



# National Transportation Safety Board

## Marine Accident Brief

### Collision between Passenger Vessel *Diamond Edge* and Liftboat *B.W. Haley*

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<b>Accident no.</b>	DCA15LM015
<b>Vessel names</b>	<i>Diamond Edge</i> and <i>B.W. Haley</i>
<b>Accident type</b>	Collision, with subsequent partial sinking of the <i>Diamond Edge</i>
<b>Location</b>	Freshwater Bayou Safety Fairway, Gulf of Mexico (29°27.84'N, 092°18.76'W)
<b>Date</b>	March 2, 2015
<b>Time</b>	1027 central standard time (coordinated universal time – 6 hours)
<b>Injuries</b>	None
<b>Damage</b>	Est. \$1.75 million
<b>Environmental damage</b>	None reported
<b>Weather</b>	Dense fog, visibility less than 0.1 mile; air temperature 65°F; winds easterly at 8 knots
<b>Waterway information</b>	Open waters of the Gulf of Mexico about 55 miles south-southwest of Lafayette, Louisiana

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On March 2, 2015, at 1027 local time, the passenger vessel *Diamond Edge* and the liftboat-configured offshore supply vessel *B.W. Haley* collided while under way in dense fog about 55 miles south-southwest of Lafayette, Louisiana.<sup>1</sup> As a result of the collision, the hull of the *Diamond Edge* was breached and the vessel partially sank. There were no significant injuries or pollution reported. Estimated damage exceeded \$1.75 million for both vessels combined.



Passenger vessel *Diamond Edge* on a transport barge after it was salvaged.

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<sup>1</sup> Unless otherwise noted, all miles in this report are nautical miles (1.15 statute miles).

## Accident Events

The *Diamond Edge* was a 121-foot-long, 134-ton, aluminum-hull passenger vessel operated out of Freshwater City, Louisiana. The vessel's forward deckhouse provided seating and shelter for up to 68 passengers, while the flat after-deck allowed the vessel to carry cargo to and from offshore installations. It was powered by four 700-horsepower diesel engines and its maximum speed was about 21 knots.

About 0500 on the morning of the accident, the *Diamond Edge* left its berth in Freshwater City with four crewmembers and one passenger en route to an offshore platform. The captain had 18 years' experience in offshore support vessels and held a 100-ton coastwise credential as master. The vessel proceeded south-southeast and, about 0800, delivered the passenger to the offshore platform before beginning its return voyage.

According to the captain, the *Diamond Edge* encountered patchy fog as it started its inbound transit from the platform. The captain stated that the visibility worsened as the vessel crossed Trinity Shoal, about 15 miles to the southeast of the accident site, and the fog continued to close in. The captain said that, at the time of the collision, the visibility had decreased to about 60 feet. A lookout was posted inside the enclosed wheelhouse; however, no fog signal was being sounded as required. As the vessel approached Freshwater Bayou Safety Fairway about 1000, it was on a northerly heading at a speed of about 14 knots.<sup>2</sup>

The *Diamond Edge* was equipped with a navigation computer, GPS, two radars, and an automatic identification system (AIS).<sup>3</sup> The navigation computer received GPS and AIS information but no radar information. The captain stated that his primary means of determining risk of collision was by monitoring other vessels' AIS information on the *Diamond Edge*'s navigation computer. For vessels without AIS, the captain used the radars for collision avoidance.

The *Diamond Edge*'s two radar displays were set to ranges of 0.75 mile and 1.5 miles. According to the captain, the radars were "pretty finely tuned" because he could see the radar presentations of the Freshwater Bayou Channel buoys and "seaweed that was floating in the water." However, the captain said he did not perform long-range scanning on either radar. Long-range scanning, as required by collision regulations, is a practice where the operator periodically changes the radar display setting to a greater range for a short period of time before bringing it back to the preferred setting. This allows the operator to detect other vessels at a farther distance and provides a longer time period to assess the situation and adjust course or speed if needed to avert a collision. The captain could not recall if the radar plotting function,

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<sup>2</sup> Safety fairways provide unobstructed approaches for vessels using US ports. In the Gulf of Mexico, safety fairways are established to control the erection of structures within these approaches in order to provide a safe route through oil fields to the entrance of ports (Title 33 *Code of Federal Regulations* [CFR] Part 166, Subpart B, §166.200). The Freshwater Bayou Safety Fairway is the approach route for Freshwater City and the Freshwater Bayou Canal.

