



# National Transportation Safety Board

## Marine Accident Brief

### Grounding of Fishing Vessel *Imperial*

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<b>Accident type</b>	Grounding/Stranding	<b>No.</b> DCA19FM008
<b>Vessel name</b>	<i>Imperial</i>	
<b>Location</b>	Gulf of the Farallones, near Point Reyes, California 37°59.03' N, 123°01.66' W	
<b>Date</b>	November 19, 2018	
<b>Time</b>	0445 Pacific standard time (coordinated universal time – 8 hours)	
<b>Injuries</b>	0	
<b>Property damage</b>	\$950,000 est.	
<b>Environmental damage</b>	None observed	
<b>Weather</b>	Visibility 10 miles, passing clouds, winds south 2 knots, seas west-northwest 4.6 feet, air temperature 48°F, water temperature 58°F, morning twilight 0629, sunrise 0651	
<b>Waterway information</b>	The Gulf of Farallones is in the Pacific Ocean and borders California north and south of San Francisco. The Gulf includes traffic separation lanes for the port of San Francisco. The accident occurred inside the Gulf of the Farallones National Marine Sanctuary.	

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On November 19, 2018, about 0445 local time, the fishing vessel *Imperial* was transiting the Gulf of the Farallones, 25 miles northwest of San Francisco, California.<sup>1</sup> While enroute to pick up a string of crab pots, the vessel grounded near Point Reyes, California. The five crewmembers remained with the vessel until they were assisted by a US Coast Guard vessel. The *Imperial* later was towed to port. No pollution or injuries were reported. Damage to the vessel was estimated at \$950,000.



*Imperial* on blocks after the accident. (Source: US Coast Guard)

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<sup>1</sup> Unless otherwise noted, all miles in this report are nautical miles (1.15 statute miles).

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Area of accident where the *Imperial* grounded, as indicated by the red triangle. (Background Source: Google Maps)

### Background

The 52-foot-long *Imperial* was built in 1983 with a glass-reinforced plastic hull for crabbing. It had a single engine, propeller, and rudder; keel coolers; and 5 compartments, including the forepeak, engine room, fish hold, freezer, and lazarette (which was the sternmost compartment containing the rudder post). According to the captain, each bulkhead separating the compartments was watertight. The crew consisted of the captain and four deckhands hired for specific roles: an engineer, two catch sorters, and a crab pot baiter.

### Accident Events

The captain sailed the *Imperial* from Eureka, California, to Bodega Bay, California, on November 11, ahead of the opening of the California commercial Dungeness crab fishery, which would begin on November 15, 2018, and end on June 30, 2019, in an area in California state waters that stretched from the Mexican border to north of San Francisco. According to the captain, “It’s a derby fishery and you got to get them when [the crabs are] there,” since most of the crab would be harvested in the first week, even though the fishery would stay open over 7 months and would be limited to vessels with permits. In those first 7 days, his crew would pull pots, each filled with 25 to 30 crabs only 24 hours after setting each pot. After the first week, harvesting would slow to a “scratch fishery,” in which there would be fewer crabs available. Instead of pulling pots up after “soaking” for a relatively short 24 hours, he described having to soak the pots for 2 to 3 days and then finding only 6 or 7 crabs in each pot.

