



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

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MIR-22/11

Grounding of Tanker *Bow Tribute* and Subsequent Contact with River Intake Fender Systems

On March 16, 2021, about 1522 local time, the tanker *Bow Tribute* was transiting downbound on the Lower Mississippi River in New Orleans, Louisiana, with 29 persons on board.¹ While attempting to overtake a two-barge tow in a river bend, the vessel grounded on the left descending bank near mile 104 and subsequently struck the fender systems protecting two river intakes owned by the city's sewerage and water board.² No pollution or injuries were reported. Estimated damage to the vessel (\$986,400) and the fender systems (\$926,100) totaled \$1,912,500.



Figure 1. *Bow Tribute* moored alongside a dock after the casualty.

¹ (a) In this report, all times are central daylight time; all miles are statute miles; all vessel speeds are speed over ground; and vessel headings are referred to as either *upbound* (northbound, away from the sea) or *downbound* (southbound, toward the sea) due to the meandering nature of the Mississippi River, which can flow in any cardinal direction. (c) Visit [ntsb.gov](https://www.ntsb.gov) to find additional information in the [public docket](#) for this NTSB investigation (case no. DCA21FM019). Use the [CAROL Query](#) to search investigations.

² The inland towing industry refers to the shorelines of the Western Rivers as the left and right banks when traveling (facing) downriver: the left bank is called the *left descending bank*, and the right bank is called the *right descending bank*.

Casualty type	Contact
Location	Lower Mississippi River, near mile 104, New Orleans, Louisiana 29°57.39' N, 090°8.48' W
Date	March 16, 2021
Time	1522 central daylight time (coordinated universal time -5 hrs)
Persons on board	29
Injuries	None
Property damage	\$1,912,500 est.
Environmental damage	None
Weather	Visibility 10 mi, overcast, winds south-southwest 15 kts, gusts 24 kts, air temperature 74°F, water temperature 46°F
Waterway information	River, project depth 45 ft, width 1,800 ft, current about 3.5 kts

