



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

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MAB-21/21

Collision of Tanker *Bow Fortune* and Commercial Fishing Vessel *Pappy's Pride*

On January 14, 2020, about 1537 local time, the tanker *Bow Fortune* was transiting inbound to Galveston, Texas, in the Outer Bar Channel while the uninspected commercial fishing vessel *Pappy's Pride* was transiting outbound.¹ The two vessels collided in dense fog, and the fishing vessel capsized and sank. Of the four crewmembers aboard the fishing vessel, there were three fatalities and one serious injury. There were no injuries to the pilot or the crew of 28 on board the *Bow Fortune*. A surface sheen of diesel was reported. The *Pappy's Pride*, valued at \$575,000, was declared a total loss.



Figure 1. Commercial fishing vessel *Pappy's Pride* (left) and tanker *Bow Fortune* (right) before the accident. (Source: balticshipping.com; Odfjell)

¹ (a) All times in this report are central standard time (coordinated universal time - 6 hours). (b) Visit [ntsb.gov](https://www.ntsb.gov) to find additional information in the [public docket](#) for this NTSB accident investigation (case number DCA20FM011). Use the [CAROL Query](#) to search investigations.

Accident Type	Collision
Location	Outer Bar Channel, Galveston, Texas 29°21.14' N, 094°42.62' W
Date	January 14, 2020
Time	1537 central standard time (coordinated universal time - 6 hours)
Injuries	3 fatal and 1 serious
Property damage	<i>Pappy's Pride</i> \$575,000; <i>Bow Fortune</i> negligible
Environmental damage	Estimated 30 gallons diesel released
Weather	Visibility 0.2 miles in dense fog, overcast, winds south-southwest 8 knots; seas 2-3 feet outside the jetty, air temperature 67°F, water temperature 63°F, sunset 1742
Waterway Information	The Outer Bar Channel in Galveston, Texas, is 1.7 miles long, 800 feet wide, 45 feet deep, and protected by the North and South jetty walls. ² The Galveston Entrance is 1.2 miles wide at the jetties.

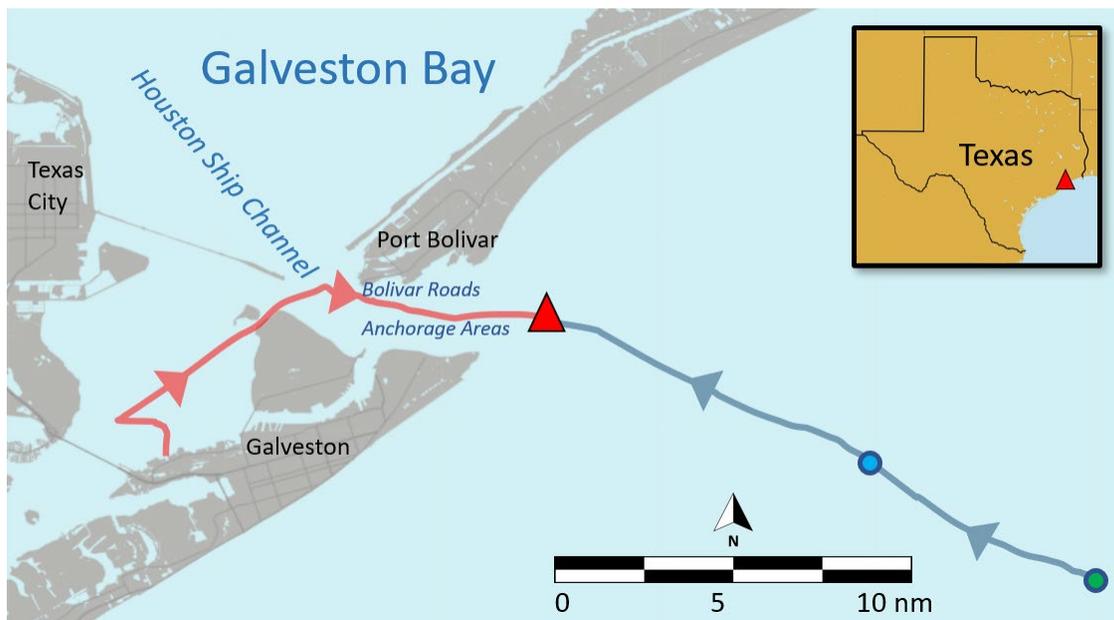


Figure 2. Map of the accident area showing *Pappy's Pride* track (red) outbound from Galveston and *Bow Fortune* track (blue) inbound from anchorage (green dot). The blue dot indicates the approximate point where the pilot boarded the *Bow Fortune*. The red triangle shows the position of the collision. (Background source: Google Maps)

² All miles in this report are nautical miles (1.15 statute miles).

