



National Transportation Safety Board

Marine Accident Brief

Capsizing and Sinking of Towing Vessel *Ricky Robinson*

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|-----------------------------|--|-----------------------|
| Accident type | Capsizing/Listing | No. DCA18FM007 |
| Vessel name | <i>Ricky Robinson</i> | |
| Location | Lower Mississippi River, mile 732.8, near Memphis, Tennessee 35°07.11' N, 090°06.50' W | |
| Date | December 8, 2017 | |
| Time | 1126 central standard time (coordinated universal time – 6 hours) | |
| Injuries | 2 fatalities | |
| Property damage | \$1.5 million est. | |
| Environmental damage | Approximately 200 gallons of fuel oil released into water | |
| Weather | Clear skies, visibility 10 miles, winds northeast 5–10 knots, air temperature 36°F, water temperature 52°F | |
| Waterway information | The river stage of the Lower Mississippi River near the accident site was approximately 2 feet and falling, and the current was approximately 3–4 mph. | |

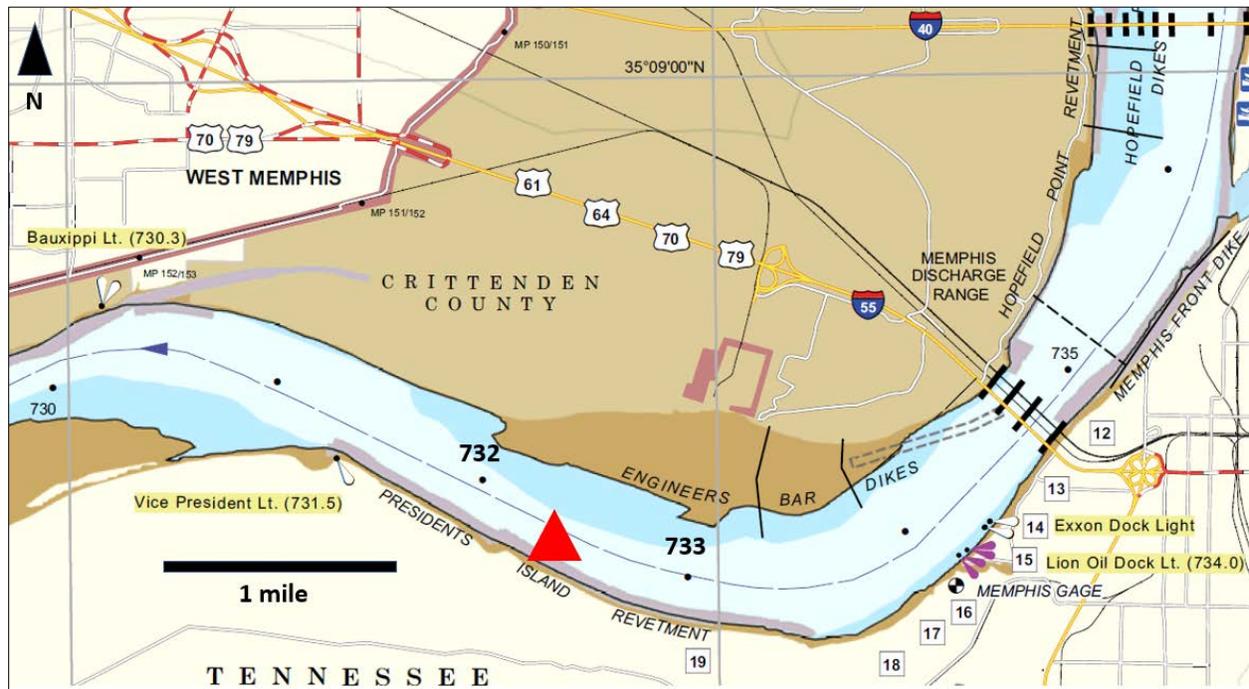
On December 8, 2017, about 1126 local time, the *Ricky Robinson* capsized and sank on the Lower Mississippi River at mile 732.8 near Memphis, Tennessee, with two crewmembers on board, after the towing vessel began taking on water.¹ The pilot made a distress call just before the sinking; neither crewmember was found during the search and rescue operations that followed. When the vessel was recovered 9 days later, the deckhand's body was discovered inside the wreckage; the pilot is presumed to be dead. Approximately 200 gallons of diesel oil were released into the river. Damage to the *Ricky Robinson* was estimated at \$1.5 million.



