National Transportation Safety Board

Marine Accident Brief

Collision between the Tows of Towing Vessels *Capt. Shorty C* and *Jackie*

Accident no.	DCA15FM027
Vessel names	*Capt. Shorty C, Kirby 29116, Kirby 30040B, Jackie, EMS 343,* and *EMS 344*
Accident type	Collision
Location	Gulf Intracoastal Waterway, mile marker 349.5, Port Bolivar, Texas; 29˚22.2 N, 094˚47.1 W, between buoys 17 and 19
Date	July 20, 2015
Time	0102 central daylight time (coordinated universal time – 5 hours)
Injuries	None
Damage	Estimated $608,000
Environmental damage	None reported
Weather	Clear night, winds about 10 knots from the west-southwest
Waterway information	Entrance to Gulf Intracoastal Waterway, Galveston Bay, Texas

On July 20, 2015, at 0102 central daylight time, the lead barge of the uninspected towing vessel *Capt. Shorty C* collided with the tow of the uninspected towing vessel *Jackie* at the entrance to the Gulf Intracoastal Waterway at Port Bolivar, Texas, causing a fire on the aft barge of the *Jackie*'s tow. Neither towboat was damaged, but three barges sustained an estimated total of $608,000 in damages. No pollution or injuries were reported.

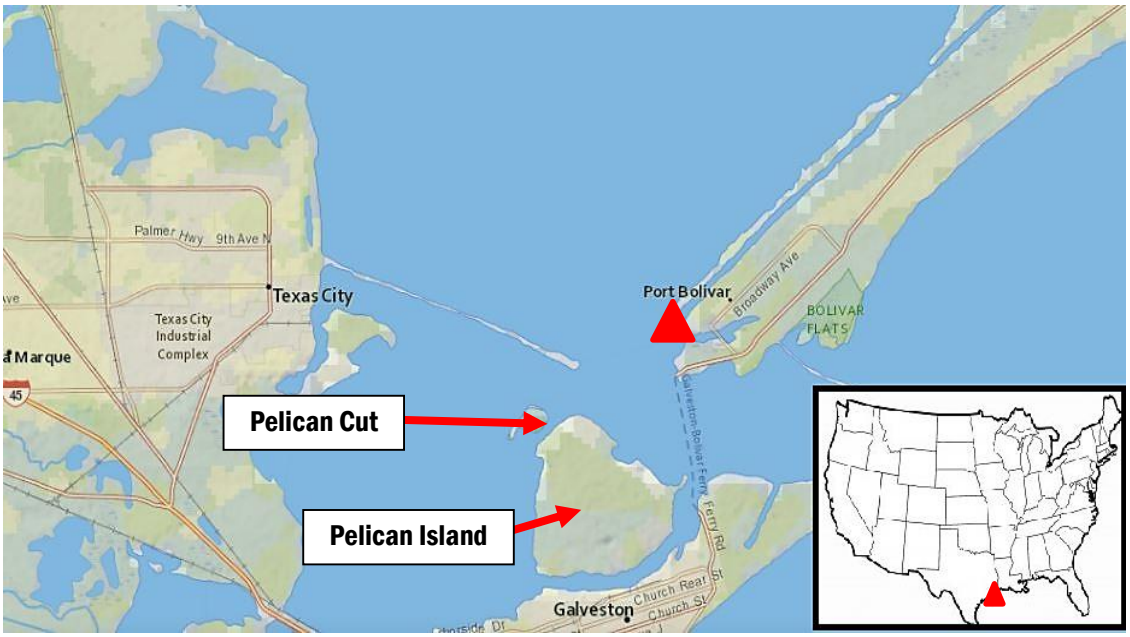
Fire aboard *EMS 343* barge after the collision. (Photo by PennEnergy, July 2015)

Collision between the Tows of Towing Vessels *Capt. Shorty C* and *Jackie*

The *Capt. Shorty C* departed Corpus Christi, Texas, pushing two tank barges, each carrying about 25,000 barrels of cumene. Cumene is a flammable natural compound used to manufacture phenol, a base material for plastics and aspirin, and its coproduct acetone, a substance found in many household items. The barges were strung out one behind another, stern to stern, measuring 686 feet combined with the towboat. The *Capt. Shorty C*, which had a crew of eight aboard, was heading east to Theodore, Alabama, via the Gulf Intracoastal Waterway, with *Kirby 29116* as the lead barge and *Kirby 30040B* as the stern barge.