<sup>3</sup> AIS is a maritime navigation safety communications system. At 2- to 12-second intervals on a moving vessel, AIS automatically transmits vessel information, including vessel name, type, position, course, speed navigational status, and other safety-related information to appropriately equipped shore stations, other vessels, and aircraft. The rate at which the AIS information is updated depends on vessel speed and whether the vessel is changing course. AIS automatically receives information from similarly equipped vessels.

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which displays a history of the relative position of an object detected by the radar, was enabled on the one radar equipped with this capability.<sup>4</sup>



**Satellite image of southern Louisiana and the Gulf of Mexico. The accident site is marked by a red triangle. (Background by Google Earth)**

As the vessel proceeded inbound, the *Diamond Edge* captain spoke to the captain of an offshore support vessel, the *Elliot Cheramie*, over VHF radio to arrange a safe passage in the fog. The *Elliot Cheramie* was similar in size and layout to the *Diamond Edge*. The *Diamond Edge* captain told investigators that, according to the AIS information displayed on the vessel's navigation computer, he could see the outbound *Elliot Cheramie* in Freshwater Bay Channel heading in a southerly direction and making a speed of about 7 knots.

The *Elliot Cheramie* captain stated that, about the time he and the *Diamond Edge* captain conversed over VHF, he saw a contact on his radar "coming in and out." He said "it had clutter" around it, which he believed was caused by birds. The *Diamond Edge* captain told investigators he also saw something "pop up intermittently on the radar."

On seeing the contact on his radar, the *Elliot Cheramie* captain altered the vessel's course to port in an easterly direction but quickly realized from his radar's presentation that the other vessel was heading eastbound. He altered the *Elliot Cheramie*'s course "hard to starboard,"

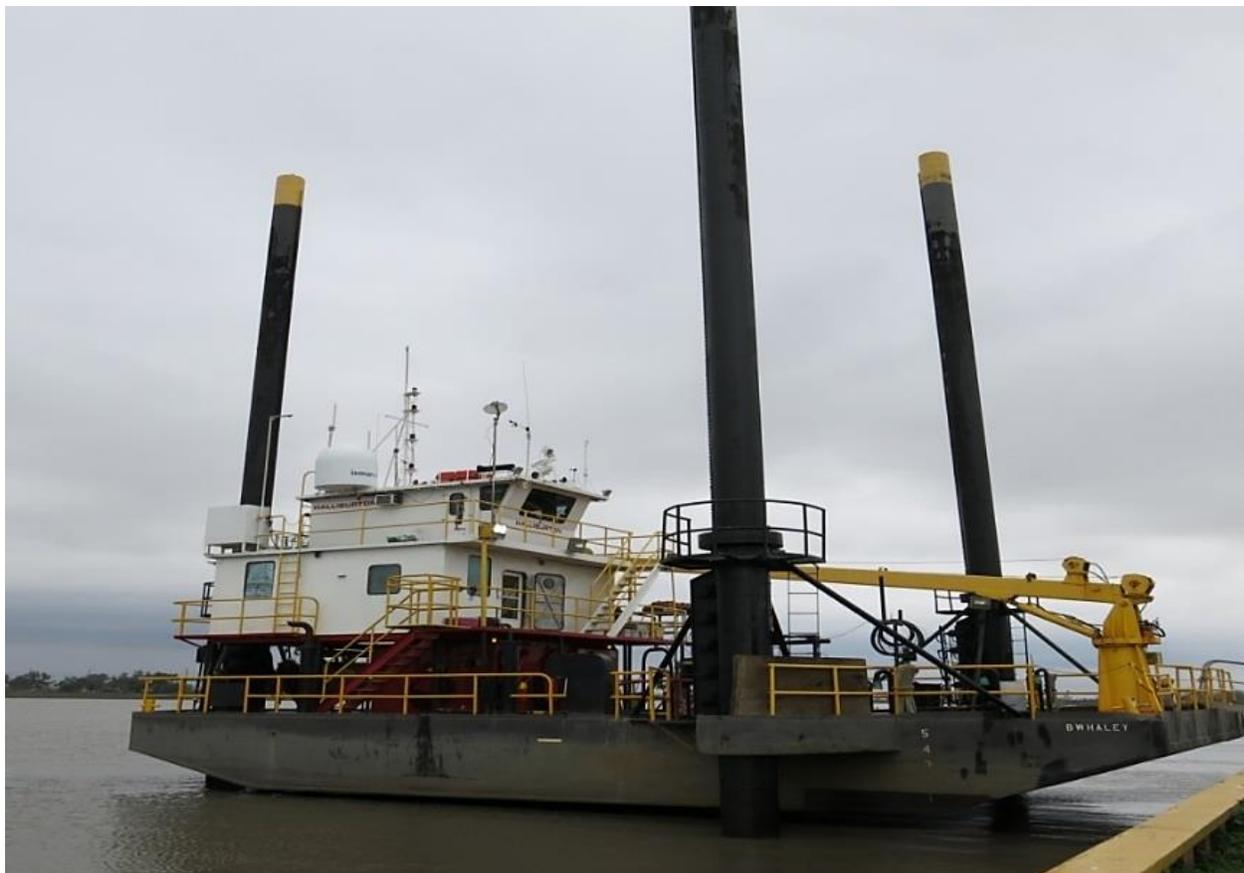
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<sup>4</sup> According to Title 46 *CFR*, self-propelled passenger vessels of less than 100 gross tons with a capacity of 49 or more passengers must be fitted with a general marine radar system for surface navigation. Additional radar system functions, such as an automatic radar plotting aid (ARPA), are not required by regulation for vessels in this category.

