



AVIATION



HIGHWAY



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PIPELINE

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Fire aboard Fishing Vessel *Blue Dragon*

On November 10, 2021, about 0015, the fishing vessel *Blue Dragon* was under way in the North Pacific Ocean, 350 miles offshore of Monterey, California, engaged in longline fishing operations, when the vessel caught fire.¹ The *Blue Dragon's* six crewmembers and a National Marine Fisheries Service observer attempted to fight the fire but were unsuccessful. They abandoned the *Blue Dragon* and were rescued by a Good Samaritan vessel. The *Blue Dragon* was later towed to San Pedro, California. No pollution or injuries were reported. Damage to the vessel was estimated at over \$500,000.



Figure 1. *Blue Dragon* under way before the fire. (Source: Kim Bridges)

¹ (a) In this report, all times are Pacific standard time, and all miles are nautical miles (1.15 statute miles).
(b) Visit [nts.gov](https://www.nts.gov) to find additional information in the [public docket](#) for this NTSB investigation (case no. DCA22FM003). Use the [CAROL Query](#) to search investigations.

Casualty type	Fire/Explosion
Location	North Pacific Ocean, 350 miles offshore of Monterey, California 36°21.80' N, 128°18.70' W
Date	November 10, 2021
Time	0015 Pacific standard time (coordinated universal time -8 hrs)
Persons on board	7
Injuries	None
Property damage	\$500,000 est.
Environmental damage	None
Weather	Visibility 0.2 nm in fog, winds southwest by south 11 kts, seas 5 ft, swells west-northwest 10 ft, air temperature 62°F, civil twilight 0605, sunrise 0632
Waterway information	Ocean, depth about 2,600 fathoms (at casualty site), current less than 0.5 knots southwest



Figure 2. Area where the *Blue Dragon* fire occurred, as indicated by a red X. (Background source: Google Maps)

1. Factual Information

1.1 Background

The *Blue Dragon* was an 85-foot-long longline fishing vessel engaged in the swordfish and tuna fishery. The steel vessel was built in 1990 at the Portier Shipyard in Chauvin, Louisiana, as the *Sea Diamond I*. The interior joinery and outfitting of the wheelhouse and accommodation areas consisted of wood and wooden panels and included drapes and wood-framed furniture. The vessel had been owned and operated by B Dragon Corp (based in Honolulu, Hawaii) since about 2001. The vessel's captain had worked aboard the vessel for 20 years and became the owner of B Dragon Corp in 2010.

1.2 Event Sequence

On October 25, 2021, the *Blue Dragon* left Honolulu, Hawaii, with a crew of six and one National Marine Fisheries Service (NMFS) observer to fish. The captain intended to offload their catch in Long Beach, California. The NMFS observer brought with him a survival suit, an emergency position indicating radio beacon (EPIRB), a personal locator beacon (PLB), and a satellite emergency notification device (SEND), all issued by NMFS.² Both the EPIRB and PLB were Global Navigation Satellite System (GNSS)-enabled.³ According to the NMFS observer, the NMFS was in the process of replacing EPIRBs issued to observers with PLBs, and EPIRBs were being taken out of service as their batteries expired. Observers were also issued SENDs—not necessarily for distress, but for routine communications ashore via text in lieu of more expensive and less reliable satellite phone subscriptions.

About 2330 on November 9, the crew was preparing to retrieve fishing gear that had been set earlier in the day. About the same time, the captain was napping in the wheelhouse. The NMFS observer went to the wheelhouse to see if the crew was ready to begin retrieving the gear and discovered a fire “underneath of the control panel [console].”

² (a) PLBs are activated manually and transmit location data to the National Oceanic and Atmospheric Administration's Search and Rescue Satellite Aided Tracking system on 406 MHz, with lower-power 121.5-MHz homing signals. PLBs are registered to the owners with contact information available to search and rescue controllers. (b) SENDs are commercial satellite communications systems with a distress signaling (“SOS”) function and, on some models, two-way texting.

³ The GNSS enables worldwide navigation positioning and includes the Global Positioning System (United States) as well as the BeiDou (China), Galileo (Europe), and Glonass (Russia) systems.

