



National Transportation Safety Board

Marine Accident Brief

Capsizing of Fish Tender *Pacific Knight*

Accident type	Capsizing/Listing	No. DCA18FM029
Vessel name	<i>Pacific Knight</i>	
Location	Nushagak Bay, Queens Slough area, about 11 miles south of Dillingham, Alaska, 58°51.5' N, 158°32.1' W ¹	
Date	July 25, 2018	
Time	0630 Alaska daylight time (coordinated universal time – 8 hours)	
Injuries	One fatality	
Property damage	\$1.55 million est.	
Environmental damage	Oil sheen on water; undeterminable amount of diesel oil released	
Weather	Visibility 10 miles, winds northeast at 8 knots, calm waters, air temperature 54°F, water temperature 55°F	
Waterway information	Nushagak Bay, on the north side of Bristol Bay, has extensive salmon fishing and several canneries that operate during the summer. Strong currents are always prevalent and can be extreme due to the combination of both river and tidal constituents. The tide range is 13–20 feet daily.	

On July 25, 2018, about 0630 local time, the commercial fish tender *Pacific Knight* capsized while at anchor about 11 miles south of Dillingham, Alaska. Two of the three crewmembers on board were able to escape the vessel and were rescued by a nearby Good Samaritan fishing vessel. The third was unable to escape and drowned. About 1,439 gallons of fuel and 300 gallons of hydraulic oil were found on board, with an undeterminable quantity released in the water. The *Pacific Knight*, valued at \$1.55 million, was declared a constructive total loss.



Pacific Knight in Nushagak Bay, about a month before the accident. (Photo by witness)

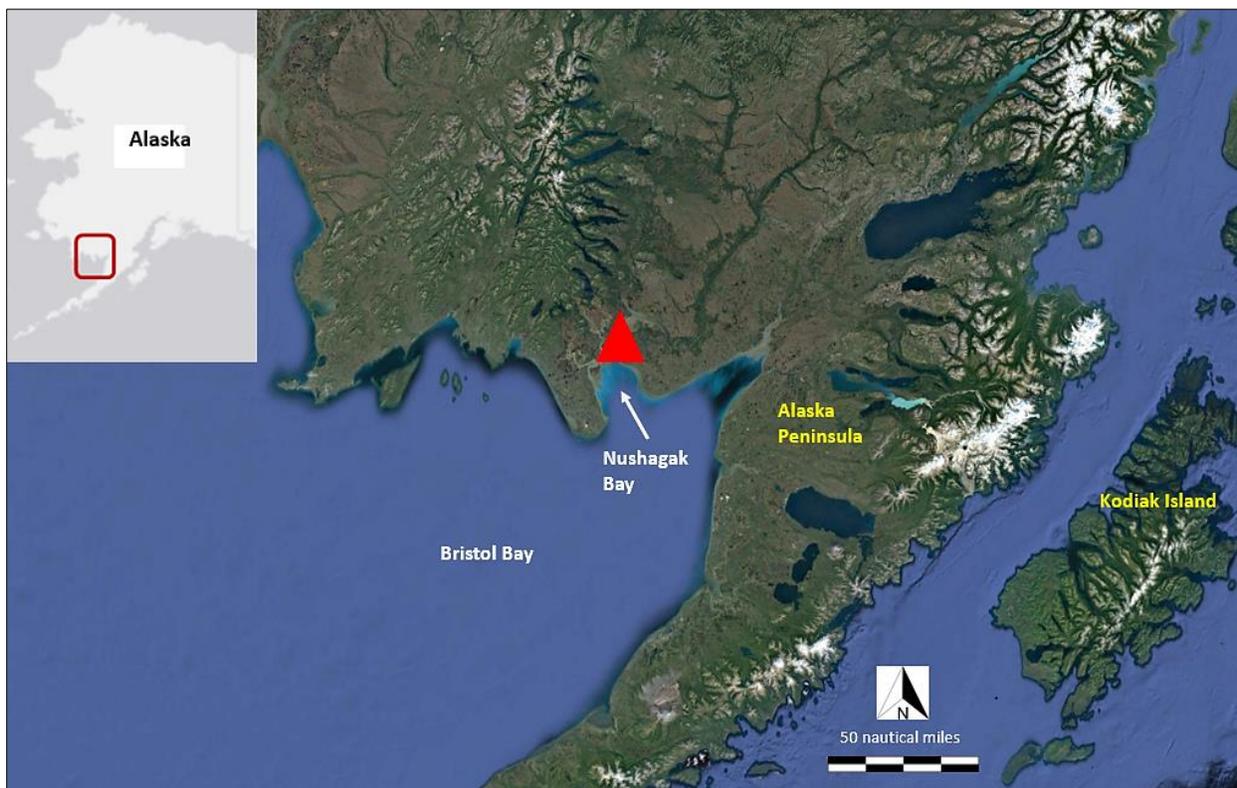
¹ Unless otherwise noted, the miles in this report are nautical miles (1.15 statute miles).

