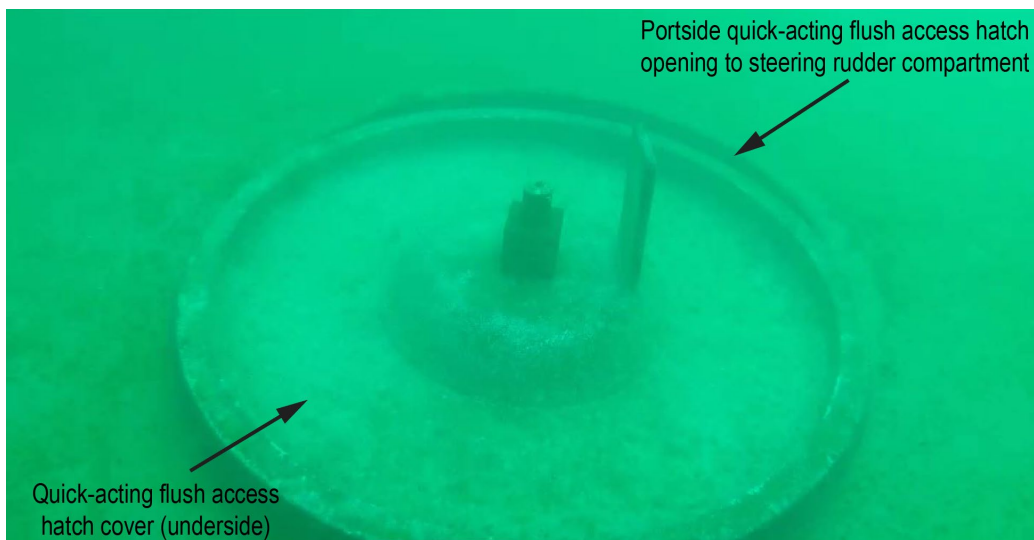


Figure 6. Upside down portside quick-acting flush access hatch cover and opening to the steering rudder compartment. (Background source: Jorge Oller Reyes)

The aft weathertight door on the port side and the only door on the starboard side of the house (which was also weathertight) were shown open in the video (see figure 7). Portions of the quick-acting closure devices used to secure the corners of the open doors appeared to be missing, as well as gasket material used to keep water from seeping into the interior of the vessel when each door was closed on its frame. In addition, the starboard-side door was missing a lower rod, and the two top rods appeared to not be connected to the top of the door and still connected to the hand wheel. The unsecured rods appeared to have swung downward and stretched across the sides of the door, preventing the door from being closed.