***Capt. Shorty C* (left) and *Jackie* (right) after the accident.**

Transiting west in the waterway, the *Jackie*, with a crew of five, departed Chalmette, Louisiana, en route to Houston, Texas, pushing two tank barges, each carrying about 25,000 barrels of naphtha. Naphtha, a colorless flammable liquid made from distilling petroleum, is a component in the production of gasoline. The barges were made up in a similar towing configuration as that of the *Capt. Shorty C* and together with their towboat measured nearly the same length, with *EMS 344* as the lead barge and *EMS 343* as the stern barge.

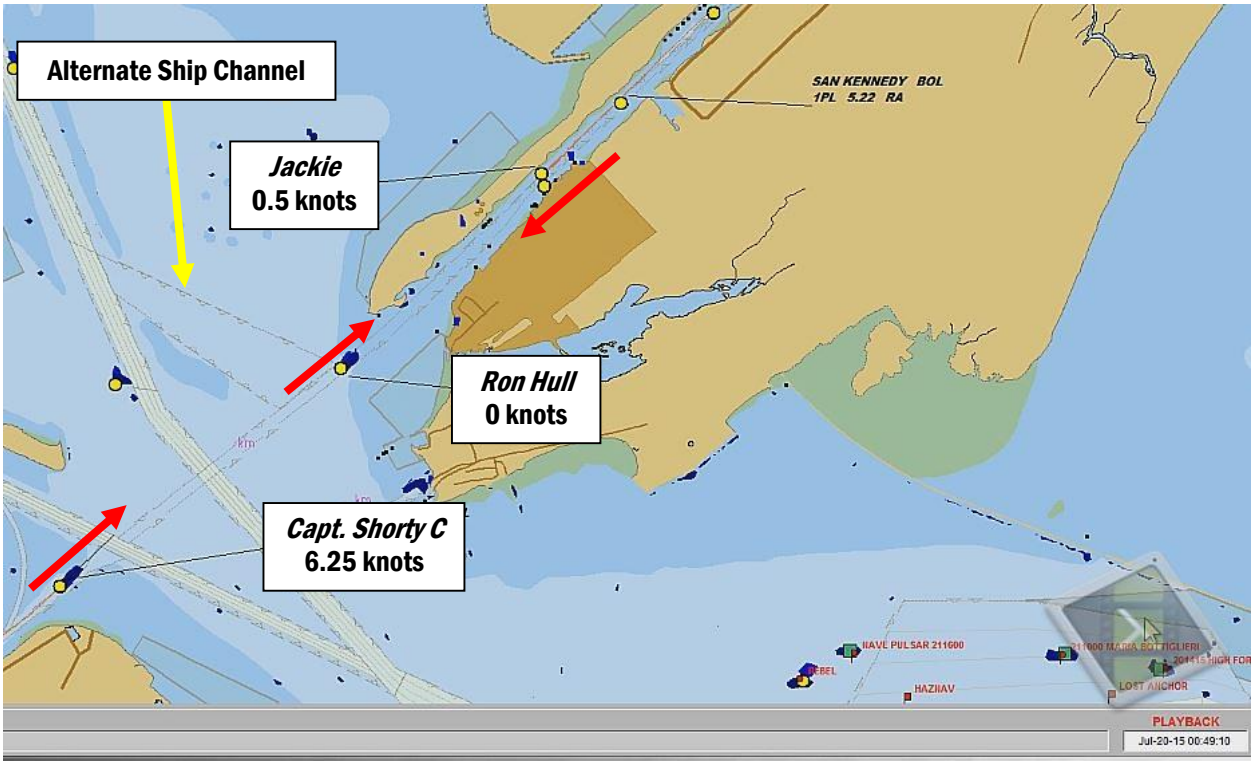


Map of Galveston Bay with red triangles depicting the accident location.
(Image from National Geographic MapMaker Interactive)

Both vessels' crews consisted of a captain and a mate (referred to as either "pilot" or "relief captain" in this brief) along with tankermen and deckhands. Towing vessels are typically operated by the captain and the second-in-command, who is known on coastal tugboats as a mate and on inland towboats as a pilot. The captain and the mate/pilot alternate navigation watches on the vessel.