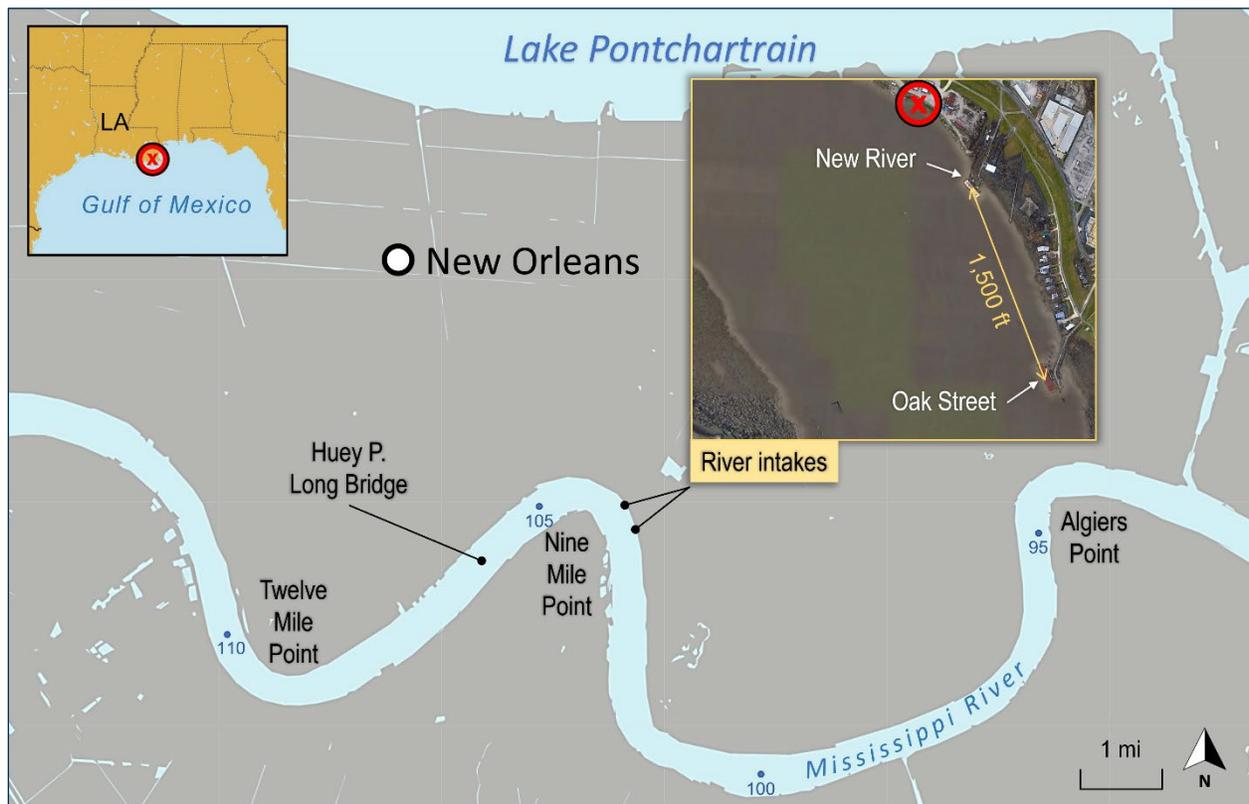


Figure 2. Area where the *Bow Tribute* grounded as indicated by a red X, and then struck the New River and Oak Street river intake fender systems. (Background source: Google Maps)

1. Factual Information

1.1 Background

The *Bow Tribute*, built in 2014, was a 599.3-foot-long steel-hulled liquid bulk cargo vessel (tanker) with a gross registered tonnage of 30,521. Flagged in Norway, the vessel was owned by Saltholmen Shipping Ltd and operated by Odfjell Management AS. Its double-hulled cargo tanks had an inner watertight hull that was separated from the outer hull by ballast or void tanks, or other spaces. The tanker was outfitted with a single rudder and a fixed-pitch right-handed propeller directly driven by a 9,682-hp slow-speed diesel main engine.

On the day of the casualty, the river gage on the Lower Mississippi River nearest to the site of the grounding and contact (Carrolton, about 1.2 miles downriver at mile 102.8) was at 12.4 feet and rising, which constituted a period of “high water.”³ The river current was estimated at 3.5 knots. The winds were from the south-southwest at 15 knots with gusts up to 24 knots.

1.2 Casualty Events

About 0906 on March 16, 2021, after discharging cargo at a facility in Baton Rouge at mile 203.8, the *Bow Tribute* got under way in ballast with its deepest draft of 28.5 feet at the stern. The tanker was traveling downbound with a New Orleans-Baton Rouge Steamship Pilots Association (NOBRA) pilot and a crew of 27 en route to the Alliance Anchorage around mile 65 to load a cargo of gasoline from a nearby tanker dock. On the bridge was the pilot, who was conning the *Bow Tribute*; the master; an officer of the watch; and a helmsman. A crewmember was standing by on the bow to let go the anchors, if needed. During the master/pilot exchange, the master informed the pilot there were no deficiencies with the vessel’s propulsion, machinery, steering, or navigation systems.

About 1200, the second officer relieved the third officer as officer of the watch. At 1235, around mile 150 (near the Grandview Reach Anchorage), a local area tugboat captain (hereinafter referred to as “observer”), who knew the NOBRA pilot on board and was interested in obtaining an endorsement on his Coast Guard credential as a first-class pilot for the river, embarked the *Bow Tribute* from a launch. The observer positioned himself near the pilot, by the portside forward window of the bridge, where he would remain for most of

³ *High water* is “when the Carrolton Gage reads 8.0 feet or above on a rising stage or 9.0 feet or above on a falling stage,” according to Title 33 Code of Federal Regulations (CFR) [section 161.65\(b\)](#).

the transit. Shortly after the observer boarded, the master went below to rest in his cabin, leaving the second officer and the helmsman on watch together with the pilot.

