National Transportation Safety Board

Marine Accident Brief

Allision of Kodiak Tow with North Landing Bridge

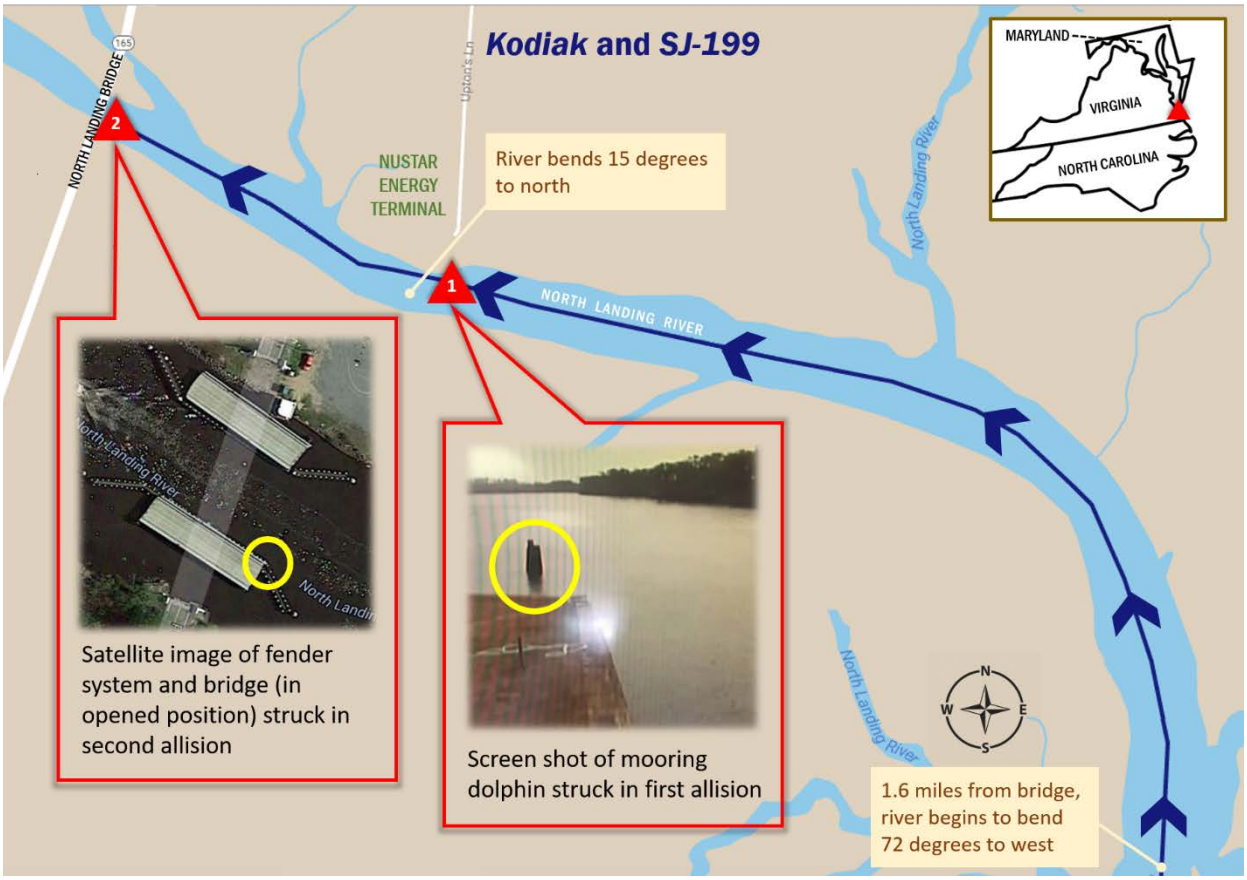
Accident no.	DCA16FM028
Vessel names	*Kodiak* and barge *SJ-199*
Accident type	Allision
Location	North Landing River at mile marker 20.2, Intracoastal Waterway; Chesapeake, Virginia 36°43'3.11" N, 76°6'0.04" W
Date	March 1, 2016
Time	About 0322 eastern standard time (coordinated universal time – 5 hours)
Injuries	None
Property damage	$275,000 est.
Environmental damage	None
Weather	Clear visibility 10 miles, winds calm, air temperature 39°F
Waterway information	The North Landing River extends in a northerly direction from Currituck Sound at the North Carolina border. The river is part of the Intracoastal Waterway that connects Albemarle Sound with the Elizabeth River in Portsmouth, Virginia, and has a controlling depth of 9 feet. It measures 80 yards wide at the North Landing Bridge.