Towing vessel *Ricky Robinson* before accident. (Photo courtesy of Wepfer Marine)

¹ Unless otherwise noted, all *miles* are statute miles, *speeds* are speed over ground, and *courses* are course over ground.

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Location of accident where *Ricky Robinson* sank on Mississippi River. (US Army Corps of Engineers map no. 21)

Background

The *Ricky Robinson* was a 66.5-foot-long, twin-propeller towboat with 1,400 horsepower. The vessel was built in 1976 by Louis G. Ortiz Boat Company in Krotz Springs, Louisiana, and purchased in 2000 by Wepfer Marine Inc. of Memphis, Tennessee. In 2010, the towing vessel underwent an extensive drydock at the company's shipyard in Memphis, during which time both main engines were replaced, and its breadth was increased approximately 2 feet. Wepfer Marine operated the *Ricky Robinson* as a fleet boat on the Lower Mississippi River to move barges around the various fleeting areas or docks.²

The *Ricky Robinson* had a crew of two aboard: a pilot and a deckhand. They both started their 12-hour shift at about 0615 on December 8, the day of the sinking. The shifts ran consecutively over 5 days from 0600 to 1800 and then over the next 5 days rotated from 1800 to 0600, followed by 5 days off. The pilot and deckhand were working on the third day of the 10-day rotation schedule during the daytime shift.

Accident Events

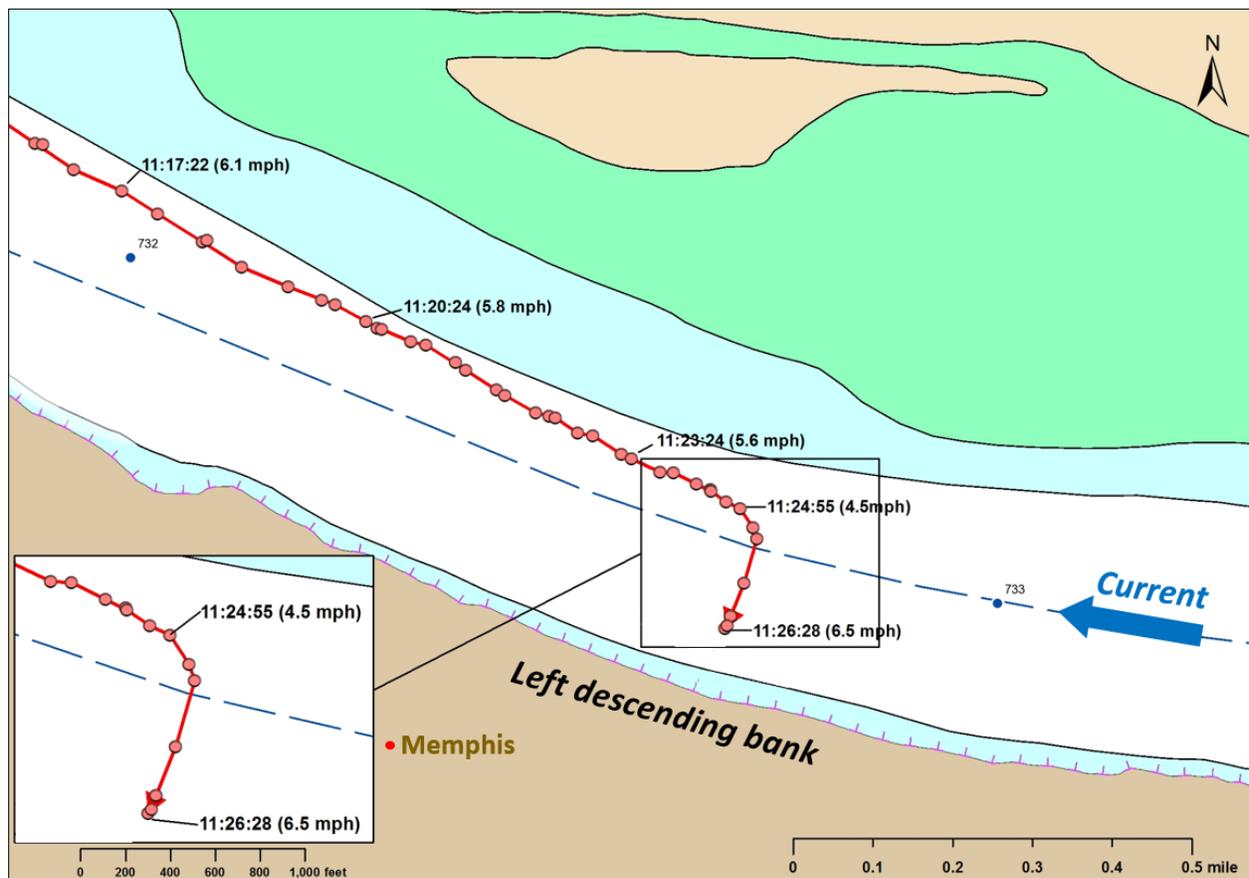
About 1059 on December 8, the *Ricky Robinson* got under way from the CGB (Consolidated Grain and Barge) Company's fleet at mile 730 on the Mississippi River to head toward the Seacor AMH intermodal container terminal approximately 4 miles upriver. The towing vessel was traveling against a current estimated at 3 to 4 mph in a "lightboat" condition—that is, not pushing any barges. Both engine room doors were open, according to the pilot on the