Ahead of the *Bow Tribute* was the towing vessel *American Way*, also traveling downbound in the following current. The 70-foot-long towboat was pushing two empty raked hopper barges. Its 2,000-hp propulsion and steering were provided by two azimuth stern drive units (commonly referred to as Z-drives). The barges, which were 298 feet long and 54 feet wide, were breasted side by side, making the tow about 368 feet long and 108 feet wide. The draft was 9 feet for the towboat and about 2 feet for the barges. The *American Way* had a crew of four, including a captain, a pilot, and two deckhands.⁴

At 1502, while the *Bow Tribute* was at mile 109 and the *American Way* was about 1.7 miles ahead, the NOBRA pilot on the *Bow Tribute* hailed the pilot on the *American Way* via VHF radio to communicate that the tanker was astern of the tow. "It looks like we're gonna meet," the NOBRA pilot said, "overtake you at Nine Mile [Point]," which was about 3 miles downriver. Nine Mile Point was a point within the Carrollton Bend, a large bend in the river that was about 1,800 feet wide at its narrowest point and required a course change of about 135°. The NOBRA pilot then asked if the *American Way*, at 7.8 knots, could either speed up or slow down. "We can speed up a bit," the pilot on the *American Way* responded and then increased the engine's rpms.

At 1505, the pilot on the *American Way* radioed the NOBRA pilot on the *Bow Tribute* asking, "What side did you say you want to overtake me on the other side of the bridge?" in reference to the Huey P. Long Bridge at mile 106, about 1.3 miles above Nine Mile Point. The NOBRA pilot responded, "I can overtake you on the two, if that's alright with you," indicating his intent to pass the tow on the tanker's starboard side.⁵ The *American Way's* pilot confirmed, "Alright, see you on the two."

At 1507, the NOBRA pilot on the *Bow Tribute*, which was traveling at 12.7 knots, ordered a speed increase from full ahead to navigation full ahead. Two minutes later, the *American Way*, at 8.6 knots and about 1.3 miles ahead of the *Bow Tribute*, passed underneath the Huey P. Long Bridge. Among the traffic approaching Carrollton Bend were a few lightboats (towing vessels without tows) and a harbor tugboat. About 0.25 miles ahead of the *American Way* was another downbound towboat, the *Capt JW Banta*, with two loaded barges strung out (connected end to end) traveling at 8.9 knots.

At 1511, the NOBRA pilot on the *Bow Tribute* commented, "That *American Way* needs to slow down now," before answering a radio call from an upbound vessel. At 1515, as the *Bow Tribute* passed under the Huey P. Long Bridge at 14.9 knots, the

⁴ *Pilot* is a term used aboard towing vessels on inland waterways for a person, other than the captain, who navigates the vessel.

⁵ See [Rule 34](#) of the Inland Navigation Rules (33 CFR 83.34) – "Maneuvering and Warning Signals."

NOBRA pilot ordered the propulsion to be reduced from navigation full to full ahead. In the next minute, he told the observer, "I don't like to do this, but we got to. We have no choice." The *American Way*, at 7.8 knots, was 0.7 miles ahead of the *Bow Tribute*. The *Capt JW Banta*, ahead of the *American Way*, began to round Nine Mile Point about mile 105.5. The pilot on the *American Way* noted that with the *Capt JW Banta* just ahead, he had to monitor the distance between both tows to ensure they would not get too close.

Also approaching Nine Mile Point but upbound was the 653-foot-long bulk carrier *Red Cosmos*. Based on the passing arrangements made between the NOBRA pilots on the *Bow Tribute* and the *Red Cosmos*, the bulk carrier would keep to the point side—the right descending bank by the point—and meet all the downbound vessels starboard to starboard.

About 1518, the pilot of the *American Way* began to round Nine Mile Point in the center of the river with the upbound *Red Cosmos* also approaching the bend about a quarter of a mile ahead. The pilot on board the *Red Cosmos* announced over the radio, "*American Way*, you can come at me all you want, I got more than enough," to which the pilot on the *American Way* replied, "Roger." The *Bow Tribute* was about 0.19 miles astern of the *American Way*, also turning to starboard to round the bend.