The observer woke the captain, alerted the crew, and retrieved a dry chemical fire extinguisher from the galley. He discharged the extinguisher onto the console, and the wheelhouse filled with black smoke. A deckhand arrived with another extinguisher; the deckhand described the forward bulkhead as being on fire all the way to the overhead of the wheelhouse. When the remaining crew came to assist, they opened the wheelhouse doors, which, according to the NMFS observer, appeared to fan the flames.

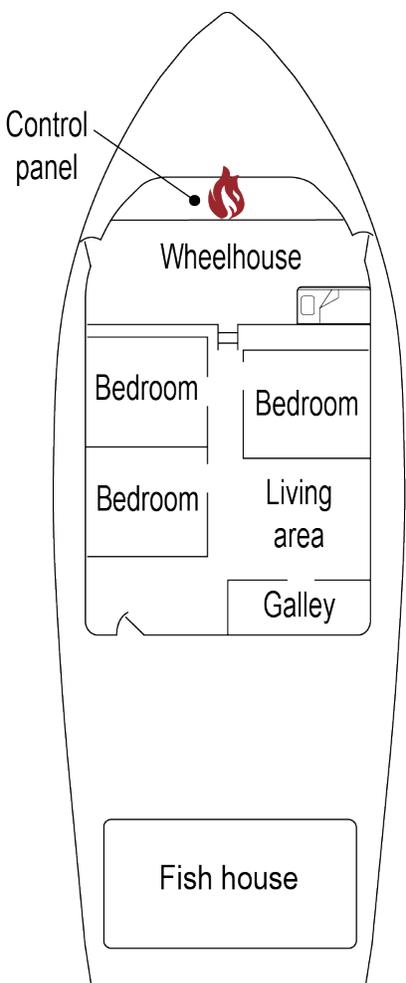


Figure 3. Main deck general layout (not to scale) with location of fire indicated by flame symbol.

While the crew was attempting to fight the fire, the NMFS observer and a deckhand retrieved the 10-person liferaft and the vessel's GNSS-enabled EPIRB from above the wheelhouse. They carried the liferaft aft to the vessel's stern and deployed it into the water. The observer also went to his quarters and retrieved a bag that included his NMFS-issued survival suit, EPIRB, PLB, and SEND. He used the SOS button on his SEND, a Garmin inReach, with which he texted, "Fire." He also manually activated the vessel's EPIRB and his PLB (he did not activate his NMFS EPIRB).

The crew fought the fire for about 10 minutes using fire extinguishers and a water (wash down) hose. According to one deckhand, the water from the hose did not reach the front of the wheelhouse; the NMFS observer stated that "there was not quite enough hose line." (The vessel was not equipped with a dedicated fire pump or fire hoses.) The crew and NMFS observer were forced to retreat due to heavy smoke.

About 20 minutes after the fire was discovered, the *Blue Dragon* lost electrical power. According to the NMFS observer, the crew could not access communications equipment within and above the wheelhouse because of the fire, so they could not radio for help. The captain, crew, and observer decided to abandon the vessel to the inflated liferaft, which was tethered to the *Blue Dragon* by its sea painter.

At 0018, Garmin's International Emergency Response Coordination Center (IERCC) received an alert from the SEND (the device was registered to the NMFS observer's Honolulu-based contractor). At 0019, the US Coast Guard Rescue

Coordination Center (RCC) in Alameda, California, received an alert, this one from the observer's PLB via the Search and Rescue Satellite Aided Tracking (SARSAT) system.⁴ At 0024, the IERCC contacted the RCC with the SEND text information—this was the RCC's first indication that there was a fire. At 0026, they requested a fixed-wing aircraft to respond from Coast Guard Air Station Sacramento. The RCC attempted to text the crew; however, they were unable to reach them (after the casualty, the observer told investigators that the SEND had been lost overboard after the initial SOS signal was sent). The vessel's EPIRB alert was received by the RCC at 0056.

