National Transportation Safety Board

Marine Accident Brief

Sinking of Oceanographic Research Vessel *Seaprobe*

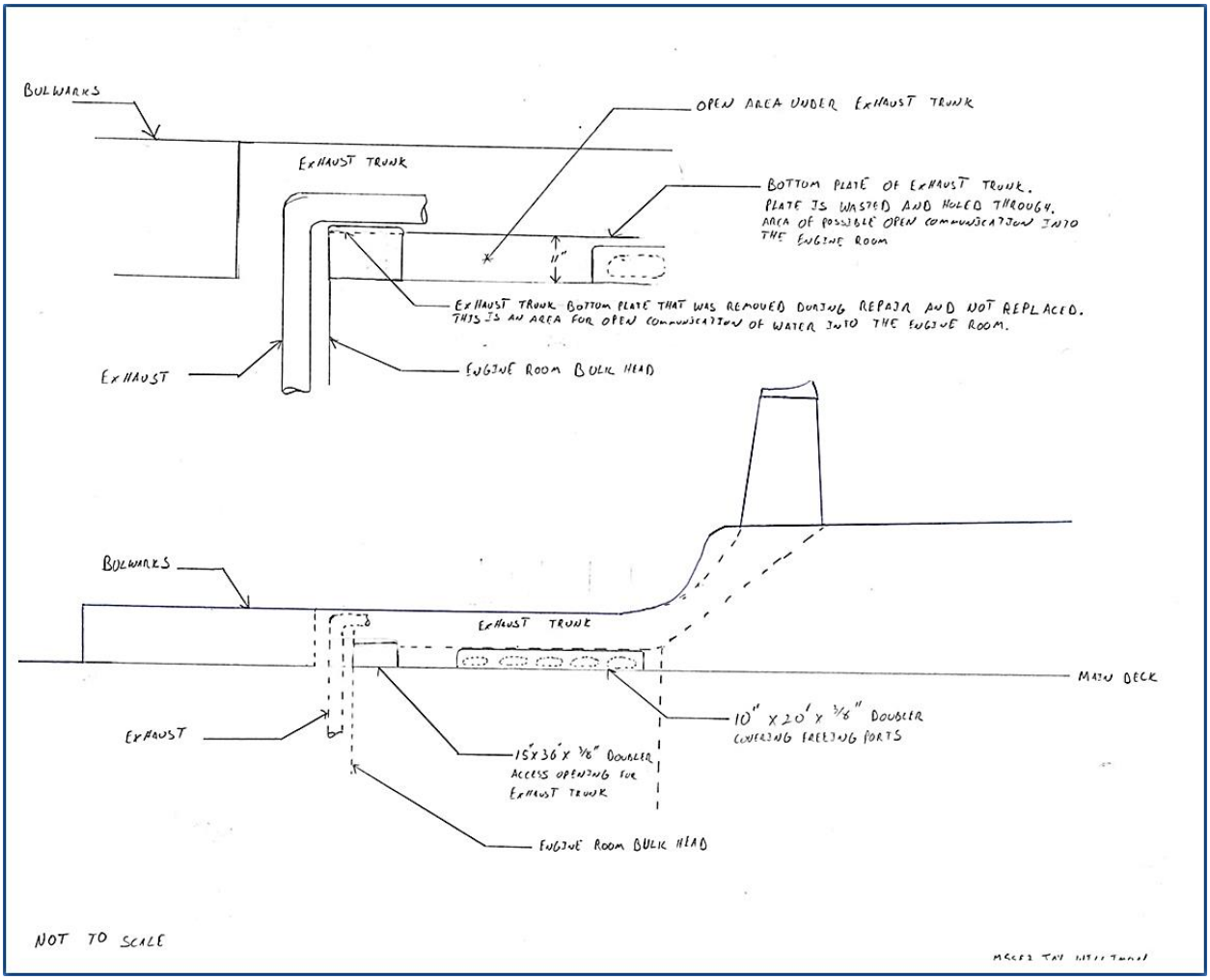
Accident no.	DCA13NM008
Vessel name	*Seaprobe*
Accident type	Sinking
Location	Gulf of Mexico, about 130 nautical miles south-southeast of Mobile, Alabama 28°12.2' N 86°27.3' W
Date	January 18, 2013
Time	About 0315 central standard time (coordinated universal time – 6 hours)
Injuries	Three (two minor, one serious)
Damage	Total loss of vessel
Environmental damage	Potential release of 44,000 gallons of diesel fuel on board at the time of sinking
Weather	Clear skies; north winds at 20–25 knots, gusting to 34 knots; wave height 14–16 ft; 3+ miles visibility; air temperature 56°F; water temperature 71°F
Waterway information	Gulf of Mexico, open water