According to the operators of both vessels, they checked in with vessel traffic service (VTS), as required, and were advised of the tide and traffic in the waterway. Before entering Pelican Cut, the pilot of the *Capt. Shorty C* checked in via radio and provided his destination and vessel dimensions; the relief captain of the *Jackie* checked in at the Bolivar Mooring Buoys. VTS had access to navigational data from both vessels.

At 0040 on the morning of the accident, the pilot of the *Capt. Shorty C* made a *Sécurité* call on very high frequency (VHF) radio channel 13 to announce that he was leaving Pelican Cut eastbound and going straight across the intersection of the Houston Ship Channel to Port Bolivar with "two loads" (two barges).[1] Four minutes later, he made a second *Sécurité* call about his transit plan. Neither broadcast resulted in any replies. The *Capt. Shorty C* pilot had been monitoring the traffic in the Gulf Intracoastal Waterway ahead of him, particularly the uninspected towing vessel

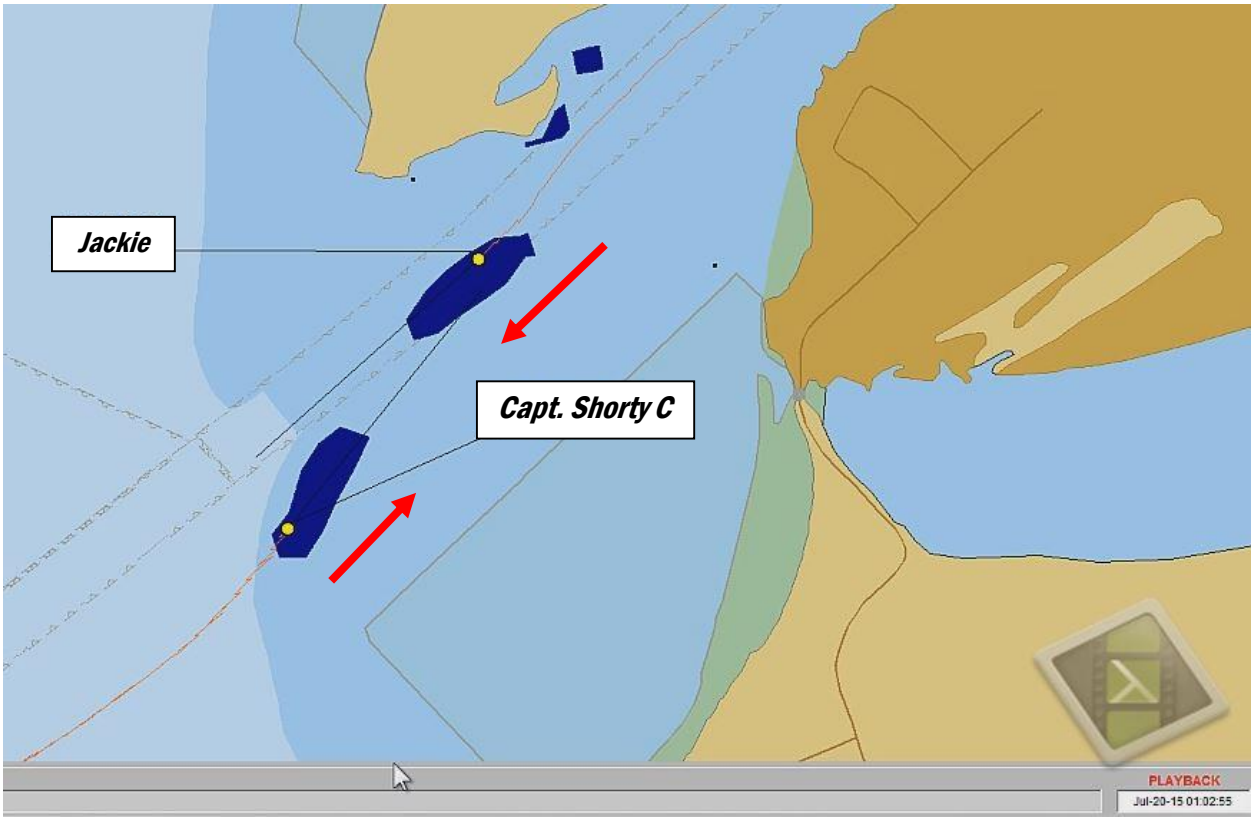


Electronic data showing the speeds and directions of *Capt. Shorty C, Ron Hull,* and *Jackie* at 00:49:10. (Image provided by VTS Houston/Galveston)

[1] A *Sécurité* call is a VHF radio transmission of important safety-related information for vessels in the broadcast area. The vessel or station transmitting the message begins by saying "*Sécurité, Sécurité, Sécurité*" and follows with the specific safety information.