² *Fleeting areas* are geographic areas on or near a riverbank where barges are moored. *Fleet boats*, which are usually small towboats, are used to move barges around these areas and to assemble tows.

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Betsy Ross, another company fleet boat, which was approximately 200 to 300 yards away from the *Ricky Robinson* at the time it departed the fleet.

While the *Ricky Robinson* proceeded upstream at approximately 6 mph, the pilot steered the vessel into the current using the two steering rudders.³ About 1125, the vessel's course changed dramatically to starboard. During that turn, which brought the vessel toward the left descending bank, *Ricky Robinson's* speed decreased from 5.4 to 4.4 mph, before increasing to a maximum speed of approximately 7.6 mph. At 11:26:28, the last telematic sensor signal received showed the vessel traveling at 6.5 mph.⁴ At that time, the vessel was approximately 500 feet from the left descending bank.



Trackline of *Ricky Robinson*, illustrated with red line, over its last 10 minutes reveals towing vessel's sudden turn to left descending bank just before sinking. (Background from Google Earth)

The pilot of the *Betsy Ross*, which was at the CGB facility, said that sometime between 1120 and 1130 he overheard a distress call from the *Ricky Robinson* on VHF channel 10, the working frequency for Wepfer, stating, "We're going down." On hearing the call, the pilot on the *Betsy Ross* got under way at about 1128 to respond to the distressed towboat. He told investigators

³ Navigational information is based upon electronic data from the *Ricky Robinson's* automatic identification system (AIS) and the vessel's telematic sensors, which were recovered from the wreckage.

⁴ Outfitted on some vessels, *telematic sensors* transmit engineering and navigational information such as time, position, speed, and heading information, similar to an AIS. The *Ricky Robinson* was equipped with five telematic sensors.

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that he saw the *Ricky Robinson* in the middle of the river “broadside to the flow [current] and heading to the left descending bank.” While the *Betsy Ross*, in a lightboat condition as well, accelerated into the current toward the *Ricky Robinson*, the pilot looked down to the main deck to ensure that his vessel was not taking water over the bow. However, when he looked up about 20 to 30 seconds later, according to his estimate, he no longer saw the *Ricky Robinson*.

At about 1130, a dispatcher with Economy Boat Store, a fuel service provider at mile 735, reported that she received a call from the *Ricky Robinson* on their working VHF channel 11. The pilot told her, “This is the *Ricky Robinson*. We are in distress. We are one mile down from you and taking on water. Please send someone.” Employees working on Economy Boat’s dock, who also heard the call, boarded the company’s vessel *Crew Boat 2* to assist the distressed vessel. At 1131, they departed the dock and about 4 minutes later arrived at the *Ricky Robinson*’s last reported position.