Capsizing of Fish Tender *Pacific Knight*

Background

Built in 1989 by Peacock Boat Company, the *Pacific Knight*, a 58-foot-long, 76-gross-ton, single-propeller, single-rudder, seiner and longliner fishing vessel was owned and operated by Lone Fisherman LLC in Petersburg, Alaska. It was under contract with Icicle Seafoods Inc. as a fish tender for salmon in the Bristol Bay area.² The fully loaded draft of the *Pacific Knight* was 9 feet. The *Pacific Knight* had two centerline dry/flooded holds located under the main deck aft of the deckhouse.

The deckhouse contained a galley and common area, two berthing areas, a toilet and shower, and the wheelhouse one deck above. Access from the main deck to the deckhouse was through a two-dog weather door, located to port of the centerline. A two-person berth was located on the port side and a six-person berth was located in the forward portion of the deckhouse. Stairs to the wheelhouse were located just inside the main deck weather door with an access ladder going down to the engine room to the right of the stairs. The galley and common area were located to the starboard.



Satellite image showing the location of the accident, as indicated by the red triangle. (Background by Google Earth)

² A *fish tender* is a commercial fishing industry vessel that supplies, stores, refrigerates, or transports fish, fish products, or materials directly related to fishing or the preparation of fish to or from a fishing, fish processing, or fish tender vessel or a fish processing facility.

Capsizing of Fish Tender *Pacific Knight*

Accident Events

The *Pacific Knight* had a crew of three: the 31-year-old captain, who was also the vessel owner and president of Lone Fisherman, LLC; and two deckhands, one of whom was the captain's 59-year-old father and the other, a 16-year-old male. On July 24, the vessel was at anchor in an area known as Queens Slough in Nushagak Bay, about 1 mile north-northeast of Clarks Point awaiting delivery of fish, which they would in turn deliver to the local cannery. Queens Slough was commonly used by fish tenders because it was well-protected from the elements and had good holding ground in the anchorage. It did, however, have a large tidal range that brought with it strong currents and a changing bottom. Twenty to thirty other vessels were at anchor in the area, including the fish tender *Amanda C*, which was anchored astern of the *Pacific Knight*. The strong current caused some vessels to sheer back and forth on their anchors. According to one witness, the *Pacific Knight* sheered back and forth "a lot" with the current.

That evening around 1930, a witness on another vessel about 100 yards away saw the *Amanda C* deliver sacks of ice to the *Pacific Knight*. The ice was being transferred using the knuckle crane on the *Pacific Knight*'s starboard side. With each hoist the *Pacific Knight* would noticeably list to starboard. Within the hour, the witness noticed the stern of the *Pacific Knight* sink so deeply into the water that the vessel's name on the stern could no longer be seen. At that time, the two deckhands were handling the crane and the sacks coming on board. The witness said he could see the captain of the *Pacific Knight* moving back and forth from the wheelhouse to the open deck directly behind it and appeared to be concerned and focused on looking at the stern. By the time the loading was complete, the freeing ports at the main deck at the mid-section of the vessel were under water as well. The captain of the *Amanda C* stated they loaded about four sacks of ice to the deck of the *Pacific Knight*. He estimated the weight of each sack to be about 500 pounds.

While at anchor, in the early morning of July 25, the captain was in the wheelhouse of the *Pacific Knight* while both deckhands were sleeping below. The senior deckhand was sleeping in the portside berth and the 16-year-old deckhand was sleeping in the bow berth. The captain told Coast Guard investigators that about 0530, he did a walkthrough of the boat, including the engine room, and all was satisfactory at that time. Afterwards, he went back to the wheelhouse where he lay down on the day bunk to listen to some music and fell asleep.