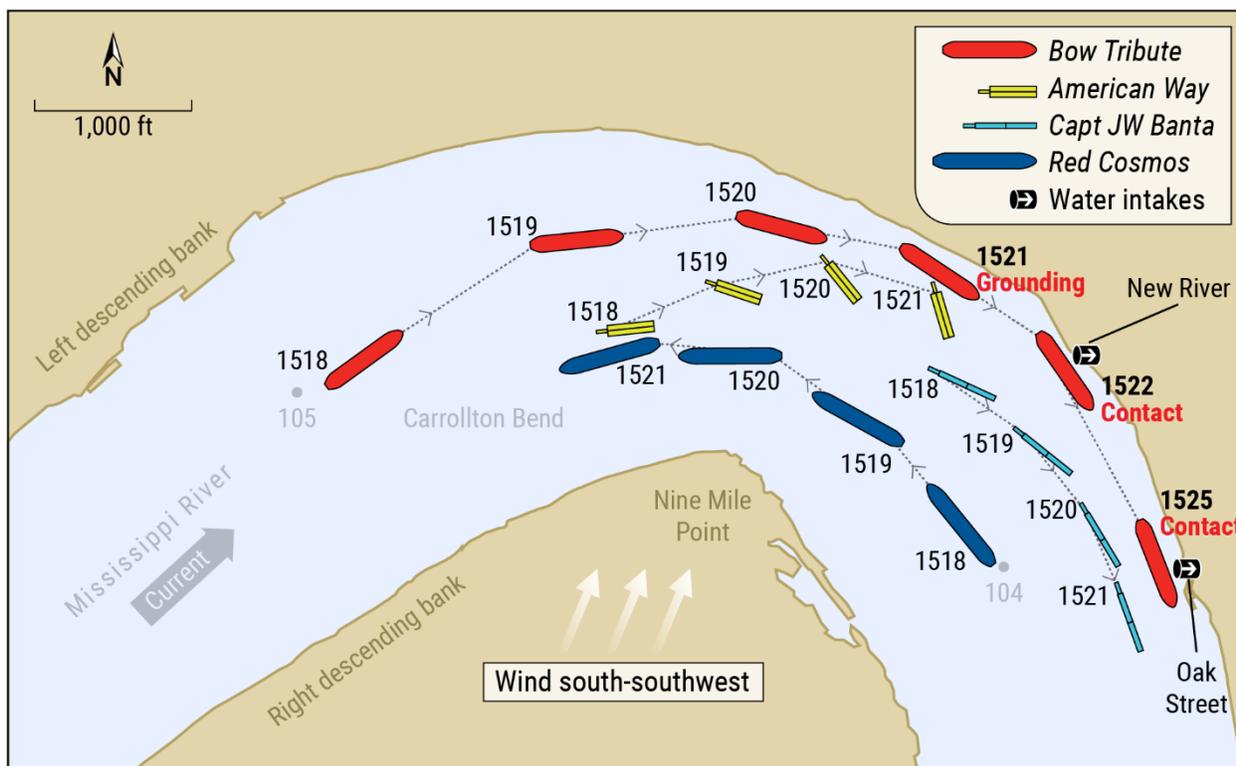


Figure 3. Positions of the *Bow Tribute*, *American Way*, *Capt JW Banta*, and *Red Cosmos* (approximate scale) in the Carrollton Bend in the minutes leading up to the casualty, based on automatic identification system data. The *Bow Tribute*'s subsequent contact at the two river intakes is also identified.

At 1519, the tanker and towing vessel were traveling about 0.15 miles apart: the *Bow Tribute* at 15.1 knots was astern of the *American Way* at 7.8 knots. Noticing the *American Way* was “widening out and sliding” into the bend (moving sideways toward the left descending bank), the NOBRA pilot on the *Bow Tribute* hailed the pilot on the *American Way*, asking, “You’re gonna make it, huh?” He received no response. Seconds later, the NOBRA pilot again hailed the *American Way*; this time the towing vessel’s pilot acknowledged the radio call. “I’m the one overtaking you,” said the *Bow Tribute*’s pilot. “You gonna be alright?” The pilot of the *American Way* replied that he was “trying to get up.”