About 0315 local time on January 18, 2013, the oceanographic research vessel *Seaprobe* sank in the Gulf of Mexico, about 130 nautical miles south-southeast of Mobile, Alabama. Before the vessel sank, all 12 crewmembers evacuated to inflatable liferafts from which the United States Coast Guard rescued them shortly thereafter. Three crewmembers were injured.

The *Seaprobe* before the sinking. (Photo source: Baynews9.com)

Sinking of Oceanographic Research Vessel *Seaprobe*

In late December 2012, the *Seaprobe* departed the site of its oceanographic research operations off the coast of South America, en route to Morgan City, Louisiana. While in transit, the captain and crew noted seawater entering the engine room where the exhaust pipe for the starboard main engine exited through the engine room overhead. The captain told investigators that he maneuvered the vessel to minimize water on the deck in the area of the water entry. Also, the crew made temporary repairs including fastening thin sheets of metal to the starboard-side exhaust trunk where the original metal was wasted.[1] The exhaust trunk housed exhaust pipes from machinery in the engine room and ran forward horizontally above the deck to the stack, just aft of the deckhouse. The captain told investigators that, to address the flooding, he diverted the *Seaprobe* to the Gulf Marine Repair (GMR) shipyard in Tampa, Florida.

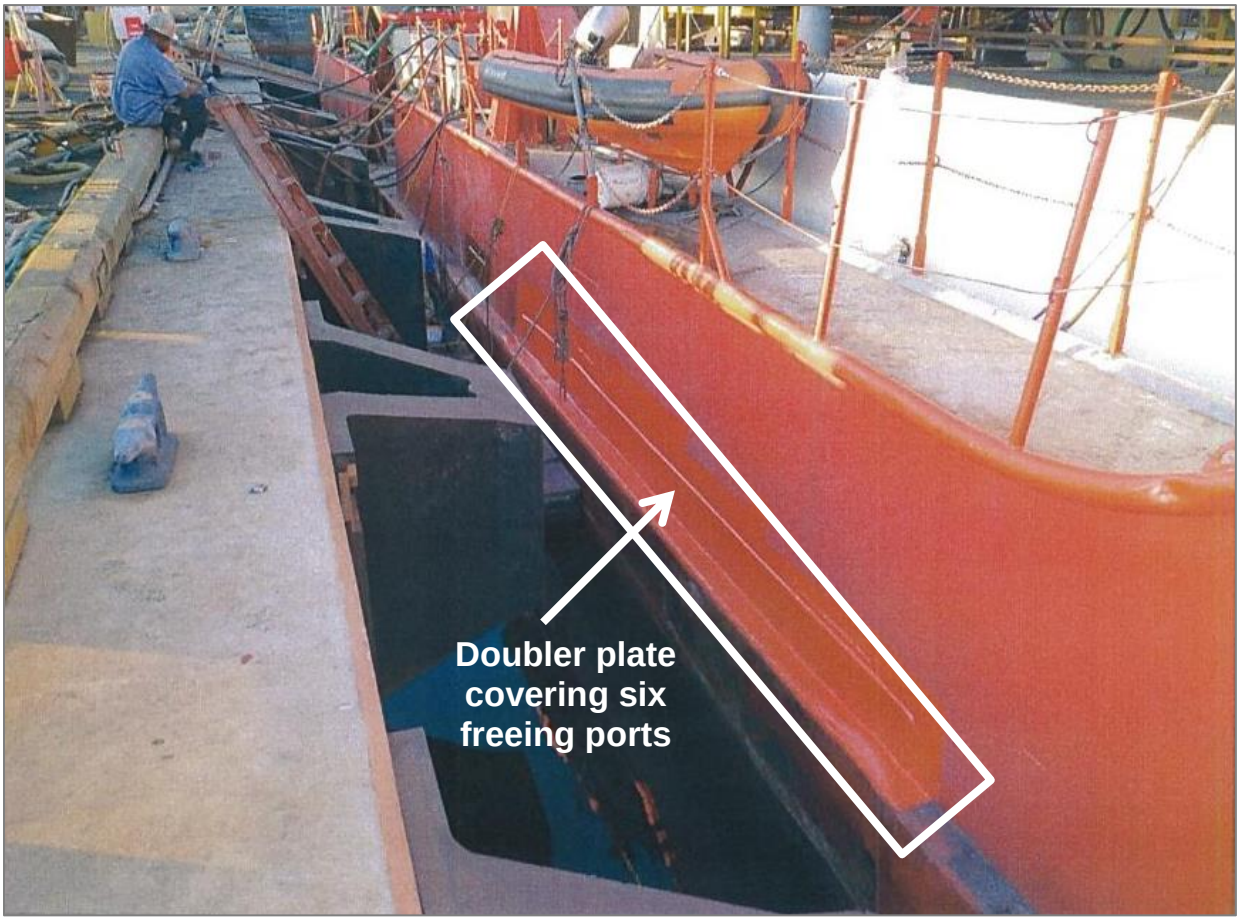


Diagram, sketched by a Coast Guard investigator after meeting with GMR employees, of the location and condition of the *Seaprobe*'s exhaust trunk.

On January 4, 2013, the *Seaprobe* arrived at the GMR shipyard, where the vessel underwent temporary repairs. After the accident, the Coast Guard learned that shipyard personnel

[1] *Waste/wasting* is the thinning or disappearance of metal in the corrosion process.

used doubler plates to temporarily repair the starboard main engine and generator exhaust pipes housed within the exhaust trunk. The Coast Guard also learned that portions of the exhaust trunk's bottom plate were not renewed after this plate, some of its metal wasted, was removed to gain access to damaged sections of the exhaust pipes within the exhaust trunk. The port engineer—a representative of the vessel owner who was at the GMR shipyard during the repair work—told investigators that he did not direct shipyard personnel to replace the bottom plate because he wanted to allow for further examination of the exhaust pipes during the vessel's next scheduled drydock. Shipyard personnel had asked the port engineer if he wanted the exhaust trunk repaired or left open, and, if the latter, the personnel would install a doubler plate over the six starboard-side freeing ports near the bottomless exhaust trunk to protect it from seawater. The port engineer said that he believed, as an interim measure, "if the freeing ports were closed it would improve protection against seawater contact in that area." Therefore, shipyard personnel installed the doubler plate over the six freeing ports and left the exhaust trunk open to the atmosphere on the bottom.