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or to the west, and went to full-ahead speed on his port engine to turn the vessel faster so it would safely pass astern of the crossing contact. He stated he never saw the other vessel, although visibility was estimated to be about 15 feet as they passed. After reviewing GPS and AIS data, investigators believe the contact the *Elliot Chermie* maneuvered for was the *B.W. Haley*.

The *B.W. Haley* was a liftboat operated out of Grand Chenier, Louisiana, in the line services support sector of the oil exploration and support industry. A liftboat is an offshore supply vessel with moveable legs capable of raising its hull above the surface of the sea.<sup>5</sup> The 62-foot-long, 32-foot-wide steel vessel had a 15-ton steel crane and three large steel legs. The three steel legs were 4 feet in diameter, 90 feet in height, and had 12-foot-by-24-foot steel plates, known as mats, attached to the bottom of each leg. The mats provided stability when the legs were resting on the sea floor during lifting operations. While the vessel was under way, the steel legs were raised so that the mats were out of the water. In the raised position, the legs extended close to 90 feet above the water. The *B.W. Haley* had two 400-horsepower diesel engines capable of moving the vessel at a top speed of about 5.5 knots when fully loaded to its 170-ton displacement. It had one radar and was not required to carry nor fitted with AIS. Without this equipment, the *B.W. Haley* could not be detected by other vessels through AIS.



Liftboat *B.W. Haley* with legs in “elevated” position.

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<sup>5</sup> Title 46 *CFR*, Part 90, §90.10-20

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About 0030 on the morning of the accident, the *B.W. Haley* left its berth in Grand Chenier with a crew of three, bound for a position just south of Mound Point, Marsh Island, Louisiana. It was loaded with equipment used to repair a submerged flow line. The captain had over 30 years' experience in offshore support vessels and held a 100-ton master's credential.

