

Engine Room Fire aboard Fishing Vessel

Lucky Angel

On December 10, 2020, about 2205 local time, the fishing vessel *Lucky Angel* was trawling for shrimp in the Gulf of Mexico, 20 miles from Pascagoula, Mississippi, when a fire broke out in the vessel's engine room.¹ The three crewmembers attempted to fight the fire but were forced to abandon the vessel. They were rescued by the US Coast Guard, and the vessel sank 2 days later. No pollution was reported, but there was one minor injury. The vessel was a total constructive loss with an estimated value of \$120,000.



Figure 1. *Lucky Angel* pierside at Bayou La Batre, Alabama, before the accident. (Source: Julian Price)

¹ (a) All times in this report are central standard time, and all miles are statute miles. (b) Visit [nts.gov](https://www.nts.gov) to find additional information in the [public docket](#) for this NTSB accident investigation (case number DCA21FM010). Use the [CAROL Query](#) to search investigations.

Accident Type	Fire/Explosion
Location	Gulf of Mexico, 20 miles south-southwest of Pascagoula, Mississippi N 30°05.51', W 88°39.56'
Date	December 10, 2020
Time	2205 central standard time (coordinated universal time -6 hours)
Persons on Board	3
Injuries	1 minor
Property damage	\$120,000 est.
Environmental damage	None reported
Weather	Mostly cloudy, visibility 6 mi, winds south at 3 kts, seas calm, air temperature 66°F, water temperature 62°F, sunset 1652
Waterway Information	Open waters of the Gulf of Mexico about 20 miles south Pascagoula, Mississippi

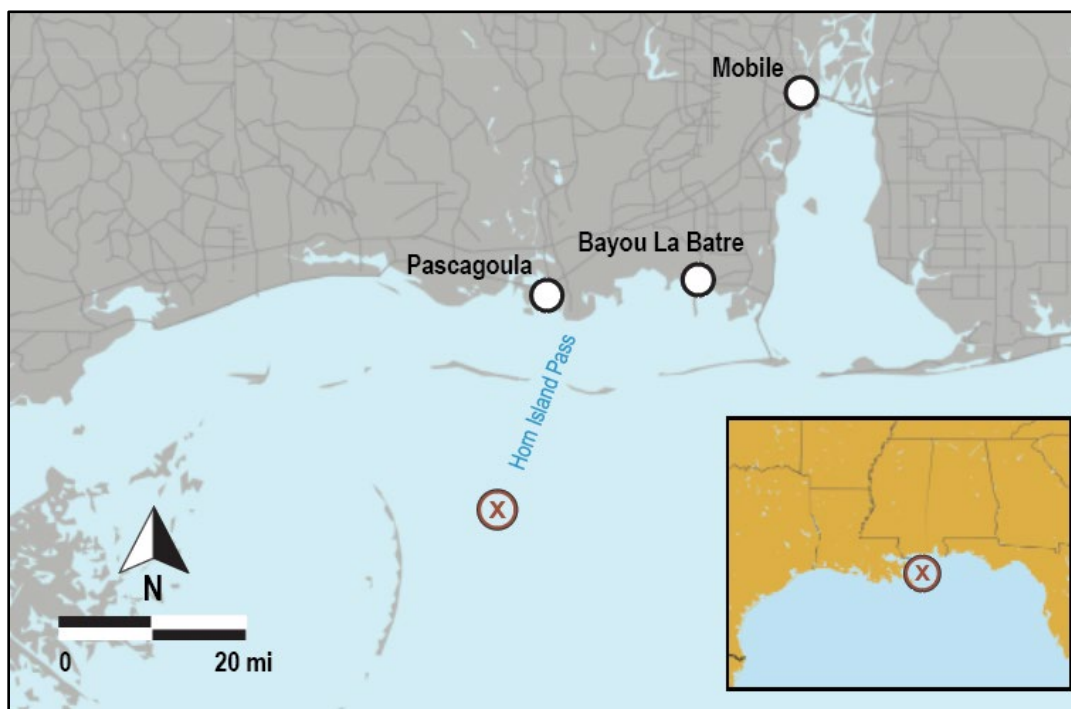


Figure 2. Area of accident where the *Lucky Angel* fire started, as indicated by the red X.
(Background source: Google Maps)

1. Factual Information

1.1 Background

The *Lucky Angel* was a 75-foot long, steel-hulled, fixed-propeller, single rudder uninspected fishing vessel that was built in 1968 by Marine Builders of Alabama as the *Wahnella Ann*. The vessel was acquired by Lucky Angel LLC in June 2020, renamed, and soon after began trawling for shrimp in the Gulf of Mexico.

The vessel's main deck had a forward house or cabin that contained the wheelhouse and crew living spaces. Aft of the house was the main deck area where nets were deployed and retrieved and where the catch was lowered into the below-deck brine tank and refrigerated fish hold. The engine room was below the house and had two doors, including an aft-facing door from the main deck, which opened onto a platform with a ladder that led down to the engine room.

