



National Transportation Safety Board

Marine Accident Brief

Grounding and Subsequent Breakup of Small Passenger Vessel *Spirit of Kona*

Accident no.	DCA16FM046
Vessel name	<i>Spirit of Kona</i>
Accident type	Grounding and breakup
Location	Kailua Bay, Island of Hawaii, Hawaii; 19°38.2' N, 156°00.0' W
Date	July 24, 2016
Time	About 0220 Hawaii-Aleutian standard time (coordinated universal time – 10 hours)
Injuries	None
Property damage	\$1.1 million est.
Environmental damage	About 275 gallons of diesel and lubricating oil in water
Weather	Overcast, rain squalls, southeast winds at 22 knots with gusts up to 27 knots, seas 8–10 feet, air and water temperature 80°F
Waterway information	Kailua-Kona is located on the west (dry) side of the Island of Hawaii and is a popular tourist destination. The port has a pier used by cruise and charter boats. There is no breakwater to protect this small exposed harbor. Many of the vessels home-ported in Kailua Bay use offshore moorings. The coastline is mostly black, jagged lava.

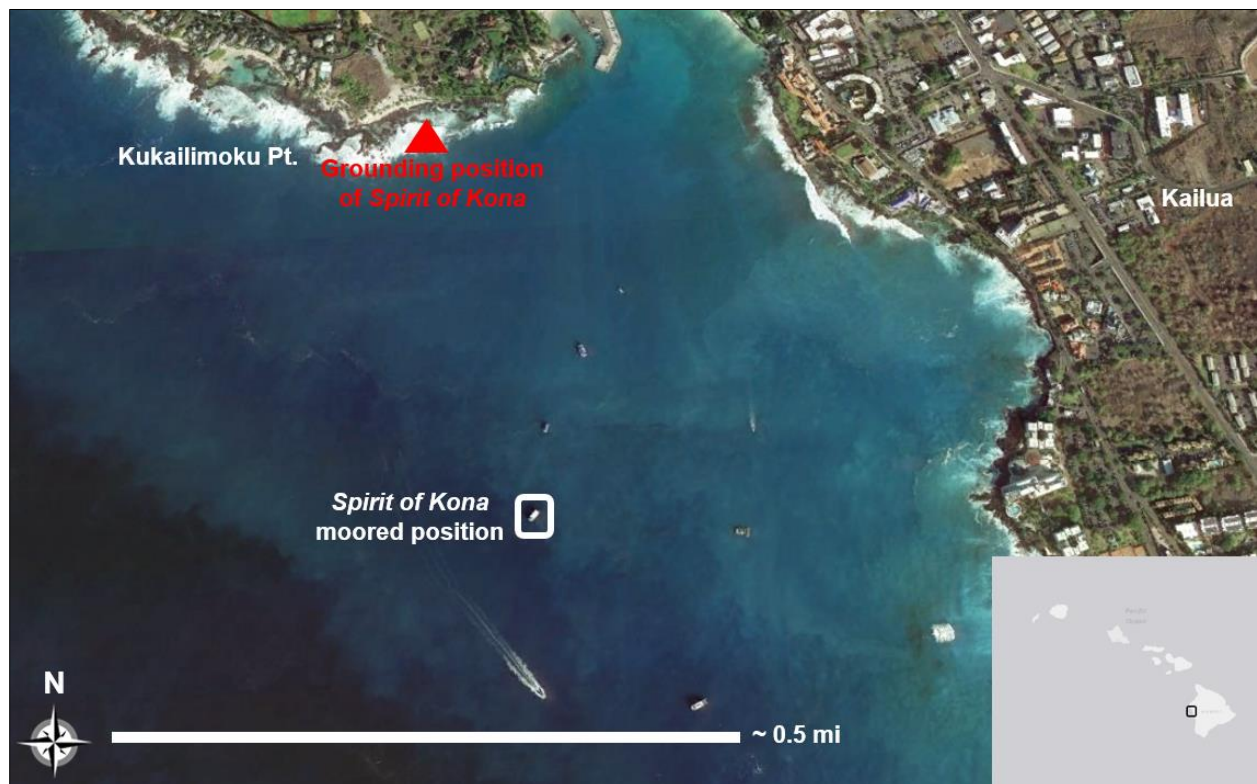
About 0220 on July 24, 2016, in tropical storm conditions, the 70-foot-long small passenger vessel *Spirit of Kona* broke loose from its mooring in Kailua Bay on the island of Hawaii. About 10 minutes later, after drifting across the bay, the vessel grounded on lava rocks. Under continuous wave action, the *Spirit of Kona* broke apart and subsequently sank. No one was on board at the time. The vessel's fuel and lube oil tanks ruptured and about 275 gallons of oil spilled into the sea and onto the rocks. The value of the *Spirit of Kona* was an estimated \$1.1 million.



