National Transportation Safety Board

Marine Accident Brief

Grounding and Sinking of Commercial Fishing Vessel *Titan*

Accident no.	DCA15LM007
Vessel name	*Titan*
Accident type	Grounding and sinking
Location	Jetty A off Cape Disappointment, Ilwaco, Washington, on the north side of the Columbia River bar, 46°15.8' N, 124°02.3' W
Date	December 5, 2014
Time	About 0215 Pacific standard time (coordinated universal time – 8 hours)
Injuries	None
Property damage	Total loss of vessel, estimated at $1.825 million
Environmental damage	Unknown quantity of diesel, hydraulic, and lubricating oil on surface of water
Weather	Overcast skies, winds north-northeast at 10 to 20 knots, intermittent rain and mist, air temperature 48 to 49°F, dew point 45 to 47°F, water temperature 55°F, visibility more than 5 nautical miles, ebb current 1 to 2 knots (estimated)
Waterway information	The Columbia River runs along the border between Washington and Oregon and flows into the Pacific Ocean. At the mouth of the river are three rubble-mound jetties—the north jetty, south jetty, and jetty A—that are maintained by the US Army Corps of Engineers. These jetties are intended to minimize navigational channel maintenance in the river.

About 0215 Pacific standard time on December 5, 2014, the commercial fishing vessel *Titan* was proceeding outbound on the Columbia River when it grounded at the southern end of Jetty A off Cape Disappointment, Ilwaco, Washington. The vessel sustained hull damage and began to flood. Efforts to dewater the *Titan* were unsuccessful, and the five crewmembers abandoned the vessel after a US Coast Guard motor lifeboat arrived on scene. The *Titan* remained partially afloat by the stern and sank the next day. None of the *Titan*'s five crewmembers were injured. The *Titan* and its catch, an estimated 40,000 pounds of Dungeness crab, were declared a total loss. The vessel had an estimated 3,500 gallons of diesel oil, 700 gallons of hydraulic oil, and 400 gallons of lube oil on board. Oil sheens were sighted after the vessel sank. The vessel was not salvaged or recovered.

The *Titan* under way with its sodium lights illuminated. (Photo by HD Fisheries)

Site of the grounding and sinking of the *Titan*. (Background by Google Earth)

The *Titan* was a steel hull crabber/longliner specifically modified in early 2013 by its co-owners for fishing Dungeness crab. The modification, which shortened the vessel length by 20 feet, allowed the vessel to be licensed to fish for crab in the offshore waters of Washington and Oregon. The vessel's first fishing trip in these waters began on December 1, 2014. Both of the *Titan*'s owners were on board when the vessel got under way the day before. One owner had specific experience in the local Dungeness crab fishery, and the other owner was working as the captain. Four other crewmembers were also on board.