Sometime between 0630 and 0700 the captain was awakened when he rolled off the day bunk and landed in water on the port side of the wheelhouse. He explained the vessel was lying on its port side and was flooding quickly, so the captain climbed up the starboard side of the wheelhouse and kicked the door open, which exited to an open deck aft of the wheelhouse. Once outside, he found himself in the water and was swept under the anchor line as he cleared the rigging.

On board the anchored fish tender the *Amanda C*, an estimated "couple hundred yards" astern of the *Pacific Knight*, a deckhand on watch in the wheelhouse noticed in the corner of his eye the *Pacific Knight* capsizing to port and sinking. The deckhand woke the captain, who immediately jumped up, ran to the engine room and started the main engine, and then ran up to the wheelhouse. The captain of the *Amanda C* estimated it was about 0630 when the deckhand woke him up. After he arrived in the wheelhouse, he saw nothing but debris and the starboard stern corner of the *Pacific Knight* above the water. He ordered his two deckhands to prepare to haul the anchor.

Capsizing of Fish Tender *Pacific Knight*



Starboard quarter of the *Pacific Knight*. (Photo by Mike Jones)

The captain of the *Amanda C* then noticed a person in the water drifting toward them. He used the engine and rudder to maneuver the vessel, and he had the deckhands pick him up from the starboard side main deck. Once aboard, the person who identified himself as the captain of the *Pacific Knight* told the *Amanda C* captain that two crewmembers were missing. The *Amanda C* deckhands hauled in the anchor and headed toward the *Pacific Knight*. Shortly after, the 16-year-old was spotted and the deckhands were able to get a life ring to him and pull him on board. The *Amanda C* captain stated that the “kid” was very weak when they got him on board, noting they had to put him in the shower and gently bring his body temperature back up. With support from other boats in the area, the search then continued for the senior deckhand, but he was not found.

According to the surviving deckhand, he was in his bunk when he woke up to a crushing sound and water flooding his berth. He stated he took a big breath before the room filled up, kicked the stateroom door open, and swam into the galley where he was able to “pop up and get more air” from an air pocket. The surviving deckhand last saw the senior deckhand inside the accommodation space attempting to climb the stairs to the wheelhouse. He then came up in the galley where he broke open a window. He tried to swim out but ran into a ladder on the other side of the glass. He then tried to return to where the air pocket was, but found it had already filled with water. He went back to the window he broke, pulled himself through, and came to the surface of the water outside of the vessel. He saw the *Amanda C* and swam toward it, where he was then pulled on board.

Capsizing of Fish Tender *Pacific Knight*



Galley area and window, marked by a yellow rectangle, from where the deckhand escaped. Inset: post-casualty picture of the ladder on the main deck that was in front of the window. The window was later boarded up by the salvors. (Main photo courtesy of Jeff Steffen; inset photo courtesy of Coast Guard)

According to the captain of the fish tender *Fayette*, which was at anchor less than 100 yards forward of the *Pacific Knight* on the port side, he was sitting in his helm chair having a cup of coffee when he noticed the *Pacific Knight* list to port and capsize. He stated the vessel rolled over so quickly that he could not believe that anyone would have made it out of the vessel.

At 0747, a fish cannery representative notified an Alaska state trooper and a wildlife trooper of the *Pacific Knight* capsizing, and the troopers dispatched a patrol boat to the accident scene where they boarded the *Amanda C*. Both troopers tended to the care of the two survivors and took initial statements from them. The troopers departed with the captain and deckhand about 1034 and transported them to Dillingham where a representative of Icycle Seafoods picked them up. Both declined medical care.

At 0751, the captain of the nearby fish tender *Bella Catherine* relayed the information about the capsizing and the missing crewmember to Coast Guard Sector Anchorage, which in turn launched fixed-wing and rotary-wing aircraft from Air Station Kodiak to search for the missing deckhand. Good Samaritan vessels and a helicopter from Icycle Seafoods also aided in the search. The Coast Guard helicopter arrived on scene about 1033 and commenced search patterns in the area where

Capsizing of Fish Tender *Pacific Knight*

the *Pacific Knight* sank. After a refueling stop, the search continued until about 1556 when the helicopter departed the area and returned to base. The missing deckhand was not found at that time.

