



# National Transportation Safety Board

## Marine Accident Brief

### Contact of *Cooperative Spirit* Tow with Hale Boggs Memorial Bridge Pier

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<b>Accident type</b>	Contact	<b>No.</b> DCA20FM015
<b>Vessel names</b>	<i>Cooperative Spirit</i> , ART1008, ART44080B, and other barges	
<b>Location</b>	Lower Mississippi River, mile 121.6, near Luling, Louisiana 29°56.52' N, 90°22.45 W	
<b>Date</b>	March 15, 2020	
<b>Time</b>	0113 central daylight time (coordinated universal time – 5 hours)	
<b>Injuries</b>	None	
<b>Property damage</b>	\$1.65 million est. (barges and lost cargo)	
<b>Environmental damage</b>	None reported	
<b>Weather</b>	Visibility 10 miles, clear, winds east-southeast at 5 knots, air temperature 68°F, water temperature 50°F	
<b>Waterway information</b>	The Lower Mississippi River near Luling, Louisiana, is about 0.5 miles wide. Barge anchorages line both sides of the navigable channel. On the accident date, the river stage at the Carrollton Gage, 19 miles downriver in New Orleans, was 15.3 feet, and the current was reported to be 6 miles per hour at the accident location.	

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On March 15, 2020, about 0113 local time, the towing vessel *Cooperative Spirit*, pushing a 29-barge tow, was transiting downstream on the Lower Mississippi River at mile 121.6 near Luling, Louisiana, when the port side of the tow struck the eastern tower pier of the Hale Boggs Memorial Bridge. The tow broke apart and began floating downriver. One of the barges sank, while the remaining barges were recovered by the *Cooperative Spirit* and other towing vessels in the area. No pollution or injuries were reported. Multiple barges in the tow, along with other barges moored along the river banks that were struck by drifting barges, were damaged and required repairs. Two barges were determined to be total constructive losses. The estimated cost of damages to the barges and cargo was \$1.65 million.



*Cooperative Spirit* moored before the accident.

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The accident location, as indicated by the red triangle. (Background source: Google Maps)

### Background

The 200-foot-long towing vessel *Cooperative Spirit* was a line-haul boat built in 1975 by St. Louis Shipbuilding and Steel Co. in St. Louis, Missouri, and had been owned and operated by the American River Transportation Company, LLC, (ARTCO) since 1992.<sup>1</sup> The vessel had three propellers, each driven by an EMD 16-710G7C II diesel engine. At maximum ahead speed, each of the propeller shafts turned at 212 revolutions per minute (rpm). Steering rudders were installed behind and flanking rudders ahead of the propellers. The steering and flanking rudders were controlled by two sets of tillers in the vessel's wheelhouse.

During the accident voyage, the *Cooperative Spirit* was being operated by a crew of nine. The captain was in charge of the vessel and shared helm duties with the pilot.<sup>2</sup> The captain and pilot's watch cycle was 6 hours on/6 hours off, with the captain taking the 0600–1200 and 1800–2400 watches, and the pilot taking the opposite watches.

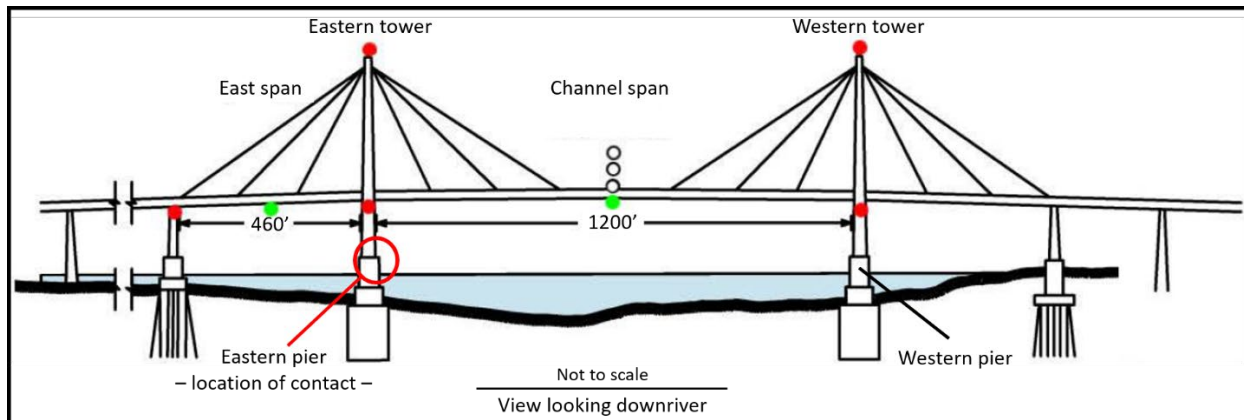
The Hale Boggs Memorial Bridge, also known as the Luling Bridge, was a cable-stayed road bridge that spanned the Mississippi River between Destrehan and Luling, Louisiana, about 20 miles upriver from New Orleans. The bridge's "channel span" and "east span," which were divided by the pier at the foot of the bridge's eastern tower, were navigable. The channel span was 1,200 feet wide, while the east span was 460 feet wide. Three mooring buoys were located