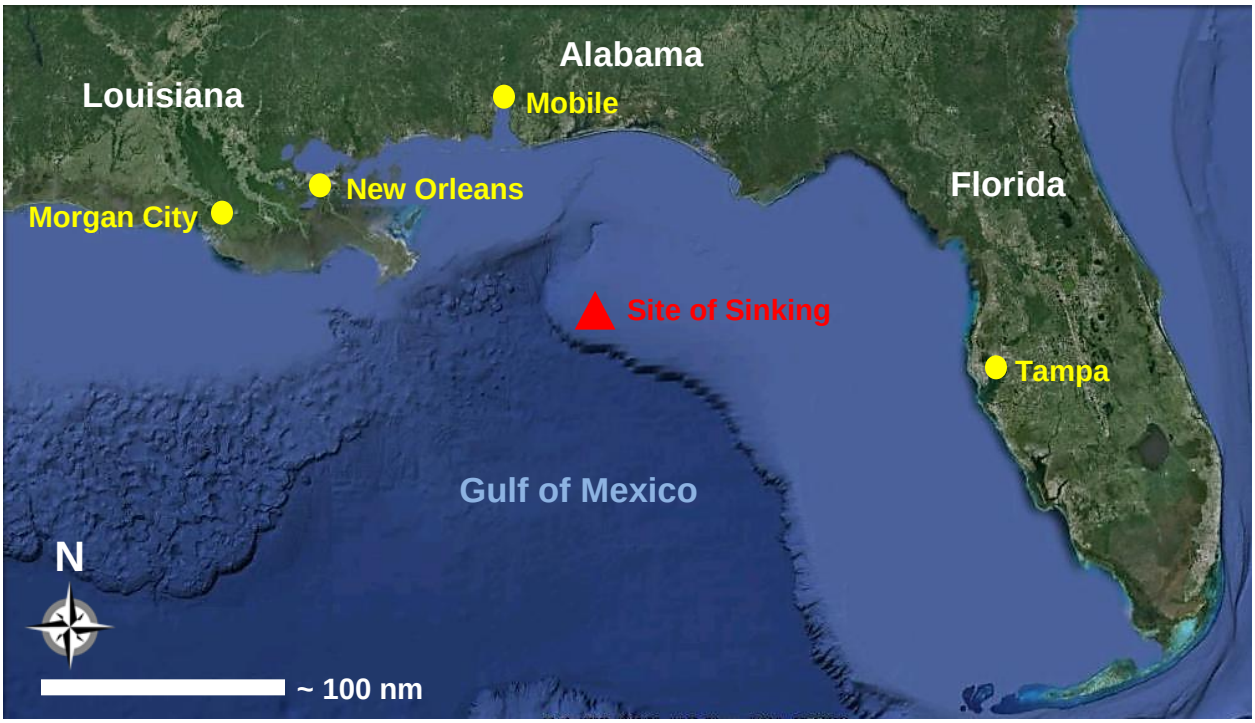


The *Seaprobe* in the GMR shipyard. The doubler plate, which was installed to cover six starboard-side freeing ports, is marked by an overlaid box. (Photo by GMR) The six freeing ports can be seen in their original uncovered condition in the photo on page 1, about midship on the vessel.

The *Seaprobe* left Tampa about 1400 on January 16, 2013, and continued toward Morgan City. Based on vessel draft estimates provided by the captain, the freeboard near the deck over the engine room measured 1–3 feet. During the west-northwest transit toward Morgan City on the evening of January 17, the *Seaprobe* experienced north winds at 26 knots, with gusts up to 34 knots, and seas of 15 feet. The high seas and the fact that six of the *Seaprobe*'s freeing ports

were closed caused seawater to collect on deck. This water made its way into the open bottom of the exhaust trunk and downflooded into the engine room. The captain told investigators that the vessel lost power to its main engines and generators about 2000 that evening. The chief engineer discovered water in the engine fuel and in the starboard-side day tank. He also saw water entering the engine space near the exhaust trunk. The chief engineer told investigators that he initially kept up with the flooding by using the oily water separator to pump the water to a holding tank. About 2030, he restored the portside generator and about 2130 brought the portside main engine back on line. However, over the next few hours, he noted that the flooding increased and used the bilge pumps to remove the incoming water. One of the deckhands also observed the engine room flooding and told investigators that every time the *Seaprobe* rolled in the high seas, a large amount of water entered the engine room on the starboard side.

About 0200 the next morning, January 18, with the *Seaprobe* listing to starboard and 2–3 feet of water in the engine room, the chief engineer and the captain determined that the bilge pumps could not keep up with the flooding. They then shut the engine room's watertight doors to prevent progressive flooding of adjacent areas. Shortly thereafter, they contacted the Coast Guard. The Eighth Coast Guard District in New Orleans, Louisiana, dispatched an HC-144A fixed-wing aircraft and two H-60 helicopters.



