

# El Faro one of many disasters that challenged investigators

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The discovery of the missing freighter El Faro in more than 15,000-feet of water presents a challenge for U.S. Navy crews seeking to retrieve the ship's voyage data recorder, or "black box," and other evidence that could help piece together what happened. A remotely operated vehicle is being used to search the wreckage for the black box and any remains. Here are some other sea disasters that presented a difficult job for investigators trying to recover evidence in a harsh environment.

## AIR FRANCE 447

The [wreckage](#) of an Air France jetliner that crashed into the Atlantic Ocean on June 1, 2009, on a flight from Rio de Janeiro to Paris was found in around 12,800-feet of water. Recovering its black boxes proved difficult and took nearly two years after the wreckage was identified. Eventually, though, the boxes were retrieved and were key to understanding why the plane crashed. Using audio from the recorders, investigators determined that the pilots made errors after the aircraft went into a stall.

## MARINE ELECTRIC

The last U.S.-flagged ship to sink, the 605-foot coal ship Marine Electric, went down off the Virginia coast in 1983 during a storm, killing 31 people. There were three survivors. The National Transportation Safety Board's report found that corrosion of the hull likely resulted in it

cracking in the storm's waves. The Marine Electric case led to reforms in marine safety, including the mandated use of survival suits in the north Atlantic, and other safety measures. The vessel sank in 120 feet of water, and the NTSB's investigation took a year.

## **SOUTH AFRICAN AIRWAYS 295**

On Nov. 27, 1987, South African Airways Flight 295 en route from Taipei, Taiwan, to Johannesburg fell into the deep waters of the Indian Ocean with 159 on board. The crew had reported smoke in the cabin. Flight 295 was found more than 15,000 feet deep, nearly 3 miles. Investigators searching the wreckage needed custom-built cables made to run their remotely operated vehicles. Because of the depth, it took crews two years to recover one of the black boxes, found at 16,100 feet. No official cause of the crash was determined.

## **DEEPWATER HORIZON**

In the worst offshore oil spill in U.S. history, the drilling rig Deepwater Horizon exploded and sank in 2010, killing 11 people. It was operating in waters a mile deep when it went down 50 miles southeast of the Louisiana coast. The Macondo wellhead was approximately 5,000 feet below the surface, and it took BP, the oil company that leased the rig, 87 days to place a temporary cap over the well. The vessel was equipped with a voyage data recorder, but it is unclear if it was ever found in the burnt wreckage.

## **TWA FLIGHT 800**

Eleven minutes after takeoff from New York's Kennedy Airport on July 17, 1996, TWA Flight 800 en route to Paris crashed into the ocean 10 miles off Long Island, killing all 230 people on board. In the largest

Navy salvage effort since Pearl Harbor, hundreds of thousands of plane parts were raised from the ocean floor, many by divers on hands and knees 120 feet beneath the surface. Divers recovered the plane's black boxes within a week, but neither showed conclusively the cause of the crash. Despite ongoing controversies regarding the possibility of a missile strike, the NTSB stood by its finding that an oxygen buildup in a partially empty fuel tank caused an explosion that destroyed the plane at 35,000 feet.

## **H.L. HUNLEY**

The hand-cranked Confederate vessel H. L. Hunley was the first submarine in history to sink an enemy warship. The 40-foot-long, 6-foot-wide vessel, weighing 8 tons was fashioned from locomotive boilers. Using a spear tipped with gunpowder, the eight-man crew rammed and sank the Union blockade ship USS Housatonic off Charleston, South Carolina, on Feb 17, 1864, before the Hunley itself disappeared. In 1995, a team of divers and archaeologists with metal detectors discovered the Hunley just outside Charleston's harbor, resting on its side beneath 3 feet of silt in 30 feet of water. In 2000, to preserve the ship and crew remains, divers working in water with near-zero visibility sank hollow pilings on either end of the ship and erected an 8-ton steel truss around it, using slings and liquid foam to attach the ship to the truss. A crane lifted the truss and the Hunley onto a barge and brought it to a lab in North Charleston. It's conserved in a 95,000 gallon tank.

The remains of the crewmen were found at their positions at the crank, dead from lack of oxygen.

## **TITANIC**

The luxury liner Titanic sank three days into its maiden voyage after

hitting an iceberg just before midnight on April 15, 1912, about 400 miles off Newfoundland, Canada, while traveling from Southampton, England to New York. Of the 2,228 passengers and crew, 1,514 either drowned or died of exposure in the icy waters. The wreckage was finally found in 1985 by the Argo, a U.S. Navy research submersible sled equipped with a camera. The ship was in two pieces on the ocean floor, 13,000 feet below the surface, and covered with iron-eating microorganisms, later named rusticles, that were determined to be consuming the wreck.

Thousands of artifacts have been salvaged so far, including silverware, china, jewelry, gold coins and a 17-ton section of the hull. The coal-powered liner, built in Belfast, Ireland, was approximately 886 feet long and weighed more than 52,000 tons fully laden.

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