<sup>1</sup> A *line-haul boat* is generally a larger towing vessel with higher horsepower used for towing over large distances between major ports. Line-haul tows usually consist of multiple barge and can be as large as 40+ barges.

<sup>2</sup> *Pilot* is a term used aboard towing vessels on inland waterways for a person, other than the captain, who navigates the vessel.

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0.15 miles downriver from the east span; there were no obstructions up- or downriver from the channel span.



The Hale Boggs Memorial Bridge, with location of bridge strike on eastern tower pier indicated by a red circle. (Background source: US Army Corps of Engineers)

## Accident Events

On March 6, 2020, the *Cooperative Spirit* departed St. Louis, Missouri, downbound on the Mississippi River with a 30-barge tow. The tow was arranged six barges wide by five barges long. Each barge was 199 feet long by 35 feet wide, and the total tow size, including the *Cooperative Spirit*, was 1,195 feet long by 210 feet wide. All of the barges were loaded with various grain products, with the exception of the barge on the forward port corner of the tow, which was empty.

Four days into the transit, the tow stopped near Baton Rouge, Louisiana (mile 247), to conduct a crew change. Crewmembers on the *Cooperative Spirit* were on a 28-days-on/28-days-off work cycle, with half of the crew changing out every 14 days. During this crew change, the captain remained aboard the vessel while the pilot rotated out.

Once the turnover was complete, the tow resumed its downriver voyage, stopping in Plaquemine, Louisiana (mile 206), a day later to drop off the empty barge. The tow then continued on but stopped again, on March 12, in Vacherie, Louisiana (mile 151). The captain stated that the tow was halted because there was not adequate space in the fleeting area at the tow's final destination of Kenner Bend (mile 115.8), near New Orleans. In the evening on March 14, the captain was informed that space had been cleared at Kenner Bend, and, about 2317 that night, the tow got under way.

	ART35536	ART35080B	ART44080B	ART1008	
	ART44165	ART44084B	ART45064B	PVBL72B	ART36109
	ART35737	ART44058B	ART44208B	ART35643B	ART44116
	ART35926	ART44429B	ART44258B	PVHC26B	ART35746
	ART23101	GOPV39B	ART45088B	ART35490B	ART44104
	ART45104	ART35046B	ART44268B	ART35635B	ART35966

*Cooperative Spirit* tow configuration at the time of the accident.

At midnight, the pilot relieved the captain for the 0000–0600 helm watch. According to work/rest records, the pilot had slept between 5 and 6 hours before taking the watch, and he told

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investigators that he had “slept well.” He stated that he drank a cup of coffee and felt good during the watch up until the accident.

At 0052, the *Cooperative Spirit* tow met the upbound bulk carrier *Ikan Parang* at mile 124.2, about 2.5 miles upriver from the Hale Boggs Memorial Bridge. After passing the bulker, the pilot began setting up to maneuver the tow through a left-hand bend in the river at a location known as 26 Mile Point. Electronic charting system data from the towing vessel showed the tow moving toward the left descending bank of the river as it approached the bend.<sup>3</sup>

The pilot told investigators that he maneuvered the tow around 26 Mile Point using a flanking maneuver. In a flanking maneuver, the operator reverses the engines of the towing vessel to reduce the forward speed of the tow and places the stern of the tow near the point or inside of the bend, in slower-moving water. During the turn, the operator applies a series of engine thrusts against the current (toward the flanking rudders) to keep the stern near the point of the bend, while the faster-moving water at the outside of the bend swings the head of the tow around. A vessel operator may decide to flank around a bend if the current and the vessel’s forward speed through the water might otherwise push the tow onto the outside riverbank before the turn can be completed. Compared with steering around a bend, flanking requires more time to navigate through relatively short stretches of the river (as the speed over ground is slower) but reduces the risk of running aground. Flanking is possible only when the current pushes the vessel from astern and “carries” the vessel through the turn.