Ron Hull, which came to a stop at the entrance to the waterway; according to the pilot, the vessel "was having trouble entering the land cut" and consequently could have impeded the *Capt. Shorty C*'s entrance into the narrow waterway. The *Ron Hull*'s unexpected stop about 0045 also raised a concern for the westbound *Jackie* relief captain who, without radio notification, temporarily stopped his vessel in the waterway. Nevertheless, about five minutes later, the *Ron Hull* was able to get under way, the *Capt. Shorty C* proceeded across the channel, and the *Jackie* resumed its speed of about 5 knots while approaching the waterway's entrance.

While crossing the channel at 0056, the *Capt. Shorty C* pilot radioed the *Jackie* to inform the approaching towboat that he had two barges and suggest they pass on "one whistle," portside to portside. In response, the relief captain who was on watch aboard the *Jackie* stated that he also had two barges, was heading westbound towards the Alternate Ship Channel, and agreed on the passing arrangements. But neither operator identified exactly where the vessels would pass each other within the Bolivar buoy line, which was in an area not recommended for meeting by the *United States Coast Pilot 5*.



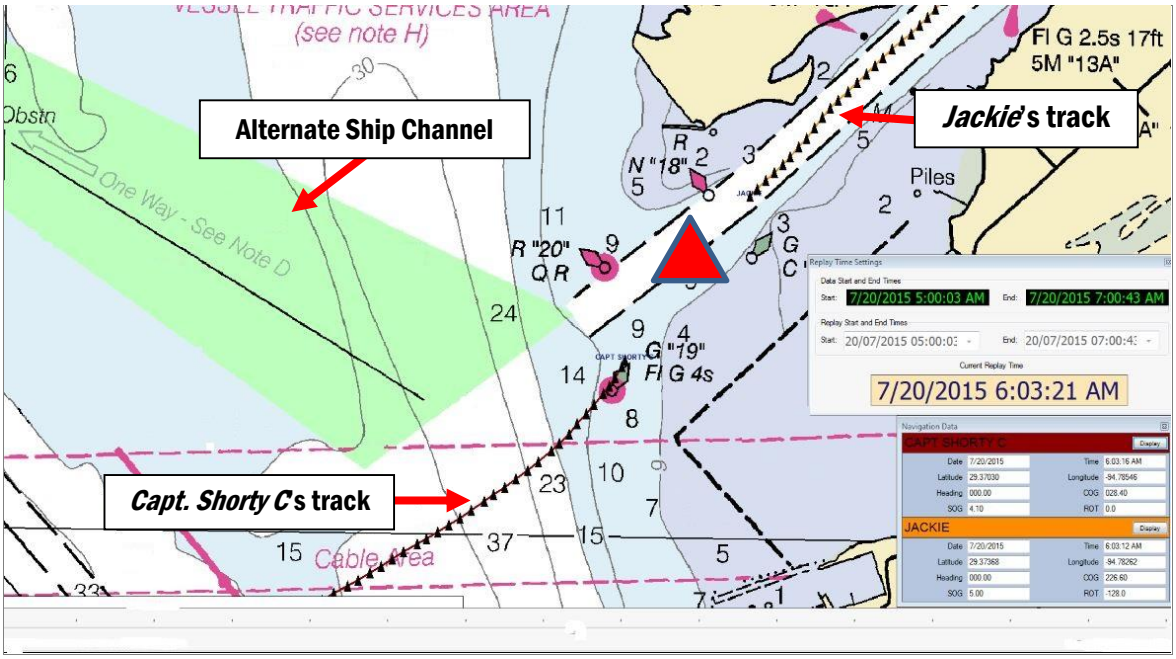
Electronic data showing *Capt. Shorty C* and *Jackie* at 01:02:55, seconds before colliding. (Image provided by VTS Houston/Galveston)