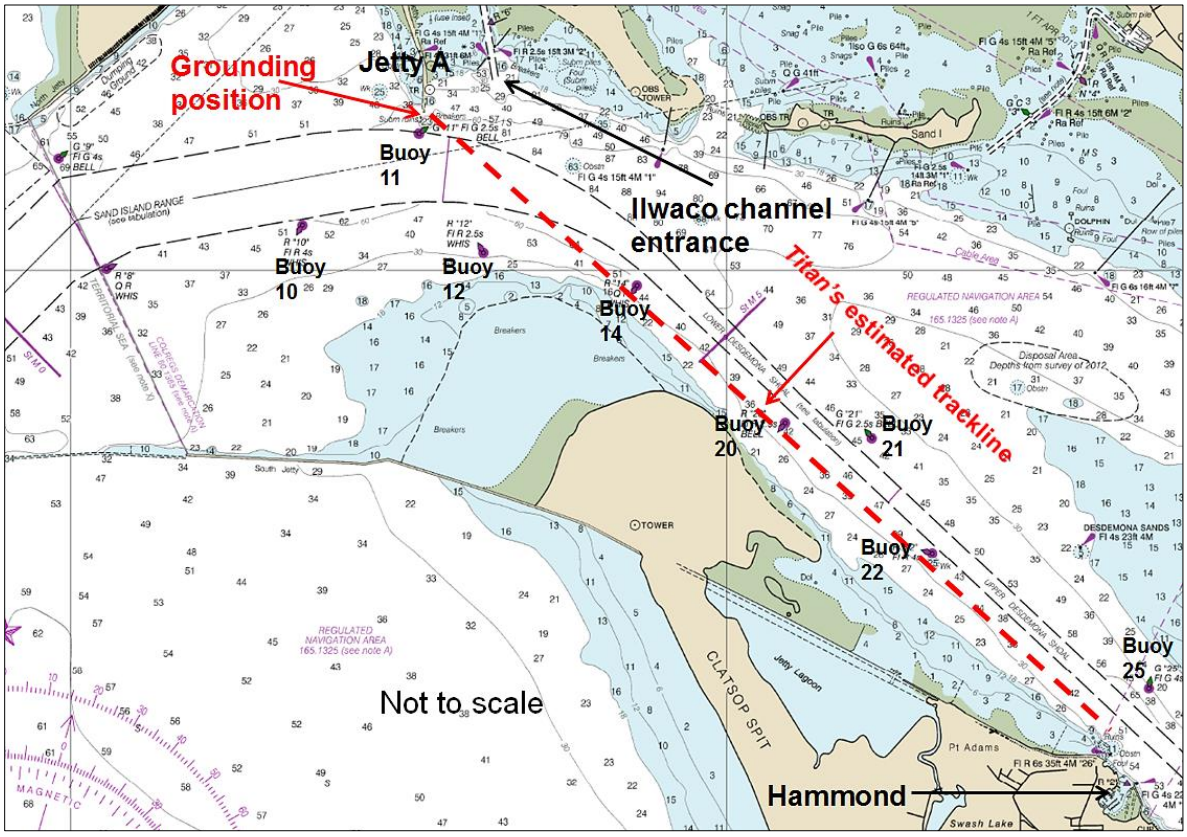
The vessel continued to fish offshore until the night of December 4, 2014, when the co-owner requested to be dropped off at the port in Hammond, Oregon. The crew finished setting crab pots, and the vessel departed the fishing grounds between 2000 and 2100. The captain stated that he was awake until about 2200 and then went to sleep in a bunk in the wheelhouse while the co-owner navigated the vessel to Hammond. Just before midnight, the co-owner woke the captain so that he could bring the vessel into the Hammond basin. The other four crewmembers were also awakened with orders to stand by in case the vessel needed to be moored. Just after midnight, the co-owner jumped from the vessel to the dock. The captain then maneuvered the vessel away from the dock and departed the basin outbound into the Columbia River for the fishing grounds. The other four crewmembers went back to sleep.

After clearing the Hammond basin, the captain activated the vessel's autopilot system and set it to steer in a northwest direction back through the main shipping channel of the Columbia River. The autopilot was configured to steer by heading; it was not configured to steer

a course line or preset route. The vessel's seven sodium lights (1,000 watts each) were illuminated while the vessel was under way for the transit out of the Columbia River. This was considered to be a common practice for crab fishing vessels in the area.

The car carrier *Harmony Leader* was nearby traveling outbound through the main shipping channel of the Columbia River. The Columbia River bar pilot on board that vessel stated that, when he first saw the *Titan*, it was initially favoring the left side of the channel. He noted that, as both vessels continued outbound, the *Titan* appeared to continue straight on its heading across the main channel and looked as if it was headed toward Ilwaco, Washington, a fishing port on the north side of the channel.