Spirit of Kona. (Image from HawaiiActivities.com)

Grounding and Subsequent Breakup of Small Passenger Vessel *Spirit of Kona*

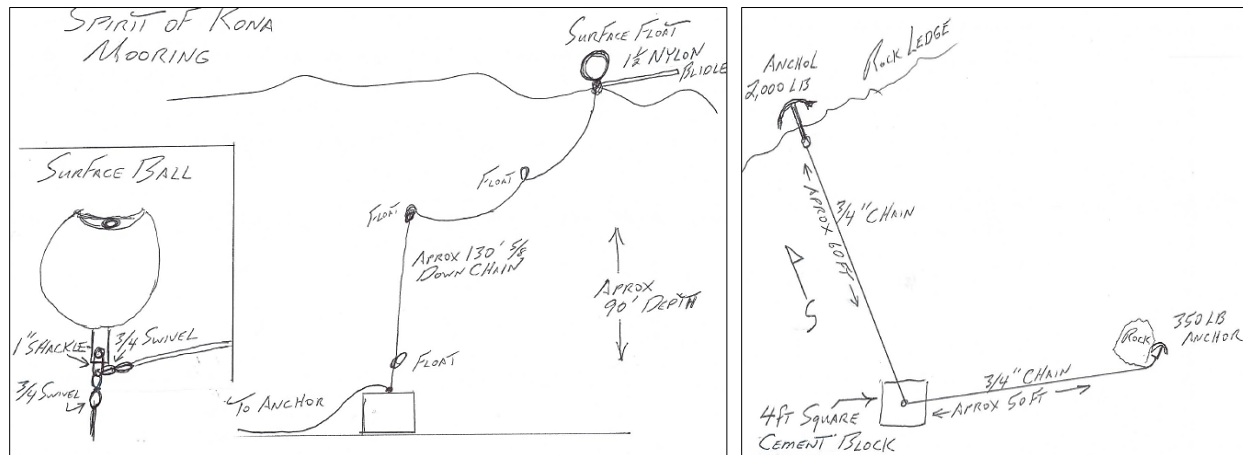
The *Spirit of Kona* was a small US Coast Guard-inspected commercial passenger vessel that provided short-duration tours near Kailua-Kona. It had twin aluminum hulls with a laminated glass-bottom viewing well in the center. The vessel was owned and operated by Blue Sea Cruises and built specifically to provide glass-bottom dinner cruises where passengers could enjoy sightseeing above and below the water. The vessel was delivered in August 2007 by Midship Marine of Harvey, Louisiana. However, at the time of the accident, the vessel had been moored and inactive for 9 months, as Blue Sea Cruises was looking to sell the *Spirit of Kona*. The vice president of the company, who was also responsible for the vessel's maintenance and mooring, held a valid merchant mariner credential as master of inspected passenger vessels of up to 100 gross tons near coastal waters.



Aerial view of Kailua Bay. A white rectangle indicates the approximate location of the *Spirit of Kona*'s mooring, and a red triangle marks the approximate site of the vessel's grounding and breakup. (Background by Google Earth)

The *Spirit of Kona* was kept at an offshore mooring position about 0.4 nautical miles south of the Kailua pier. The privately owned mooring arrangement, as described by the vice president of Blue Sea Cruises, consisted of two anchors—one weighing 2,000 pounds; the other, 350 pounds—along with chains on the sea floor in about 90 feet of water. These anchors were attached to a block of concrete and positioned with the larger anchor in a southerly direction and the smaller anchor in a westerly direction from the block. A chain was suspended from the block by three subsurface floats and connected to a “surface ball” by a swivel and shackle. The *Spirit of Kona* used a mooring bridle consisting of two nylon lines, attached to the port- and starboard-bow mooring bits of the boat, that connected to the surface ball. At the ball, the lines were secured together by a shackle that connected to another swivel at the surface ball.

Grounding and Subsequent Breakup of Small Passenger Vessel *Spirit of Kona*



Sketches of the *Spirit of Kona's* mooring arrangement (not to scale) drawn by the vice president of Blue Sea Cruises.

At 0500 on July 22, 2016, the National Hurricane Center issued an advisory that placed the Island of Hawaii under a tropical storm warning in advance of Tropical Storm Darby approaching from the east. The vice president told investigators that he went to the *Spirit of Kona* about 1000 on July 23 to check on the vessel. He stated he made sure that all hatches were secured and that lines leading to the mooring were in good condition. However, he took no additional precautions, such as setting anchor(s), or adding lines or anti-chafing wrap, to secure the vessel at its moored position. Satisfied that the vessel was adequately secured, the vice president departed; nobody remained on board.