None of the Economy Boat employees aboard the *Crew Boat 2* saw the *Ricky Robinson*. They stated that when they arrived, they saw two backpacks floating in the water that they recovered. In addition, they observed a mini fridge, a seat cushion, a life jacket, a lunch cooler, some ropes, and an oil sheen on the water. Crewmembers from other vessels and Wepfer Marine employees searching the riverbank reported seeing wood paneling, papers, buckets, and an oil spill cleanup kit on the water or riverbank.

About 1139, the *Betsy Ross* arrived at the last known position of the *Ricky Robinson*. By 1144, as other vessels began arriving, including two more vessels from the Economy Boat Store, there were four vessels searching the area.

Around this time (at 1142), the command center for US Coast Guard Sector Lower Mississippi River, located about 4 miles upstream from the accident site, was notified of the disappearance of the *Ricky Robinson* by a Wepfer Marine employee. The command center then dispatched a response boat for the search and rescue effort, which arrived on scene about 1220. Additionally, state and local vessels assisted in the search, and a local police helicopter was launched to conduct an airborne search. Wepfer Marine dispatched all nearby and available vessels and employees to search the area, including the riverbanks. There was no sign of the vessel or crew.

There were no eyewitnesses to the sinking of the *Ricky Robinson*. The Coast Guard requested camera surveillance footage from both the nearest highway bridge (at mile 734.7), the local police department, and companies occupying properties along the riverbanks near where the vessel sank, but there was no video of the accident.

Mobile phone records recovered from the pilot of the *Ricky Robinson* indicated that he did not receive or make a voice call from the time he left the dock through the time of the sinking. The last text message he received was at 1110, and the last data usage occurred between 1113 and 1120. Because the pilot’s cell phone was not found in the wreckage, no further details about the nature of the data usage, which amounted to a download of 19 megabytes, were available.⁵ Based on the last position signal transmitted from the vessel, the data usage terminated 6 minutes before the sinking.

⁵ According to the mobile phone service provider, downloads and uploads can be initiated by either the user or the network.

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Other Information

Personnel

The accident pilot, age 35, had been employed by Wepfer Marine since April 2007. According to the company, he had sailed as pilot for about 4 to 5 years; previously, he had worked as a deckhand and a steersman (under a pilot apprentice program). He held a valid Coast Guard credential as master of towing vessels on Western Rivers.

The deckhand, who was 19 years of age, had been employed by Wepfer Marine since September 2016. Results from toxicological testing on postmortem samples were negative. The cause of death was determined to be drowning.

Salvage and recovery

About a week after the accident, the vessel was brought to the surface and dewatered. There were no significant hull deformations or notable damage below the waterline. While examining the vessel's spaces, investigators found the deckhand deceased in the alleyway washroom that led to the portside door on the main deck. He was entangled in a 2-inch polypropylene rope, which had been stored in the washroom shower. The deckhand was fully clothed, attired in his work vest (life jacket).

The pilot's body was not recovered. All the windows in the aft of the pilothouse were blown out. Nearly all fittings and furniture in this space were missing, including the pilot's helm chair. The control consoles were the only remaining fixtures.

Both propulsion control levers were found to be clutched in and in the ahead position. The tiller for the flanking rudders was found to be in the zero (midships) position, and the tiller for the two steering rudders was in the hard-to-starboard position.



***Ricky Robinson* post-salvage. Two inset photos show, at left, both aft voids missing hatch covers, with a yellow square highlighting where submersible pump was found, and, at right, open starboard engine room door tied off to stairs.**

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Although the witness who last saw the *Ricky Robinson* reported seeing both engine room doors open, only the starboard-side door was found open; it had been tied back with a rope to the stairs. All other main deck doors were found closed. The port- and starboard-side hatches for the aftermost and forward stern voids were open and all missing their covers (four covers total). There was no evidence of impact or mechanical damage around the coamings. All other hatches for fuel and water tanks were closed. While the vessel was floating, there were no leakages observed from the hull, the propeller shaft seals, or the engine cooling water system on both sides of the vessel. There was an electric submersible pump found on the starboard aft deck next to the bulwark with both cable and hoses severed.