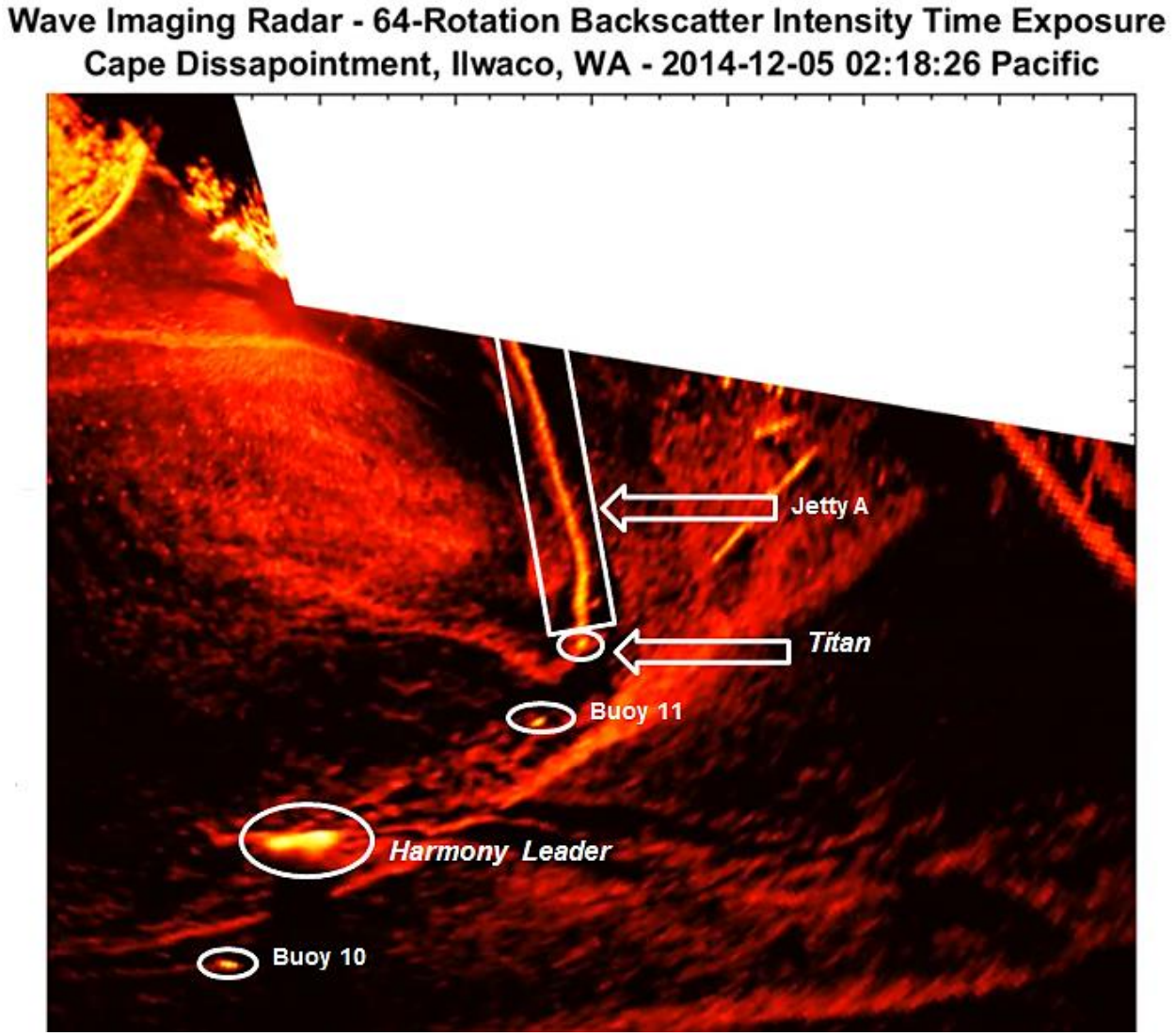
As the *Harmony Leader* approached buoy 11, the pilot commented to the bridge team that the *Titan*'s radar target had moved onto Jetty A. The pilot and bridge team then used binoculars to observe the *Titan* and noticed that the sodium lights were shining on the rocks. The pilot tried to contact the *Titan* using the very high frequency (VHF) radio with no success. Shortly afterward, he heard a distress call from the *Titan* to the Coast Guard on the VHF radio. According to the Coast Guard Search and Rescue (SAR) log, the first distress call from the *Titan* was received at 0216.



National Oceanic and Atmospheric Administration chart 18521 with the *Titan's* estimated trackline, Columbia River shipping channel buoy numbers, and the *Titan*'s grounding position overlaid.

The *Titan* captain, who was alone in the wheelhouse at the time of the grounding, stated that, immediately before the grounding, he noticed that the pilings from Jetty A were about 150 feet ahead of the vessel. He tried to disengage the autopilot so that he could operate the

vessel's rudder using a jog steering tiller. Additionally, he stated that he moved the propulsion control lever to astern propulsion. Despite these efforts, the vessel grounded on the rocks. The captain noted that, given the proximity to the rocks and the ebb current (estimated to be between 1 and 2 knots), it was unlikely that any actions he took at the point when he noticed the pilings ahead would have prevented the vessel from grounding.