At 1000, the *B.W. Haley* was about 1.5 miles west of the Freshwater Bayou Safety Fairway with the captain at the helm. The vessel was on an east-southeasterly heading making its maximum speed. A second crewmember, the deckhand/relief captain, was also on the bridge because the vessel's whistle—which the captain was sounding every 2 to 3 minutes due to fog—had kept him awake. According to the deckhand/relief captain, the captain sounded the whistle at 2- to 3-minute intervals because “about that long, the birds would all land back.” Later, the third crewmember, the vessel assistant, joined the other two in the 5-foot-by-20-foot wheelhouse. Despite visibility of about an eighth of a mile, neither the deckhand/relief captain nor the vessel assistant were assigned duties while on the bridge, and no lookout was posted.

The radar display aboard the *B.W. Haley* was set to a range of 0.75 mile. The captain stated he did not vary the range to conduct long-range scanning, and he never saw the *Diamond Edge* on the radar display.

According to the *B.W. Haley* captain and deckhand/relief captain, the captain made two *Sécurité* calls on VHF radio channel 13 before and during the Freshwater Bayou Safety Fairway crossing to determine if there was any vessel traffic in the vicinity.<sup>6</sup> The *Diamond Edge* captain stated that he heard one of the *Sécurité* broadcasts from *B.W. Haley*. He responded to the call but received no reply from the *B.W. Haley*.

The *Diamond Edge* captain told investigators that, about 1030, he visually saw *B.W. Haley* coming out of the fog at a distance of 60 feet on a collision course with his port bow. The captain said he could not immediately go into reverse because it would have stalled the engines. Therefore, he sped up and turned his vessel to port—toward the *B.W. Haley*—to kick his stern away from the liftboat (information recovered from the *Diamond Edge*'s navigation computer indicates that the vessel initially turned to starboard before turning to port). The captain's maneuvers, however, did not clear the *B.W. Haley* and, according to AIS, the aft port side of the *Diamond Edge* impacted the liftboat's starboard bow and leg mat about 1027.

On board the *B.W. Haley*, the vessel assistant stated he visually spotted the *Diamond Edge* coming out of the fog shortly after the second *Sécurité* call, and he alerted the captain. At first sighting, estimated at 1025 based on the vessel's speed and the time of the collision, the *Diamond Edge* was 45 degrees on the starboard bow of the *B.W. Haley* and very close. The vessel assistant also stated that “you can't see on that corner [of the liftboat because] it's behind the leg.” The deckhand/relief captain eventually saw *Diamond Edge*'s stern coming towards the *B.W. Haley* as well, but he said that “the leg hid him from me.” The captain of the *B.W. Haley* told investigators that, immediately on sighting the other vessel visually, he placed his engines full astern. The other two crewmembers' statements support his account. The deckhand/relief

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<sup>6</sup> 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.

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captain told investigators the vessel quickly came to a stop; however, these actions were too late to prevent the collision.

