



National Transportation Safety Board

Marine Accident Brief

Capsizing of the Towboat *Miss Roslyn*

Accident type	Capsizing/Listing	No. DCA19FM002
Vessel name	<i>Miss Roslyn</i>	
Location	Lower Mississippi River, mile 142, near Reserve, Louisiana 30°02.40' N, 090°36.63' W	
Date	October 9, 2018	
Time	1630 central daylight time (coordinated universal time – 5 hours)	
Injuries	None	
Property damage	\$1,130,000 est.	
Environmental damage	An oil sheen was visible. No other pollution was reported.	
Weather	Visibility 10 miles, partly cloudy skies, winds east-southeast at 10 knots with gusts up to 20 knots, air temperature 86°F, water temperature 78°F	
Waterway information	The Lower Mississippi River is 956 miles from the Head of Passes to Cairo, Illinois. The river's federal projected channel at mile 142 is a depth of 45 feet and width of 500 feet; the current was estimated at 5.5 mph. ¹	

On October 9, 2018, at 1630 local time, the fleet towboat *Miss Roslyn* was traveling downbound at mile 142 on the Lower Mississippi River near Reserve, Louisiana, when it began to flood and list to starboard. The three crewmembers abandoned the towboat onto a moored fleet barge and a Good Samaritan vessel. The *Miss Roslyn* capsized and sank on its starboard side. No injuries were reported. There was a visible oil sheen; containment booms and absorbent pads were placed around the vessel. Damages from flooding were estimated at \$1,130,000.



Preaccident image of the *Miss Roslyn*. (Source: Marquette Transportation Company Gulf-Inland)

¹ Distance and speed on the US western rivers are in statute miles (1 statute mile = 0.869 nautical miles).

Capsizing of the Towboat *Miss Roslyn*



Area of the Lower Mississippi River where the *Miss Roslyn* listed and eventually capsized, indicated by a red triangle. (Background source: Google Maps)

Background

The *Miss Roslyn* was an uninspected twin-propeller towboat, built in 1979 by Albert Ortis Boat Building in Krotz Springs, Louisiana. The *Miss Roslyn* was originally named the *Kathryn Eckstein* and owned by Eckstein Marine Service, Harahan, Louisiana. In November 1984, the vessel was renamed, and in 2007, the *Miss Roslyn* was sold to Marquette Transportation Company Gulf-Inland, LLC, of Jefferson, Louisiana.²

Accident Events

On October 9, 2018, at 0500, the three dayshift crew members (a captain and two deckhands) of the fleet towboat *Miss Roslyn* began their 12-hour (0500 to 1700) workday on board the vessel at the CCI (Cooper Consolidated Inc.) Upper Reserve fleeting area at mile 137.6 of the Mississippi River on the right descending bank.³ Fleet towboats move and reposition barges in fleeting areas.⁴ At 1000, the *Miss Roslyn* got under way upbound, and at 1100, the vessel arrived at the Terre Haute fleeting area near mile 144.5 to assist building an eight-barge tow. The captain stated he pushed up against the tow at a 90° angle to the bank to keep the tow in place for 2.5 to 3 hours while the deckhands were building the tow.

² *Inland River Record 2019*, The Waterways Journal Weekly, St. Louis, Missouri.

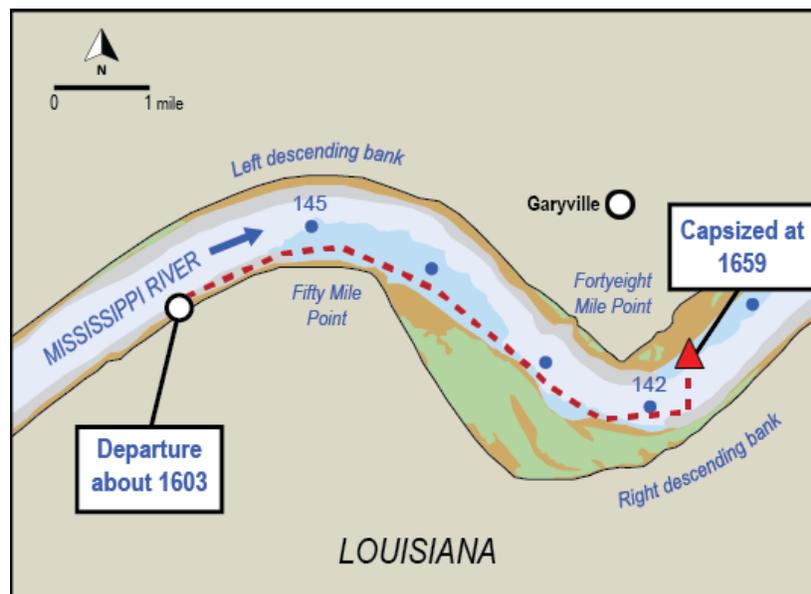
³ The banks of the Mississippi River are referred to as left and right when traveling downstream toward the Gulf of Mexico, because the river meanders and can flow in any direction—south, east, west, and even north. Commercial traffic often calls the left bank the “left descending bank” and the right bank the “right descending bank.”