1. Factual Information

1.1 Background

The *Bow Fortune* was a steel-hulled chemical/product tanker built in 1999 and powered by a MAN-B&W 13,959 hp diesel engine with a single controllable pitch propeller and rudder. The vessel was flagged in the Norwegian International Ship Registry, classed by DNV GL, and had 28 crewmembers.³

The *Pappy's Pride* was a steel-hulled uninspected commercial fishing vessel built in 1996. The stern trawler was powered by a Caterpillar 671 hp diesel engine with a single propeller and rudder. In 2011, the owner purchased and renamed the vessel. The trawler was US flagged and had a valid US Coast Guard commercial fishing vessel safety examination decal and four crewmembers.

1.2 Accident Events

A day before the accident, at 1654 on January 13, the National Weather Service (NWS) Office Houston/Galveston issued an urgent marine weather message for dense fog for the area, and the Galveston-Texas City (GalTex) Pilots suspended boarding vessels. The Gal-Tex Pilots resumed boarding vessels on January 14.

Table 1. Fog Advisories

Time	Originator	Advisory	Area
January 13 1654	NWS	dense fog advisory issued reduced visibility to ¼ mile or less	Galveston Bay and its coastal waters
January 13 1723	GalTex Pilots	boarding suspended due to dense fog	
January 14 0940	NWS	dense fog advisory modified visibility ½ mile or less	
January 14 1238	NWS	dense fog advisory amended visibility less than 1 mile	removed Galveston Bay and its coastal waters
January 14 1300	GalTex Pilots	pilots resumed boarding vessels	
January 14 1454	NWS	dense fog advisory amended visibility less than 1 mile	Galveston Bay and its coastal waters
January 14 1648	Houston Pilots	boarding suspended due to dense fog	

³ At the time of the accident, the classification society was DNV GL, which became DNV on March 1, 2021.

On January 14, the *Bow Fortune*, a 600.7-foot tanker, was anchored about 15 miles offshore in the East Galveston Fairway Anchorage Area. The vessel had arrived from Lake Charles, Louisiana, where it had loaded 15,748 tons of monoethylene glycol, and was bound for Galveston to replace an oil pump for the starboard auxiliary engine and to unload a container, before continuing on to Freeport, Texas, to load additional cargo. The master estimated visibility at 1.5 miles (2,640 yards) at the anchorage. At 1415, he navigated the vessel from the anchorage, with the vessel's fog signal energized, to make a 1500 rendezvous with the pilot boat. Around the same time, the pilot was en route for the rendezvous on the pilot boat *Galveston*; the pilot stated the channel's visibility was clear from the harbor through the Bolivar Roads Anchorage Areas.

The *Pappy's Pride*, an 81.7-foot commercial fishing vessel, got under way at 1325 from Pier 75 in the Port of Galveston to shrimp along the gulf coast to the north. Rose Point automatic identification system (AIS) video showed the *Pappy's Pride* increasing speed to 8.5 knots speed over ground (SOG), turning to starboard, and crossing the Texas City and Houston Ship channels. The vessel headed outbound to the east and north of the inbound barge lane of the ship channel. At 1507, the *Pappy's Pride* passed the Highway Ferry slips at Port Bolivar at 8.8 knots SOG, which was near its full speed according to the vessel owner, and entered the Bolivar Roads Anchorage Areas. The captain was navigating, and all three deckhands (Deckhands 1, 2, and 3) were on the aft deck. Deckhand 3 noted that visibility decreased quickly "due to fog" as they approached Buoy 12.