Maintenance and condition of vessel

There were no construction plans, arrangement drawings, tank capacity plans, or any other information to provide a postaccident stability analysis of the *Ricky Robinson*, nor was there any regulatory requirement to have these plans.

In 2010, the *Ricky Robinson* had most of its steel hull replaced during a drydock period. The breadth of the vessel was increased approximately 1 foot on each side, increasing the beam from 22 to 24 feet. In the pilothouse, a window with a downward view was installed beneath the main windows to allow the pilot to observe the deck and to monitor water coming over the bow when the vessel was in a lightboat condition.⁶ Company pilots and representatives told investigators that while navigating the vessel in this condition their immediate actions for clearing water from the deck involved backing off the throttles, disengaging ahead propulsion, or in some situations backing the vessel.

The company provided investigators with a video of the *Ricky Robinson* taken after the accident to demonstrate the vessel in a lightboat condition while heading into two different current velocities. The speed of the vessel in the first demonstration is above 4.5 mph against a current of 5.5 mph, and in the second, 6 mph against a lower current, an estimated 3.3 mph. In both instances, water comes over the bow rail and onto the forward deck. When the vessel's speed increases, the amount of water increases, flowing down the starboard side all the way to the aft deck where the stern voids are located, before eventually clearing from the decks through the freeing ports at the bulwarks.

Shipyard personnel kept records of the maintenance conducted on the *Ricky Robinson*. According to a comprehensive log referred to as an "Equipment Status Spreadsheet," the vessel had a history of leaks in the forward stern void, which were reported on at least three occasions—in September 2015, October 2016, and February 2017—but all were recorded to have been resolved. For the most recent issue, the company safety manager reported "steering tubes leaking heavily," although there was no record of how they were repaired.

The *Ricky Robinson* was last drydocked in April 2017. According to the drydock report, no hull leaks were reported and both steering rudder bearings were replaced. The bearing system for the rudder tubes was lubricated by river water, which exited through the rudder post top seals onto

⁶ The volume of water coming over the bow can depend on the vessel's trim and speed relative to the current in the river.

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the deck. Wepfer Marine stated that the harder the rudders were worked, the more the water flowed onto the deck.



Screenshots from Wepfer Marine video of *Ricky Robinson* in a lightboat condition while heading into two different current speeds. In each instance, when vessel speed increases, the amount of water coming over bow increases.

The off-going pilot told investigators that he informed the accident pilot “all was good” with the vessel during the crew changeover about 5 hours before the sinking, at about 0615. However, the off-going deckhand stated that he informed the accident deckhand to “keep pumping the stern void”; two to three times during his shift he had to pump water from the forward stern void. At the time he departed the *Ricky Robinson*, the off-going deckhand left in the void a submersible electric pump, which he had placed through the open starboard hatch. The off-going deckhand stated that he did not know why the void had to be pumped out but completed this task on previous shifts as well, only when requested by the pilot. Company representatives said that they were unaware of the crews having to pump out the voids on the vessel.

The off-going pilot told investigators that he noticed that at the beginning of his shift the starboard forward stern void cover was off and that there was about a foot of water inside. He asked the deckhand to pump out the water and to repeat the effort throughout their 12-hour shift each time the vessel “leaned a bit” to starboard. He estimated that he made the request “maybe twice.” Neither he nor the deckhand reported this issue to the dispatch office or to company management.

A former deckhand who departed Wepfer Marine 3 months before the accident date told investigators that the aft voids on the *Ricky Robinson* were in constant need of being pumped out throughout his 3-month employment with the company. He recalled the hatch for the voids being sealed only when the vessel was “running hard.” Otherwise, when the vessel would “lean,” he recalled, they would pump out “the stern all the time” to correct the problem, without knowing the source of the water ingress. In one instance the former deckhand recounted, water washed onto the deck and down into the open stern void while the towing vessel was moving into a tow with its stern upriver. He stated that they almost sank but were able to get the hatch sealed in time. The

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pilot who was on board at that time did not recall this event occurring, nor did the company have a record of the event being reported.