⁴ A *fleeting area* is a geographic location (identified by a number) where a group of barges, or *fleets*, are moored and later assembled to comprise a tow.

Capsizing of the Towboat *Miss Roslyn*

At 1600, the two deckhands returned to the towboat, and about 1603, the vessel got underway, headed downbound towards the Upper Reserve Anchorage, hugging the right descending bank. A short time later, the captain noticed a persistent list that was “more than the normal starboard list,” which he stated occurred because the *Miss Roslyn* was “top-heavy,” and at 1612, he made several round turns to starboard to attempt to alleviate the list. The turns slightly reduced the list, and since the captain was “comfortable” with the situation, he continued the downbound transit. At 1616, the captain slowed the vessel, reported his concerns to the port captain, and instructed the two deckhands to investigate the cause of the list. The deckhands reported that although the engine room was dry, the aft starboard main deck was awash with 4 to 6 inches of water, and they could not safely open the manhole covers to the starboard steering and flanking voids (see tank plans below). The captain ordered the deckhands to open the manhole covers to the port steering and flanking voids and dewater them by placing a portable pump in each.

At 1639, the captain stopped at Fortyeight Mile Point (mile 142.4) to inspect the vessel himself. He noted that the engine room was dry, but on the main deck, starboard side aft, water was coming through the freeing ports (but not over the bulwark) and had covered the deck about one foot; he made a second call to the port captain to report his observations.⁵ The *Miss Roslyn*'s captain radioed a nearby tug for assistance, and according to the *Miss Roslyn*'s captain, the captain of the nearby Marquette towboat *Joanne Marie* stated that he did not think the *Miss Roslyn* would be able to safely return to the crew change dock at CCI Upper Reserve about 5 miles downstream. He also suggested that the *Miss Roslyn* cross the river (about 0.4 mile) to get to the shallower, slower-moving water on the other side. The captain of the *Miss Roslyn* stated he felt confident he could cross the river, and about 1650, the *Miss Roslyn* began crossing to the left descending (east) bank, with the Good Samaritan towboat *Kristy Dutsch* following behind.



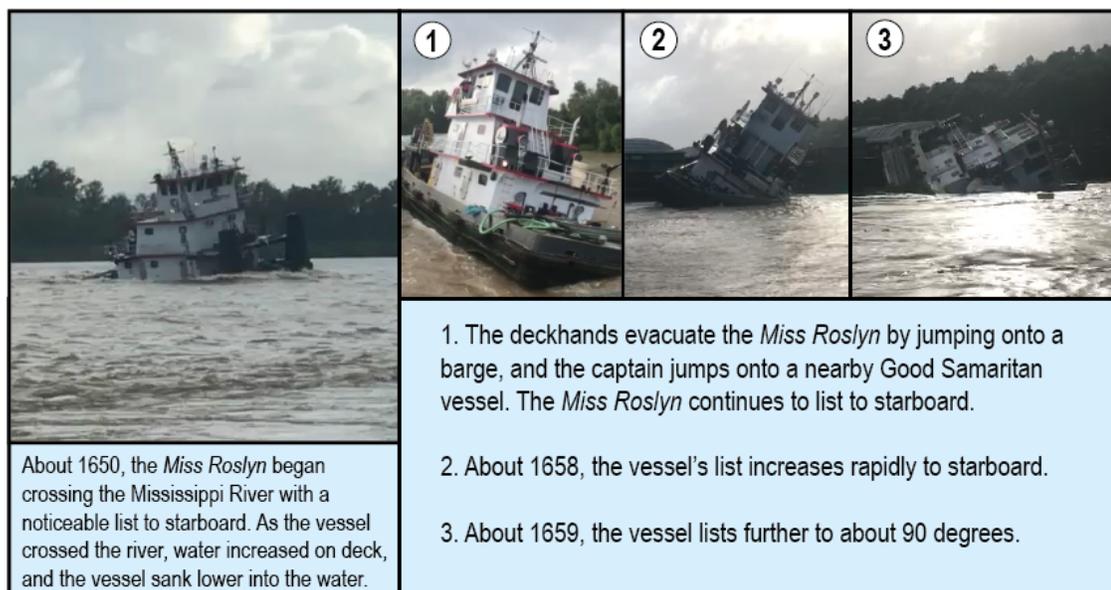
Track line of the accident voyage. The *Miss Roslyn* capsized at mile 142 of the Lower Mississippi River, near Reserve, Louisiana.

