



# National Transportation Safety Board

## Marine Accident Brief

### Flooding and Sinking of Towing Vessel *Savage Ingenuity*

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<b>Accident no.</b>	DCA17FM026
<b>Vessel name</b>	<i>Savage Ingenuity</i>
<b>Accident type</b>	Flooding
<b>Location</b>	Gulf Intracoastal Waterway near mile marker 245, Sulphur, Louisiana 30°3.56' N, 093°22.43' W
<b>Date</b>	September 5, 2017
<b>Time</b>	About 0035 central daylight time (coordinated universal time – 5 hours)
<b>Injuries</b>	None
<b>Property damage</b>	\$1.35 million est.
<b>Environmental damage</b>	Approximately 11,800 gallons of diesel oil released, about 200 gallons recovered
<b>Weather</b>	Visibility 10 miles, winds calm, seas calm, air temperature 75°F
<b>Waterway information</b>	The Gulf Intracoastal Waterway is a toll-free canal that extends from Caloosahatchee, Florida, to Brownsville, Texas. The waterway has a controlling depth of 12 feet and a width of approximately 610 feet at the site of the accident.

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At about 0035 local time on September 5, 2017, the crew of the towing vessel *Savage Ingenuity* was maneuvering two empty tank barges in the Gulf Intracoastal Waterway near mile marker (mm) 245 in Sulphur, Louisiana, with the assistance of another vessel.<sup>1</sup> While the tow's starboard side was almost perpendicular to the current, the vessel heeled to starboard and flooded through an open engine room door. The towboat sank partially, its bow being held above the water by the head line connected to the barges. All five crewmembers escaped to the barges without reported injury. Approximately 11,800 gallons of diesel oil were released into the waterway, most of which was not recovered. Damage to the *Savage Ingenuity* was estimated at \$1,350,000.



*Savage Ingenuity* under way without barges. (Photo courtesy of Savage Inland Marine)

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<sup>1</sup> In this report, all miles are statute miles.

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Location where *Savage Ingenuity* sank in Gulf Intracoastal Waterway near mm 245 while attempting to head eastbound to Calcasieu Refinery. (Base map and satellite image from NOAA ENC® Viewer)

### Background

The *Savage Ingenuity*—a 68-foot-long, twin-propeller towboat with 1,880 horsepower—was built in 2012 by Rodriguez Shipbuilding, Inc. in Colden, Alabama, as the *Cheryl M. Settoon*. Five years later, the vessel was purchased by Savage Inland Marine and renamed the *Savage Ingenuity*. Five crewmembers manned the towboat: a captain, a relief captain, two tankermen (since the vessel towed tank barges), and a deckhand. The captain and relief captain were tasked with navigating the vessel during a rotating 6-hour watch. The captain worked during the watches of 0600 to 1200 and 1800 to 2400, and the relief captain from 0000 to 0600 and 1200 to 1800. A tankerman was assigned to each watch.

The weather conditions at the time of the accident were reported to be clear skies, with calm winds, and visibility greater than 10 miles. The current in the Gulf Intracoastal Waterway near the accident location was flowing easterly at an estimated 4 to 6 knots, which was the result of a recent high-water event in the waterway due to Hurricane Harvey. The storm had ushered in historic rainfall and a storm surge with catastrophic flooding.<sup>2</sup>

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<sup>2</sup> A *storm surge* is the abnormal rise in seawater level during a storm. Source: National Oceanic and Atmospheric Administration (NOAA).

### Accident Events

On September 4, the *Savage Ingenuity* was moored at the Black Lake Fleeting Services facility in Sulphur, Louisiana, on the south bank of the Gulf Intracoastal Waterway near mile marker 245. At about 2330, the vessel received orders to move two empty tank barges from the fleeting facility to the Calcasieu Refinery approximately 6 miles away. The tank barges were arranged two across (total beam of 108 feet) with the head of each barge facing west. The barges *SMS 30012* (port) and *SMS 30010* (starboard), which were owned by Savage Inland Marine, each measured 297 feet in length, 54 feet in beam, and approximately 1 foot in draft. The total length of the tow was approximately 365 feet.