Using the Coast Guard's Automated Mutual-Assistance Vessel Rescue (AMVER) program, the RCC identified and reached out to ships near the location of the SEND, PLB, and EPIRB signals to assist with search and rescue efforts.⁵ The eastbound bulk carrier *NordRubicon* was 66 miles northeast of the *Blue Dragon*'s location when its crew received the RCC's alert at 0213.⁶ After a phone conversation with the RCC, the *NordRubicon* diverted to the scene at 0225.

At 0321, a Coast Guard C-27J Spartan medium-range surveillance aircraft (fixed-wing), arrived on scene and identified the crew in the liferaft. The aircraft then dropped supplies, a datum marker buoy, and additional liferafts to the crew. The RCC deployed a second C-27J crew to maintain on-scene coverage until the *NordRubicon* could arrive and notified the California Air National Guard's 129th Rescue Wing and put them on standby to respond.

The liferaft containing the *Blue Dragon*'s crew remained tethered to the vessel until daylight, when they reboarded the vessel with the vessel's EPIRB. They found the main engine still running in neutral and extinguished the remaining fire with buckets of sea water. The NMFS observer activated his NMFS-issued EPIRB, and at 0927, the RCC received an alert from the observer's EPIRB (registered to various vessels that NMFS observers attended).

⁴ (a) The Eleventh Coast Guard District's Command Center in Alameda, California, serves as the Rescue Coordination Center for the area, and, in this case, as the Search Mission Coordinator. (b) The COSPAS-SARSAT system is an international distress alerting program that includes satellites and land earth stations monitoring vessel and personal 406-MHz beacons.

⁵ The Coast Guard's Automated Mutual-Assistance Vessel Rescue (AMVER) program is a ship reporting system used when a vessel is in distress to identify other vessels nearby that can be sent to assist the vessel and its crew.

⁶ The 623-foot long, Portuguese-flagged *NordRubicon* (IMO No. 9763693) was en route to Sacramento, California, from Vietnam with a cargo of bulk cement. The vessel was a participant in the AMVER program.



Figure 4. *Blue Dragon* smoldering with *NordRubicon's* rescue boat in foreground. (Source: *NordRubicon*)

The second C-27J arrived at 0850 and was on scene when the *NordRubicon* arrived about 0900. The crew of the *NordRubicon* deployed the vessel's rescue boat. The *Blue Dragon* crew left the vessel's EPIRB on board the fishing vessel before again abandoning the vessel to the liferaft to facilitate their transfer to the *NordRubicon*. The *NordRubicon* crew secured a tow line to the *Blue Dragon* liferaft and towed the fishing vessel crew back to the bulker, where they were recovered by 1135. Once the *Blue Dragon's* crew was safely on board the *NordRubicon*, the bulk carrier proceeded to Sacramento, California. The *Blue Dragon* remained drifting until November 12, when the *Blue Dragon II*, a similar vessel owned by the same company, towed the hulk (burned vessel) to San Pedro, California.



Figure 5. *NordRubicon* rescue boat with *Blue Dragon* liferaft in tow. (Source: *NordRubicon*)

1.3 Additional Information

The interior of the *Blue Dragon's* superstructure was consumed by the fire, including the survival suits stored under the deck of the wheelhouse. The *Blue Dragon* was rebuilt from the main deck up and placed back in service in August 2022.



Figure 6. *Blue Dragon* wheelhouse exterior (left) and interior looking forward (right), after the fire. The framing of the false deck in right image indicates the location of what was the wheelhouse deck. (Source: Coast Guard)

After the casualty, investigators visited both the *Blue Dragon* and *Blue Dragon II*. The *Blue Dragon's* wooden wheelhouse console had held two laptops used for navigation and a flat screen monitor used as a television. The wheelhouse deck was raised a few feet above the main deck, and beneath this “false deck” was a void space. Investigators found paint cans and welding rods under the *Blue Dragon's* false deck. According to the captain of the *Blue Dragon*, there was nothing stowed under the wheelhouse console, and he believed the cause of the fire was electrical. A deckhand told investigators that he was aware of computer equipment and possibly batteries stowed under the console. There was no smoke detector installed in the wheelhouse. The *Blue Dragon II's* wooden wheelhouse console was similar to the *Blue Dragon's* in that it was open to the void below the wheelhouse false deck. Under the *Blue Dragon II's* console, investigators found wiring that did not meet typical marine standards—there were bare wires, improper connections, and loose and disorganized wiring.