While flanking around 26 Mile Point between 0055 and 0108, the *Cooperative Spirit* pilot worked the throttles for the three engines, using varying astern speeds to control the vessel’s movement. As the tow completed the flanking maneuver, about 0.8 miles upriver from the Hale Boggs Memorial Bridge, the pilot brought the throttles to the ahead position and began working to line up the tow to pass through the bridge’s channel span. At 0109:00 the vessel’s port, center, and starboard shafts were turning at 155, 148, and 182 rpm, respectively. The tow’s speed over ground was 5.2 miles per hour (mph) and increasing.

The pilot told investigators that, following the flanking maneuver, the stern of the *Cooperative Spirit* was too close to the left descending bank. Automatic Identification System (AIS) data showed the tow’s track to the left of the “sailing line.”<sup>4</sup> At 0109:12, the center of the bridge’s channel span was bearing 126 degrees at a distance of 0.53 miles. The tow’s heading was also 126 degrees, but its course over ground was 122 degrees and shifting to port, toward the left descending bank. The pilot said that the current (estimated 6 mph at the bridge) was setting the tow toward the Hale Boggs Memorial Bridge’s eastern tower pier, so he steered against the current and “tried to outrun it.” Wheelhouse video obtained by the Coast Guard showed that he increased speed on the center propeller shaft to 163 rpm and about 40 seconds later increased speed on the port and center shafts to 194 and 186 rpm, respectively. The video showed that the vessel’s rudders

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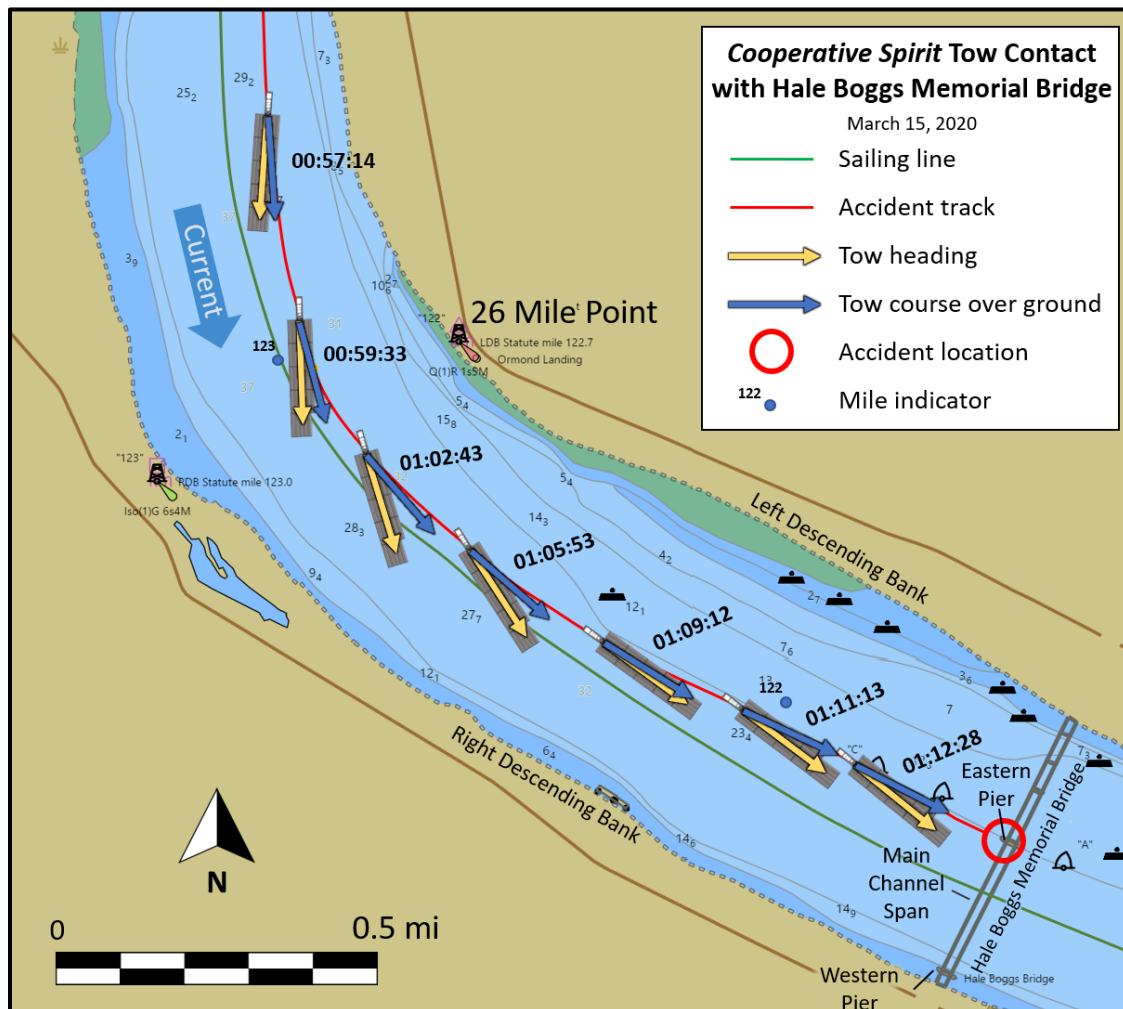
<sup>3</sup> The inland towing industry refers to the shorelines of western rivers as the left and right banks when traveling (facing) downstream. The left bank is called the *left descending bank*, and the right bank is called the *right descending bank*.