To reach the refinery, the tow had to be turned, or “topped around,” to head east in the waterway. Because of the strong current, the relief captain of the *Savage Ingenuity* requested assistance with the maneuver from the *Alfred P Cenac III*, a 64-foot-long, triple-propeller fleet boat with 1,800 horsepower.

About midnight on September 5, the *Savage Ingenuity* was faced up (connected) to the barges in preparation for the maneuver. Once the *Alfred P Cenac III* arrived, the relief captain on the *Savage Ingenuity* requested that the pilot on the *Alfred P Cenac III* connect a head line on the stern of the *Savage Ingenuity* to pull the tow away from the south bank.<sup>3</sup> After the deckhand, who was on the barge, finished releasing the lines from the bank, the tow began moving with the assistance of the fleet boat.

When the tow cleared the bank, both the relief captain and the pilot discussed their next action. They planned to have the *Savage Ingenuity* push the head of the tow into the south bank and then top it around so that they could transit eastbound to their destination. This maneuver would use the bank to pivot the tow, temporarily placing the towboat and barges perpendicular to the bank with the strong current on the starboard side. The *Alfred P Cenac III* would push from the port quarter of the port barge.

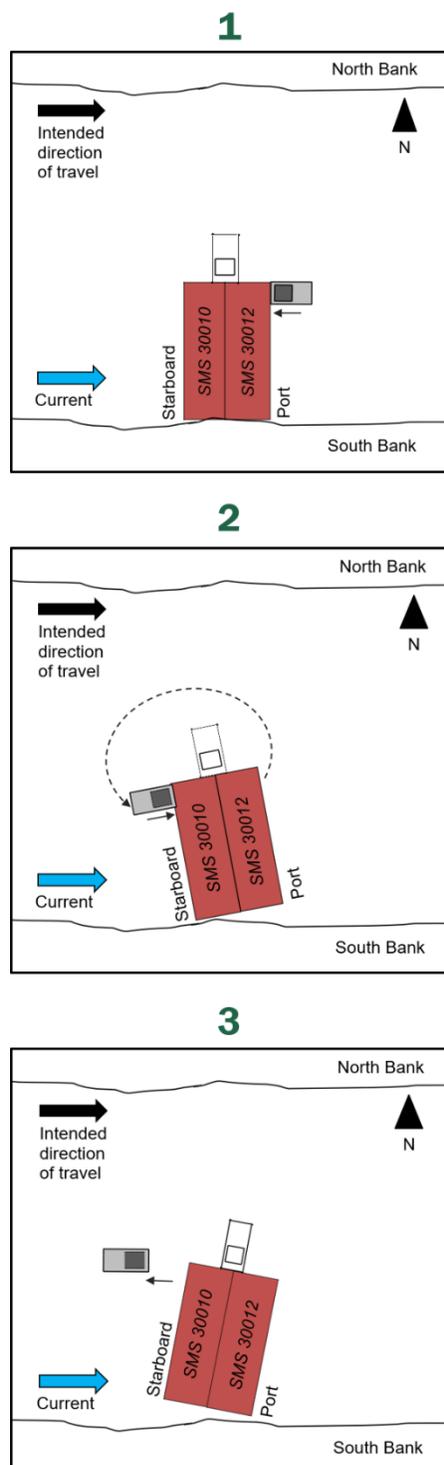
The *Alfred P Cenac III* began pushing the port barge, while the *Savage Ingenuity* maneuvered the head of the barges into the bank to begin the swing to port. According to the pilot on the *Alfred P Cenac III*, about halfway through the maneuver he noticed that the *Savage Ingenuity* started to list to starboard. He then “backed off” from pushing the port barge and began moving to the opposite side of the barges with the intent of pushing the tow toward the safety of the south bank, back to their original position before the maneuver began.