On March 1, 2016, about 0322 local time, the open barge *SJ-199* being pushed by the tugboat *Kodiak* allided with the North Landing Bridge at mile marker (mm) 20.2 in Chesapeake, Virginia. Just before the allision, the tow had run over a mooring dolphin located on the north side of the river 750 yards from the bridge. Although the vessel incurred no damage, the barge and the bridge sustained an estimated total of $275,000 in damage. No pollution or injuries were reported.

Tugboat *Kodiak* under way. (Photo courtesy of Intracoastal Marine, Inc.)

* Unless otherwise noted, all miles in this report are statute miles.

Allision of *Kodiak* Tow with North Landing Bridge



Accident site where *Kodiak* tow allided, first, with the mooring dolphin and, second, with the bridge. (Background and satellite image by Google Maps; screen shot courtesy of US Coast Guard)

On February 29, at 1330, the *Kodiak* departed Edenton, North Carolina, en route to Baltimore, Maryland, via several inland waterways: Albemarle Sound, North River, Currituck Sound, and North Landing River. At mm 30 just south of the Pungo Ferry Bridge, the North Landing River narrows and meanders northwest. The river bends 72 degrees to the west beginning 1.6 miles from the North Landing Bridge and then 15 degrees to the north for the final half-mile approach to the bridge.

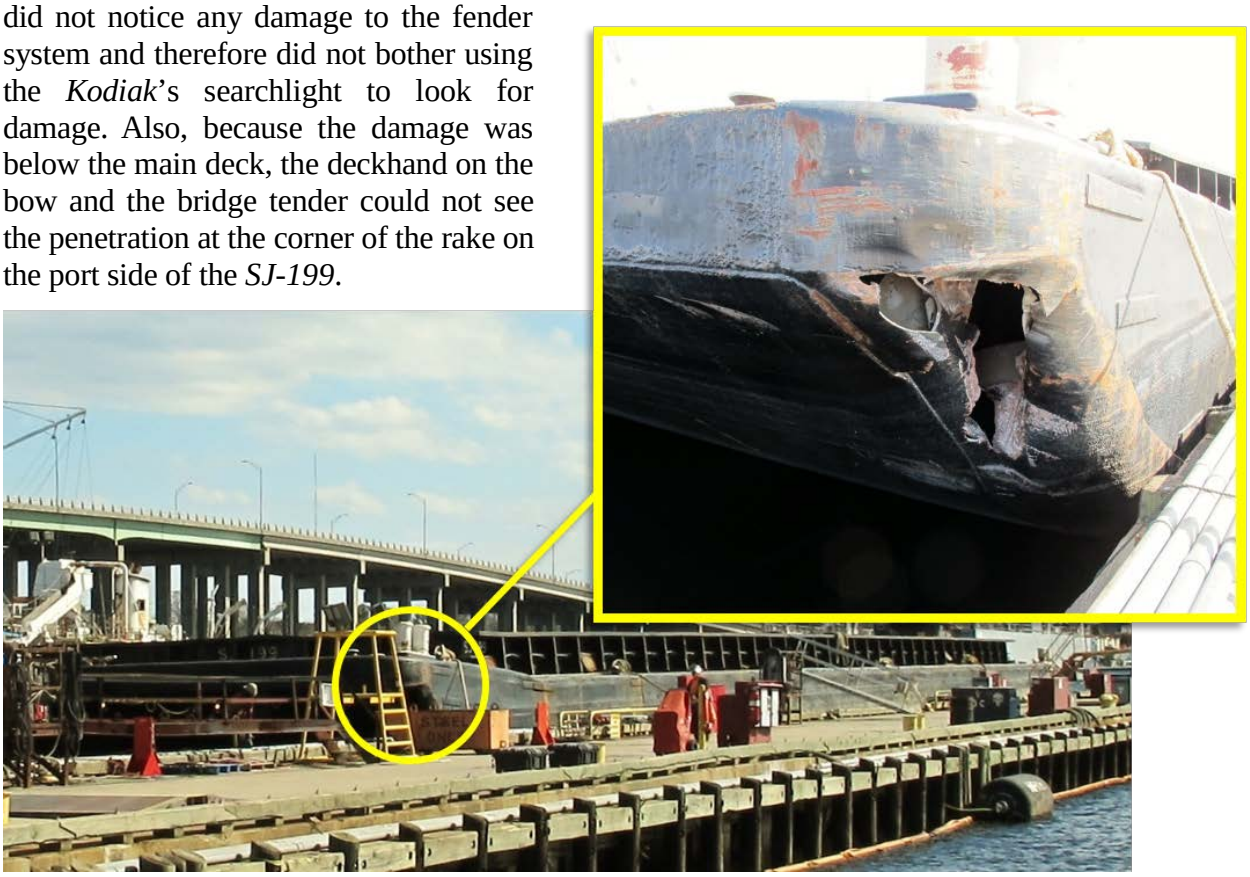
With a crew of four, the vessel was pushing the empty barge *SJ-199*. The mate, who had relieved the captain at midnight, was the only person in the lower wheelhouse at the time the *Kodiak* tow approached the bridge.[1] Meanwhile, one deckhand was in the engine room as the captain and a second deckhand lay asleep. Investigators estimated the tow was moving through the bends at 4–6 mph.

