National Transportation Safety Board

Marine Accident Brief

Contact of the Barge *YD 71* with the James T. Wilson Fishing Pier

Accident type	Contact	**No.** DCA20FM004
Vessel name	*YD 71*	
Location	Chesapeake Bay, Hampton, Virginia 37°02.20' N, 076°17.48' W	
Date	November 17, 2019	
Time	0904 eastern standard time (coordinated universal time – 5 hours)	
Injuries	None	
Property damage	$1,315,157	
Environmental damage	None	
Weather	Visibility 10 miles, overcast, winds north-by-west 15 knots, gusts 23 knots, waves 4.6 feet, air temperature 44°F, water temperature 54°F, sunrise 0644	
Waterway information	The Chesapeake Bay shoreline in the vicinity of Hampton, Virginia, runs generally north and south and the waters are exposed to the east. The tidal range at Old Point Comfort is approximately 2.5 feet.[1]	

On November 17, 2019, about 0904, the barge *YD 71* contacted the James T. Wilson Fishing Pier in Hampton, Virginia, after breaking loose from its mooring. There were no people aboard the barge or on the pier at the time of the accident. The vessel was later extricated from under the pier and towed to a repair yard. No pollution or injuries were reported. Damage to the vessel was estimated at $38,000, and damage to the pier was estimated at $1,277,157.

The *YD71* aground after breaking free from its mooring and prior to striking the pier. (Source: U.S. Coast Guard)

[1] All miles in this report are nautical miles (1.15 statute miles).

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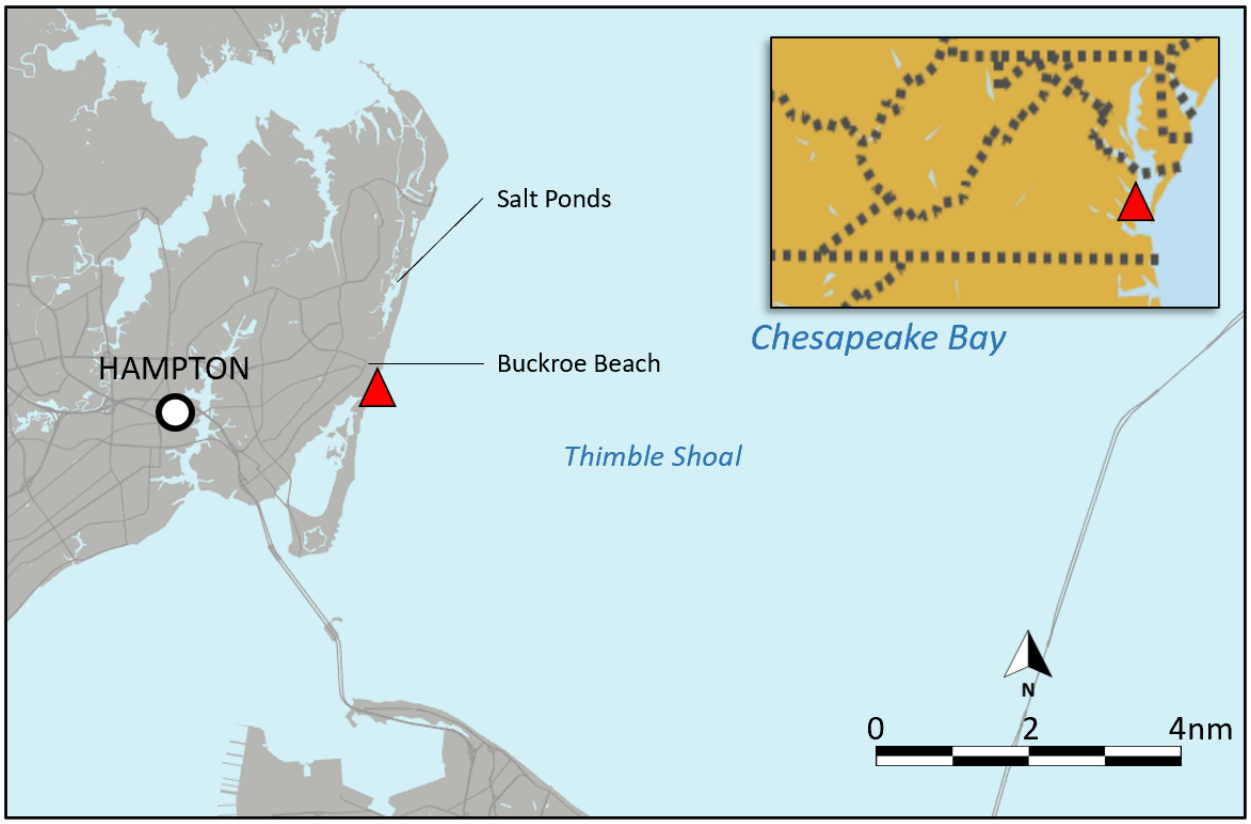