When the *Savage Ingenuity* began listing to starboard, the relief captain also stopped pushing on the barges and slackened the face wires by using the winch controls in the pilothouse, hoping that the vessel would return to an even keel. He told investigators that shortly thereafter the engines shut down and he heard the bilge alarm sound from the engine room. He then activated the general alarm to alert the crew of the emergency. As the relief captain recalled in a written statement, he was not aware that the engine room door was “partly” open at the time.

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<sup>3</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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**Sequence of movements by *Alfred P Cenac III* (gray vessel), as described by pilot: (1) initial pushing position; (2) relocation to starboard side of tow following *Savage Ingenuity's* list to starboard and loss of power to engines; and (3) approximate final positions after sinking of *Savage Ingenuity*. Vessels not drawn to scale.**

While the *Alfred P Cenac III* was astern of the heeling vessel, the relief captain on the *Savage Ingenuity* contacted the pilot of the *Alfred P Cenac III* via radio to state that the vessel was “listing bad” and the engines “shut down.” The *Alfred P Cenac III* reached the starboard side of the tow and began pushing it. However, the pilot noticed that his own vessel was beginning to heel and therefore immediately backed away.

The captain and tankerman (both off-duty) on board the *Savage Ingenuity* were in their cabins. The captain stated that he was asleep when he felt the boat heeling, which prompted him to go on deck where he saw water entering the engine room. Immediately, he instructed the crew to escape from the vessel onto the barges. The tankerman off watch also stated that he felt the towboat heel, discovered that it was taking on water, and then evacuated to the barge. The tankerman on watch stated that he was in the galley with the deckhand when he felt the boat leaning and saw water entering the galley. Before evacuating to the barges, both he and the deckhand went upstairs to the pilothouse, ensuring along the way that the other crewmembers were awake.

The *Savage Ingenuity* partially sank to the second deck, with its bow held up by the head line attached to the barges. All five crewmembers safely evacuated to the barges, from where they boarded the *Alfred P Cenac III* to be taken ashore. Crewmembers of both vessels estimated that the time of the sinking was about 0035.

The partially sunken *Savage Ingenuity* and the two empty tank barges partly obstructed the waterway as response and salvage efforts commenced. According to the organization responding to the oil spill, initial efforts to deploy a containment boom around the vessel were not possible because of the strong easterly current, estimated to be about 6 knots. The US Coast Guard had to manage traffic through the area until cleanup and salvage efforts were completed.

Four days later, on September 9, the *Savage Ingenuity* was lifted out of the water by a salvage company. All spaces on the vessel were pumped out, and the vessel was refloated. There was no evidence of any damage to the hull. The following day, the vessel was towed away to be drydocked for repairs. The company stated that neither of the barges were damaged.

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A post-casualty survey of the vessel stated that all the spaces from the second deck and below, including fuel and potable water tanks, and the forward storage and aft buoyancy compartments, were found fouled with mud, silt, and oily residue. The vents for the *Savage Ingenuity*'s fuel tanks were not fitted with ball check valves to prevent the release of oil. Although all doors and hatches were found closed once the vessel was brought to the surface, the Coast Guard noted that salvage divers had secured all doors and hatches, capped vents, and placed bags over the stacks before the vessel was lifted out of the water. The doors and hatches that divers found open were not specifically noted.



***Savage Ingenuity* and two empty tank barges on south bank of waterway postaccident. Aft view shows water up to second deck on starboard side of towboat. (Photos by Coast Guard)**

At the time of the sinking, the *Savage Ingenuity* had approximately 12,000 gallons of diesel oil, 157 gallons of lube oil, and 90 gallons of gear oil on board. The Coast Guard estimated that approximately 11,800 gallons of marine diesel oil were discharged into the Gulf Intracoastal Waterway, but only approximately 200 gallons were recovered.