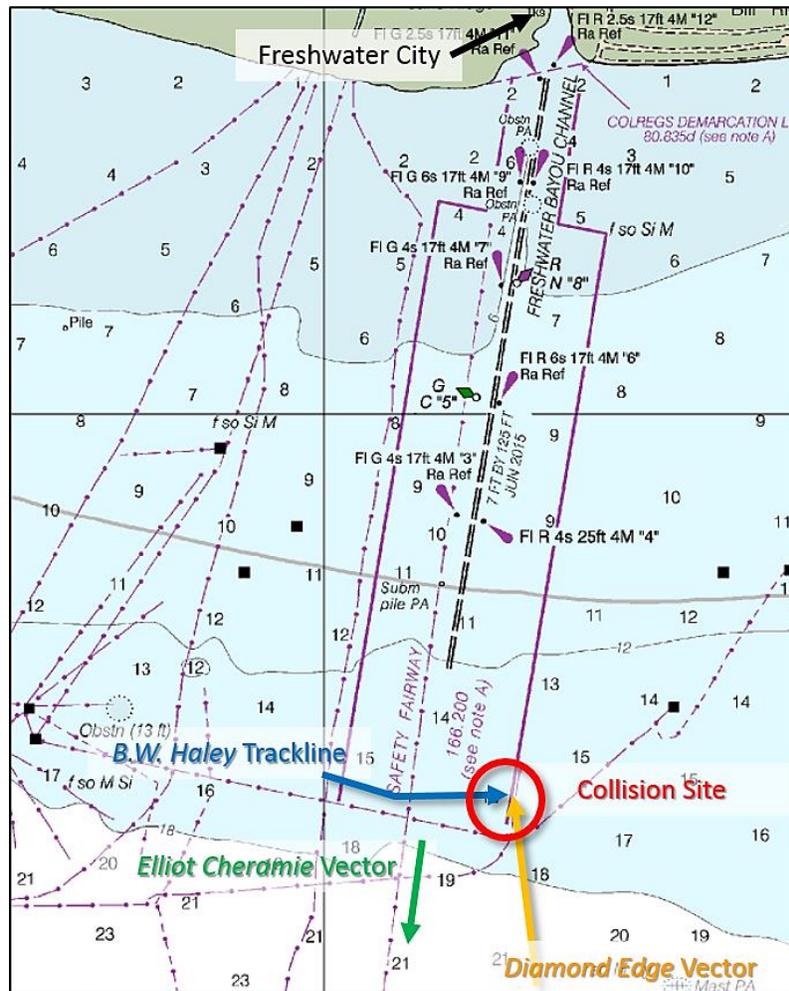
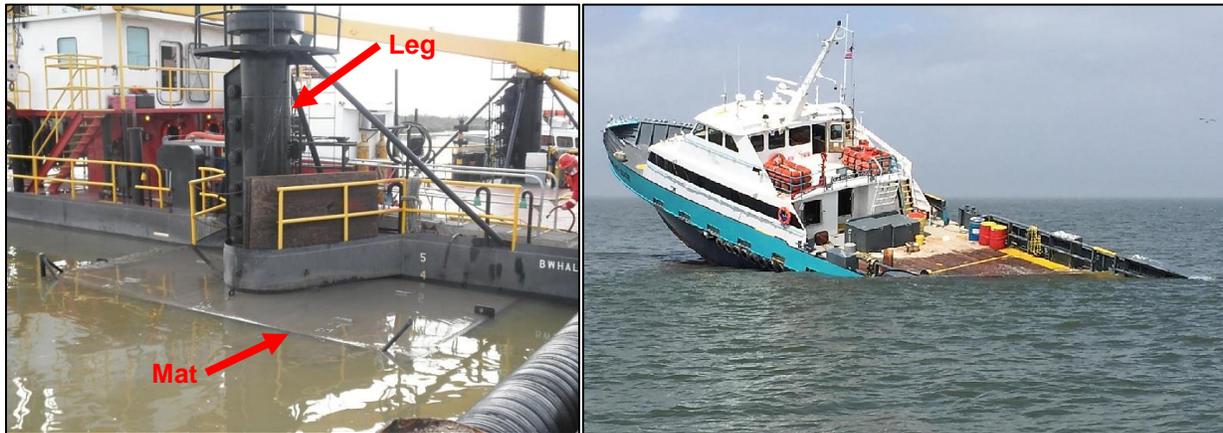


Chart depicting *Elliot Cheramie* and *Diamond Edge* AIS vectors, *B.W. Haley* GPS trackline, and the collision site. (Background NOAA chart 11349; overlay by NTSB using data compiled from *Diamond Edge's* navigation computer)

The force of the collision spun the *B.W. Haley* around and caused over \$117,000 damage to the vessel, but it remained afloat. However, the *Diamond Edge* rapidly took on water from two holes in its aft port side and lost power. A little before 1100, the *B.W. Haley* came alongside the *Diamond Edge* and rescued the four *Diamond Edge* crewmembers. The *B.W. Haley* then returned to port under its own power. The stern of the *Diamond Edge* eventually sank, with its bow remaining above the surface. A few days after the collision, the *Diamond Edge* was lifted onto a barge for transport to a shipyard. Damage was estimated to be at least \$1.75 million.

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Left picture shows *B.W. Haley* with close-up of starboard leg and mat where the collision occurred. Right picture shows the partially submerged *Diamond Edge*. (Photos by US Coast Guard)

### Discussion

The captain of the *Diamond Edge* was piloting his vessel in thick fog, saw a contact intermittently on the radar, and knew from the *Sécurité* call that the *B.W. Haley* would be crossing the safety fairway. Yet none of these factors prompted the captain to slow down.