The Alaska Department of Fish and Game reported large oil sheens where the vessel sank. As a result, the entire district was closed to commercial fishing until July 31 because of the risk of contamination of the fish product stream.

The wreckage of the *Pacific Knight* was recovered by Resolve Magone Marine Services about a month later, on August 29. The body of the missing deckhand was found in the galley area under a table. He was not wearing an immersion suit or lifejacket. According to the autopsy report, the cause of death was drowning.

Additional Information

The captain of the *Pacific Knight* was tested for drugs and alcohol; all test results were negative. In an initial statement to the Coast Guard, he indicated that the *Pacific Knight* (the company's only vessel) was purchased in 2013 and that he had been trying to sell it since 2015. He also stated he had been in the fishing industry for 17 years. He held no Coast Guard-issued merchant mariner credential. The *Pacific Knight* had begun working in the Bristol Bay area on June 19, 2018, which was the first time the captain worked in the area. After his initial statement, the captain refused to be interviewed for the investigation.

According to the *Coast Pilot*, the area where the *Pacific Knight* was anchored was known to have strong currents and could be extreme due to the combination of both river and tidal constituents. Two captains from nearby fish tenders estimated that the current at the time of the sinking was 3–4 knots with an ebb tide, which was consistent with the NOAA tidal current predictions of about 3.7 knots with a mean ebb direction of 217 degrees true. About 0630, the predicted tidal height at Clarks Point, about 1 mile away from the accident site, was 12.18 feet above mean lower low water (MLLW) with low water predicted at 0848 (7.17 feet above MLLW).³ In his initial statement to the Coast Guard, the *Pacific Knight* captain stated he believed the vessel touched bottom while at anchor. At the last recorded automatic identification system position at 0529 on July 25, the *Pacific Knight* was anchored in an area with charted depths at MLLW ranging from 12 to 18 feet. Thus, with the tidal height at 0630, the depths where the vessel was estimated to be anchored ranged from 24 to 30 feet but may have been less with a changing bottom. After being dewatered, the *Pacific Knight* floated on its own. On September 14, 2018, a Coast Guard investigator and an insurance surveyor (Alaska Marine Surveyors, Inc.) boarded the vessel, docked in Dutch Harbor. They found no hull leakages, nor did the salvage company note any at the time the vessel was refloated on scene.

³ Nautical chart 16322 for Bristol Bay has all soundings referenced in mean lower low water.

Capsizing of Fish Tender *Pacific Knight*

According to an insurance survey report conducted in April 2015, the *Pacific Knight* had a stability booklet that was dated April 23, 1996. This booklet was not found in the wreckage, and the captain was not able to find a copy. The captain declined to disclose the history of the vessel for the time he had owned and operated it (since 2013). Few records were found related to the maintenance history or to any conversions and modifications. Based on past photographs and the April 2015 insurance survey report, two modifications were made to the vessel that could have affected the load line and stability. First, the aft deck enclosure and equipment, which also included long lining equipment, was removed at an undetermined time. Then in June 2018, before the start of the vessel's tender contract, two pedestal cranes were added to the main deck. On the starboard side was a knuckle-type boom crane and on the port side, a larger and heavier telescopic crane. Investigators found no weights or installation specifications for the cranes, nor was a stability assessment made after their installation.



Left; undated photo of the *Pacific Knight* (then named the *Lone Fisherman*) with the aft deckhouse that was removed (highlighted in red). Right: the *Pacific Knight* while moored alongside a dock on June 10, 2018, with the two added cranes. (Photos courtesy of Lone Fisherman, LLC)

According to a report filed by the state and wildlife troopers, a crewmember on the *Amanda C* informed them that the two large cranes on the deck of the *Pacific Knight* required frequent positioning to maintain proper balance of the boat. When the *Pacific Knight* was refloated, the starboard crane was found in the extended position above the deckhouse and the port crane was found with its boom extended to the top of the deckhouse and knuckled down to the port corner of the main deck.