⁵ A *bulwark* is a railing or side of a ship above the level of the deck. *Freeing port* is an opening in the bulwark or rail, often covered by a hinged plate, to allow large quantities of deck water to run overboard.

Capsizing of the Towboat *Miss Roslyn*

The Vessel Traffic Service (VTS) New Orleans automatic identification system (AIS) playback showed that the *Miss Roslyn* was making 8.7 mph speed over ground while crossing the river. The *Miss Roslyn*'s senior deckhand stated that when the vessel was about mid-river, water was coming over the starboard bulwark, and about the same time, video from the *Joanne Marie* showed that the *Miss Roslyn*'s starboard list continued to increase, until the starboard bulwark was under water. The port captain told investigators he was first made aware of the *Miss Roslyn* crossing the river when the captain of the *Joanne Marie* called him and stated, "That ain't looking good, he's got, you know, his deck is on the wrong starboard side and we're going to the east bank." VTS recorded the conversation on VHF radio channel 67. Between 1651 and 1654, VHF traffic recordings indicated the *Miss Roslyn* was listing, and assist boats had reached the vessel.

The captain stated that when the *Miss Roslyn* was about 50 feet from an empty moored fleet barge on the left descending bank, the list increased to a slow roll to starboard. As soon as the *Miss Roslyn* touched the barge, the two deckhands jumped to the barge from the towboat's push knees. The captain then disembarked the *Miss Roslyn* by jumping from the stern onto the *Kristy Dutsch*. At 16:59:11, the *Miss Roslyn* continued to roll over until the vessel came to rest on the river bottom with about 5 feet of the port bow above the surface and the stern fully submerged. The final capsizing of the *Miss Roslyn* was caught on video by a crewmember of the *Kristy Dutsch*.⁶



Sequence of events as the *Miss Roslyn* headed toward moored barges with a heavy list to starboard and eventually capsized. (Source: Clay Hebert, ITV *Kristy Dutsch*)

After the accident, all crewmembers submitted samples for drug and alcohol tests, which came back negative. On October 10, marine salvage contractors and divers arrived on scene to

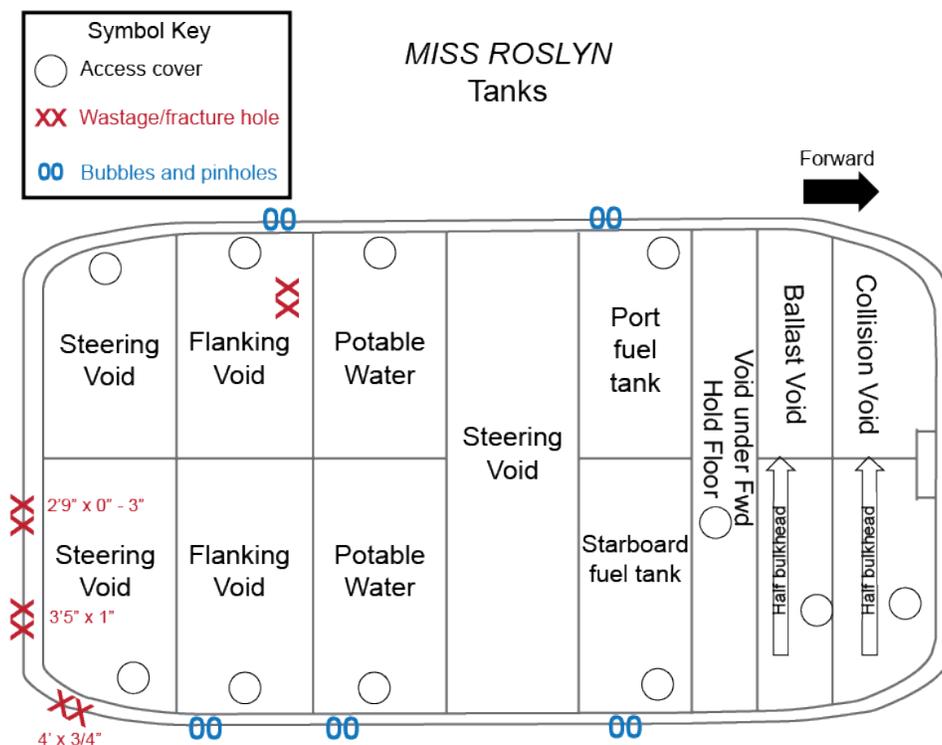
⁶ Clay Hebert, "Some crazy stuff went down today!" Facebook, October 9, 2018. <https://www.facebook.com/clay.hebert.792/videos/2161108304152394/>.