During the transit across the Houston Ship Channel, the pilot of the *Capt. Shorty C* adjusted his heading about 20 degrees to port to counteract the effect of the tidal current. (This maneuver, which is intended to compensate for external forces, is commonly called "crabbing.") Suddenly, at 0102, as the vessels were approaching each other near the waterway's entrance, the *Capt. Shorty C* pilot contacted the *Jackie* relief captain to alert him to "watch me," because he had "caught shallow" and was trying to "back her down." The *Jackie* relief captain asked if it would help for him to speed up ahead. The *Capt. Shorty C* pilot replied that he didn't know and was "sheering right towards" the *Jackie*. He attempted to steer away using his rudders but received no

response; he assumed the shallow water depth precluded his ability to steer. To swing the vessel's heading to starboard, the *Capt. Shorty C* pilot then attempted to shift the starboard engine astern but it unexpectedly shut down. Seconds later, the pilot announced he had "lost an engine," which affected his ability to maneuver and correct the vessel's heading. (According to the engineer, he restarted the engine in about 20 seconds.) Recognizing that a collision was imminent, the *Jackie* relief captain sounded the general alarm to warn his crew. "It ain't looking too good," he informed the *Capt. Shorty C* pilot next, "don't know how long it's gonna take for me to [expletive] back down at this point. I'mma try to steer away from you." The pilot responded, "There ain't much you can do. … I'm down on one [expletive] engine."

The vessels continued on a collision course until the port bow of the *Capt. Shorty C*'s lead barge (*Kirby 29116*) struck the port side of the *Jackie*'s lead barge (*EMS 344*), before colliding with its stern barge (*EMS 343*). The collision caused the EMS barges to separate and a steel deck support to penetrate the overhead of the no. 3 starboard cargo tank of the *EMS 343* barge, allowing naphtha gases to escape. The vapors, combined with the sparks generated from the steel vessels colliding, ignited a fire in the stern box area of the *EMS 343* barge.

Immediately after the collision, the *Jackie* crewmembers disconnected their towboat from the burning barge. The crewmembers of the *Capt. Shorty C* found that, although their lead barge was taking on water in the bow void tank, there was no breach in the cargo tank behind it; therefore, they believed the barge was not in danger of sinking. They then turned their attention to the barge that broke away from the *Jackie*, grounding it intentionally beyond the green buoys. About seven minutes later, VTS made a broadcast about the collision in the channel.



Electronic data from US Coast Guard NAVCEN (Navigation Center) overlaid onto NOAA (National Oceanic and Atmospheric Administration) chart 11324 showing tracks of *Capt. Shorty C* and *Jackie* at 01:03:21 local time (06:03:21 coordinated universal time).

The Port of Houston Authority fireboat, based in Barbours Cut, arrived on scene at 0230 to fight the barge fire, using both foam and water. Later, a salvage company arrived about 0430, and the US Coast Guard about 0630.

The towboats *Capt. Shorty C* and *Jackie* were not damaged in the collision. However, the *Kirby 29116* barge sustained about $119,000 in damage to its forward port void tank at the rake, which was below the waterline when loaded. There was no damage to the *Kirby 30040B* barge. The *EMS 343* barge, on which the fire erupted, sustained about $339,000 in damage to the stern box area on the starboard side: specifically, multiple piping systems were heat-deformed; both the sludge tank and void tank no. 3 were penetrated; and the diesel engine on the deck of the barge was burned and completely destroyed. The *EMS 344* barge sustained about $150,000 in damage to the portside piping systems and side shell plating of the void tank.