About 30 seconds later, seeing that the *American Way* was continuing to slide into the bend ahead of the tanker, the NOBRA pilot on the *Bow Tribute* asked the second officer to have the anchors ready to let go. The second officer radioed the bosun, who was on anchor watch on the bow, to stand by with the anchors; immediately afterward, he called the master to the bridge. At 1520, the NOBRA pilot on the *Bow Tribute* again hailed the *American Way*’s pilot, stating, “You gotta drive on that thing, man” to which there was no reply and no further communications from the *American Way*. On board the *American Way*, the pilot called the captain to the wheelhouse; when he arrived, the captain took control of the vessel and continued trying to steer the *American Way* to starboard, away from the bank toward the center of the river.

At 1520:35, as the stern of the *American Way* was about 130 feet off the starboard bow of the *Bow Tribute*, the NOBRA pilot on the *Bow Tribute* issued a series of helm orders to port and midship, followed by multiple soundings of the ship’s whistle. He announced over the radio that the tanker was “colliding at Nine Mile” and requested harbor tug assistance. The pilot then gave various rudder orders and then ordered the engine to full astern to maneuver the *Bow Tribute* clear of the *American Way*.



Figure 4. CCTV footage looking upriver at 1521 shows the *Bow Tribute* near the left descending bank with the *American Way* by the tanker’s starboard bow. (Timestamp is 1 hour 11 minutes behind the actual time.) (Source: Crosby Dredging)

As the NOBRA pilot ordered the engine to full astern, the master of the *Bow Tribute* arrived on the bridge and recalled seeing the *Bow Tribute* was so close to the bank that there was only one direction to turn, to starboard, but the *American Way* was close on the starboard side and therefore in the way. At 1521:45, the sound of vibrations could be heard on the bridge from the ship's voyage data recorder, and on closed-circuit TV (CCTV) cameras located on the left descending bank, the stern of the *Bow Tribute* could be seen momentarily interacting with the bank (grounding) and its stern rising out of the water while the vessel was traveling about 10.3 knots. The tanker continued along the left descending bank with about 21 knots of wind on its starboard side. The NOBRA pilot on the *Bow Tribute*, not wanting to collide with the *American Way*, told investigators that he kept the vessel near the shoreline because he could no longer see the *American Way* under the *Bow Tribute*'s starboard bow.

Seconds later, at 1522:26, the port side of the *Bow Tribute* struck a spud barge moored at mile 104.1 for the New River water intake system owned by the Sewerage and Water Board of New Orleans. The barge was part of a fender system to protect the river intake pipes. After being struck, the barge broke free from its spuds and moorings and drifted downriver. The NOBRA pilot on the tanker issued a series of rudder orders to port and starboard and, at 1522:38, ordered the starboard anchor let go, seeing the *American Way* was not at risk of being below the *Bow Tribute*'s starboard anchor. The second officer relayed the order to the bosun on the bow, who let go the starboard anchor without delay.



Figure 5. CCTV footage looking downriver at 1522:26 shows the *Bow Tribute* when it struck the spud barge protecting the New River water intake pipes. (Source: Crosby Dredging)

The *American Way*, which the captain had steered away from the bend toward the center of the river, slowed once it was clear of the *Bow Tribute* to maintain a safe distance from the *Capt JW Banta*. With the *Capt JW Banta* still ahead, the *American Way* continued downbound toward its intended destination.

At 1525, as the *Bow Tribute* slowed in the bend with its starboard anchor paying out, the tanker struck another protective spud barge, which was located at the Oak Street water intake at mile 103.8, about 1,500 feet downriver from the New River water intake. About a minute later, the NOBRA pilot ordered the engine to be stopped. At 1527, with the NOBRA pilot ordering the anchor held at 7 shots in the water (630 feet), the *Bow Tribute* began to turn around and face upriver.

At 1534, the tugboat *A.T. Higgins*, which had responded to the NOBRA pilot's call for tug assistance, was able to make fast to the starboard bow of the *Bow Tribute*. Per NOBRA protocols, a relief pilot was sent to the *Bow Tribute* to relieve the pilot on board. Once a handover took place, the pilot and observer disembarked the tanker. After a damage assessment found no hull penetrations or release of pollutants, the starboard anchor was heaved in. The *Bow Tribute* got under way, upbound with tug assistance toward the Lower Kenner Bend Anchorage at mile 113.6, where it anchored at 1757.