Location where the *YD 71* contacted the James T. Wilson fishing pier in Hampton, Virginia, as indicated by the red triangle. (Background source: Google Maps)

Background

The *YD 71* was a 100-foot-long, 45-foot-wide deck barge owned by Coastal Design & Construction Inc. and was used for marine construction. Both ends of the barge were raked, with spuds on the starboard side.[2] The barge had an excavator mounted on its deck to work as a dredge for a City of Hampton project at the Salt Ponds entrance jetty and dredging inside the estuary. The barge was secured on a mooring when not in use. Coastal Design & Construction Inc. owned three tugboats and several barges used in the marine construction industry. The tug *Capt Dale* and some of the barges were used on the Salt Ponds project.

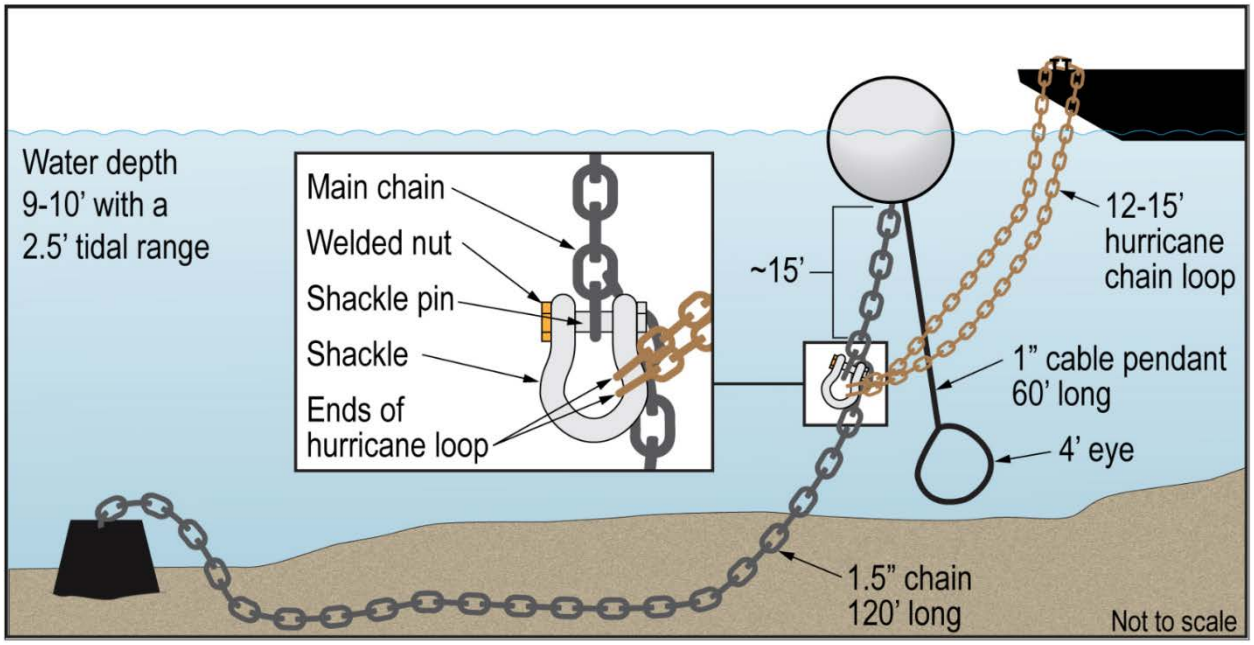
The shoal waters offshore of Buckroe Beach are referred to as "the Horseshoe" and have a heavy concentration of fishing traps. A privately maintained channel runs through the traps to the Salt Ponds.