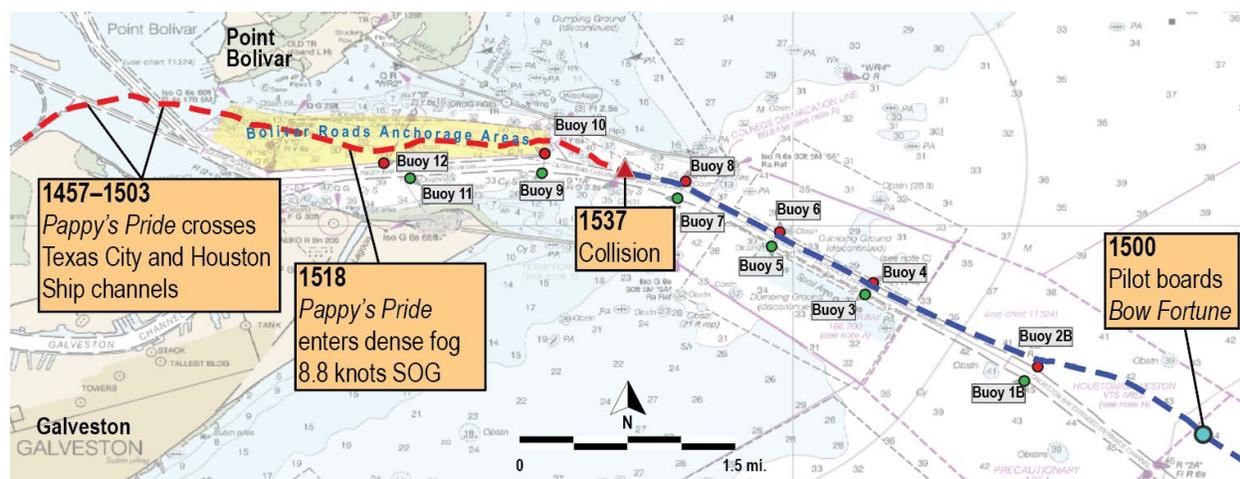


Figure 3. *Pappy's Pride* outbound track from Galveston (red) and *Bow Fortune* inbound track (blue) just before the collision. (Source: trackline data Coast Guard, background NOAA.)

At 1500, the pilot boarded the *Bow Fortune*. He told investigators that when he boarded the vessel, he estimated visibility between 0.25 miles (440 yards) to port and 0.75 miles (1,320 yards) to starboard. The ship's checklist, which was signed at the master/pilot exchange, noted conditions were foggy with poor visibility, but the pilot

told the master visibility was clear in the harbor and had been clearing for the last few hours, and they agreed to continue the inbound transit. The pilot set up two portable pilot units (PPU) and informed the master of the outbound traffic and that he would hail the outbound vessels to arrange port-to-port passages. The pilot also sent an able seaman to the bow as lookout/anchor standby, and he and the master decided to keep the fog whistle sounding from the forward mast. At 1507, with the engine at half ahead, the pilot took the conn from the master with his first rudder order. At 1508, the pilot checked in to Vessel Traffic Service (VTS) Houston-Galveston and reported the *Bow Fortune* inbound. Beginning at 1510, the pilot was heard on the VHF radio making passing arrangements with the pilots on six deep draft vessels outbound in the ship channel, hailing each vessel by name. At 1524, the *Bow Fortune* was inbound in the Galveston Bay Entrance Channel.

The pilot on the outbound tanker *Chemical Atlantik* stated that he could visually see the *Pappy's Pride* before Buoys 11 and 12, but that after passing Buoy 12, the *Chemical Atlantik* entered fog and no longer had visual contact with the *Pappy's Pride* or any other vessel. The *Chemical Atlantik* commenced sounding fog signals. Its pilot noted that he "saw" the *Pappy's Pride* by AIS and radar as it transited in the northern half of the anchorage and did not appear to alter course toward the main channel. The *Chemical Atlantik* passed the *Pappy's Pride* on the tanker's port side at 1531, at Buoy 10. At the same time, the *Pappy's Pride*, which was now clear of the Bolivar Roads Anchorage Areas and the 11 vessels anchored therein, turned to starboard and headed towards the channel at about a 30° angle of intersection.

At 1532, the *Bow Fortune* pilot made a passing arrangement with the pilot on the *Chemical Atlantik*. The *Bow Fortune* pilot told investigators that, because the *Chemical Atlantik* had finished its turn across the channel's centerline, he intended to finish the *Bow Fortune's* turn on the outer edge of the Outer Bar Channel and give the channel to the *Chemical Atlantik*. The pilot stated he was at full ahead as the *Bow Fortune* approached the Galveston Entrance between the seaward ends of the jetty walls to counteract the effect of the combined 0.7-knot ebb current setting to the northwest with an ocean current, which the pilot estimated as a 1.5-knot cross current setting to the north.