1.3 Additional Information

1.3.1 Damage

Neither the *American Way* nor its barges sustained any damage. On the *Bow Tribute*, all four of the propeller's blades were found with indentations, bends, and loss of material on their edges, as well as there was damage to the stern tube shaft seals. There was also damage to the portside hull shell plating: below the waterline near the aftmost cargo tanks and machinery spaces and above the waterline outboard of the machinery spaces (where there were scrapes and an indentation). The portside accommodation ladder was also damaged.



Figure 6. Postcasualty damage to the *Bow Tribute*'s portside aft hull (*left*) and propeller (*right*), as indicated by yellow dashed lines.

The fender systems for both river intakes sustained damage, but there was no damage to their pipes; the intake systems continued functioning without interruption. As a result of the protection barge being pushed into the fender system at the New River water intake, the dolphin piles, cells, and intake screen incurred damage. Also, the protection barge that broke free (but was later recovered by a nearby tugboat and returned to its original location) sustained compression damages and a crack in the hull. The Oak Street water intake fender system had a catwalk destroyed, and there was damage to its dolphin piles. Both river intake fender systems had been damaged during a previous casualty 5 years prior (on February 2, 2016) when struck by the tanker *Nordbay*; overall, they had not been repaired or replaced prior to the contact by the *Bow Tribute*.⁶

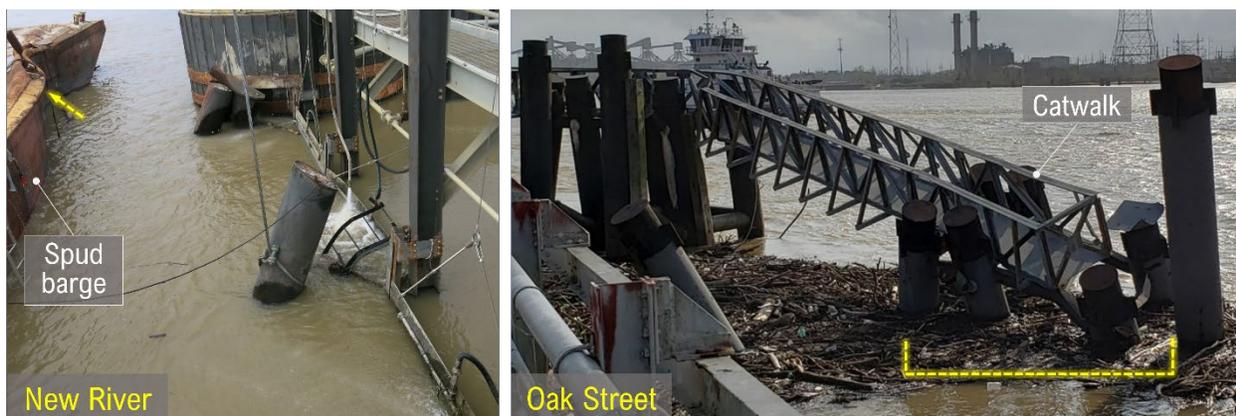


Figure 7. Damage to the river intake fender systems: (left) arrow shows damage to the spud barge at New River; (right) bracket identifies the damaged catwalk and dolphin piles at Oak Street downriver. (Source: Coast Guard [right photo])

1.3.2 Personnel

The *Bow Tribute*'s NOBRA pilot, master, second officer, and helmsman all tested negative for alcohol and other drugs postcasualty. Each crewmember was credentialed for the operation of the tanker. The NOBRA pilot was commissioned as a first-class pilot with the state of Louisiana and had about 7 years' experience as a pilot. He told investigators he had been handling similar-sized tankers since his commission. Before his appointment as a NOBRA pilot, he had worked on harbor assist tugs since 1998. Both the master and the second officer stated they had sailed on the Lower Mississippi River numerous times in the past.

The *American Way*'s pilot was appropriately credentialed and had 6 years' experience in piloting towing vessels.

⁶ *Allision of Tanker Nordbay with Docks and Water Intakes*, Marine Accident Brief [NTSB/MAB-17/30](https://www.ntsb.gov/investigationreports/MAB-17-30/). Washington, DC: NTSB.