1.2 Accident Events

About 0600 on December 10, after 5 days of shrimping, the *Lucky Angel* docked in Bayou La Batre so the captain could attend a doctor's appointment (the vessel's shrimping trips were normally 10 to 14 days long). After visiting with the doctor and gathering groceries for the voyage, the captain returned to the boat and sailed about 1455 with two deckhands on board. *Lucky Angel* entered Mississippi Sound at 1520 and the open waters of the Gulf of Mexico at Horn Island Pass at 1820.

Approximately 2000, the captain and the deck hands began shrimping operations by first deploying a "try net" to test if the water was suitable for deploying the boat's drag net. About 2100, the vessel began to trawl for shrimp with its primary drag net deployed. The captain said that, while dragging for shrimp, he periodically checked the engine room by leaving the wheelhouse and observing the main engine through the aft-facing main deck door to the engine room. He looked into the engine room twice (2130 and 2200), and, believing that everything was fine, continued to trawl at 2.7 knots.

About 2205, a smoke alarm for the engine room indicated on the alarm panel in the wheelhouse. The captain immediately went to the open engine room door in the after part of the house. He could not recall hearing any unusual sounds coming from the space. From the inside platform, he saw white smoke that "smelled pretty much like [something] electrical was shorting." He said that he saw sparks coming from a bundle of wires located overhead and slightly to the right of the inside platform. Investigators later determined that the group of wires contained 120-volt AC wires to the deck flood lights and the aft bilge pump.

In an attempt to fight the fire, the captain emptied three dry chemical fire extinguishers into the engine room from the platform, but he did not close the two access doors or two exhaust fan vents to the engine room. He tried to turn on the deck wash pump, but when he touched the power switch that was located near the platform, he received an electric shock that caused him to fall backwards—investigators later confirmed that the deck wash pump wiring was run separately from the sparking bundle of wires.

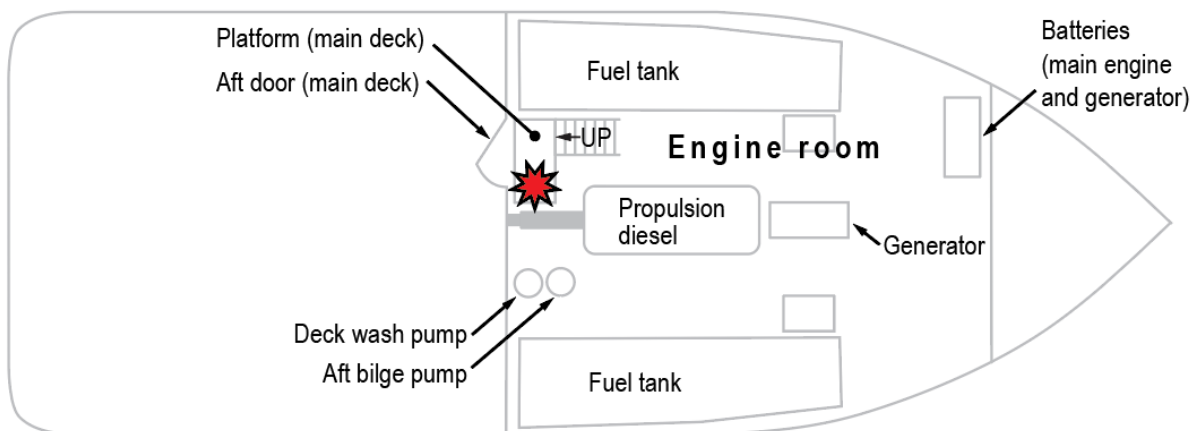


Figure 3. Engine room layout and area where captain observed sparking.

The captain returned to the wheelhouse and, in an attempt to limit the spread of the fire, opened all the electrical breakers that provided electricity to the wheelhouse, which rendered all his bridge equipment, including his VHF radio, inoperable. He and the two deckhands, using flashlights, attempted to extinguish the fire by tossing sea water from 5-gallon buckets into the engine room. They did this for about 20 minutes, until the crew became exhausted.

Next, with the main (propulsion) diesel engine and diesel-powered generator still running, the captain and crew closed all doors and hatches to the house and engine room, except the two exhaust fan vents, and went to the bow of the boat because smoke had now filled the house. The captain said he used his cell phone to call two other nearby shrimp boats that he knew, but he got no answer. He then called his wife on his cell phone, and she eventually contacted the nearby boats.

The last call he made on his cell phone was a 911 call to a local fire department. The 911 dispatcher routed his call to the Coast Guard District 8 command center and then his phone went dead. Coast Guard records show this call was received at 2231. About the same time, the boat's main engine and generator shut down.