Wepfer Marine last inspected the vessel 2 days before the accident. There were no documented issues related to “structural integrity (scuppers, watertight doors, holds/voids),” as described on the company’s monthly inspection checklist.

Per company procedure, each pilot was required to conduct a walkthrough inspection at the shift changeover using a checklist and then submit the form to the dispatcher at the end of the shift. Any “unsatisfactory” issues noted on the checklist were to be recorded into the “Equipment Status Spreadsheet” before the form was discarded. There were no spreadsheet entries found for the day prior to the sinking when the *Ricky Robinson* was operated by the accident pilot (his checklist issues, if any, would have been transferred onto the spreadsheet at the end of his shift). The walkthrough inspection checklist for the crew changeover that occurred the morning of the sinking, if completed, was not found on the vessel and therefore could not be reviewed. However, the off-going pilot who completed the checklist—which specifically listed “hatches sealed” in the “main deck/bow/stern” as an item to note either as satisfactory or unsatisfactory—acknowledged that there was an open hatch with water in the void.

The off-going pilot stated that at the start of his shift, the sight glasses for the fuel tanks, located forward on the vessel, indicated that the fuel tanks were full. For the water tanks, aft of the engine room but forward of the stern voids, the sight glasses measured approximately 6 inches from the top, which he understood to indicate that the tanks were full. He did not check the tank volumes at the end of his shift, which would have been the task of the oncoming pilot.