1.3.3 Rules and Practices

At the time of the casualty, there were no high-water event restrictions to vessels transiting the Lower Mississippi River during daylight hours, nor were there restrictions or special rules in place regarding vessels meeting or overtaking in the Carrollton Bend.

Generally, on the approach to the Carrollton Bend, downbound traffic will follow the bend along the left descending bank, while upbound traffic will come along the right descending bank below Nine Mile Point, usually meeting starboard to starboard in the bend. According to both the captain and the pilot of the *American Way*, given the propensity for tows to slide into the bend, it was not common for ships to overtake vessels with tows in large bends like the Carrollton Bend. The pilot on the *American Way* said he thought the intention of the NOBRA pilot on the *Bow Tribute* was to overtake the towing vessel *after* the bend (below Nine Mile Point), not *within* it. He also said that he was “boxed in” by the upbound *Red Cosmos*, the downbound *Capt JW Banta* ahead, and the *Bow Tribute* approaching from astern.

The NOBRA pilot on the *Bow Tribute* told investigators, however, that it was normal to overtake vessels in the Carrollton Bend, describing that in this situation, all vessels had “their third” of the river through the bend. Based on his radio communications and passing agreements with the upbound ships and the *American Way*, his third of the river leading up to the casualty was near the left descending bank, where he pointed the *Bow Tribute* in preparing to overtake the *American Way* on the tow’s port side; the *American Way* was expected to have the center third of the river; and the upbound vessels had the point side, or the right descending bank. The NOBRA pilot believed he could have overtaken the *American Way*, had the tow not slid in the bend, as he observed, encroaching on the *Bow Tribute*’s third of the river. Aware that the *American Way* was pushing two empty barges and was outfitted with a Z-drive propulsion system, which the NOBRA pilot stated could “drive out of anything,” he did not foresee any problems.

2. Analysis

2.1 Environmental Conditions

While rounding Nine Mile Point ahead of the 599.3-foot-long tanker *Bow Tribute* during high-water conditions, the 368-foot-long *American Way* tow began to slide in the bend and into the path of the overtaking *Bow Tribute*, which was close behind. The tow’s slide was likely caused by the combined effect of the estimated 3.5-knot following current and the wind pressure from gusts up to 24 knots exerted on the surface area of the starboard empty barge, whose freeboard was greater than its draft. The *American Way*’s pilot could not maintain the tow’s position in the center of the river, nor power or

steer it out of the slide in sufficient time to allow adequate space for the fast-approaching *Bow Tribute*, which was traveling about double the speed of the *American Way*.

2.2 Decision-making of *Bow Tribute's* Pilot

The NOBRA pilot on the *Bow Tribute* told investigators that he intended to overtake the *American Way* on the tanker's starboard side in the Carrollton Bend. Considering the speed of the tanker and the large course alterations both downbound vessels had to make to round Nine Mile Point, such a maneuver with a large ship and a tow downbound with a following current amid other traffic in, or approaching, the bend presented an increased risk.

The NOBRA pilot on the *Bow Tribute* expected each vessel would keep to its section of the 1,800-foot-wide river bend—the *Red Cosmos* on the right descending bank, the *American Way* in the center, and the *Bow Tribute* on the left descending bank. However, this expectation left a narrow margin of safety for him to respond to any unexpected problems, such as a loss of maneuverability of the tow that was being overtaken.

The NOBRA pilot told investigators that there was nothing of concern related to the *Bow Tribute* overtaking the *American Way* in the bend, and that there would have been no problem doing so had the tow not slid in the bend. However, his comment to the observer, "I don't like to do this, but we got to. We have no choice," 6 minutes before the grounding indicates otherwise, that it was not his preference to overtake the tow in the bend. He was likely committed to the maneuver, nonetheless, given the speed at which the *Bow Tribute* was approaching the *American Way* from astern.

Although the speed of the *Bow Tribute* was not uncommon for a tanker in ballast transiting downbound, especially since keeping waterflow over the rudder provides better maneuverability of a vessel, the NOBRA pilot could have reduced its speed before the bend, given the number of other vessels rounding the point. At a slower speed, the tanker could have then overtaken the *American Way* after the bend, as the towing vessel's pilot was expecting, in an area where both vessels would have been on a relatively straight course.