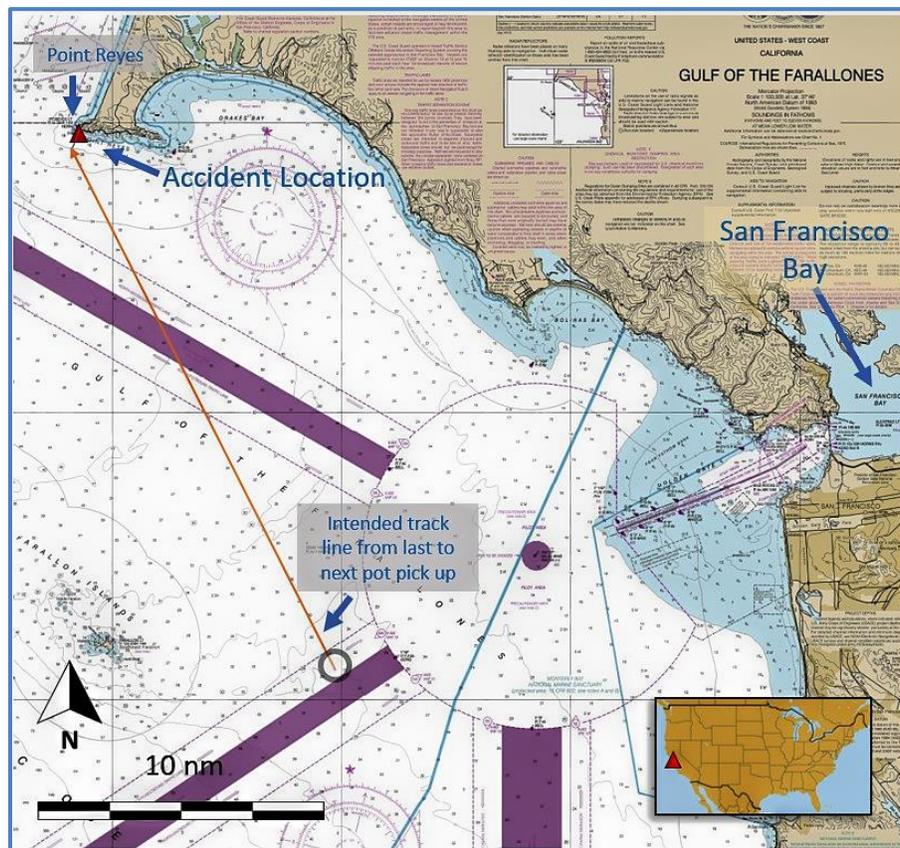
The *Imperial* got under way at 0200 on November 14, 2018, and began to lay pots at 0600, a day ahead of the opening, as allowed by the fishery regulations. The captain used strings of 50 pots and dropped them every 350 feet. At midnight, as soon as they could, the captain and the crew

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began hauling in the pots. In describing the activity, he said, “You start hauling your gear at one minute past midnight...If everything goes well and there’s crab and you don’t have to stack [the pots], it takes about 18 hours to get through the gear.” Once all the pots were set, the captain and crew began to retrieve them, emptying the crab and then baiting and setting the pots back in the water. The captain remained in the wheelhouse to pilot the vessel, while the four deckhands retrieved, emptied, sorted, baited, and set each pot.

Working at a rapid pace, the captain rarely found time to nap. He reported that he did not sleep at all in the first 24 hours after pulling in the first pot at midnight on November 15. He accumulated a total of 4, 6, and 10 hours of sleep in the first 48, 72, and 96 hours, respectively, before the accident.

In the early morning hours of November 19, the captain and crew finished working a line of pots 16 miles west of San Francisco and began sailing on a course of 333 degrees to the next crab pots 19 miles away, near Point Reyes, California. The crew used the time to nap, while the captain remained in the wheelhouse using the automatic pilot to steer towards two lines of crab pots about two hours away. These lines of pots were the last to pick up before the captain planned to return to San Francisco to sell the catch, as the holds would be full. The captain and crew had already harvested 40,000 pounds of Dungeness crab in the little over 96 hours since the fishery opened.