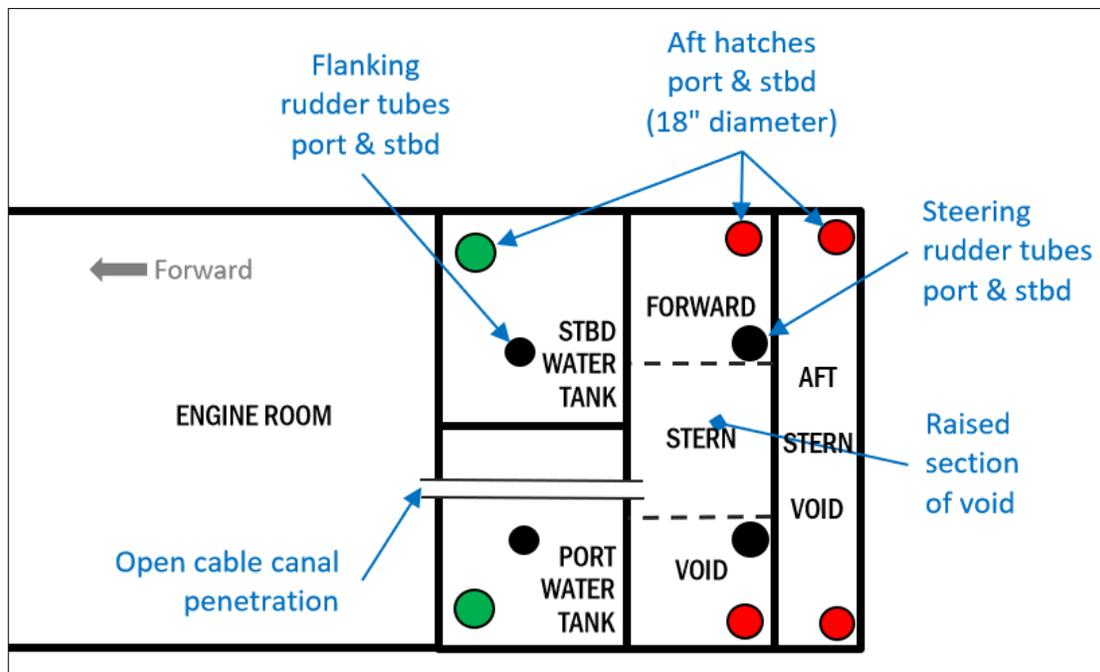
Postaccident examination of wreckage

After being recovered from the accident site, the *Ricky Robinson* was drydocked so that the engine room, void spaces, and tanks could be examined. Since none of the hatch covers for the aft voids were recovered, no testing of water tightness of the cover seals could be conducted. To check for external and internal leakage, the void spaces were each filled with water, and the decks were flooded to determine if water on deck could have leaked into the tanks. No external leakages were found from either of the aft void spaces, nor was there any evidence of leakage of water from one filled void space to the other. In the forward stern void, the starboard-side rudder tube that passed through the space appeared to either have a corroded, broken, or missing weld seam between the tube and the top deck. Rudder damage resulting from salvage operations and the lack of power to the vessel prevented watertight testing of the rudder tubes while in operation.

Investigators found two items of concern inside the forward stern void. First, despite efforts to pump out the void completely, there remained a pool of water between the two longitudinal frames that investigators estimated was approximately one-quarter of the void’s full capacity. Because no drainage or bilge suction existed in the area, pumping out the remaining water would require someone to enter the space and use a portable pump. Second, when the forward stern void was filled to a water level approximately 7 inches below the top of the void, investigators found a flow of water into the engine room through a cable canal between the forward stern void and the engine room. There was no evidence of the cable canal having any packing or penetration seals.

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After the accident, the *Ricky Robinson* was rebuilt and returned to service at Wepfer Marine. Modifications were made to the forward and aft voids to include a 6-inch raised coaming and four “dog” hatches.



Plan view of *Ricky Robinson* (not drawn to scale). Circles colored red indicate access to void tanks found open with no covers when vessel was salvaged; green indicates hatches for potable water tanks, which had covers in place when vessel was salvaged; and black indicates steering and flanking rudder tubes that passed through voids.

Analysis

Given that there were no survivors of, or direct witnesses to, the sinking of the *Ricky Robinson*, investigators relied on as evidence the towboat's position and speed data, its condition post-salvage, and former crew statements.

According to the two crewmembers relieved on the day of the accident, water accumulation in the forward stern void resulted in the vessel listing to starboard, although the source of the water intrusion was unknown. To reduce the heel, the off-going deckhand pumped the void at the pilot's request, at an estimated frequency of two to three times per shift. The most recent pumping occurred when the crew changed, which was about 5 hours before the sinking. Based on the historical rate of flooding, the void would have contained enough water to cause a starboard list at the time of the accident. Furthermore, the pump used to dewater the void found outside the space afterward indicated that the accident deckhand likely had not yet placed the pump inside the void.

One probable source of internal water ingress into the forward stern void was the potential leakage from a steering rudder tube that passed through the void or from a corroded, missing, or broken weld for the tube. Externally, the water could have entered either through the rudder post top seals on the aft main deck, over the bow while the vessel was traveling against the current, or onto the deck when it submerged. There were no indications of damage to the hatch covers or evidence of them being forced out during sinking, nor were they removed by the salvors. Therefore, it is likely that the four hatch covers for the two aft voids were either left open or not

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properly secured at the time of the sinking. Water on deck would have entered the stern voids if the covers were not properly secured.

Based on the company video and interview statements, the *Ricky Robinson* operating in a lightboat condition was at risk of taking water over the bow and thereby introducing water onto the main deck. Water then could travel as far back as the stern, where it could downflood into the tanks and voids through any open or unsecured hatches. At the time of the sinking, the towboat had almost full fuel and water tanks and the aft void was likely flooded, resulting in a lower freeboard. Thus, while the *Ricky Robinson* traveled into a current of 3 to 4 mph at a speed of approximately 6 mph, or nearly 10 mph through the water, as demonstrated in the video, the vessel likely took water over the bow onto the main deck, where it would have flowed aft toward the open stern void hatches.

About 2 minutes before the last position was transmitted from the *Ricky Robinson*, there was an abrupt turn to starboard and a decrease in speed to approximately 4.4 mph. As the current changed from ahead to the port beam, the vessel's speed exceeded 7 mph. The sudden turn was likely the pilot's attempt to beach the flooding vessel, as suggested by his two distress calls stating that he was taking on water, most likely due to water entering the aft voids through the open or unsecured hatch covers.