Postaccident drug and alcohol testing was conducted on the crew. All results were negative, except for the tankerman on watch who tested positive for tetrahydrocannabinol.<sup>4</sup>

### Analysis

Once the *Savage Ingenuity* was brought back to the surface, the manholes for the watertight tanks and voids were found to be in place and closed. No damage to the hull was found, aside from

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<sup>4</sup> Tetrahydrocannabinol (THC) is an impairing compound in marijuana.

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the effects of bottom contact and salvage operations. Thus, there was no notable preaccident hull damage that would have caused or contributed to the sinking.

According to the relief captain on the *Savage Ingenuity*, he did not think the starboard engine room door was open at the time the vessel started to heel to starboard and take on water on deck. However, the pilot of the *Alfred P Cenac III* stated that he saw the engine room doors open at the time of the sinking. Further, the captain of the *Savage Ingenuity* stated that he observed water flooding into the engine room. The tow was maneuvering about perpendicular to the strong eastbound current at the time it began heeling. Given the vessel's low freeboard, water washed onto the main deck, reaching the sill of the open engine room door, and downflooded into the engine room.<sup>5</sup> Once water continuously flooded into the engine room, the list increased, and the engines stopped operating. The flooding overwhelmed the towboat's reserve buoyancy, causing the vessel to sink.

On towboats, doors to the engine room are often left open to allow for cooling and circulation. The *Savage Ingenuity* was not fitted with adequate ventilation and cooling systems to allow for the engine room doors to be continuously closed when the engines were running. Consequently, the heat generated in the engine room would also affect the vessel's adjacent accommodation spaces, where existing ventilation and air conditioning systems could not account for the heat. The engine room doors, therefore, were left open.

Although the relief captain stated that the bilge alarm activated, the vessel's bilge pump was not started. However, with the rapid ingress of water into the engine room through an open door, the bilge pump likely would not have been able to keep up with the high volume of water and thereby prevent the sinking.

According to the company's standard operating procedures, while the vessel is operating as a light boat (without any barges in tow), "all hatches (Galley, Engine Room, & Front Hold) on the weather deck shall remain in the closed position." Because the *Savage Ingenuity* was faced up to the barges at the time, this procedure did not technically apply. There was no procedure in place at the time of the accident for management of watertight integrity of the towboat when faced up to barges or during an emergency release of the face wires. After the accident, the company updated the standard operating procedure by requiring that "all hatches, doors (weather tight and water tight), and porthole[s] (Galley, Engine Room, & Front Hold) on the weather deck shall remain in the closed position" when the vessel is under way. This procedure was also added as a task on the pre-voyage departure checklist.

## Probable Cause

The National Transportation Safety Board determines that the probable cause of the flooding and sinking of the towing vessel *Savage Ingenuity* was the absence of company procedures requiring the closure of weather deck doors at all times while the vessel was under way, which resulted in rapid downflooding into the engine room when the vessel heeled while perpendicular to a strong current with the head of its tow pushed into a river bank.

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<sup>5</sup> *Freeboard* is the distance between the waterline and uppermost watertight deck. On the *Savage Ingenuity*, the main deck was the uppermost watertight deck.

## Vessel Particulars

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Vessel	Vessel Name
Owner / operator	Savage Inland Marine
Port of registry	Gibson, Louisiana
Flag	United States
Type	Towing vessel
Year built	2012
Official number (US)	1243320
IMO number	N/A
Construction	Welded steel
Classification Society	N/A
Length	68.0 ft (20.7 m)
Draft	9.5 ft (2.9 m)
Beam/width	28.0 ft (8.5 m)
Gross and/or ITC tonnage	121 gross tons
Engine power; manufacturer	1,880 hp / 2 X 940 hp (5,369 kW); Mitsubishi S12A2, twin propeller
Persons on board	5

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**NTSB investigators worked closely with our counterparts from Coast Guard Marine Safety Unit Lake Charles (Louisiana) throughout this investigation.**

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For more details about this accident, visit [www.ntsb.gov](http://www.ntsb.gov) and search for NTSB accident ID DCA17FM026.

### Issued: August 31, 2018

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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).

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