Postaccident drug and alcohol testing was conducted on the watchstanders who were on duty at the time of the accident: the results were negative. The work/rest histories for both the *Capt. Shorty C* pilot and the *Jackie* relief captain indicated consistent 6-hours-on/6-hours-off schedules.

The *Jackie* relief captain held a credential as master of towing vessels and had sailed in his position for about 20 years. The *Capt. Shorty C* pilot also held a credential as master of towing vessels for five years and had been assigned to his vessel for almost 10 years in various capacities: deckhand, tankerman, steerman, and relief captain. Both vessels' companies were members of the American Waterways Operators and had in place a Responsible Carrier Program, a safety management system for the towboat industry.

***EMS 343* after the accident: at left, fire damage on outboard side; at right, burned diesel engine.**

After the accident, a diver inspected the *Capt. Shorty C* and reported that the lower 60 percent of the starboard rudder (about 4 feet by 7 feet) was missing at the "breakaway immediately under [the] rudder strut." Both propellers had some damage: the port propeller had two bent flukes, and the starboard propeller had one bent fluke. The following day, the *Capt. Shorty C* was drydocked and the propellers along with the starboard rudder were replaced.

Stern of *Capt. Shorty C* in drydock: at left, circled in yellow, missing lower portion of the starboard rudder; at right, bent fluke of the port propeller.

Investigators learned during interviews that there had been two "touch and go" incidents of the *Capt. Shorty C* grounding within two weeks of the accident. Just days before, the pilot and the captain were trying to ascertain the possibility of damage underneath the vessel as a result of these incidents. The pilot acknowledged that the *Capt. Shorty C* had been operating normally in open deep water, but in shallow water it was handling a little sluggishly.

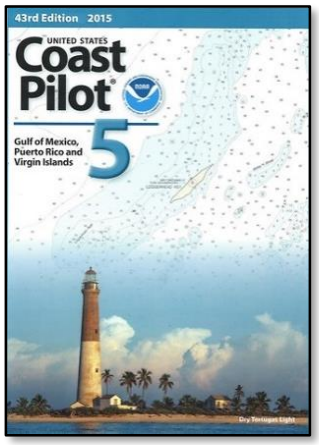
Based on crew testimony, the *Capt. Shorty C* had also been experiencing intermittent engine failures for the last two years after major overhauls were completed on the engines. The failures typically occurred when the engine was shifted quickly from ahead to astern. The issues were reported to the company; repair components were ordered but had yet to be received.

An inspection of the starboard engine was conducted a day after the accident by a manufacturer's representative. The service report indicated that the governor—a device used to control the speed of an engine—did not respond; the company was advised to have it sent to a specialist for repair. The governors from both engines were removed, disassembled, and inspected for worn and/or broken parts at a manufacturer's recommended shoreside facility. The specialist found that both governors had damaged seals in their driveshafts, worn main pilot valves, and visible external oil leaks from worn or hardened seals and O-rings. The governor from the starboard engine also had an air bellows and air bellows cup that were corroded.

The *Capt. Shorty C* pilot also reported in postaccident interviews that, when he initiated communication with the *Jackie* to propose meeting on one whistle, he assumed that the vessels would meet "just inside the hole," at the opening of the land cut. Both operators said they had met vessels there many times, yet they were aware of the danger of this meeting location. The *Capt. Shorty C* pilot said, given a preference, he would not have met at this location, due to the convergence of two different currents at the entrance; in his view, it was a dangerous spot until the entire tow was completely inside the waterway. The *Jackie* relief captain acknowledged that he had heard of the recommendation in the *United States Coast Pilot* deterring vessels from meeting there, despite being unfamiliar with the publication itself.

The *United States Coast Pilot* is a series of nine nautical books published by the National Oceanic and Atmospheric Administration (NOAA). Issued according to geographical region, they supplement the navigational information shown on NOAA nautical charts. The books report on a range of topics, from channel descriptions to towage, and are updated frequently with information from a host of public, private, and government sources.