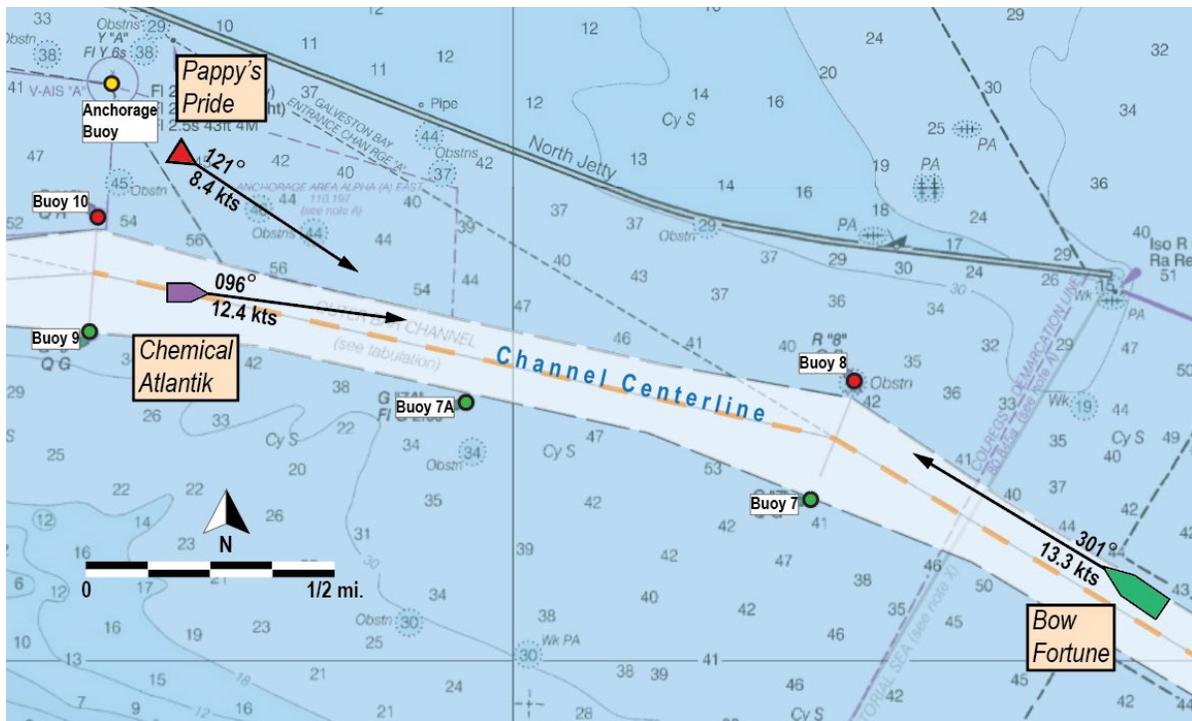


Figure 4. Positions and headings of the *Pappy's Pride*, *Chemical Atlantik*, and *Bow Fortune* at 1532, when the *Bow Fortune* pilot hailed the *Chemical Atlantik* to make passing arrangements in the Galveston Bay Entrance Channel. (Background source: Coast Guard VTS)

About the same time, the *Pappy's Pride* heading vector had the fishing vessel steering a course towards Buoys 7 and 8. At 1534, the *Pappy's Pride* was about 0.14 miles (246 yards) north of the channel. The *Bow Fortune* pilot stated that he noticed the *Pappy's Pride* on his PPU at that point, "showing he was coming towards the channel."

At 1535, the *Bow Fortune* pilot hailed the *Pappy's Pride* twice. Although the *Pappy's Pride* did not respond, electronic data shows that, shortly after the first attempted hail, the fishing vessel came 19° to port. The new heading, just north and slightly parallel to the outskirts of the channel boundary, put the *Pappy's Pride* predicted vector as continuing to enter the channel at a very shallow angle and crossing ahead of the inbound *Bow Fortune*. About 1536, the *Bow Fortune* pilot sounded five short blasts, and the electronic data shows the *Pappy's Pride* maintained its heading.⁴

⁴ Per the *Convention on the International Regulations for Preventing Collisions at Sea, 1972* (72 COLREGS), Rule 34, five or more short blasts, commonly called the "danger signal," indicate that the vessel making the signal does not understand the intentions or actions of the other vessel or is in doubt whether sufficient action is being taken by the other vessel to avoid collision.