At a distance of 750 yards from the bridge, the *Kodiak* tow struck and knocked down a mooring dolphin that was just east of the NuStar Energy terminal dock, which ran parallel with the shore on the north side of the river. From that position, on the starboard side of the river, the mate had to steer through the 15-degree bend and then line up the tow to proceed through the 80-foot-wide horizontal opening of the North Landing Bridge. He told investigators that he tried to slow the barge by placing the *Kodiak*'s engines in neutral.

[1] *Mate* is a term used aboard towing vessels on coastal waters and their tributaries for a person, other than the master (captain), who is in charge of a navigational watch.

However, while approaching the opened swing bridge, the port side of the *SJ-199* struck the south side of the bridge fender system and the corner of the bridge positioned above the fender system. The mate estimated the barge struck the bridge at a speed of 1.5 knots (1.73 mph).

Feeling the contact from the allision, the captain awoke and came to the bridge to assess the damage. He told investigators that he heard the mate talking to the bridge tender via radio, recalling, "Said he [the mate] hit something on bottom and had to realign barge to come through bridge." The mate told the captain that he thought he struck an underwater object. Because it was dark, the mate did not notice any damage to the fender system and therefore did not bother using the *Kodiak*'s searchlight to look for damage. Also, because the damage was below the main deck, the deckhand on the bow and the bridge tender could not see the penetration at the corner of the rake on the port side of the *SJ-199*.



Barge *SJ-199* docked at the repair yard.

After he reversed the tow to assess the damage, the mate successfully transited the tow through the bridge on his second attempt. He steered the tow from the upper wheelhouse while the deckhand, whom the captain had sent to the bow of the barge as a lookout, called out to the mate via VHF radio the distances between the barge's hull and the fender structures on both the port and starboard sides.

The accident report submitted by the *Kodiak* operating company stated that there was an ebbing tidal current of less than 1 knot at the time of the allision. However, there was no current affecting the tow at the location of the accident, given that the North Landing River is located in one of the largest freshwater marshes along the eastern seaboard.

Damage totaled an estimated $25,000 for the hole the barge sustained in the port corner of the rake and an estimated $250,000 for the damage to the bridge's fender, structure, and gears on the south side.

Damage to the southside fender of the North Landing Bridge.

Accident Analysis

This voyage entailed several first-time experiences for the mate. It was the first time he was in charge of a towboat watch after receiving his credentials in March 2015 as deck officer–mate (pilot) for towing vessels upon near coastal waters. He had not served on board any vessel since October 2014 until he was employed by Intracoastal Marine, Inc. in January 2016. At the time of the accident, he had been with the company for 2 months and had been on board the *Kodiak* for only 2 days.

The mate also told investigators that the transit was his first trip through the Intracoastal Waterway, adding, "It is very nerve-racking with a barge in those small areas." Moreover, the voyage on the North Landing River was the first time the mate transited a narrow waterway through bridges.