Coastal Design & Construction Inc. owned several moorings located approximately 800 feet offshore and just north and outside of the channel to the Salt Ponds. Each mooring consisted of a 4,500–5,000 pound anchor weight, 120 feet of 1.5-inch chain, and a mooring ball. Barges were moored to the bottom chain with a 60-foot-long, 1-inch cable pendant with a 4-foot eye. The eye was typically looped over the forward bitts on the barge. Additionally, each mooring had a 12- to 15-foot loop of chain, called a hurricane loop, that was shackled through one link of the bottom

[2] *Spuds* are steel shafts or through-deck pilings, which are driven into the the seafloor to moor the barge.

chain. The mooring was set in 9 to 10 feet of water, with a hard, sandy bottom, and a tidal range of 2.5 feet. The mooring pre-dated the construction project but was inspected and found satisfactory in August 2019 for this work.

The hurricane loop was shackled to the bottom chain 15 feet below the mooring ball. The shackle's crown was passed through each bitter end of the hurricane loop. The shackle pin was passed through a link at the bottom chain with the center stud removed and held in place with a nut. The nut was welded to the shackle pin, all the way around to keep it from backing out.



A representation of the arrangement of the *YD 71*'s mooring at the time of the accident.

The 700-foot-long James T. Wilson Fishing Pier, formerly the Buckroe Fishing Pier, was built at a cost of $2.5 million and opened in 2009. It replaced a wooden pier that was destroyed by Hurricane Isabel in 2003. The pier was constructed of several 40-foot concrete spans, and, at the time of the accident, served recreational fishing and tourist traffic. The pier was normally open 24/7 but was closed on the evening of Saturday, November 16, due to weather.