Satellite image of north central and eastern Gulf of Mexico, with pertinent locations in Louisiana, Alabama, and Florida marked. The *Seaprobe* was transiting from Tampa to Morgan City when it sank. (Background by Google Earth)

One of the *Seaprobe* crewmembers inflated the vessel's two liferafts, which the captain then directed the crew to enter from the water. Each crewmember successfully entered a raft, where they awaited Coast Guard arrival. One of the helicopters rescued seven of the *Seaprobe* crewmembers; the other helicopter rescued the remaining five. The Coast Guard delivered the *Seaprobe* crewmembers to Mobile, where emergency medical services personnel attended to them. Two crewmembers had sustained minor injuries; a third crewmember had fallen and fractured his tailbone.

That same day, the vessel owner arranged for a private aircraft to fly over the site where the crew evacuated the *Seaprobe*. About 1800 that evening, the owner reported to the Coast Guard that the aircraft could not locate the vessel. The *Seaprobe* is presumed to have sunk sometime around 0315 on January 18.

Although the *Seaprobe* was not required to undergo Coast Guard inspection,[2] two other safety strategies were in place: a load line certificate and a safety management system. However, because the vessel owner did not adhere to these strategies, they did not prevent the sinking:

- The American Bureau of Shipping (ABS) issued an international load line certificate for the *Seaprobe* on March 29, 2012. The certificate was valid until January 31, 2017. Under the load line regulations found in 46 *Code of Federal Regulations* (CFR) Part 42, the operators of the vessel should have informed ABS before they installed doubler plates over the freeing ports and departed port without repairing the bottom of the exhaust trunk. Having a load line is contingent on weathertight integrity of the vessel above the freeboard deck. Blocking the drainage of water from the deck and operating at sea with openings to the engine room were changes to the conditions of the vessel requiring ABS to revisit the vessel and reassess the load line assignment. ABS, after examining the condition of the vessel and the operator's proposal for permanent repairs, would have decided whether to allow the vessel to depart Tampa in the condition that it was. Title 46 CFR 42.07-55 (b) states that load line certificates may be canceled due to conditions such as closed freeing ports and wasted exhaust trunks.

- Coast Guard vessel records show that the *Seaprobe* owner held a valid International Safety Management Code Document of Compliance and Safety Management Certificate issued by ABS. One of the four objectives of a safety management system is to ensure compliance with the mandatory rules and regulations when developing procedures for the safety management system. The safety management system requires documents for vessel maintenance procedures, which are used to verify that all company vessels are maintained in conformity with relevant rules and regulations. The *Seaprobe* owner's failure to discuss the wasted exhaust trunk and closing of the freeing ports with ABS meets the definition of nonconformity under the safety management system.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the flooding and subsequent sinking of the *Seaprobe* was the decision of the vessel owner to delay making permanent repairs to the starboard-side exhaust trunk and covering six of the vessel's freeing ports, leaving the *Seaprobe* susceptible to downflooding from boarding seas. Contributing to the accident was the owner's failure to comply with the vessel's safety management system and mandatory load line regulations.

[2] The *Seaprobe* was subject to regulations found in 46 *Code of Federal Regulations* Part 3, which require the vessel owner to verify in writing every 2 years that the vessel operates as an oceanographic research vessel and is therefore not subject to inspection as a passenger, freight, or offshore supply vessel. An oceanographic research vessel of less than 300 gross tons does not require inspection.

Vessel Particulars

Vessel	*Seaprobe*
Owner/operator	Fugro-McClelland Geosciences Inc.
Port of registry	Galveston, Texas
Flag	United States
Type	Oceanographic research vessel
Year built	1974
Official number (US)	559782
IMO number	7366441
Construction	Welded steel
Length	170 ft (51.8 m)
Draft	16 ft (4.9 m)
Beam/width	40 ft (12.2 m)
Gross and/or ITC tonnage	295 gross tons; 818 ITC tons
Engine power	Two diesel engines, geared drive, 4,200 hp (3,150 kW) total
Persons on board	12

For more details about this accident, visit www.ntsb.gov/investigations/dms.html and search for NTSB accident ID DCA13NM008.

Adopted: September 25, 2014