Figure 7. *Blue Dragon II* pilothouse console wiring. (Source: Coast Guard)

Under the Coast Guard Authorization Act of 2010, commercial fishing vessel safety examinations are required once every 5 years for fishing vessels that operate 3 miles beyond shore. These safety examinations help ensure that all the required safety equipment and systems on board are in serviceable condition; examinations do not include the hull, electrical systems, or machinery as required for Coast Guard-inspected vessels. The *Blue Dragon* last underwent a commercial fishing vessel safety examination in June 2020. Deficiencies were issued for the bilge pump and lack of alcohol testing kits; these deficiencies were corrected 2 days later.

The Coast Guard had last examined the *Blue Dragon* in April 2021 during a random commercial fishing vessel boarding in Honolulu. The *Blue Dragon* was issued no deficiencies.

1.3.1 Related NTSB Recommendation

On October 1, 2015, the cargo vessel *El Faro* foundered and sank in the Atlantic Ocean about 40 nautical miles northeast of Acklins and Crooked Islands, Bahamas, after sailing directly into the path of a hurricane. All 33 crewmembers perished in the sinking. Three days after the sinking, on October 4, searchers spotted the remains of one *El Faro* crewmember in an immersion suit. It was not clear when the crewmember perished, or whether any other crewmembers were able to abandon ship. The NTSB concluded that “Providing all persons employed on board vessels in coastal, Great Lakes, and ocean service with personal locator beacons [PLBs] would enhance their chances of survival.” As a result of its investigation, the NTSB issued the following Safety Recommendation to the Coast Guard:

Require that all personnel employed on vessels in coastal, Great Lakes, and ocean service be provided with a personal locator beacon to enhance their chances of survival. (M-17-45)

This recommendation is also associated with the NTSB's 2021-2022 Most Wanted List of Transportation Safety Improvements under the issue area, "Improve Passenger and Fishing Vessel Safety." On July 17, 2018, the Coast Guard said that it was very interested in ensuring that persons in distress have the most efficient means of alerting their distress, initiating an appropriate search and rescue (SAR) response, and providing responders with an accurate location for rescue. However, the Coast Guard did not believe that a PLB would provide the location accuracy necessary for this purpose. On April 30, 2019, the NTSB replied that it disagreed with the Coast Guard's view that PLBs did not provide the needed location accuracy. Pending a requirement that mariners use available SAR technologies, Safety Recommendation M-17-45 was classified "Open–Unacceptable Response."

On December 31, 2019, the commercial fishing vessel *Scandies Rose* sank about 2.5 miles south of Sutwik Island, Alaska. Two of the vessel's seven crewmembers were rescued by the Coast Guard several hours after the sinking; the other crewmembers were not found and were presumed dead. During SAR efforts, one Coast Guard rescue helicopter searched an incorrect area due to "an inadvertent miscommunication of the coordinates of the search area." The NTSB concluded that "PLBs would aid in search and rescue operations by providing continuously updated and correct coordinates of crewmembers' locations." As a result of its investigation, the NTSB reiterated Safety Recommendation M-17-45.

2. Analysis

The NMFS observer stated that he discovered the fire underneath of the wood control panel console; his statement was consistent with the deckhand's description that, a bit later, the fire was reaching all the way to the overhead of the forward bulkhead of the wheelhouse. Thus, the origin of the fire was likely under the wheelhouse console. Because the wheelhouse was destroyed by fire, investigators could not determine the cause of the fire. However, the captain stated that he believed the cause was electrical. After the casualty, investigators examined a similar vessel owned by the same company (*Blue Dragon II*) and found wiring that did not meet typical marine standards (improper connections, loose, disorganized, and bare wires) under the wooden wheelhouse console, as well as computer equipment and batteries. Such substandard electrical outfitting can result in an electrical fault, which can serve as a source of ignition for a fire. Given that both vessels were owned and operated by the same company and were designed with similar console equipment, the condition of the *Blue Dragon's* wiring was likely comparable to the *Blue Dragon II's*. Additionally, because there was similar electrical equipment stowed under both consoles, it is likely the fire started from an electrical source.