Table 2. Accident Events

Time	Event
1535:18	Pilot hails <i>Pappy's Pride</i> on VHF radio channel 13 and then on channel 16 without response
1535:30	Electronic data shows <i>Pappy's Pride</i> , about 0.05 miles away from the channel, change course over ground (COG) 132° to COG 113°
1535:27	Pilot orders first course change to starboard to bring the <i>Bow Fortune</i> out of the channel and away from the <i>Pappy's Pride</i>
1535:41	Pilot gives first engine order to reduce speed to half ahead
1535:46	Pilot informs the <i>Chemical Atlantik</i> of his intentions to sound the danger signal for the <i>Pappy's Pride</i>
1536:19	PPU shows <i>Pappy's Pride</i> at range of 0.5 miles (1,000 yards)
1536:18	<i>Bow Fortune</i> sounds first danger signal (5 short blasts)
1536:26	Pilot orders slow ahead
1536:45	Pilot hails <i>Pappy's Pride</i> on VHF channel 13 without response
1536:54	<i>Bow Fortune</i> bow is 0.2 miles (352 yards) from the <i>Pappy's Pride</i> wheelhouse
1536:59	Pilot begins to order various evasive rudder maneuvers
1537:01	PPU shows <i>Pappy's Pride</i> at range of 0.25 miles (500 yards)
1537:10	<i>Bow Fortune</i> sounds second danger signal
1537:20	Electronic data shows <i>Pappy's Pride</i> , off the <i>Bow Fortune's</i> port bow, change COG 114° to COG 099°
1537:30	Pilot orders stop engines

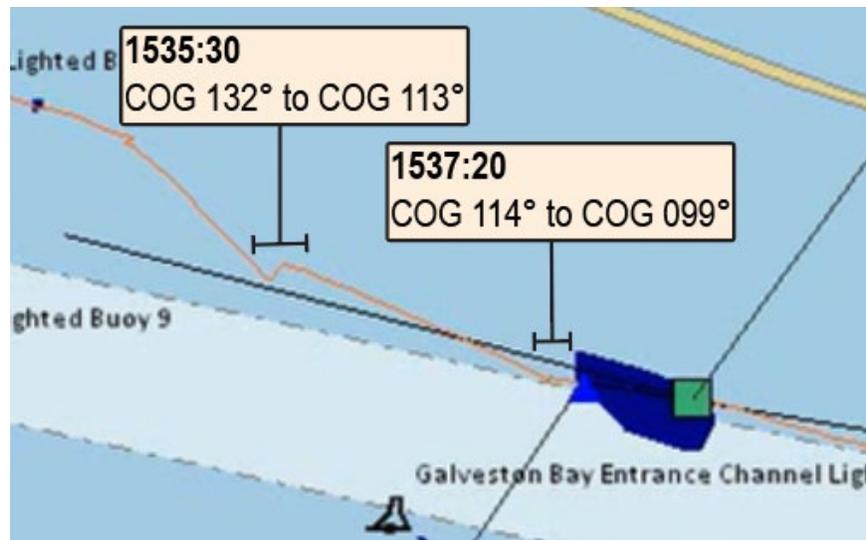


Figure 6. Trackline of the *Pappy's Pride* course alterations. (Source: Coast Guard VTS)

On the *Pappy's Pride*, the surviving deckhand (Deckhand 3), who was on the aft deck with the other two deckhands before the collision, said he could hear many vessels sounding fog signals in the distance but did not hear the *Pappy's Pride* sound any fog signals during the accident transit. He stated visibility was very poor. He said that they were surprised when they heard the first whistle signal from the *Bow Fortune* and that Deckhand 1 said he would "see what's going on in the wheelhouse." When he heard the second and louder whistle signal, Deckhand 3 looked up and saw "this ship coming out of the fog."

Deckhand 3 stated that he did not hear *Pappy's Pride's* engine change speed when entering the fog, during the transit through the fog, nor during the events leading up to the accident. He also stated that the fishing vessel didn't turn at all before the collision.

At 1537:32, the vessels collided just outside the Outer Bar Channel across from Buoy 7A, and the *Pappy's Pride* capsized. At 1538, the *Bow Fortune* pilot hailed VTS, reported the collision and position, and issued a mayday for assistance.

At 1554, the pilot boat *Yellow Rose* reported they had rescued one person (Deckhand 3) and that three persons remained unaccounted for. At 1603, the crew of the *Bow Fortune* reported a small dent on the port side of the bow and no flooding. At 1628, the pilot boat *Texas* located an unresponsive person (Deckhand 2) in the water. A Coast Guard response boat recovered Deckhand 2, who was pronounced deceased at 1705. The Coast Guard began search and rescue at 1540 and suspended search and rescue on January 16. The *Pappy's Pride* was declared a total loss estimated at \$575,000. Damage to the *Bow Fortune* was negligible. On January 30, the *Pappy's Pride* was raised and removed from the Outer Bar Channel and was no longer a hazard to navigation. The

bodies of the captain and Deckhand 1 were recovered from the wheelhouse and transported to the county coroner.

