

U.S. Department of
Homeland Security

United States
Coast Guard



Commandant
United States Coast Guard

2703 Martin Luther King Jr. Ave
SE Stop 7501, 20593-7501
Symbol: CG-INV
Phone: (202) 372-1029
Fax: (202) 372-1996

16732

September 24, 2017

**STEAM SHIP EL FARO (O.N. 561732)
SINKING AND LOSS OF THE VESSEL
WITH 33 PERSONS MISSING AND PRESUMED DECEASED
NORTHEAST OF ACKLINS AND CROOKED ISLAND, BAHAMAS
ON OCTOBER 1, 2015**

MARINE BOARD'S REPORT

1. Executive Summary

The loss of the U.S. flagged cargo vessel EL FARO, along with its 33 member crew, ranks as one of the worst maritime disasters in U.S. history, and resulted in the highest death toll from a U.S. commercial vessel sinking in almost 40 years. At the time of the sinking, EL FARO was on a U.S. domestic voyage with a full load of containers and roll-on roll-off cargo bound from Jacksonville, Florida to San Juan, Puerto Rico. As EL FARO departed port on September 29, 2015, a tropical weather system that had formed east of the Bahamas Islands was rapidly intensifying in strength. The storm system evolved into Hurricane Joaquin and defied weather forecasts and standard Atlantic Basin hurricane tracking by traveling southwest. As various weather updates were received onboard EL FARO, the Master directed the ship southward of the direct course to San Juan, which was the normal route.

The Master's southern deviation ultimately steered EL FARO almost directly towards the strengthening hurricane. As EL FARO began to encounter heavy seas and winds associated with the outer bands of Hurricane Joaquin, the vessel sustained a prolonged starboard list and began intermittently taking water into the interior of the ship. Shortly after 5:30 AM on the morning of October 1, 2015, flooding was identified in one of the vessel's large cargo holds. At the same time, EL FARO engineers were struggling to maintain propulsion as the list and motion of the vessel increased. After making a turn to shift the vessel's list to port, in order to close an open scuttle, EL FARO lost propulsion and began drifting beam to the hurricane force winds and seas. At approximately 7:00 AM, without propulsion and with uncontrolled flooding, the Master notified his company and signaled distress using EL FARO's satellite distress communication system. Shortly after signaling distress, the Master ordered abandon ship. The vessel, at the time, was near the eye of Hurricane Joaquin, which had strengthened to a Category 3 storm. Rescue assets began search operations, and included a U.S. Air National Guard hurricane tracking aircraft overflight of the vessel's last known position. After hurricane conditions subsided, the Coast Guard commenced additional search operations, with assistance from commercial assets contracted by the vessel's owner. The search located EL FARO debris and one deceased crewmember. No survivors were located during these search and rescue operations.

On October 31, 2015, a U.S. Navy surface asset contracted by the NTSB, using side-scan sonar, located the main wreckage of EL FARO at a depth of over 15,000 feet. EL FARO's voyage data recorder was successfully recovered from EL FARO's debris field on August 15, 2016, and it contained 26-hours of bridge audio recordings as well as other critical navigation data that were used by the MBI to help determine the circumstances leading up to this tragic incident.

Over the course of the investigation the MBI relied on visits to EL FARO's sister vessel, EL YUNQUE, to help understand the internal configuration of the PONCE class vessels and also identify operational and maintenance issues that could have impacted both vessels.

The scope of the MBI was expanded to include the entire Coast Guard Alternate Compliance Program after Authorized Class Society performance and regulatory oversight concerns were noted for EL FARO, EL YUNQUE, and several additional U.S. flagged vessels in the program.

software for vessels that do not fall under the Alternate Compliance Program (ACP) or Navigation and Vessel Inspection Circular (NVIC) 3-97 authorities.

Recommendation #9 – Float-free Voyage Data Recorder (VDR) Equipped with an Emergency Position Indicating Radio Beacon (EPIRB). It is recommended that Commandant direct a regulatory initiative to require that all VDR capsules be installed in a float-free arrangement, and contain an integrated EPIRB for all domestic vessels currently required to be equipped with a VDR. Furthermore, it is recommended that Commandant work with the IMO to amend SOLAS V/20 (2015 consolidated) to require this VDR configuration for existing vessels.

Recommendation #10 – Locating and Marking Objects in the Water. It is recommended that Commandant direct an examination of the reliability rate of SLDMBs and other similar technology used during Coast Guard Search and Rescue operations. Additionally, the Coast Guard should develop pre-deployment protocols to conduct circuit testing on beacons prior to deploying them on-scene.

Recommendation #11 – Attachable Beacon for Assisting in Relocating Search Objects that are Initially Unrecoverable. It is recommended that Commandant identify and procure equipment that will provide search and rescue units the ability to attach a radio or Automated Identification System/strobe beacon to a found search object that is not immediately retrievable. This beacon should be able to be quickly activated and attached to the object, and have a lanyard of sufficient length to keep the beacon on the surface of the water if the object sinks below the surface.

Recommendation #12 – Personal Locator Beacon Requirement. It is recommended that Commandant direct a regulatory initiative to require that all Personal Flotation Devices on oceangoing commercial vessels be outfitted with a Personal Locator Beacon.