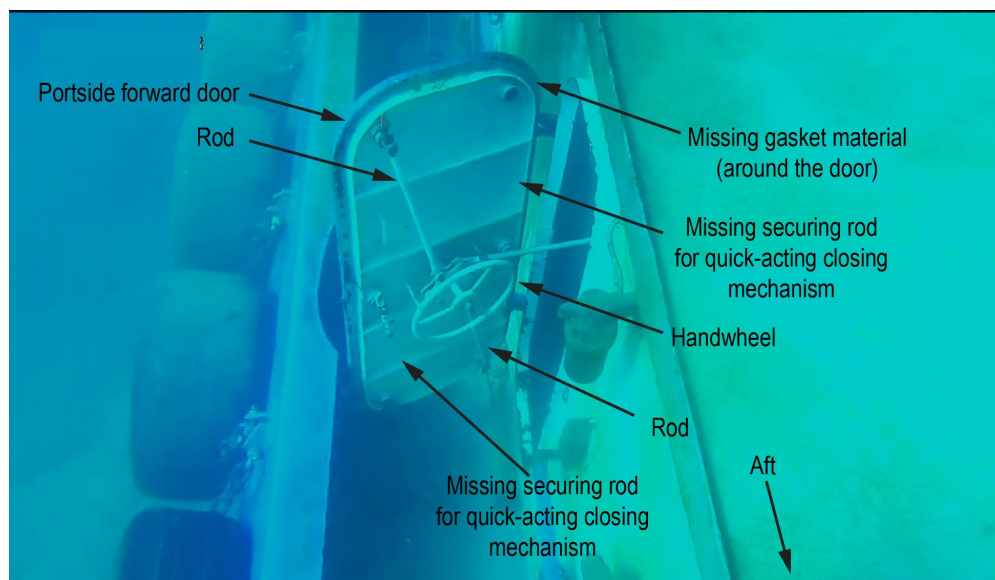


Figure 7. Portside forward quick-closing weathertight door on the main deck. (Background source: Jorge Oller Reyes)

The *Proassist III* was refloated and brought shoreside to Puerto Yabucoa on September 27, 2021. During an examination of the recovered vessel on November 17, 2021, investigators found several openings in designed watertight bulkheads: there were openings for a pipe running through the bulkheads separating the engine room, auxiliary machinery space, storeroom, and flanking rudder compartments; there were openings in the watertight bulkhead between the storeroom and the flanking compartments; and the section of the watertight bulkhead between the flanking and steering rudder

compartments, similar to the bulkhead shown in figure 8, was missing. During the examination, investigators determined the distance from the stern of the vessel to the bulkhead between the storeroom and flanking rudder compartments was 27.5 feet, and from the deck to the bottom of the vessel in the flanking rudder compartment and the steering rudder compartment measured 7 feet 7 inches and 5 feet 1 inch deep, respectively. The owner told investigators he planned to scrap the vessel.



Figure 8. Flanking rudder compartment after recovery. Openings in bulkhead shown also typical of other bulkheads below the main deck separating compartments. (Source: Coast Guard)

1.3.2 Vessel Maintenance and Inspections

The *Proassist III* was last drydocked for examination and maintenance in 2013. The owner had scheduled a drydock period for the vessel in June 2021, during which he planned a survey to measure the thickness of the hull plating.

The owner arranged a condition and valuation survey—a survey conducted to ascertain the general condition of the vessel’s equipment, systems, and structure, and to determine its value for credit and insurance purposes—on September 24, 2015. Recommendations included renewing deck hatches and adjusting the portside aft quick-acting door to achieve watertight integrity.

Additionally, a third-party surveyor hired by the owner to assess the *Proassist III*’s compliance with applicable Coast Guard regulations conducted surveys of the vessel in February 2015, August 2016, May 2017, and May 2019. The owner specifically ordered the 2017 and 2019 surveys to evaluate the vessel’s compliance with the regulations in Title 46 *Code of Federal Regulations* Subchapter M, which took effect on July 20, 2018, for towing vessels. The 2017 and 2019 surveys found more than 80 items needing to be addressed for compliance with the new regulations, including the absence of high-bilge (water) level alarms; watertight integrity issues with the deckhouse doors; and misaligned doors with wastage on the knife edges, as well as wastage on the bottom of the starboard-side engine room door. Additionally, both surveys found leaking rudder packing. The two surveys did not cover items associated with Coast Guard internal structural or hull (drydock) exams. The vessel owner was asked by investigators to provide records of how or whether he addressed the recommendations or deficiencies in the surveys. No records were received. The captain told investigators that he was unaware of the owner’s maintenance plan for the *Proassist III*.

At the time of the sinking, the *Proassist III* had yet to be issued a Coast Guard certificate of inspection (COI) under Subchapter M regulations. The first milestone of the phase-in period was in July 2019, when operators were required to have a COI for 25% of their fleet. At the time of the sinking, the *Proassist III* owner met the phase-in requirement: five of the owner’s nine vessels had been issued COIs by the Coast Guard. The *Proassist III* was scheduled for a Subchapter M inspection by the Coast Guard in July 2021 (7 months after the sinking). During this examination, inspectors would verify that the vessel was in a condition and outfitted to meet towing vessel safety standards contained in the regulations, which required a towing vessel to be maintained and operated so the watertight integrity was not compromised.