Investigators noted no anomalies with the *Diamond Edge*'s radars, and given the size, construction, and shape of the *B.W. Haley*, a properly tuned radar should have displayed a return signal. It is possible that clutter caused by birds flying around the liftboat obscured the signal on the *Diamond Edge*'s radars, and the captain stated that he only saw an intermittent target. Regardless of the clutter, the presence of even an intermittent return pointed to a risk of collision. Based on the evidence and statements from the captain of *Diamond Edge*, it is likely that an over-reliance on AIS data diverted his attention from the danger indicated on the vessel's radar.

As noted earlier, the captain did not use long-range scanning on the radars and was not sure if the radar plotting function was operating on the radar, both of which would have been helpful in assessing the situation, determining the relative motion of other vessels, and concluding whether a risk of collision existed. Additionally, although a lookout was posted, he was in an enclosed wheelhouse where sound signals (like the *B.W. Haley*'s whistle) were hard to hear. The *Diamond Edge* did not have any wheelhouse acoustic sound signal listening device, and the vessel itself was not sounding fog signals.

The *Diamond Edge* captain told investigators that, when he saw the liftboat coming out of the fog, he did not reverse his engines for fear of stalling them even though, according to the owner, the *Diamond Edge* was a "pretty lightweight, very maneuverable" vessel.

The *B.W. Haley* captain stated that he steered the liftboat; operated the whistle, radar, and VHF radio; navigated the vessel; and was the visual lookout. As lookout, the captain's field of vision was blocked by the wide forward corner column of the wheelhouse and by the position of the raised starboard lifting leg (see next photo). Both the deckhand/relief captain and vessel assistant stated it was hard to see the *Diamond Edge* visually because it was hidden by the leg.

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Left picture shows view towards the starboard bow of *B.W. Haley* as seen from captain's wheelhouse conning position. Right picture shows radar shadow area to wheelhouse of *B.W. Haley*.

Since radar transmissions are basically line-of-sight, the lifting legs that visually impaired the captain also obstructed the radar mounted directly above the bridge. The lifting legs created radar shadow areas that could have masked contacts within these zones. Given that the *Diamond Edge* collided with the starboard leg mat and starboard bow of the *B.W. Haley*, it is possible that the *Diamond Edge* was in a shadow area at some point prior to impact. Long-range radar scanning would have mitigated this risk, but the captain told investigators that he did not use this practice.

### Probable Cause

The National Transportation Safety Board determines that the probable cause of the collision between the *B.W. Haley* and the *Diamond Edge* was the failure of both operators to properly determine the risk of collision and the excessive speed of the *Diamond Edge* in restricted visibility.

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### Vessel Particulars

Vessels	<i>B.W. Haley</i>	<i>Diamond Edge</i>
Owner/operator	Halliburton Energy Services, Inc.	Jewel Marine, Inc.
Port of registry	Houston, Texas	Cut Off, Louisiana
Flag	United States	United States
Type	Offshore supply vessel	Passenger vessel
Year built	1974	1995
Official number (US)	560170	1033280
Construction	Steel	Aluminum
Length	61 ft 6 in (18.7 m)	121 ft 5 in (37.0 m)
Draft	4 ft 6 in (1.4 m)	7ft 11 in (2.4 m)
Beam/width	32 ft 0 in (9.8 m)	27 ft 0 in (8.2 m)
Gross and/or ITC tonnage	98 gross tons	98 gross tons
Engine power; manufacturer	2 diesel main engines, total 800 hp (597 kW);	4 diesel main engines, Total 2,800 hp (2,088 kW)
Persons on board	3	4

For more details about this accident, visit [www.nts.gov](http://www.nts.gov) and search for NTSB accident ID DCA15LM015.

**NTSB investigators worked closely with our counterparts from Coast Guard Marine Safety Unit Morgan City throughout this investigation**

**Issued: June 13, 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 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.” 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. 49 *United States Code*, Section 1154(b).