Shortly after District 8 received the call, a Coast Guard 45-foot rescue boat was dispatched from Station Pascagoula. The *Lucky Angel* crew of three launched and inflated the liferaft they had taken from the open deck above the wheelhouse and

abandoned the vessel from the starboard side of the boat; however, the vessel's Emergency Position Indicating Radio Beacon and lifejackets, which were kept in the wheelhouse and were now inaccessible due to the smoke, were left on board. The crew were recovered by the Coast Guard rescue boat at 2327. The *Lucky Angel* continued to burn through the next day and sank on December 12 about 3.5 miles south of Horn Island, Mississippi. The vessel was not salvaged.



Figure 4. *Lucky Angel* on fire, December 11. (Source: Coast Guard)

1.3 Additional Information

According to the captain, no pre- or post-purchase survey of the *Lucky Angel* was commissioned, and he had made no modifications to the electrical system of the boat. He also stated that he performed routine, basic maintenance on the boat, but no maintenance records were kept, and no maintenance records from the previous owners were available.

According to Coast Guard records, the *Lucky Angel* successfully completed a mandatory commercial fishing vessel dockside safety exam on May 9, 2017. The next mandatory safety exam was not required until May 9, 2022. During a dockside exam, a Coast Guard representative checks safety-related equipment such as lifejackets, fire extinguishers, and VHF radios, but does not examine the hull, machinery, or equipment not associated with safety-related functions, including wiring.

The captain underwent post-accident toxicological testing the day after the accident.² The results were positive for a low level of cocaine metabolite.

2. Analysis

While the captain's postaccident drug testing was positive for a low level of cocaine metabolite, which indicates he used the drug in the days before the accident, it is unlikely that any effects from its use contributed to the accident circumstances.

Investigators could not determine the precise cause of the fire aboard *Lucky Angel*, as the vessel was lost at sea and not salvaged. The captain stated that he saw sparks coming from a wiring bundle overhead in the engine room (later determined to be for the bilge pump and deck lights), that he saw white smoke near the wiring bundle, and that it smelled like something "electrical shorting." He also confirmed the only sound was the smoke alarm in the wheelhouse. There was no other sound (such as an explosion or vibration) or indication of a different initiating event. Since the main diesel and generator diesels continued to operate after the fire started, it is likely the fire's source of ignition was the electrical sparking the captain saw.

The sparks the captain noticed were likely caused by arcing, defined by the National Fire Protection Association as a "high temperature luminous electrical discharge across a gap."³ As noted in other NTSB investigations, a failure in a wire's insulation can cause arcing.⁴

Since no maintenance records were kept for the boat and no pre- or post-purchase survey was made of the *Lucky Angel*, investigators were unable to determine the condition of the wiring bundle or if it had ever been replaced or repaired. If the wiring was original, dating back to 1968, it may have deteriorated due to decades of being subjected to the atmosphere and chemicals found in a hot engine room environment. Chafing from the material used to support the wiring, due to a vessel's motion at sea or vibration from vessel machinery, could have also caused the wires' insulation to fail. In either case, a failure in the floodlights and aft bilge pump wiring insulation likely caused arcing, which was the ignition source to the ensuing fire.

² Urine drug testing is limited to identifying urinary metabolites of amphetamine, methamphetamine, cocaine, codeine, morphine, heroin, phencyclidine (PCP), methylenedioxymethamphetamine (MDMA), methylenedioxyamphetamine (MDA), methylenedioxyethylamphetamine (MDEA), tetrahydrocannabinol (THC), oxycodone, oxymorphone, hydrocodone, and hydromorphone.

³ *NFPA 921: Guide for Fire and Explosion Investigation*, Section 3.3.8–Arc

⁴ See *Fire Aboard Fishing Vessel Rose Marie*, NTSB/MAB-19/24 and *Fire Aboard Freighter Alpena*, NTSB/MAB-16/20.

The arcing would have had to ignite some form of nearby combustible material (such as fuel or lube oil, grease, rags, or even the insulation to the wiring) to initiate and sustain combustion, which obtained oxygen through open engine room vents. The fire then likely spread from the engine room to other combustibles in the house of the *Lucky Angel* as evidenced by the smoke and flames in the picture taken of the fishing vessel on the day after the fire started. Eventually, damage from the engine room fire likely caused a failure in hoses or piping connected to a through-hull fitting for a sea water system that allowed water to enter the hull and sink the vessel.

3. Conclusions

3.1 Probable Cause

The National Transportation Safety Board determines that the probable cause of the engine room fire aboard the fishing vessel *Lucky Angel* was the deterioration or chafing of wiring insulation, which caused arcing that ignited nearby combustible materials.

Vessel	<i>Lucky Angel</i>
Type	Fishing Vessel
Flag	United States
Port of registry	Pensacola, Florida
Year built	1968
Official number (US)	516059
IMO number	7050834
Classification society	N/A
Length (overall)	75 ft (22.9 m)
Beam	22.4 ft (6.8 m)
Draft (accident)	11.2 ft (3.4 m)
Tonnage	130 GRT
Engine power; manufacturer	1 Cummins 6-cylinder engine, estimated 160 hp (119.3 kW)

NTSB investigators worked closely with our counterparts from **Coast Guard Sector Mobile** 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 **DCA21FM010**. 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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