The 43rd edition of the *Coast Pilot 5*—covering the Gulf of Mexico, from Key West, Florida, to the Rio Grande, including Puerto Rico and the Virgin Islands—specifically states:



> The Coast Guard has requested vessels transiting the waterway make a SECURITE call on VHF-FM channel 13 prior to crossing the Houston Ship Channel, particularly during periods of restricted visibility. Vessel Traffic Service Houston-Galveston recommends west bound tows avoid meeting east bound tows between Bolivar Peninsula Buoy 15 and Buoy 20 due to strong currents and shoaling at the entrance to Bolivar.

The *Jackie* also encountered some challenges that compounded the dangers of the meeting location. First was the *Jackie* reducing its speed to accommodate the unexpected stop of the *Ron Hull* at the entrance to the Gulf Intracoastal Waterway. Despite the relief captain agreeing to the meeting arrangements *after* the unannounced stop, the delay of the *Jackie*'s easterly progress shifted the meeting location into a narrower section of the waterway—within the area not recommended for meeting. Exacerbating matters, the *Jackie* relief captain did not communicate the speed change, which could have given the pilot of the *Capt. Shorty C* the opportunity to adjust his speed accordingly.

Secondly, just before the accident, the *Jackie* relief captain steered port into the channel to avoid a sandbar that was outside the buoy line. While he was steering back to starboard, the stern of his tow pivoted into the channel. As a result, when the accident occurred, the *Jackie* was nearly halfway between the buoy lines and nearly perpendicular to the channel, as seen on a VTS video recorded on Bolivar peninsula. Furthermore, because the *Capt. Shorty C* had been crabbing about 20 degrees to port of the buoy line, its bow was farther into the channel. Given that the width at this location of the narrow passage was about 600 feet, the distance between the vessels for safely meeting was significantly reduced by the positions and headings of the nearly 700-foot-long tows.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the collision between the *Capt. Shorty C* and the *Jackie* was the operators' attempt to meet in a location known for strong currents and shoaling, which was contrary to published guidance for that waterway.

Familiarization with Local Recommendations

The investigation into the collision between the tows of the *Capt. Shorty C* and the *Jackie* occurred in a location that was identified as an area dangerous for meeting. Vessel operators should be familiar with, and adhere to, publications such as the *United States Coast Pilot* regarding navigational recommendations and guidance.

Vessel Particulars

Vessels	*Capt. Shorty C*	*Jackie*	Kirby Barges	EMS Barges
Owner/operator	Kirby Inland Marine LP	Enterprise Marine Services	Kirby Inland Marine LP	Enterprise Marine Services
Port of registry	Houston, Texas	Houma, Louisiana	Wilmington, Delaware	Houma, Louisiana
Flag	United States	United States	United States	United States
Type	Towing vessel	Towing vessel	Tank barge	Tank barge
Year built	1971	2005	2014	2002
Official number (US)	530861	1171264	1245370	1119950
IMO number	N/A	N/A	N/A	N/A
Construction	Steel	Steel	Steel	Steel
Length	88 ft (26.8 m)	76.8 ft (23.4 m)	300 ft (91.4 m)	297.5 ft (90.7 m)
Draft	11 ft (3.4 m)	9.5 ft (2.9 m)	16.5 ft (5.0 m)	14.5 ft (4.4 m)
Beam/width	31 ft (9.4 m)	28 ft (8.5 m)	54 ft (16.5 m)	54 ft (16.5 m)
Gross tonnage	199 tons	136 tons	1632 tons	1619 tons
Engine power, manufacturer	2 x 1200 hp (2 x 895 kW) EMD-12-567BC	2 x 1000 hp (2 x 745 kW)	N/A	N/A
Persons on board	8	5	0	0

NTSB investigators worked closely with our counterparts from Coast Guard MSU Texas City throughout this investigation.

For more details about this accident, visit www.ntsb.gov and search for NTSB accident ID DCA15FM027.

Adopted: April 28, 2016

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).