Following the sinking of the *Proassist III*, Coast Guard Sector San Juan began a Concentrated Inspection Campaign for towing vessels that were subject to but had not yet been inspected by the Coast Guard under the new Subchapter M towing vessel regulations. As a result of the campaign, the owner of the *Proassist III* was ordered not to operate his other three vessels that had not yet received a COI. Those vessels had hull and deck integrity issues, including wasted opening edges, missing gaskets, seized hatches, seized door securing mechanisms (dogs), and wasted (corroded) areas and holes in shell plating (of the hull) above and below the waterline. Two of the vessels were

detained because of the risk of operating in their condition, and a third was given a list of tasks to complete before operating.

1.3.3 Vessel Tonnage

Before 1992, the *Proassist III* was 316 gross register tons (GRT) under the US regulatory measurement system, and, if the vessel was to operate outside of harbors (offshore of the coast of Puerto Rico), it would have been subject to inspection by the Coast Guard as required by the regulations in 46 *Code of Federal Regulations* 2.01-7. Requirements for an inspected vessel would have included annual examinations and drydocking twice every 5 years. In 1992, the *Proassist III* was re-measured; the vessel was determined to be 241 GT ITC under the international convention measurement system and 213 GRT under the US regulatory measurement system.² In 1993, the vessel received a new tonnage certificate and was no longer subject to the vessel inspection laws for a seagoing motor vessel of more than 300 GRT.

Similarly, vessels with a regulatory tonnage of 150 GRT or more are subject to load line regulations and are required to be surveyed annually by surveyors of the load line certificate-issuing authority (the American Bureau of Shipping or another recognized classification society approved by the Coast Guard) and drydocked for survey once every 5 years. When the *Proassist III's* regulatory tonnage was over 150 GRT, the vessel was subject to the regulations, including Coast Guard inspections for single-voyage load line exemption certificates (the vessel was issued certificates in 1994, 1995, and 1996 to sail between San Juan and Guayama).

In December 1996, deep frames (similar to a bulkhead) were added to the vessel in order to reduce the volume of space below the main deck used to calculate the GRT using the regulatory measurement system. This modification further reduced the vessel's tonnage to 148 GRT (the GT ITC remained the same). In 2000, the owner of the *Proassist III* informed Coast Guard Sector San Juan that the vessel had reduced its regulatory tonnage to 148 GRT on December 10, 1996, and therefore was no longer subject to load line regulations because it was an existing vessel (now) less than 150 GRT.

² *GT ITC*, or *gross tonnage-international tonnage convention*, is the international standard for the measurement of the volume of all enclosed spaces on a vessel, as defined in the International Convention on Tonnage Measurement of Ships, 1969.

1.3.4 Crew

The captain of the *Proassist III* had been working in the maritime industry for 8 years and had been employed by ATI for 7 years. He served as the captain of ATI vessels, including the *Proassist III*, about three times each week.

Similarly, deckhands were called to work on the *Proassist III* on an as-needed basis. The deckhand/engineer had worked in the maritime industry for 23 years, all with ATI. The second deckhand had been in the maritime industry for 4 years, all with ATI. Both deckhands had previously served on board the *Proassist III*.

Drug and alcohol testing of the *Proassist III* crew was conducted. The toxicology report for the second deckhand revealed a positive result for a cocaine metabolite.

2. Analysis

Although the second deckhand's postcasualty drug testing was positive for cocaine metabolite, which indicates he used the drug in the days before the casualty, it is unlikely that any effects from its use contributed to the casualty circumstances.