NTSB investigators examined AIS position data for the two vessels on which the mate served as an apprentice mate to gain the sea time necessary to upgrade his license. Neither of those two vessels operated on narrow waterways but instead in harbor areas and offshore waters.

With little to no experience navigating on narrow waterways or pushing a barge, the mate lost control of his vessel as he steered the tow through the bends. He probably was unaware that

he needed to compensate for sliding across the river as he made his turns as well as compensating for the bank effect. Bank effect is a hydrodynamic phenomenon caused by water pressure between the ship's bow and the nearby bank. The water pressure creates a cushion, which can force the bow to deflect away from the bank and instead toward the opposite side of a narrow waterway. It is likely that the mate was unable to overcome the bank effect as he steered through the 72-degree bend, which resulted in the tow striking the mooring dolphin at the NuStar Energy terminal.

The mate would have had to address the bank effect again when the tow was on the north bank after striking the mooring dolphin. The bank effect would have caused the *Kodiak* tow to sheer to port across the river toward the south bank; at the same time, the mate would have had to steer right through the 15-degree bend over a relatively short distance of less than 750 yards to successfully transit through the swing bridge's 80-foot opening. It is also likely that the mate was unable to overcome the bank effect as he tried to steer the tow through the bridge opening that resulted in his striking the bridge fender.

Prior to his transit of the North Landing Bridge, the mate's first and only transit through a bridge as a mate in a narrow waterway occurred earlier in his watch. He transited the fixed Pungo Ferry Bridge over the North River where he had an adequate distance of 1.2 miles from a previous turn in the river to line up the tow.

Following the accident, Coast Guard investigators found evidence revealing that the mate falsified sea time to meet the criteria for receiving credentials to operate a towing vessel as mate. He had met his 18-month sea service time on board towing vessels to qualify as an apprentice mate. However, as an apprentice mate he falsified 56 twelve-hour days (84 eight-hour days) of the required 360 eight-hour days the Coast Guard required to upgrade his license.

His employer told investigators that they did not know the mate had not been serving on board vessels since October 2014. His employment application listed previous service as "mate" through April 2015.

The mate had submitted the required Towing Officers' Assessment Record (TOAR): Near Coastal/Oceans to meet the Coast Guard licensing requirements. The near coastal/oceans TOAR, which is used to document the training and assessment of a mariner in the towing industry, did not include any assessments of the mate's competence to operate in narrow waterways. On the other hand, in relation to navigating through narrow waterways and bridges, the TOAR for inland waterways includes maneuvering: empty tows in narrow channels, tows around sharp bends and turns, and tows through a bridge. Since the accident, the Coast Guard has issued new guidelines for credentialing officers of towing vessels by amending the near coastal/oceans TOAR to include the task of maneuvering through a bridge.[2]

Adhering to the provisions of Title 46 of the *Code of Federal Regulations*, Section 5.203, the mate surrendered his license to the Coast Guard on May 4, 2016. He chose this option in lieu of a hearing that would have addressed the two allisions and the false official statement (that is, the falsification of his sea service time).

[2] Navigation and Vessel Inspection Circular (NVIC) No. 03-16, Guidelines for Credentialing Officers of Towing Vessels, June 23, 2016, which replaced NVIC No. 04-01.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the allision between the *Kodiak* tow and the North Landing Bridge was the mate's inability to safely navigate the vessel due to his inexperience in conning tows through narrow waterways.

Vessel Particulars

Vessel	*Kodiak*	*SJ-199*
Owner/operator	C T No II INC / Kodiak Tug LLC	Stevens Towing Co of North Carolina LLC
Port of registry	Chesapeake, Virginia	Edenton, North Carolina
Flag	United States	United States
Type	Towing vessel	Open barge
Year built	1981	1984
Official number (US)	637055	665820
IMO number	N/A	N/A
Construction	Welded steel	Welded steel
Length	63 ft (19.2 m)	260 ft (79.2 m)
Draft	8 ft (2.4 m)	3.5 ft (1.07 m)
Beam/width	24 ft (7.3 m)	52.5 ft (16 m)
Gross tonnage	115 gross tons	1,375 gross tons
Engine power	800 hp (597 kW)	N/A
Persons on board	4	0

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

For more details about this accident, visit www.ntsb.gov and search for NTSB accident ID DCA16FM028.

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