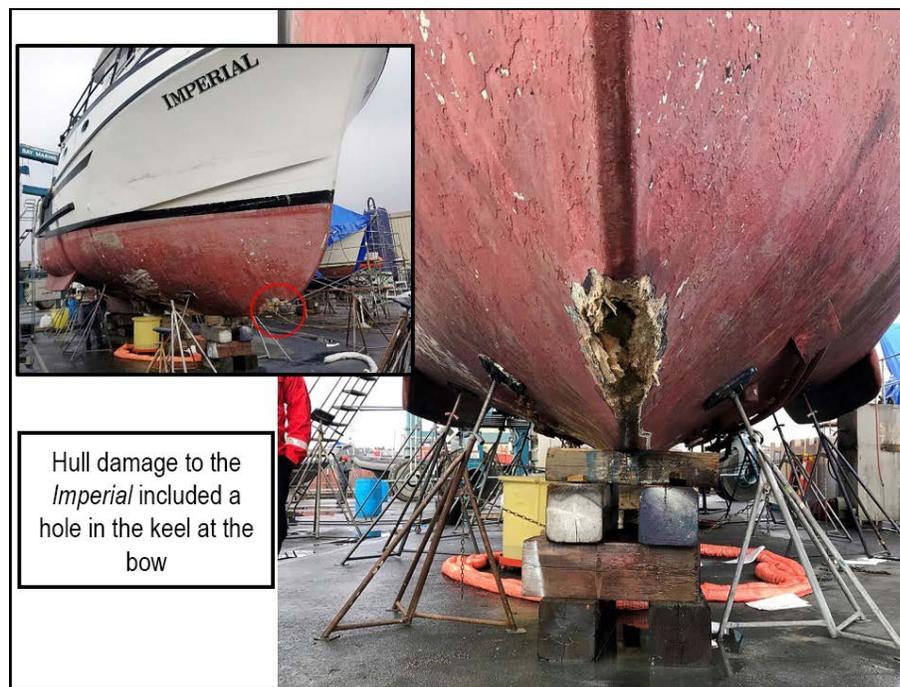


Intended trackline (marked in orange) for the *Imperial* from the last pot pick-up to the next pot pick-up; the orange arrowhead indicates the approximate location of the last pot pick-up. The accident location where the vessel grounded is indicated by a red triangle. Traffic separation schemes are shown on the chart [which shows the separation zone (purple shading) between the inbound and outbound lanes]. (Background Source: NOAA Chart 18645)

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After 4 days of harvesting crab, the captain had slept a total of 10 hours. The captain recalled crossing the charted “shipping lanes” (traffic separation scheme) south of Point Reyes and using a cell phone to talk to another fishing boat captain about each other’s catch; those were the last things he remembered before he fell asleep. The bridge watch alarm, which would sound and flash yellow lights after a preset time had elapsed, was not set. At 0445 local time, he was awakened by the vessel shaking. He saw the cliffs of Point Reyes in front of him and rocks and white water from the waves and breaking surf around him. The crew awakened—the captain and the engineer assessed the damage and found water only in the engine compartment. The two entered the flooding compartment and could not stop the incoming water. The other three crewmembers gathered and prepared the survival equipment in case they needed to evacuate the vessel. The captain’s immediate reaction, he said, was to get the vessel out of the surf and off and away from the rocks. With the engines still running, the captain was able to reach speeds of 6 knots, and he steered the vessel further out of the surf for 10 to 12 minutes (about 3000 yards), before shutting down the engine to prevent damaging it. The captain made a mayday call to the Coast Guard at 0508.

Ten minutes later, the fishing vessel *Pacific Pride* delivered two portable P6 pumps, which the *Imperial* crew used to control the flooding to the engine room.<sup>2</sup> A Coast Guard helicopter arrived and deployed a rescue swimmer. A short time later, the *Imperial* lost electrical power. A Coast Guard motor lifeboat (MLB) arrived at 0648. The MLB crew assisted the *Imperial* crew with dewatering the vessel. At 0945, with both P6 pumps dewatering the engine room, the MLB began towing the *Imperial* to Pier 45 in San Francisco.



***Imperial* bow damage. The damage is indicated with a red circle in the inset image. (Source: Coast Guard)**

<sup>2</sup> The CG-P6 gasoline motor-driven dewatering pump is used primarily for emergency dewatering of vessels. It has a rated output of 250 gallons per minute at a 12-foot suction lift. Under load, this pump will dewater for approximately 4–5 hours on the gasoline supplied with the kit.

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The vessel was placed back in service after hull repairs, the installation of a new propulsion engine and two generators that had been submerged, and the rewiring of the entire vessel. The damage that allowed water to flood the vessel included a hole in the keel at the bow; damage to the through-hull fittings for the keel cooler on the starboard side; damage to one through-hull fitting for the keel cooler on the port side; and a ruptured soft patch on a pipe in the engine room from the sea chest.

### Additional Information

The captain had 20 years of experience on fishing vessels operating in the Pacific Ocean and Bering Sea. He had served as captain of crab vessels ranging in length from 61 to 90 feet during the previous 10 years. The vessel held a valid Coast Guard fishing vessel decal issued on October 26, 2017. The vessel was equipped with a watch alarm that the captain was not using at the time of the accident.

### Analysis

The captain of the *Imperial* initially worked 24 hours without any sleep and then averaged 2 to 3 hours of sleep over the next few days leading up to the accident in order to maximize the vessel's catch. The captain's fatigue and inability to stay awake likely resulted from the lack of consecutive sleep. 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.