<sup>4</sup> The *sailing line* is an approximate representation of the track a down bound vessel would follow during a low river stage equal to the Low Water Reference Plane water level. US Army Corps of Engineers, *2015 Flood Control and Navigation Maps, Mississippi River, Cairo, Illinois to the Gulf of Mexico, Mile 953 A.H.P. to mile 22 B.H.P.*, 2015, page V.



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were predominantly held at midships throughout the approach to the bridge, with brief applications of starboard rudder.



**Track of *Cooperative Spirit* tow as it flanked the bend at 26 Mile Point and maneuvered prior to the accident. (Background source: National Oceanic and Atmospheric Administration electronic navigation chart US5LA52M)**

At 0110:12, the tow was about 0.30 miles from the bridge, and its heading was 124 degrees. The course over ground was 114 degrees, with the tow continuing to move toward the left descending bank and the eastern bridge pier at a speed of 7.25 mph. The pilot increased speed on the center and starboard shafts and then, 30 seconds later, increased speed on all propeller shafts to their maximum of 212 rpm. Although the tow's heading had shifted 3 degrees to starboard by 0111:13, its course over ground had shifted only 1 degree to starboard. The pilot applied starboard rudder for short periods, and the tow's course over ground began to turn more quickly to starboard, but the change was not sufficient to avoid hitting the bridge.

At 0113:03, barges *ART1008* and *ART44080B* on the forward port side of the *Cooperative Spirit* tow struck the eastern pier of the Hale Boggs Memorial Bridge at a speed of 11.9 mph. The tow immediately broke apart, and the *ART1008* eventually sank, stern first, about 1 mile downriver from the bridge, with its bow remaining above the water. The remaining barges floated freely

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downriver, some contacting barges moored along the river banks, before they were rounded up by the *Cooperative Spirit* and other towing vessels who had responded to the accident.

Barge *ART1008* was salvaged and later determined to be a constructive total loss. Barge *ART44080B* was also deemed a total loss following a damage assessment. Several other barges in the tow and along the river bank were damaged and required repairs. The eastern tower pier was scraped by the tow but did not require any repairs.

## Additional Information

The captain of the *Cooperative Spirit* held a valid Coast Guard credential as master of towing vessels upon Great Lakes, Inland Waters, and Western Rivers. He told investigators that he had 40 years of experience in the towing industry and had served as captain of the *Cooperative Spirit* for 10 years. The captain had been asleep until just prior to the accident and was awakened when the pilot sounded the vessel's general alarm. He arrived in the wheelhouse shortly after the bridge strike.

The pilot of the *Cooperative Spirit* held a valid Coast Guard credential as master of towing vessels upon Western Rivers. He had worked in the towing industry for 29 years and had been a wheelman (a steersman, pilot, or captain) since 1995. He had been hired by ARTCO in 2005, and since that time had been piloting progressively larger, higher-horsepower line-haul boats until he joined the *Cooperative Spirit* about 6 months before the accident. He stated that he had piloted tows of 40 barges or more through the bend at 26 Mile Point nearly 100 times, upbound and downbound, with about half of the transits occurring during high-water conditions. According to his most recent performance evaluations, he had "good experience" and was "very safety conscious." The results of postaccident drug and alcohol testing of the pilot were negative.

On January 26, 2020, less than two months before the Hale Boggs Memorial Bridge strike, the pilot was at the helm of the *Cooperative Spirit* upbound on the Mississippi River at 26 Mile Point when its tow collided with the downbound towing vessel *RC Creppel* and its tow. Three of the four crewmembers on the *RC Creppel* were lost when the vessel capsized. According to a company representative, the *Cooperative Spirit* pilot was taken off the vessel for a short period following this accident to "reset." The representative stated that there had been no change in the pilot's performance since rejoining the vessel.