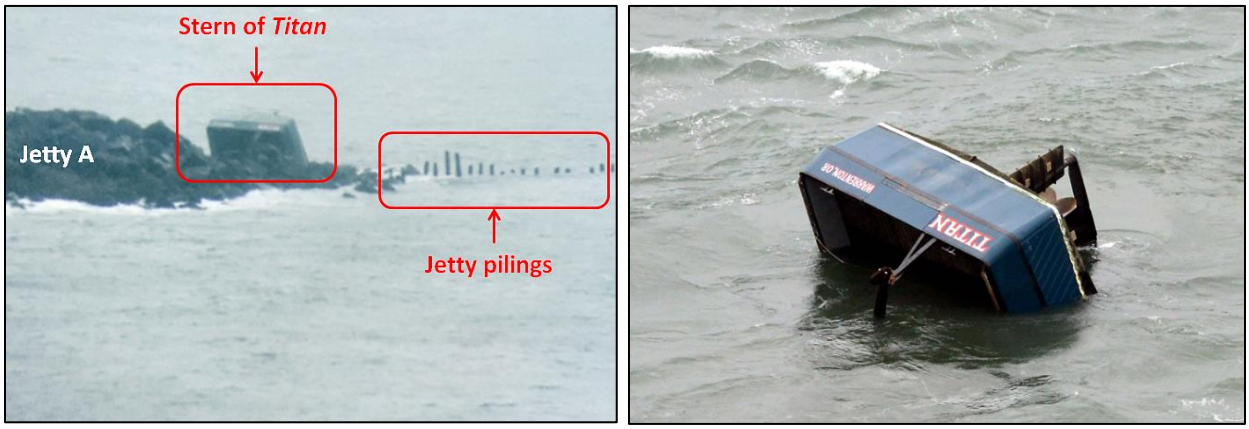
Wave imaging radar at 0218. (Image by Haller Research Group, Oregon State University)

The crewmembers, who were asleep below deck, were awakened by the sound of the hull impacting the rocks. They went to the wheelhouse, met with the captain, and prepared their cold water immersion suits. Shortly afterward, the crew assessed the damage to the below-deck spaces. They found two hull penetrations in the engine compartment and estimated that 1 to 2 feet of water had already entered the space. Although the *Titan* was fitted with dewatering pumps, none of the crewmembers who were interviewed could recall whether the pumps were started. One crewmember stated that the water was coming in so fast that it would not have mattered if the pumps were on. According to crew estimates, the main engine stopped running about 15 to 20 minutes after the grounding, after which the *Titan* was powered by battery only.

According to the Coast Guard SAR log, the first Coast Guard motor lifeboat arrived on scene about 0241 and provided a dewatering pump to the *Titan*. Crewmembers from the *Titan* connected the pump according to the instructions that were attached but were unsuccessful in getting it started. They continued attempts to start the pump until about 0324 when the captain informed the Coast Guard that the crew would need to abandon the *Titan* because the flooding could not be contained. The motor lifeboat backed up to the *Titan*, and three of the crewmembers jumped onto the stern of the lifeboat. The captain and another crewmember went to the bow of the *Titan* to lower its anchor. Afterward, both crewmembers went to the stern and jumped onto the motor lifeboat. By about 0349, all crewmembers were safely on board the lifeboat. The crewmembers were transported to Coast Guard Station Cape Disappointment, from where they were subsequently released with no reported injuries. Postaccident drug and alcohol testing performed on each crewmember was negative.

Three of *Titan's* crewmembers in cold water immersion suits before boarding a Coast Guard motor lifeboat. Note the absence of power on the *Titan*. (Photo by the Coast Guard)

After being abandoned, the *Titan* stayed partially afloat by the stern and remained tethered by its anchor near Jetty A. Throughout the day on December 5, 2014, Coast Guard officials made preparations with local salvage companies to remove the wreckage. Helicopters in the area reported seeing oil sheens on the water, and nearby vessels reported the smell of diesel fuel on the water. About 0830 the following morning (December 6), a salvage tug reported to the Coast Guard that the *Titan* had sunk completely. The vessel was not subsequently recovered.



Jetty A and the stern of the *Titan* on the day of the grounding. (Photos by the Coast Guard)

At the time of the grounding, the captain of the *Titan* was the only crewmember in the wheelhouse. A chair was mounted to the deck in front of the main console on the starboard side of the wheelhouse; the captain stated that he was sitting in this chair before the grounding. From that position, he had a full view outside the vessel and of all of the controls and navigational instruments, which included the autopilot, two radars, two electronic chart and position displays, and an echo sounder. The vessel's sodium lights, located directly above the wheelhouse on the mast, were illuminated and directed ahead in an arc of about 200 degrees from the port to starboard beams.