The pilot's turn to starboard would have induced a turning heel to port, causing the floodwater in the voids to shift from starboard to port and result in a greater heel to the port side. Considering that the water in both stern voids would have substantially reduced the vessel's aft freeboard, and the turning forces would have caused the deck edge to submerge, additional water likely boarded the aft deck and downflooded into the stern voids, increasing the rate of filling to the voids.

As the vessel heeled to a larger angle, water would have also downflooded through the open port engine room door, rapidly flooding the engine room. The *Ricky Robinson* likely then lost stability and quickly capsized, which explains why the *Betsy Ross* pilot lost sight of the towboat within about 30 seconds. Had the vessel only lost reserve buoyancy due to flooding, it would have taken longer to sink.

All vessels are required to operate in a manner that minimizes the risk of downflooding and progressive flooding.⁷ Further, the master (or the pilot, as applicable to this accident) should ensure all hatches and openings to the hull and deck are kept tightly closed, except when access is needed. Wepfer Marine's walkthrough inspection checklist required the pilot to ensure that the hatches (not the doors) were sealed at the beginning of the shift. In a memo to the Coast Guard regarding the flooding and loss of the *Ricky Robinson*, the company held accountable the deckhand for "not keeping the hatch covers tight" and not closing the engine room doors and the pilot for "producing an excessive rate of speed in a light boat condition." However, former crewmembers stated that the vessel was operated customarily with watertight hatches and engine room doors open despite the company's checklist requiring closure of hatches.

⁷ Title 46 *Code of Federal Regulations* 140.610.

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Wepfer Marine's vice president of operations stated that he was unaware of the issue concerning the forward stern void around the time of the accident, although there were several previous cases of water intrusion into the voids on the *Ricky Robinson* that included repairs. However, the magnitude of the problem was such that the void required pumping two to three times per shift. Because of the recurring water ingress, the watertight hatch cover(s) had to be kept open to access the void, thus leaving the towboat vulnerable to the introduction of water while under way.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the sinking of the towing vessel *Ricky Robinson* was the pilot's decision to proceed with unsecured deck hatches at a speed that resulted in water on deck and flooding of the aft voids. Contributing to the sinking was the company's inadequate oversight to ensure that crews kept hatches closed while the vessel was under way and that ongoing watertight issues with the voids were addressed.

Reporting Issues

Maintenance issues and other conditions affecting the safe operation of a vessel should be promptly reported to the operating company. Reporting systems should provide specific guidance regarding critical equipment, hull integrity, and operational safety. A robust reporting system should also include procedures for company oversight to ensure that crews are reporting issues and that the operating company is tracking and promptly addressing them.

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Vessel Particulars

| Vessel | <i>Ricky Robinson</i> |
|----------------------------|---|
| Owner / operator | Wepfer Marine Inc. |
| Port of registry | Memphis, Tennessee |
| Flag | United States |
| Type | Towing vessel |
| Year built | 1976 |
| Official number (US) | 572484 |
| IMO number | N/A |
| Construction | Welded steel |
| Classification Society | N/A |
| Length | 66.5 ft (20.3 m) |
| Draft | 8.3 ft (2.5 m) |
| Beam/width | 24.0 ft (7.3 m) |
| Gross tonnage | 113 gross tons |
| Engine power; manufacturer | 1,400 hp (2 x 700 hp) 6 cylinder; Luger L6170 |
| Persons on board | 2 |

NTSB investigators worked closely with our counterparts from Coast Guard Sector Lower Mississippi River throughout this investigation.

For more details about this accident, visit www.ntsb.gov and search for NTSB accident ID DCA18FM007.

Issued: December 19, 2018

The NTSB has authority to investigate and establish the probable cause of any major marine casualty or any marine casualty involving both public and nonpublic vessels under Title 49 *United States Code*, Section 1131(b)(1). This report is based on factual information either gathered by NTSB investigators or provided by the Coast Guard from its informal investigation of the accident.

The NTSB does not assign fault or blame for a marine casualty; rather, as specified by NTSB regulation, “[NTSB] 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 conducting investigations 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).