On February 20, 2020, US Coast Guard Sector New Orleans issued a marine safety information bulletin (MSIB) warning operators of the rising river water level as measured at the Carrollton Gage in New Orleans. Water levels above 12 feet at the Carrollton Gage are considered high water, and 17 feet is flood stage. On the day of the accident, the river stage was 15.3 feet. High water levels cause strong currents and eddies to develop in the river, and an ARTCO accident report noted a current speed of 6 mph at the Luling site, which is consistent with historical current data for the high water level at the time. The pilot stated that during high-water conditions, a counterclockwise eddy sometimes formed along the left descending bank between 26 Mile Point and the bridge.

The Coast Guard MSIB highlighted additional requirements for barges moored in fleeting areas but did not include operating restrictions for tows, such as the minimum towing vessel horsepower or the maximum number of barges. The captain told investigators that the *Cooperative*

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*Spirit* was towing fewer barges than it normally did because of the high-water conditions. He stated that the towing vessel had “plenty” of horsepower for the size of the tow, and that, previous to the accident, it “handled pretty good for the river stage.” There were no reported problems with the engines or rudders during the accident voyage.

### Analysis

The pilot had slept for 5–6 hours prior to the accident watch, the accident occurred close to the beginning of his watch when he would have been most alert, and he stated that he drank a cup of coffee and felt good up until the accident. Results of postaccident toxicology tests were negative. Thus, fatigue and alcohol and drug use were not considered factors in the accident.

The pilot at the helm of the *Cooperative Spirit* held the appropriate credentials for his position and had extensive experience maneuvering large tows on the waterway. The pilot had been involved in an accident while operating the same vessel two months prior; however, the circumstances of that accident (a collision in a bend while upbound) were significantly different.

The pilot stated that, as the tow came out of the turn at 26 Mile Point, the stern of his vessel was too close to the left descending bank, and the current was setting the tow into the bridge pier. About 3 minutes before the accident, the tow’s heading was 124 degrees, while its course over ground was 114 degrees, which is consistent with the pilot’s statement. Due to high-water conditions, the current was stronger than normal, and an eddy may have formed upriver of the bridge along the left descending bank, making maneuvering more difficult.

Although the pilot stated that he used starboard rudder and increased engine speed in an attempt to counteract the current, the video evidence showed that he used limited rudder as the tow approached the bridge. The pilot chose to primarily use increased engine speed in an effort to move the tow to starboard away from the bridge pier, stating that he “tried to outrun [the current].” However, the tow’s course over ground did not appreciably change as engine speed increased, while the increasing speed over ground reduced the time the pilot had to maneuver. Ultimately, the pilot’s actions in compensating for the strong current were ineffective, resulting in the tow hitting the bridge’s eastern tower pier.

### Probable Cause

The National Transportation Safety Board determines that the probable cause of the contact of the *Cooperative Spirit* tow with a pier of the Hale Boggs Memorial Bridge was the pilot not effectively compensating for the strong current while navigating a turn and approaching the bridge in high-water conditions.

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### Vessel Particulars

Vessel	<i>Cooperative Spirit</i>	<i>ART1008</i>	<i>ART44080B</i>
<b>Owner/operator</b>	American River Transportation Co, LLC	American River Transportation Co, LLC	American River Transportation Co, LLC
<b>Port of registry</b>	St. Louis, Missouri	St. Louis, Missouri	St. Louis, Missouri
<b>Flag</b>	United States	United States	United States
<b>Type</b>	Towing vessel	Hopper barge	Hopper barge
<b>Year built</b>	1975	1996	2007
<b>Official number (US)</b>	569226	Unknown	1206480
<b>IMO number</b>	N/A	N/A	N/A
<b>Classification society</b>	N/A	N/A	N/A
<b>Construction</b>	Steel	Steel	Steel
<b>Length</b>	200 ft (61 m)	195 ft (59.4 m)	200 ft (61 m)
<b>Beam/width</b>	54 ft (16.5 m)	35 ft (10.7 m)	35 ft (10.7 m)
<b>Draft</b>	10 ft (3 m)	10 ft (3 m)	10 ft (3 m)
<b>Tonnage</b>	1,309 GRT	763 GRT	823 GRT
<b>Engine power; manufacturer</b>	3 x 3,500 hp (2,610 kW) EMD 16-710G7C II diesel engines	Not propelled	Not propelled
<b>Persons on board</b>	9	0	0

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

For more details about this accident, visit [www.ntsb.gov](http://www.ntsb.gov) and search for NTSB accident ID DCA20FM015.

**Issued: February 10, 2021**

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).