Capsizing of the Towboat *Miss Roslyn*

conduct an initial survey and close all doors and vents on the *Miss Roslyn*. The vessel was refloated on October 14 and towed to a repair shipyard in Harvey, Louisiana.

Additional Information

On November 16, a marine surveyor conducted a tank compartment air test while the salvaged vessel was in drydock.⁷ The surveyor noted severe wastage, including a hole and a fractured seam in the hull to the starboard steering void and a fractured deck plate on the stern deck above the port flanking void, and bubbles were observed on the hull, indicating corrosion holes to the following: both port and starboard flanking voids, starboard potable water tank, and both port and starboard fuel tanks. Investigators noted the manhole covers to the starboard steering void had severe wastage. The marine surveyor estimated damages at \$1,130,000 and considered the vessel a constructive total loss.



Estimated position of holes in the hull and deck found during the *Miss Roslyn* tank compartment air test. (Background source: Marquette Transportation)

Investigators reviewed the last 5 years of maintenance and repair records for the uninspected towing vessel. The last major drydock of the *Miss Roslyn* was in June 2017. Maintenance in the drydock included sandblasting and painting of the hull, an ultrasonic thickness survey, and replacement of anodes, as well as repairs to the corner bumper and rub rail, the steering rudders, the flanking rudders, and tail shafts.

⁷ An air test is conducted to find holes in a compartment by pressurizing a compartment with air and listening for and finding the location of escaping air. Smaller holes are found by spraying soapy water on the hull; soap bubbles indicate the location of the hole(s).

Capsizing of the Towboat *Miss Roslyn*

The captain of the *Miss Roslyn* was 40 years old. He had worked in the maritime industry for 20 years and had been employed by the company for 6 months. He obtained his apprentice mate license in 2012 and his master of towing vessels license in 2017. He had been operating towing vessels for 2 years and towboat fleets for 3 years on the canals. The captain reported that he typically worked a 12-hour shift from 0500 to 1700, commuted daily 1 hour and 10 minutes' drive each way, had 6 hours of consecutive sleep per night, and was on day 7 of a 14-days-on/7-days-off work schedule.

The company is a member of the American Waterways Operator (AWO) Responsible Carriers Program. The AWO advocates nationally for the tugboat, towboat, and barge industry in the United States, and the organization provides its member companies guidance on commuting best practices to consider for day boats.⁸ While the company's *Health and Safety Plan* (HSOP 25.0-6) identifies a crewmember who has worked more than 14 hours within 24 hours as a high risk for crew fitness, hours commuting to and from work were not considered hours on duty.

According to the port captain, the company convened a committee of six port captains to evaluate the *Miss Roslyn* captain's decision to cross the river with a starboard list of undetermined origin and the starboard weather deck awash. The committee recommended that the captain's employment be terminated, and he was no longer working for the company at the time of his interview.