2.1 Flooding and Sinking

About 2.5 hours after departing Laguna de las Mareas, Guayama, the crew noticed the vessel was down by the stern and found about 3 feet of water in the flanking rudder compartment. The postcasualty examination of the vessel showed that portions of the bulkhead between the flanking and steering rudder compartments were missing, and, therefore, the water that the deckhand found in the flanking rudder compartment would have also been in the steering rudder compartment at an equal level. Based on the approximate size of the two compartments—13.75 feet long, 27.5 feet wide, and about 8 feet deep (the steering rudder compartment was about 5 feet deep)—the volume of water accumulated in the spaces would have totaled roughly 36,500 gallons. Calculated from 30 minutes after the vessel departed, when the weather worsened, the average flooding rate for 2 hours required to reach 36,500 gallons would be 304 gallons per minute.

Investigators attempted to determine how the volume of water in the steering rudder compartment had increased so significantly from the small volume in the sump the deckhand/engineer found before the vessel's departure. The deckhand/engineer stated that water regularly leaked into the flanking and steering rudder compartments through the rudder packing glands. Once the vessel was refloated, there was no evidence that the rate of water entering the vessel through the rudder packing glands changed and would have been significant compared to the calculated rate of 304 gpm. The postcasualty examination of the vessel showed that neither the quick-acting flush

access hatches providing access to the flanking and steering rudder compartments, nor the cutout plate that encompassed the starboard flush access hatch to the flanking rudder compartment, had bolts or a securing mechanism (dogs) to keep them in place. Further, the covers and hatch were missing gasket material and had corroded frames; therefore, water on deck would have seeped through the hatch seals into the compartments below. However, the rate of flooding through the unsecured hatch seals also would not have approached the calculated 304 gpm.

Because there were no structural defects found that could have allowed for flooding, the only other explanation for the significant flooding would have been if a cover for an aft deck opening was not in place. When operating in a port, the regulations in Subchapter M allowed a vessel's hatches to remain open. The crew of the vessel rarely operated in waters or conditions where seas washed over the deck and may have departed Yabucoa earlier in the morning with an open hatch. If a hatch was open when the vessel departed Yabucoa, with favorable sea conditions, the crew may not have felt it necessary to close deck openings. Subchapter M required all openings to be secured when operating offshore, and it was the responsibility of the captain and crew to maintain the watertight integrity of the vessel—including securing all hatches and doors. The crew told investigators that all deck openings were closed when the vessel departed Laguna de las Mareas, but given the rate of flooding observed, at least one of the openings was likely not closed. About 30 minutes after the *Proassist III* departed Laguna de las Mareas, the weather worsened, and seas began washing on deck. With a reported 4-6 inches of water on deck, the openings would have allowed a significant amount of water to flood into the compartments below.

The underwater survey showed that the starboard deck cutout plate that encompassed the quick-acting flush access hatch to the flanking rudder compartment was displaced. The portable pump discharge hose was found with a loop on deck and both ends leading down through the cutout plate opening, indicating that the pumping the crew described was likely occurring through the cutout plate. With the cutout plate open, any water on deck would have drained into the flanking rudder compartment. Further, since the cutout plate (a flat steel plate inset resting on a framed lip) had no apparent gasket or means to be secured, water on deck would have drained through its seams even if it had been in place.

About 30-40 minutes after the crew discovered the water and attempted pumping it off, the flanking rudder and steering rudder compartments were completely filled, and the deckhands abandoned their dewatering efforts. Even before the compartments were completely filled, ongoing progressive flooding would have occurred through the openings (found during the postcasualty examination) in the bulkheads separating the engine room, auxiliary machinery space, storeroom, and flanking rudder compartments, including cutouts for a pipe to run through those spaces.

As the vessel progressively flooded, its freeboard would have decreased, resulting in more water on deck and higher flood rates through unsecured or open aft deck hatches. Eventually, water would have reached the deckhouse, where it would have also begun downflooding through the weathertight doors on the port and starboard sides, which were found open during the postcasualty underwater survey (even if the doors had been closed, they would not have been sealed tightly, since they were missing gaskets or in disrepair).