Capsizing of Fish Tender *Pacific Knight*



Pacific Knight while it was salvaged, with the crane positions visible. (Source: Resolve Magone)

The *Pacific Knight* had six fuel tanks with a total capacity of 6,350 gallons of diesel fuel. Each tank was located outboard on each side of the aft fish hold, the main fish hold, and the engine room. The captain told the Coast Guard that at the time of the accident, only two tanks were holding fuel: the port and starboard tanks (1,307-gallon capacity each) outboard of the main fish hold. He said the vessel was last fueled the day before the accident from another fish tender, the *Bella Catherine*. He did not indicate the precise quantities in each tank. In a report from the Alaska Department of Environmental Conservation, dated August 22, 2018, the salvage company removed 1,439 gallons of diesel fuel from the *Pacific Knight*.

According to an initial statement given to the Coast Guard by the captain of the *Pacific Knight*, they had about 1 ton of ice in the aft fish hold and the main fish hold was about three quarters full of seawater. Additionally, the captain of the *Amanda C* confirmed they delivered about four sacks of ice to the main deck of the *Pacific Knight*. Fish tenders stock ice, which is received from the cannery, to provide to the fishing vessels that offload their catch to the tenders. It is unknown why the main fish hold was slack and not pressed up.

Given the lack of accurate data for liquid and weight distribution on the *Pacific Knight* at the time of the capsizing, no post-casualty stability assessment was carried out for the vessel.

Analysis

Witnesses to the sinking of the *Pacific Knight* recalled the vessel capsized to port and sank rapidly, leaving only the starboard quarter out of the water. The vessel had no reported problems, and the hull showed no post-salvage signs of leaks or damage. Thus, there is no evidence that any hull damage, machinery defects, or structural failures led to the capsizing and sinking of the *Pacific Knight*.

At the time of the accident, the *Pacific Knight* was likely overloaded. According to witness accounts, while at anchor prior to the accident, the *Pacific Knight* had a very small freeboard and

Capsizing of Fish Tender *Pacific Knight*

a stern trim that submerged the vessel's name on the transom. Even for vessels whose overall center of gravity remains constant, a vessel operated at a deeper draft (lower freeboard) typically has less stability than when operated at a lesser draft (higher freeboard) due to a reduction in righting energy. It also tends to lower the range of a vessel's stability as seawater can enter any openings and downflood into compartments at lower angles of heel. Further, excessive stern trim also reduces righting energy and makes downflooding through aft openings occur earlier. As such, with slack water in the main fish hold, an induced heeling moment on the vessel from an external force such as wind, waves (even small ones), wake from another vessel, vessel movement from the current while at anchor, or contact with the bottom would have likely induced a list. The list would have caused water in the fish hold to flow to the low (port) side of the vessel, and this free-surface effect would have been detrimental to stability. The cumulative effect of these factors likely resulted in a condition of neutral stability, with little reserve buoyancy or righting energy to resist capsizing.

The last stability assessment of the *Pacific Knight* was conducted in 1996, about 22 years before the accident, and would not have included any modification done to the vessel since then. The weight and placement of the two cranes that the captain added to contract for tendering a month before the sinking likely increased the vessel's vertical center of gravity (based on the position in which the cranes were found when salvaged). Though not required for uninspected fishing vessels like the *Pacific Knight*, once the vessel was substantially modified by removing and adding equipment, a revised stability assessment should have been conducted to reflect the changes. Had it been, the captain would have had the necessary information to safely load the vessel for specific operations.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the capsizing of fish tender *Pacific Knight* was the captain's inadequate assessment of the vessel's stability and the risks related to vessel modifications, slack water in the tanks, and overloading of the vessel.

Capsizing of Fish Tender *Pacific Knight*

Vessel Particulars

Vessel	<i>Pacific Knight</i>
Owner / operator	Lone Fisherman LLC
Port of registry	Petersburg, Alaska
Flag	United States
Type	Commercial fishing vessel
Year built	1989
Official number (US)	945168
IMO number	N/A
Construction	Welded steel
Classification society	N/A
Length	58 ft (17.7 m)
Draft	9 ft (2.7 m)
Beam/width	20.7 ft (6.3 m)
Gross tonnage	76 gross tons
Engine power; manufacturer	400 hp, single propeller; Caterpillar 3408-B, 8 cylinder
Persons on board	3

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

For more details about this accident, visit www.nts.gov and search for NTSB accident ID DCA18FM029.

Issued: August 2, 2019

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*, 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*, 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*, 1154(b).