The *Imperial* was equipped with a wheelhouse watch alarm; however, the captain did not turn it on prior to the accident. The watch alarm worked by requiring the navigation watchstander to reset the alarm at preset time intervals. If this did not occur, audible and visual alarms would activate. In a fatigued state, and without the bridge watch alarm set, the captain could not safely and effectively operate the *Imperial*, and he fell asleep. He then overran his intended stop for fishing, and the vessel continued onward and grounded. Had the captain used the alarm, this accident likely could have been prevented.

The NTSB has investigated several accidents in which fatigue was a primary factor. In December 2014, the fishing vessel *Titan* grounded in the Columbia River and eventually sank near Cape Disappointment, Washington.<sup>3</sup> In the *Titan* accident, the captain did not set the watch alarm and was asleep while the vessel was navigating through a bend in the channel. On March 6, 2017, the fishing vessel *St. Dominick* grounded in Pumicestone Bay, Alaska. As with the *Titan* accident, the captain fell asleep and failed to negotiate a turn. The circumstances in the *Imperial* accident were also similar to the February 2015 grounding of the fishing vessel *Savannah Ray*, near the entrance of St. Paul Harbor, Kodiak Island, Alaska, while returning from a cod pot fishing trip. In each accident, the NTSB determined that the captain failed to monitor the vessel's track as a result of fatigue due to an accumulated sleep deficit.

In its investigations of the *Titan* and *St. Dominick* accidents, the NTSB found that open-access, "derby-style" fishing encourages working longer hours to increase a vessel's haul, which leads to long hours of work with little to no sleep. On the accident voyage of the *Titan*, the captain

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<sup>3</sup> *Grounding and Sinking of Commercial Fishing Vessel Titan*. December 21, 2015. [MAB-15/26](#). Washington, DC: NTSB. For more information, see [www.nts.gov](http://www.nts.gov).

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and crew worked nearly around the clock in the first days of a Dungeness fishery season lasting over 7 months to harvest crab before the stock dwindled. The NTSB's investigation of the capsizing and sinking of the fishing vessel *Destination* on February 11, 2017, similarly described the long hours of working in the derby-style cod and opilio crab fisheries, which resulted in the loss of all six crew. In the groundings of the *Savannah Ray* and the *St. Dominick*, the crews worked similar hours in the Alaska cod fishery; the *St. Dominick* captain and one of the deckhands stated that the rules for the cod fishery promoted around-the-clock operations and contributed to inadequate rest.

The captain of the *Imperial* indicated that it was normal to enter the derby-style Dungeness crab fishery with the intent to fish as much and as fast as the crew could. With no specific quota for the catch, the *Imperial* was limited only by the size and gender of the Dungeness crab caught. Although the fishery was open for more than 7 months, the captain stated that most of the crabs were caught during the first week of the fishery, after which the quantity of the catch would drop quickly. Thus, there was economic pressure for the owners of vessels in this fishery, including the *Imperial*, to operate continuously at the beginning of the season to catch as much crab as quickly as possible, which led to the captain's fatigue. As found in other NTSB investigations, the nature of derby-style fishing in which the vessels were engaged encourages working longer hours in order to increase the vessel's portion of the catch, which leads to fatigued crew.

## Probable Cause

The National Transportation Safety Board determines that the probable cause of the grounding of the fishing vessel *Imperial* was the captain's failure 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 decision to not activate the vessel's installed wheelhouse watch alarm. Contributing to the accident was the vessel owner's lack of measures to mitigate crew fatigue and the nature of the derby-style Dungeness fishery in the state of California, which results in continuous fishing operations at the beginning of the season.

### 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.

## Grounding of Fishing Vessel *Imperial*

### Vessel Particulars

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Vessel	Name
Owner/operator	Sea Catch Inc/ F/V Intrepid Inc
Port of registry	San Francisco, California
Flag	United States
Type	Fish Catching Vessel
Year built	1983
Official number (US)	655522
IMO number	NA
Classification society	NA
Construction	GRP (fiberglass)
Length	53 ft (16.2 m)
Draft	9 ft (2.7 m)
Beam/width	21 ft (6.4 m)
Tonnage	76 GRT
Engine power; manufacturer	550 hp (410 kW); Isuzu 6W diesel engine
Persons on board	5

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**NTSB investigators worked closely with our counterparts from Coast Guard Sector San Francisco throughout this investigation.**

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For more details about this accident, visit [www.nts.gov](http://www.nts.gov) and search for NTSB accident ID DCA19FM008.

**Issued: November 22, 2019**

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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(b)(1). 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).

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