2.2 Hull Maintenance

The postcasualty examination of the vessel showed holes in the vessel's watertight bulkhead and a lack of gaskets and securing mechanisms for openings on the deck. The *Proassist III* had not been issued a COI under the new Subchapter M, but regardless of the vessel's COI status, the Coast Guard required operators to comply with the requirements in Subchapter M by July 2018, almost 1.5 years before the casualty. Compliance included maintaining the watertight and structural integrity of the vessel. The watertight and structural integrity deficiencies in the postcasualty examination of the *Proassist III* indicate that the vessel was not adequately maintained. Additionally, as a result of the Coast Guard's Concentrated Inspection Campaign after the casualty, hull and deck integrity issues were identified on three of the *Proassist III* owner's other vessels, indicating that the company did not have an effective maintenance program. An effective maintenance and hull inspection program would have proactively sought to minimize the wastage of steel on the *Proassist III* (and other company vessels) and made any corrosion issues easier to identify and flag for repair.

Before 1996, the *Proassist III* was regularly examined by the Coast Guard as part of the process for obtaining a load line certificate exemption. However, when the vessel's tonnage was reduced to 148 GRT in 1996, the vessel was no longer subject to these examinations. Had the owner not reduced the vessel's tonnage, it would have had its structure and deck openings examined regularly by Coast Guard inspectors or load line examiners, who likely would not have allowed the vessel to operate unless the structure and deck openings were in satisfactory condition. By reducing the tonnage, the owner eliminated regulatory oversight. Given the demonstrated lack of overall hull and watertight integrity, the owner did not maintain his vessels that had not yet been issued a Coast Guard COI in a suitable condition for offshore service, opting to maximize periods between drydockings, which would have identified hull and watertight integrity deficiencies.

3. Conclusions

3.1 Probable Cause

The National Transportation Safety Board determines that the probable cause of the sinking of the towing vessel *Proassist III* was unsecured or open aft deck hatches, which resulted in the flooding of the vessel's aft compartments from water on deck and progressive flooding to other compartments through openings in watertight bulkheads. Contributing to the flooding of the vessel was the owner's lack of an effective hull inspection and maintenance program.

3.2 Lessons Learned: Effective Hull Inspection and Maintenance

Over the past 5 years, the NTSB has investigated five casualties involving towing vessels whose weather decks and openings were in poor condition—leading to flooding and subsequent sinking. To protect vessels and the environment, it is good marine practice for owners to conduct regular oversight and maintenance of hulls, including between drydock periods, regardless of inspection requirements. An effective maintenance and hull inspection program should proactively address potential steel wastage, identify hull and watertight integrity deficiencies, and ensure corrosion issues are repaired in a timely manner by permanent means.

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| Vessel | <i>Proassist III</i> |
| Type | Towing (Towing vessel) |
| Flag | United States |
| Port of registry | Yabucoa, Puerto Rico |
| Year built | 1949 |
| Official number (US) | 257007 |
| IMO number | 8644395 |
| Classification society | N/A |
| Length | 111.3 ft (33.9 m) |
| Beam | 27.5 ft (8.4 m) |
| Draft | 8.0 ft (2.4 m) |
| Tonnage | 148 GRT / 241 GT ITC |
| Engine power; manufacturer | 2 x 1,000 hp (745.7 kW); EMD 12-567 diesel engines |

NTSB investigators worked closely with our counterparts from **Coast Guard Sector San Juan** throughout this investigation.

The National Transportation Safety Board (NTSB) is an independent federal agency dedicated to promoting aviation, railroad, highway, marine, and pipeline safety. Established in 1967, the agency is mandated by Congress through the Independent Safety Board Act of 1974, to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)).

For more detailed background information on this report, visit the NTSB investigations website and search for NTSB accident ID DCA21FM011. Recent publications are available in their entirety on the NTSB website. Other information about available publications also may be obtained from the website or by contacting—

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