Accident Events

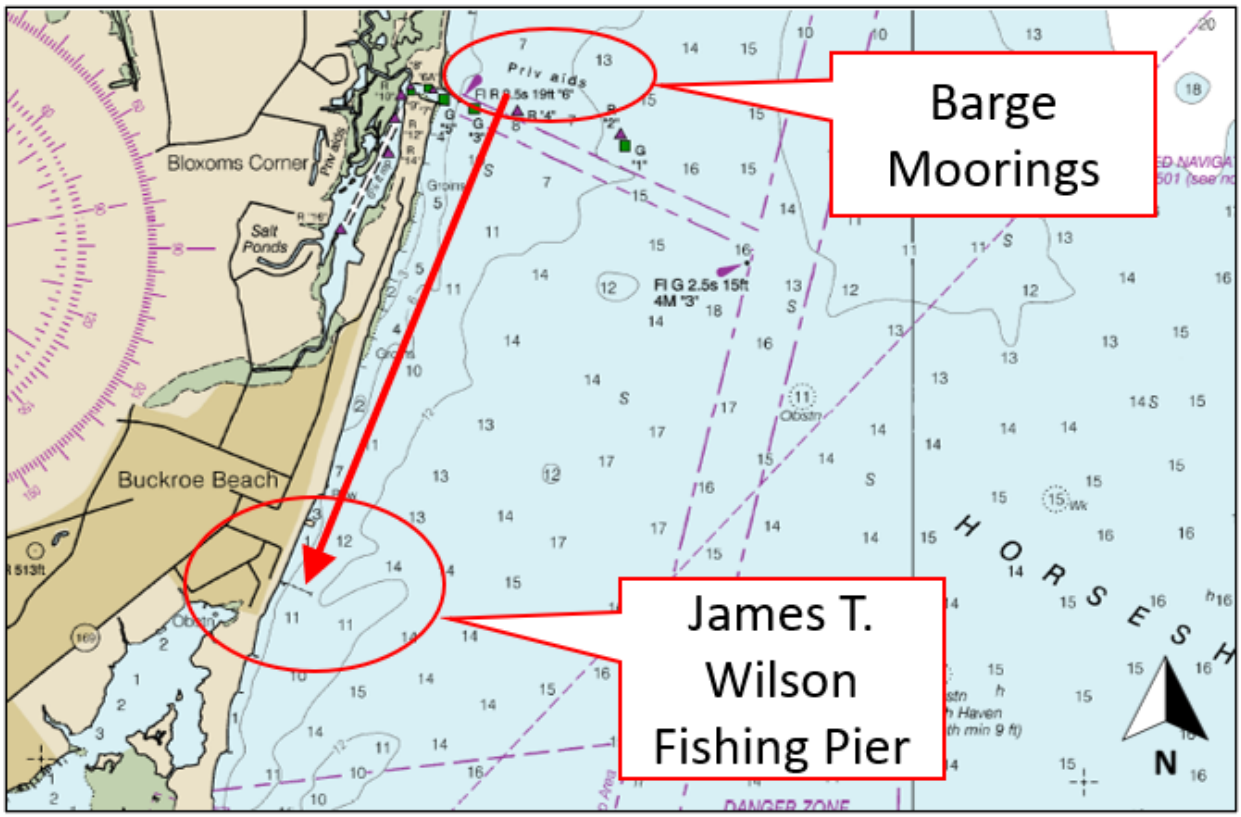
At the end of the workday on Thursday, November 14, the crew of the attending towboat *Capt Dale* moored the *YD 71* and two other barges. The crew discovered a kink in the mooring's cable pendant, which was normally used to moor the barges. The captain of the *Capt Dale* stated they then decided to use the mooring's hurricane loop to moor the *YD 71*. The excavator operator used a grappling hook and the excavator aboard the *YD 71* to retrieve the hurricane loop from below the surface and set it on one of the barge's forward bitts, looping it two or three times in a figure-eight configuration. After the crew of the *Capt Dale* ensured the barge was secured to the mooring, they departed the site for the weekend. Two other barges were moored using the cable pendants as usual practice instead of the hurricane chain loops.

Contact of the Barge *YD 71* with the James T. Wilson Fishing Pier

The captain of the *Capt Dale* told investigators that based on forecasts he expected 26-knot winds with gusts to 39 knots over the weekend. The forecast as of Thursday afternoon, November 14, included a gale watch and coastal flood watch due to developing low pressure to the south and high pressure over New England. The National Weather Service (NWS) noted that marine conditions for the southern Chesapeake Bay were expected to "deteriorate during the second half of the day on Friday." A gale watch was issued for midnight on Friday night, with north to northeast wind gusts expected in the 40- to 45-knot range for Chesapeake Bay, south of New Point Comfort, including the accident site. The NWS issued a Coastal Flood Watch for Saturday and Sunday, with 2.1- to 2.8-foot, higher-than-normal tides predicted. The highest waves were expected Saturday night at 6 to 7 feet.

From Saturday afternoon, November 16, and continuing through the night, winds blew from the north and north-northwest at 17 to 28 knots, with gusts to 29 knots (near gale). High tide was at midnight and predicted to be 2.36 feet, while the gauge at nearby Fort Monroe recorded actual level at 2.82 feet, or 6 inches higher. A weather buoy approximately 10 miles upwind in the Chesapeake Bay recorded consistent waves between 3.9 and 4.6 feet during the same period.