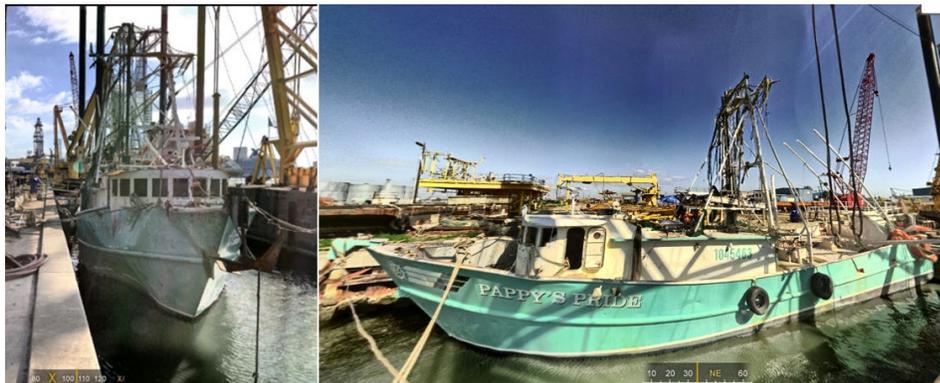


Figure 7. *Pappy's Pride* postaccident damage. (Source: Coast Guard)

Drug and alcohol testing of the pilot, *Bow Fortune* operational crew, and VTS military watchstanders, and postmortem testing of Deckhand 2 were all negative. Toxicology tests performed on the muscle tissue of the captain and Deckhand 1 were negative for drugs. The three autopsy reports determined cause of death to be drowning, with no evidence of traumatic injuries. The autopsies for the captain and Deckhand 1 were limited to external examination.

1.3 Additional Information

1.3.1 *Bow Fortune*

The master was 57 years old with 24 years of experience, including 23 years with the company and 8 years as master of the *Bow Fortune*. The master said he had been to Houston-Galveston over 20 times. The master said he did not see the *Pappy's Pride* visually until seconds before the collision. He did not believe the bow lookout could have seen the fishing vessel in time, in those conditions, to avoid the collision. The rescue boat and crew were made ready, but he felt it was unsafe to launch.

The pilot was 50 years old with 28 years in the maritime industry, which included 14 years as a master of towing vessels and 10 years as a commissioned state pilot. The pilot considered the transit normal; he had completed the trip many times before in similar visibility and at similar speeds without incident. He stated that smaller vessels often proceed outbound either north or south of the channel, usually without entering the channel. The master of the *Bow Fortune* had worked with the pilot before and noted that the pilot was professional and worked well with crew.

The pilot stated that he noticed the *Pappy's Pride* coming out of anchorage north of the channel and it appeared that the vessel was continuing outbound north of the

channel. He estimated visibility at the time of the collision was less than 0.2 miles (about 350 yards). He saw the (masthead) light of the *Pappy's Pride* just before the collision, there was no notification from bow lookout, and he was focused on the radar and PPU.

1.3.2 Pappy's Pride

The captain was 56 years old, had worked as a shrimp boat fisherman his entire adult life, and was a captain when hired by the company. He worked for the company for 7 years as the captain of the *Pappy's Pride* homeported in Galveston, making six to eight voyages per year. Three weeks before the accident, he had been admitted to a hospital for a minor stroke. He was discharged after 3 days, when his symptoms improved. Medical testing did not determine the source of the stroke.

The *Pappy's Pride* was equipped with AIS, GPS, and two radar/automatic radar plotting aid (ARPA) units; it was transmitting AIS information during the accident voyage. The captain also put two of his own personal computers on board, loaded with his electronic navigation plotting software on NOAA electronic charts.

Four days before getting under way, marine technicians checked the *Pappy's Pride* autopilot and three VHF radio/antennas. The autopilot was found satisfactory, but two of three VHF antennas and one of three VHF radios were faulty. The technicians connected the good antenna to one of the good radios. The vessel manager planned to have repairs done later when the vessel was in Mobile, Alabama. The *Pappy's Pride* was required to have two VHF radios when transiting a VTS area (to independently monitor the bridge-to-bridge and VTS-designated frequencies) and was required to respond if hailed. On the day of the accident, the vessel transited the VTS area with one operational VHF radio/antenna combination. The VHF radio on the *Pappy's Pride* had dual watch capability and was able to scan both channels at the same time.