Other vessels were also moored in Kailua Bay, including the *Kanoa II*, another small passenger vessel, which had four crewmembers on board as a precaution in the oncoming storm. At 1849 on July 23, the captain of the *Kanoa II*, who knew the vice president of Blue Sea Cruises, sent a text message to inform him that the storm was approaching; he received no reply. The center of Tropical Storm Darby was about 22 nautical miles south of Kailua Bay at 2200, during which time the winds increased with gusts up to about 35 knots and continued through the early morning the following day. The captain of the *Kanoa II* told investigators that, about 0200 on July 24, a squall passed through the area with “breaking waves” and “horizontal rain.” He said that he and the crew had to use the vessel’s propulsion to keep strain off the mooring lines; he estimated that the wave heights were 13–15 feet and the winds as high as 40–50 knots during that squall.

About 0220, one of the crewmembers on *Kanoa II* witnessed the *Spirit of Kona* break free from its mooring and begin to drift north across the bay. He informed the captain of the *Kanoa II*, who in turn radioed the Coast Guard. The captain then called the vice president of Blue Sea Cruises to inform him of the situation but there was no answer. Next, he called the former captain of the *Spirit of Kona* and requested information about the starting procedure for the engines, because the crew of the *Kanoa II* briefly considered launching their skiff to recover the adrift vessel. However, the crew recognized that the *Spirit of Kona* was drifting too quickly toward the rocks in Kailua Bay. The captain of the *Kanoa II* also felt that the weather conditions made it too dangerous to send crewmembers in a skiff to try to reach the *Spirit of Kona*. Based on the captain’s estimation, the *Spirit of Kona* impacted the rocks about 8–10 minutes after he radioed the Coast Guard. In addition, a security guard who was on duty near the grounding site heard loud crushing sounds about 0230.

Grounding and Subsequent Breakup of Small Passenger Vessel *Spirit of Kona*

On notification, Coast Guard and Hawaii state officials proceeded to Kukailimoku Point, where the *Spirit of Kona* had grounded. They witnessed the vessel partially sunken, listing heavily to port, and being battered by the storm surf. Local police notified the vice president of Blue Sea Cruises, who arrived on scene a short time later.



Spirit of Kona lying on its port side on the rocks near Kukailimoku Point. (Photo by Coast Guard)

About 0855, according to an attending state official, the *Spirit of Kona* disappeared beneath the waves, leaving behind debris and an oil sheen. According to the Coast Guard, no other boat broke free from its mooring during the storm.



Wreckage of the *Spirit of Kona*. (Photo by Coast Guard)

Grounding and Subsequent Breakup of Small Passenger Vessel *Spirit of Kona*

Once the weather conditions improved, salvage company Cates International of Honolulu, Hawaii, began removing the wreckage and cleaning up the oil spill and debris. The wreckage, which was refloated using float bags, was going to be towed to a disposal site offshore. While on the way to that site, however, the salvage company reported a problem with one of the float bags and the wreckage sank; it still remains at that location.

Given that Kailua Bay had no state-designated moorings, any vessel owner wishing to moor there was responsible for the placement and upkeep of the equipment as per the State of Hawaii offshore mooring area rules for non-designated moorings.¹ The *Spirit of Kona* was subject to these rules, which required vessel owners to have a permit issued by the Department of Land and Natural Resources (DLNR) Division of Boating and Recreation (DOBOR). Blue Sea Cruises had a valid state-issued permit for the mooring location, and because the *Spirit of Kona* was a commercial vessel, the rules also required it to have a valid permit for the mooring design and installation.² Blue Sea Cruises told investigators that they submitted drawings and pictures to the state of Hawaii in 2014, but neither the state nor the company was able to produce this documentation. Thus, only a postaccident hand sketch of the mooring arrangement was available to investigators.

DOBOR sent a letter dated July 8, 2016, to Blue Sea Cruises outlining requirements for permitting offshore mooring in Kailua Bay. It detailed steps for bringing the existing mooring permit owners into compliance with federal and state laws. Being in compliance required submitting to DLNR/DOBOR for review/approval a mooring installation design (stamped by a structural engineer to confirm that the mooring design was sufficient to hold the vessel), along with underwater photos of the mooring anchor locations. Following DOBOR's approval of the mooring design, a permit application would need to be submitted to the US Army Corps of Engineers, and an environmental review by the State of Hawaii Department of Health was required. The letter gave Blue Sea Cruises 12 months to complete the approval and permit process; efforts were reportedly under way to submit the required material.