The vessel's wheelhouse and accommodations consisted of combustible interior joinery construction, outfitting, and furnishings—a high fire load (availability of combustible materials in a given area). Additionally, paint cans and welding rods (also combustible materials) were found on the *Blue Dragon* in the void space beneath the wheelhouse (under the false deck). All of these materials fueled a fire that could not be contained with the limited firefighting equipment available—the water hose (wash down hose) did not reach the location of the fire, leaving only extinguishers to fight the fire.

The observer and deckhand contributed to the survival of all hands by retrieving the *Blue Dragon*'s EPIRB and liferaft from above the wheelhouse before they could be burned by the fire. Given that the crew's survival suits burned in the fire, the crew would have been at risk in the seas without a means to abandon the vessel to an out-of-water lifesaving appliance. The NMFS observer's activation of the vessel's EPIRB and use of his NMFS-issued emergency communications equipment (EPIRB, PLB, and SEND) further contributed to the crew's timely rescue, coordinated by the RCC, since the equipment transmitted the crew's location (both EPIRBs transmitted a GNSS-derived position). The RCC retrieved the *Blue Dragon*'s automatic identification system information, which correlated with all of the beacon information they received and increased their confidence of an emergency, later confirmed by the SEND text, "Fire." That text, transmitted by the observer, informed the RCC of the nature of the emergency, which would not have been possible using just the EPIRB or PLB. In this case, the SEND and PLB signals were received over 30 minutes before the EPIRB by SAR coordinators in the RCC (likely because of the sequence in which the NMFS observer activated the devices). The RCC then launched an aircraft to investigate and reached out directly to the nearby bulk carrier *NordRubicon*, resulting in the rescue of all crewmembers and the NMFS observer.

3. Conclusions

3.1 Probable Cause

The National Transportation Safety Board determines that the probable cause of the fire aboard the fishing vessel *Blue Dragon* was from an unknown source, likely electrical in nature, which ignited the wooden wheelhouse console. Contributing to the extent of the fire damage was the substantial use of combustible materials in the joinery, outfitting, and furnishings in the wheelhouse and accommodation spaces.

3.2 Lessons Learned

Electrical Installations

Substandard electrical installation and outfitting—including bare wires, unsecured wire nuts, overloaded circuits, loose wiring, and household wiring not designed for marine use—is a common cause of electrical fires. Additionally, batteries have been identified as ignition sources of fires in multiple modes of transportation. Vessel operators should ensure electrical systems are adequately designed, installed, and maintained in accordance with established marine standards to prevent fires.

Personal Locator Beacons and Satellite Emergency Notification Devices

In this casualty, personal locator beacons (PLBs) helped validate the position of the vessel's emergency position indicating radio beacon (EPIRB), and a satellite emergency notification device (SEND) helped responders identify the nature of the emergency. Vessel owners and operators can enhance the safety of their crews by equipping their vessels and crews with these additional satellite technologies to supplement EPIRBs.

Vessel	<i>Blue Dragon</i>
Type	Fishing (Fishing vessel)
Flag	United States
Port of registry	Honolulu, Hawaii
Year built	1990
Official number (US)	969350
IMO number	8941626
Classification society	N/A
Length (overall)	85.2 ft (26.0 m)
Beam	25.0 ft (7.6 m)
Draft (casualty)	11.2 ft (3.4 m)
Tonnage	135 GT ITC
Engine power; manufacturer	2 x 465 hp (346.8 kW); Caterpillar 3406 diesel engines

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

The National Transportation Safety Board (NTSB) is an independent federal agency dedicated to promoting aviation, railroad, highway, marine, and pipeline safety. Established in 1967, the agency is mandated by Congress through the Independent Safety Board Act of 1974, to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident 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 investigating accidents and incidents 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)).

For more detailed background information on this report, visit the NTSB investigations website and search for NTSB accident ID DCA22FM003. Recent publications are available in their entirety on the NTSB website. Other information about available publications also may be obtained from the website or by contacting—

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