The *Titan* was equipped with a wheelhouse watch alarm that could sound loudly and flash a red light after a preset time had elapsed. According to the captain, the watch alarm was off at the time of the accident. Neither the captain nor the co-owner knew when the alarm was last used.

The captain estimated that he had about 2 hours of sleep before being awakened by the co-owner to bring the vessel into the Hammond basin. Before that, he could not recall any specific times of rest, citing only that things were "hectic" and that he and the crewmembers would rest for a few hours in between setting crab pots.

The captain could not recall any specific details of the transit before seeing the jetty pilings directly in front of the vessel, likely because he had fallen asleep. The captain estimated that he had received a total of about 9 to 12 hours of sleep from December 1, 2014, to the time of the accident. The broken and intermittent sleep cycles within this timeframe would result in degraded performance; impaired judgment; and an inability to stay awake, particularly during hours of darkness when the body is typically used to getting sleep.

Crewmembers stated that they worked an average of 16 hours per day with some days up to 20 hours. The most rest that they would get at any given time was during the 3-hour transit from their pots in Oregon state waters to their pots in Washington state waters. One crewmember estimated that he had received a total of between 7 and 9 hours of rest in the 3 to 4 days preceding the accident and noted that the crew had been awake for so long that it was hard to keep track of exact hours of sleep. All four crewmembers were working and sleeping the same hours.

Statements from the crewmembers and both owners indicated that it was normal to enter the Dungeness crab fishery with the intent to fish as much and as fast as they could, which is

known as "derby-style" fishing. The start of the fishery in both Oregon and Washington began on December 1, 2014, and ended on August 14, 2015. With no specific quota for the catches, the *Titan* was limited only by the number of crab pots allowed by each state and the size and gender of the Dungeness crab caught. Although the fishery was open for more than 8 months, both owners stated that most of the crabs were caught during the first 2 weeks of the fishery, after which the quantity of their catches would drop quickly. Thus, there was economic pressure for the owners of vessels in this fishery, including the *Titan*, to operate continuously at the beginning of the season to catch as much crab as quickly as possible, which led to fatigue among the crewmembers.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the grounding and subsequent sinking of the *Titan* was the failure of the captain to monitor the vessel's track as a result of falling asleep due to an accumulated sleep deficit after 4 days of continuous operations and the vessel owners' lack of measures to mitigate crewmember fatigue. Contributing to the accident was the nature of the derby-style Dungeness fishery in the states of Washington and Oregon, which results in continuous fishing operations at the beginning of the season.

Safety Issues

- **Fatigue countermeasures:** Crew fatigue is a significant factor in many commercial fishing vessel accidents. An effective way to prevent fatigue among crewmembers is for owners/operators to have measures in place to ensure that crewmembers receive enough rest to adequately perform navigational and lookout duties.

- **Watch alarms:** A watch alarm, if used as intended, is an effective tool that can help ensure that a crewmember remains awake and vigilant while on duty. However, a watch alarm is not a substitute for the management and mitigation of fatigue. Owners/operators of vessels equipped with a watch alarm should establish procedures for its operation and use, especially when only one crewmember is responsible for navigation and lookout.

Vessel Particulars

Vessel	*Titan*
Owner/operator	HD Fisheries LLC
Port of registry	Warrenton, Oregon
Flag	United States
Type	Commercial fishing vessel
Year built	1989 (2013 hull modification)
Official number (US)	943737
IMO number	8848068
Construction	Steel
Length	76.8 ft (23.4 m)
Draft	12 ft (3.7 m)—estimated at the time of the accident
Beam/width	25.8 ft (7.9 m)
Gross tonnage	171 gross tons
Engine power; manufacturer	640 hp (477 kW); Cummins KTA19-M2
Persons on board	Five

For more details about this accident, visit www.ntsb.gov and search for NTSB accident ID DCA15LM007.

Adopted: December 21, 2015

NTSB investigators worked closely with our counterparts from US Coast Guard Marine Safety Unit Portland, Oregon, throughout this investigation.