According to the vice president of Blue Sea Cruises, there were no problems with the mooring installation, which was designed based on his previous experience with an offshore mooring for a larger vessel. After that vessel departed Kailua Bay indefinitely, the vice president purchased and installed the larger 2,000-pound anchor and chain from that mooring for the *Spirit of Kona* before the vessel arrived from the builder in 2007. The vice president noted that the 2,000-pound anchor was set in a southerly direction because a wind from the south provided the greatest risk for a moored vessel being set toward land. The smaller 350-pound anchor was set further west, which was another area of exposure. The *Spirit of Kona* was moored from the bow only, allowing the stern to swing freely.

The vice president stated that he inspected the *Spirit of Kona*'s mooring around the beginning of each month. He said that he observed no problems with the mooring installation during his last inspection, which he recalled being "around the first of July." He showed investigators documentation of the procurement of chains, a shackle, and two swivels that he purchased in

¹ Hawaii Administrative Rules (HAR) §13-235-9.

² HAR §13-235-9(d)(3). For commercial vessels, a permit is also approved for installation of the mooring by the US Army Corps of Engineers.

Grounding and Subsequent Breakup of Small Passenger Vessel *Spirit of Kona*

December 2015 and January 2016, which he said replaced existing parts on the mooring at the surface buoy. He gave no specific details as to what hardware was actually replaced. According to state of Hawaii requirements, the mooring was to be inspected semi-annually and required notifying DLNR of the date the inspection took place.³ However, state authorities did not have any documentation or information from Blue Sea Cruises about dates of any mooring inspections.

The vice president reported to the Coast Guard that everything from the surface ball down to the bottom was in place and intact during his inspection of the mooring installation after the accident. Salvage company Cates International later recovered some of the 1.5-inch-wide nylon lines that were used as the mooring bridle, but the shackle that attached the 0.75-inch swivel to the buoy was missing. Investigators later discovered that a shackle, suspected to be the one that connected the mooring swivel to the surface ball, was recovered. That shackle showed no visual signs of deformation or other damage and was therefore ruled out as the source of failure. The mooring's swivel and section of line to which the shackle had been connected was not found. It is likely, but undetermined due to the missing material, that the failure point was located between the swivel connected to the bridle and the boat. Because these items were not recovered and the mooring installation itself was found intact, investigators could not determine whether the failure occurred at the bridle connection or at the swivel connected to the shackle and chain. Prior to Tropical Storm Darby, there were no noted cases where the *Spirit of Kona* had broken free from its mooring.

There was no requirement for Blue Sea Cruises to place a crew on board the *Spirit of Kona* during tropical storm conditions to maintain the position of the vessel at the mooring. On the contrary, hurricane and tsunami guidance advises boaters not to stay on board after securing their vessels but instead to “go ashore and seek shelter and safe haven.”⁴ The guidance also recommends doubling anchor lines (or chains); placing anti-chafing wrap on lines; checking cleats, chocks, and winches; and ensuring that the vessel's battery is able to run the automatic bilge pumps. Although the vice president stated that he did check on the vessel before the storm, he took no additional precautions such as placing extra lines or chains on the vessel or adding anti-chafing wrap to existing lines.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the grounding and subsequent breakup of the *Spirit of Kona* was the failure of the vessel's mooring equipment in tropical storm conditions. Contributing to the *Spirit of Kona* breaking free from its mooring was the failure of Blue Sea Cruises to take additional precautions to secure the vessel in advance of an oncoming tropical storm.

³ HAR §13-235-8.

⁴ Hurricane and Tsunami Safety Manual, University of Hawaii Sea Grant College Program, June 2013.

Grounding and Subsequent Breakup of Small Passenger Vessel *Spirit of Kona*

Vessel Particulars

Vessel	<i>Spirit of Kona</i>
Owner/operator	Blue Sea Cruises, Inc.
Port of registry	Kailua-Kona, Hawaii
Flag	United States
Type	Small passenger vessel
Year built	2007
Official number (US)	1195628
Construction	Aluminum
Length	70 ft (21.3 m)
Depth	8 ft (2.4 m)
Beam/width	28 ft (8.5 m)
Gross tonnage	78 gross tons
Engine power; manufacturer	2 Caterpillar CAT C-9 diesel main engines, 512 hp total (382 kW)
Persons on board	0

NTSB investigators worked closely with our counterparts from Coast Guard Marine Safety Detachment Hawaii throughout this investigation.

For more details about this accident, visit www.nts.gov and search for NTSB accident ID DCA16FM046.

Issued: August 10, 2017

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*, Section 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*, 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. Title 49 *United States Code*, Section 1154(b).