Analysis

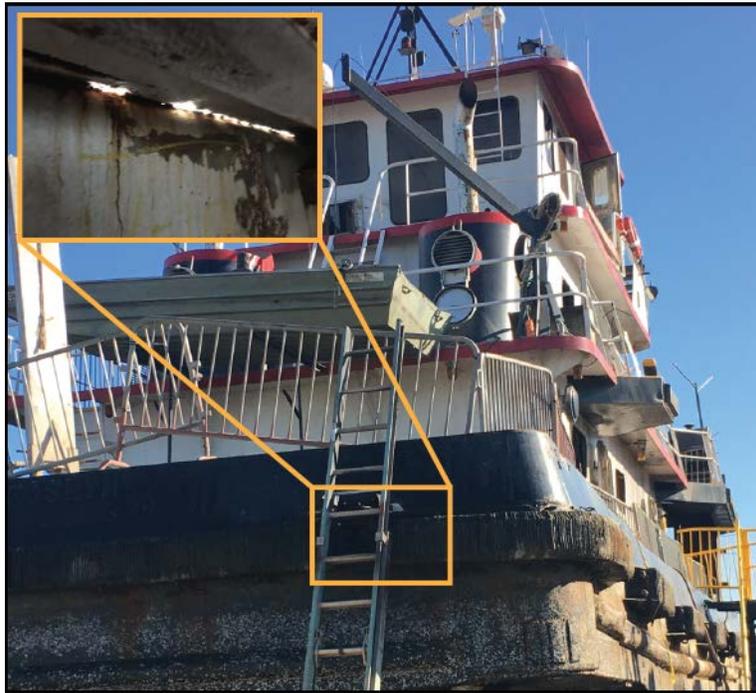
The company had a risk management policy that considered a crewmember working for more than 14 hours in the last 24 hours to be in a high-risk category with regard to crew fitness. However, the policy did not account for time spent commuting to and from work. Given the length of his commute, in combination with his 12-hour shift, the captain was working 14 hours and 30 minutes per workday. While the investigation did not find fatigue to be a contributing factor to this accident, working these types of schedules has been shown to be fatiguing.

The *Miss Roslyn* was in drydock in June 2017 for maintenance and repairs to the hull. However, after the accident, the marine surveyor found two wastage holes and a fractured weld seam at the main deck to the starboard steering void, which therefore was not watertight. The captain stated that he was assisting in making up a tow, which required him to push against the tow at a 90° angle to the bank for 2.5 to 3 hours. This action, in combination with the current, likely would have lowered and intermittently submerged the wastage and fracture holes on the starboard stern quarter (which were normally just above the waterline) and allowed continuous water ingress to the starboard steering void for about 3 hours. As the *Miss Roslyn* got underway to head back for crew change, the aft steering void would have been partially flooded, which likely caused the observed starboard list. Once the hull flooded, the vessel sank lower, increasing the rate of flooding through the holes to the starboard steering void (which were only intermittently submerged at first), thus increasing the starboard heel and submerging the starboard bulwark and

⁸ *Developing a Fatigue Risk Management Plan: A Guide for Towing Vessel Operators*, www.americanwaterways.com, The American Waterways Operators, 2018, Arlington, Virginia.

Capsizing of the Towboat *Miss Roslyn*

then the stern deck. Eventually, the port flanking void flooded, resulting in the vessel's loss of stability and capsizing.



A ladder on the stern shows the approximate location of a large hole along the seam between the *Miss Roslyn*'s starboard steering void and aft main deck; the hole is shown in the inset image.

The severe wastage found throughout the vessel in the post-accident survey indicates that the *Miss Roslyn* was poorly maintained. The company did not have an effective maintenance program on board the vessel, so holes in and fractures to the hull and deck went undetected and ultimately led to flooding while the vessel was conducting normal operations. An effective maintenance program would have prevented the holes from forming and made identification of hull fractures easier to see and flag for repair, or helped to determine when the vessel had outlived its useful service life.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the capsizing of the *Miss Roslyn* was the company's lack of effective hull inspection and maintenance program, which resulted in flooding into a steering void through multiple wastage holes in the hull.

Effective Hull Inspection and Maintenance

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, owners are obligated to ensure vessels are properly maintained, equipped, and operated in a safe condition. Issues with watertight integrity and wastage need to be addressed by permanent means.

Capsizing of the Towboat *Miss Roslyn*

Vessel Particulars

Vessel	<i>Miss Roslyn</i>
Owner / operator	Marquette Transportation Company Gulf-Inland, LLC
Port of registry	New Orleans, Louisiana
Flag	United States
Type	Fleet towboat
Year built	1979
Official number (US)	605366
IMO number	8635813
Construction	Steel
Classification Society	Not applicable
Length	65 ft (19.8 m)
Draft	7 ft (2.1 m)
Beam/width	24 ft (7.3 m)
Gross tonnage	143
Engine power; manufacturer	3412 diesels, 1,250 hp (932 kW), Caterpillar 3412C DITA, twin screw
Persons on board	3

NTSB investigators worked closely with our counterparts from Coast Guard Sector New Orleans throughout this investigation.

For more details about this accident, visit www.nts.gov and search for NTSB accident ID DCA19FM002.

Issued: November 13, 2019

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*, 1131. 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*, 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*, 1154(b).