1.3.3 Vessel Traffic

At the time of the accident, the *Bow Fortune* was traveling at a speed of 10.8 knots SOG. Four of the six outbound vessels the *Bow Fortune* passed port-to-port before the accident were operating at similar SOG: *Torm Republican* at 10.9 knots, *Maersk Ohio* at 10.6 knots, *Zea Ama* at 10.5 knots, and *Chemical Atlantik* at 12.4 knots. Four of the vessels confirmed to investigators that they were sounding fog signals.

2. Analysis

The qualifications of the crewmembers and the state pilot on board the *Bow Fortune* and crewmembers aboard the *Pappy's Pride* were appropriate for the positions they held. Work/rest schedules and alcohol or drug use by the *Pappy's Pride*

captain or the *Bow Fortune* pilot and master were ruled out as factors in this accident. Additional noncontributing factors included channel and waterway configurations and the functioning of propulsion and mechanical systems on either vessel. Although the *Pappy's Pride* transited the Houston-Galveston VTS area with one working VHF radio/antenna combination, contrary to regulation, the radio's dual watch capability would have allowed the captain to scan both required channels.

2.1.1 *Bow Fortune*

The pilot and master conducted a master/pilot exchange and worked well together. The *Bow Fortune* pilot gave outbound vessels room to pass safely port-to-port and kept pilots on outbound vessels, and the *Bow Fortune's* master, well informed. The pilot told investigators that he was operating at full ahead to enter between the jetties from sea due to the cross current (combined ebb and ocean currents), which he said was a common practice for inbound vessels at the Galveston Entrance and which was comparable to other vessels in the channel at the time.

The pilot hailed the *Pappy's Pride* three times. He also twice sounded the danger signal (five short blasts) for the *Pappy's Pride*, indicating doubt of the *Pappy's Pride's* actions to avoid collision.

2.1.2 *Pappy's Pride*

The *Pappy's Pride's* captain had multiple navigation tools on board. The captain's navigation plotting software was capable of showing the *Pappy's Pride* and the *Bow Fortune's* AIS information on an electronic chart. The electronic chart would also have shown the GPS position of the *Pappy's Pride*, how close his vessel was to the channel, and his vessel's predicted COG/SOG vector; the electronic chart also would have had the positions and vectors of the *Bow Fortune* and *Chemical Altantik*, and would have shown that the vessels would be meeting near the *Pappy's Pride*. Further, the vessel's radar would have shown the *Bow Fortune's* echo, despite the fog, and the ARPA would have shown a potential risk of collision.

The captain had steered the vessel on the outbound transit, through the intracoastal waterway, increasing speed to cross the two channels then transiting through anchored vessels in the anchorage, most of which was done in near-zero visibility. The *Pappy's Pride* AIS history shows that, after exiting the Bolivar anchorages, the captain made multiple course changes, indicating he was actively steering.

About 1531:50, the inbound *Bow Fortune* was less than 2 miles from the *Pappy's Pride*. Due to the estimated 0.2-mile visibility, the tanker would not have been visible by sight from the fishing vessel, but the *Bow Fortune's* position would have been available to the *Pappy's Pride* captain on radar/ARPA and the AIS information on the electronic

chart. At this point, the *Pappy's Pride* appeared to be on a course to cross the channel in front of the inbound *Bow Fortune* and behind the outbound *Chemical Atlantik*. At 1535:18, the *Bow Fortune* pilot first hailed the *Pappy's Pride* without response. Twelve seconds after the initial radio hails, the *Pappy's Pride* made a course change to port (about 19°), indicating that the captain was still actively steering. At 1536:18, the *Bow Fortune* sounded five short blasts, then hailed the *Pappy's Pride*, and again sounded five short blasts at 1537:10, 22 seconds before the collision (1537:32). VTS, AIS, and the pilot's PPU electronic data captured a heading change of about 15° to port for the *Pappy's Pride* in the seconds before the collision. However, Deckhand 3 told investigators that he had not felt the fishing vessel turn.