Sometime before sunrise on Sunday, November 17, the *YD 71* slipped its mooring and drifted south and downwind. It contacted and damaged an entertainment pier 1,200 feet north of the fishing pier. It then grounded on the rip rap erosion dike at Buckroe Beach, then on the sandy beach just north of the fishing pier sometime before 0541 when the fire department was alerted. Responders and public works staff were not equipped to stop the *YD 71*'s movement down the beach, and the barge contacted the fishing pier about 0904.



Extract of Chart 12222, with red arrow showing the assumed path barge *YD71* took from its mooring to the James T. Wilson Fishing Pier. (Background source: NOAA annotated by NTSB)

The *YD 71* was freed from the pier by the operator, municipal responders, and public works staff at 1500 on Monday, November 18, and taken to a repair yard at Cape Charles, Virginia. A survey of the barge found four of ten voids plus the stern rake compromised with water ingress from rain and seas, although not holed below the waterline. Damage to the barge was estimated at $38,000.

Additional Information

The captain of the *Capt Dale* stated the 1.5-inch cable was sufficient for 52-knot winds, and that he only elected to use the hurricane loop due to a kink in the cable pendant wire, not because of weather warnings. Following the accident, the hurricane loop was found still secured to the barge's bitt, but the shackle (and its pin) that connected both ends of the hurricane loop to the bottom chain were not attached.

The damaged fishing pier with debris on the deck of the *YD 71.* (Source: Coast Guard)

Two pilings supporting the first and second 40-foot spans of the fishing pier nearest the beach were destroyed, and the spans collapsed into the water. Three pilings supporting the east edge of the pier house were also damaged. The pier was closed for repairs for almost a year, reopening on October 17, 2020.

Analysis

The mooring for the barge was located 2 miles north of the fishing pier it struck after grounding. The length of the chain from the anchor to the hurricane loop plus the loop itself was approximately 110 feet. Given a water depth of 10 feet, and a 2.5-foot tidal range at the mooring,

the scope of chain was approximately 11:1, which is normally sufficient for anchoring in most weather.

The mooring's chain and hurricane loop were found intact. Neither the shackle nor its pin connecting the hurricane loop to the chain were found. Therefore, the barge could only slip its mooring if the shackle failed, or if the pin backed out after the weld attaching the nut to the pin failed. It's more likely the weld failed than material failure of the shackle bow or pin. This likely would have occurred over a period of time, with the strain of the four-foot storm wave action, near gale winds, and/or high tide breaking it free.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the contact between the barge *YD 71* and the James T. Wilson Fishing Pier was a shackle pin in the mooring arrangement working itself free in heavy weather, leading to the barge's uncontrolled drift.

Mooring Maintenance

Moorings for vessels can be single-point failures that can lead to losses for both vessels and nearby infrastructure. Operators should identify failure modes of mooring arrangements and implement controls, including more frequent inspections if necessary, to avoid accidents.

Vessel Particulars

Vessel	*YD 71*
Owner/operator	Soggy Bottom Corporation / Coastal Design & Construction Inc.
Port of registry	Not registered
Flag	United States
Type	Deck barge
Year built	Unknown
Official number (US)	N/A
IMO number	N/A
Classification society	N/A
Construction	Welded steel
Length	100 ft (30.5 m)
Draft	4 ft (1.2 m)
Beam/width	45 ft (13.7 m)
Tonnage	270 GRT est.
Engine power; manufacturer	Not self-propelled
Persons on board	0

NTSB investigators worked closely with our counterparts from Coast Guard Sector Hampton Roads, Virginia, throughout this investigation.

For more details about this accident, visit www.ntsb.gov and search for NTSB accident ID DCA20FM004.

Issued: November 2, 2020