Recommendation #13 – Anonymous Safety Reporting to Shore for Ships at Sea. It is recommended that Commandant direct the development of a shipboard emergency alert system that would provide an anonymous reporting mechanism for crew members to communicate directly with the Designated Person Ashore or the Coast Guard while the ship is at sea. The system would be in place to report urgent and dire safety concerns that are not being adequately addressed onboard the ship or by shore based company resources in a timely manner.

Recommendation #14 – National Oceanographic and Atmospheric Administration (NOAA) Evaluation of Forecast Staffing and Products for Maritime Interests. It is recommended that Commandant request that NOAA evaluate the effectiveness and responsiveness of current National Weather Service (NWS) tropical cyclone forecast products, specifically in relation to storms that may not make landfall but that may impact maritime interests. To improve service to marine stakeholders the evaluation should consider the inclusion of past track waypoints for the tropical system for a period of 48 hours and a graphical depiction of the forecast model track of the best performing prediction models.

Recommendation #15 – Clarification of Flag State Expectations for SMS Implementation. It is recommended that Commandant direct the development and implementation of policy to make it clear that the Coast Guard has a shared responsibility to assess the adequacy of a company’s SMS. This responsibility includes, but is not limited to, assessing identified risks and contingency plans (as described in IMO Resolution A.1072(28)), and ensuring that the duties,

16732

Safety Recommendation #12 – Personal Locator Beacon Requirement. It is recommended that Commandant direct a regulatory initiative to require that all Personal Flotation Devices on oceangoing commercial vessels be outfitted with a Personal Locator Beacon.

Action: I concur with the intent of this recommendation. The Coast Guard recognizes the importance of timely and accurate detection and location of persons in the water. The Coast Guard is working with various national and international standards development organizations, including the International COSPAS-SARSAT Programme, to identify the best mechanisms for integrating distress signaling and location technology into personal lifesaving appliances. Once an appropriate standard is established, we will consider mechanisms for implementation.

Safety Recommendation #13 – Anonymous Safety Reporting to Shore for Ships at Sea. It is recommended that Commandant direct the development of a shipboard emergency alert system that would provide an anonymous reporting mechanism for crew members to communicate directly with the Designated Person Ashore or the Coast Guard while the ship is at sea. The system would be in place to report urgent and dire safety concerns that are not being adequately addressed onboard the ship or by shore based company resources in a timely manner.

Action: I concur with the intent of this recommendation. There already are requirements which, if followed, provide crew adequate means for contacting shore. As required by the ISM Code, the SMS should have defined levels of authority and lines of communication between, and amongst, shore and shipboard personnel. Also, to provide for the safe operation of the ship, the ISM Code requires a designated person ashore with direct access to the highest level of management. A fully implemented SMS would have provided mechanisms for the crew to report safety concerns. Furthermore, with respect to safety concerns, the Coast Guard, in agreement with the Occupational Health and Safety Administration (OSHA), has authority to protect seafarers from retaliation for filing safety complaints pursuant to 46 USC 2114. Finally, the Maritime Labour Convention (MLC) 2006, requires that companies maintain onboard complaint procedures (MLC Regulation 5.1.5). While the U.S. is not signatory to the MLC, the Coast Guard has created a voluntary compliance mechanism that most U.S. companies operating oceangoing ships have chosen to implement. In fact, while the EL FARO did not hold an MLC Certificate of Voluntary Compliance, such certificates have been issued to numerous other vessels operated by TSI.

Safety Recommendation #14 – National Oceanographic and Atmospheric Administration (NOAA) Evaluation of Forecast Staffing and Products for Maritime Interests. It is recommended that Commandant request that NOAA evaluate the effectiveness and responsiveness of current National Weather Service (NWS) tropical cyclone forecast products, specifically in relation to storms that may not make landfall but that may impact maritime interests. To improve service to marine stakeholders the evaluation should consider the inclusion of past track waypoints for the tropical system for a period of 48 hours and a graphical depiction of the forecast model track of the best performing prediction models.

Sinking of US Cargo Vessel SS *El Faro*
Atlantic Ocean, Northeast of Acklins and Crooked Island,
Bahamas
October 1, 2015



Accident Report

NTSB/MAR-17/01
PB2018-100342



**National
Transportation
Safety Board**

67. Because of differences in latitude and longitude formatting between Inmarsat-C and the Coast Guard's search-and-rescue optimal planning system (SAROPS), the last known position of *El Faro* according to SAROPS was 23 nautical miles from the actual position.
68. Although position errors did not affect the outcome of search-and-rescue efforts after *El Faro* sank, position information should adhere to a standardized format to eliminate similar errors in future accidents.
69. The use of older emergency position-indicating radio beacons such as the one on *El Faro* that do not transmit global positioning system positions reduces positional accuracy in search-and-rescue operations.
70. Providing all persons employed on board vessels in coastal, Great Lakes, and ocean service with personal locator beacons would enhance their chances of survival.
71. The poor audio quality and poor placement of the voyage data recorder microphones aboard *El Faro* inadequately recorded conversations on the navigation bridge, which impeded investigators' ability to accurately transcribe the recording.
72. The most effective performance testing of voyage data recorder audio quality would take place while the ship is under way using its main source of propulsion.