When the vessels collided, the SOG of the *Bow Fortune* was 11 knots and *Pappy's Pride* was 8.4 knots, indicating the tanker was beginning to slow but the fishing vessel's captain did not appreciably change the propulsion engine speed or direction before the collision. The damage assessed on both vessels indicates the port side of the tanker's bulbous bow struck the starboard side of the fishing vessel during the collision, which in turn led to the vessel capsizing but remaining afloat as it passed down the port side of the tank

The surviving deckhand (Deckhand 3) told investigators that the captain was in the wheelhouse and that Deckhand 1 was heading to the wheelhouse in the minutes before the collision. Both bodies were recovered from the wheelhouse, indicating that both the captain and Deckhand 1 were in the wheelhouse at the time of the collision. However, because the *Pappy's Pride* did not reply to any of the radio calls, as required, and neither the captain nor Deckhand 1 survived, investigators could not determine why the fishing vessel did not slow or take substantial action to avoid transiting into the channel directly in front of the tanker, or what the captain was doing in the minutes leading up to the collision. It is possible the captain was away from the conn, was distracted, fell asleep, was unsure of what action to take, or was otherwise unable to respond to the developing situation.

The captain's failure to slow his engine speed or respond to the *Bow Fortune's* communications and his own ARPA information may have been due to a medical event. Although the captain's recent stroke could indicate higher risk for a recurrent stroke, the limited autopsy could not be used to determine if a medical event occurred. The captain may have thought his heading changes at 1535:30 and 1537:20 would keep him out of the channel and avoid the collision, respectively. However, if the course change at 1537:20, about 13 seconds before contact, had been an attempt to avoid the collision, then it should have been to starboard per the COLREGS rules. Further, in this collision, if the fishing vessel had maintained its previous heading of 113°, the two vessels may have scraped port sides or avoided contact.

2.1.3 Operating in limited visibility

The NWS dense fog advisory in effect at the time of the accident forecasted reduced visibility less than 1 mile, and crewmembers on both vessels noted visibility was less than 0.2 miles in the accident area. The *Bow Fortune* master and pilot kept the fog whistle sounding for the transit. The pilot maintained situational awareness using the PPU in restricted visibility; he hailed the six outbound vessels in the channel by each vessel's name to make port-to-port passage arrangements and kept the master well informed. In addition, the *Bow Fortune* took expected actions, such as moving to the starboard side of the channel when meeting outbound vessels and contacting other vessels.

The *Pappy's Pride* approached Buoy 12 at 1518, entering dense fog with less than 0.2 miles visibility, but the captain continued to transit in such conditions without sounding the required fog signals, initiating or responding to any radio calls, or effectively using his available bridge equipment to determine risk of collision. Communication, especially in limited visibility, is a vital part of standing an effective watch. In addition, the *Pappy's Pride's* outbound course created a close quarters situation that resulted in the collision. The course was, therefore, not prudent, and the lack of communication from the fishing vessel created doubt as to the *Pappy's Pride* captain's intentions.

3. Conclusions

3.1 Probable Cause

The National Transportation Safety Board determines that the probable cause of the collision of the inbound tanker *Bow Fortune* and the outbound commercial fishing vessel *Pappy's Pride* was the captain of the *Pappy's Pride's* outbound course toward the ship channel, which created a close quarters situation in restricted visibility. Contributing was the lack of communication from the captain of the *Pappy's Pride*.

3.2 Lessons Learned: Early Communication

Early communication can be an effective measure in averting close quarters situations. The use of VHF radio can help to dispel assumptions and provide operators with the information needed to better assess each vessel's intentions.

Vessel	<i>Bow Fortune</i>	<i>Pappy's Pride</i>
Type	Chemical/Product Tanker	Fishing Vessel
Flag	Norway	United States
Port of registry	Bergen, Norway	Houston, Texas
Year built	1999	1996
Official number (US)	N/A	1045463
IMO number	9168635	8940048
Classification society	DNV GL	N/A
Length	600.7 ft (183.1 m)	81.7 ft (24.9 m)
Beam	105.6 ft (32.2 m)	24 ft (7.3 m)
Draft	28.9 ft (8.8 m)	9 ft (2.75 m)
Tonnage	23,230 GT ITC	142 GT ITC
Engine power; manufacturer	1 x 13,959 hp (10,409 kW); MAN-B&W 6L60MC diesel engine	1 x 671 hp (500 kW); Caterpillar 3412 diesel engine
Persons on board	29	4

NTSB investigators worked closely with our counterparts from **Coast Guard Sector Ohio Valley Louisville and Marine Safety Unit Texas City** 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.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident 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 investigating accidents and incidents 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)).

For more detailed background information on this report, visit the NTSB investigations website and search for NTSB accident ID [DCA20FM011]. 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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