2.3 Actions of *American Way's* Pilot

The pilot of the *American Way* agreed to the *Bow Tribute* overtaking the tow. Although he assumed the *Bow Tribute's* pilot would be overtaking the tow on the tow's port side *after* the bend, this assumption did not relieve the *American Way's* pilot of his obligation to monitor the situation and to communicate with the NOBRA pilot if that arrangement was in jeopardy or if there was any doubt concerning it.

The *American Way's* pilot, who was alone in the wheelhouse as the tow began to slide, likely experienced an increasingly high level of cognitive workload trying to steer the tow out of the slide in the bend while keeping clear of nearby vessels. The pilot's high level of cognitive workload is evident through the radio recordings at the time that the vessel began to slide in the bend. When the *Bow Tribute's* pilot radioed him to ask, "You're gonna make it, huh?" he did not respond until seconds later when the NOBRA pilot made another call. A minute later, when another call was made to "drive on that thing," there was no response from the *American Way's* pilot. Overall, in the 90 seconds preceding the near-miss collision, the pilot of the *American Way* did not communicate at all over the radio, either to the *Bow Tribute* or surrounding vessels.

Highly demanding primary tasks reduce operator performance of secondary tasks, such as radio communications, which is indicative of an individual experiencing a high level of cognitive workload caused by the complex nature of an individual's primary taskings.⁷ The primary task of driving the vessel out of the slide for the *American Way's* pilot became increasingly demanding and complex as the situation progressed, thereby requiring high levels of attention and cognitive processing. Because of the demanding nature of the pilot's primary task, the performance of secondary tasks, such as monitoring and transmitting radio communication, likely suffered.

2.4 Communications

Communications from the NOBRA pilot on the *Bow Tribute* were not clear regarding specifically where the *American Way* was to be overtaken. About 20 minutes before the *Bow Tribute* grounded, the tanker's pilot told the *American Way*, "It looks like we're gonna meet, overtake you at Nine Mile," before asking if the tow could either speed up or slow down. The pilot of the *American Way* increased the tow's speed. Three minutes later, he asked the pilot of the *Bow Tribute* on which side of the tow the tanker was going to overtake the tow. The NOBRA pilot on the *Bow Tribute* responded that he would overtake the *American Way* on the tanker's starboard side, which the *American Way's* pilot acknowledged. As the two vessels approached the bend, the pilot of the *Bow Tribute* did not clearly communicate his intent to the pilot of the *American Way*. Alternatively, the pilot of the *American Way*, who had assumed he was to be overtaken after the bend, could have requested clarification as to where the pilot on the *Bow Tribute* intended to overtake him, or requested that the overtaking occur after the bend. Clear, effective, and unambiguous radio communications should be used, especially during high traffic and dynamic conditions such as overtaking in a bend.

⁷ Wickens, C.D., "Multiple Resources and Mental Workload," *Human Factors: The Journal of Human Factors and Ergonomics Society*, 2008.

3. Conclusions

3.1 Probable Cause

The National Transportation Safety Board determines that the probable cause of the grounding of the tanker *Bow Tribute* and its subsequent contact with the river intake fender systems was the pilot's decision to overtake a tow in a large river bend occupied by multiple vessels during high-river conditions with a strong following current. Contributing to the grounding was the ineffective communication between the pilot of the *Bow Tribute* and the pilot of the towing vessel *American Way* regarding where the overtaking maneuver would occur.

Vessel	<i>Bow Tribute</i>
Type	Tanker
Flag	Norway
Port of registry	Bergen, Norway
Year built	2014
Official number (US)	None
IMO number	9669885
Classification society	DNV
Length (overall)	599.3 ft (182.7 m)
Beam	105.8 ft (32.2 m)
Draft (casualty)	28.5 ft (8.7 m)
Tonnage	30,521 GT ITC
Engine power; manufacturer	1 x 9,682 hp (7220 kW); Hyundai B&W 6S50ME-B9.2 diesel engine

NTSB investigators worked closely with our counterparts from **Coast Guard Sector New Orleans** 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.

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For more detailed background information on this report, visit the NTSB investigations website and search for NTSB accident ID DCA21FM019. 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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