



National Transportation Safety Board

Marine Accident Brief

Flooding and Sinking of Small Passenger Vessel *Maximus*

Accident no.	DCA16FM039
Vessel name	<i>Maximus</i>
Accident type	Flooding and sinking
Location	Turtle Bay, Mexico, 27°29.5'N, 114°50.1'W
Date	May 12, 2016
Time	1655 Pacific daylight time (coordinated universal time – 7 hours)
Injuries	None
Damage	\$575,000 est.
Environmental damage	None reported
Weather	Clear, visibility 8 miles, winds north-northwest at 25 mph, 3–4-foot seas, air temperature 65°F, water temperature 60°F ¹
Waterway information	Turtle Bay is located on the west coast of Mexico's Baja California peninsula.

On the evening of May 12, 2016, the *Maximus*, a 42-gross-ton small passenger vessel, began taking on water while under way near Turtle Bay, Mexico. The four crewmembers could not stop the flooding and abandoned ship into a liferaft, from which a good Samaritan vessel rescued them. No injuries or pollution were reported. The *Maximus* was valued at \$575,000.

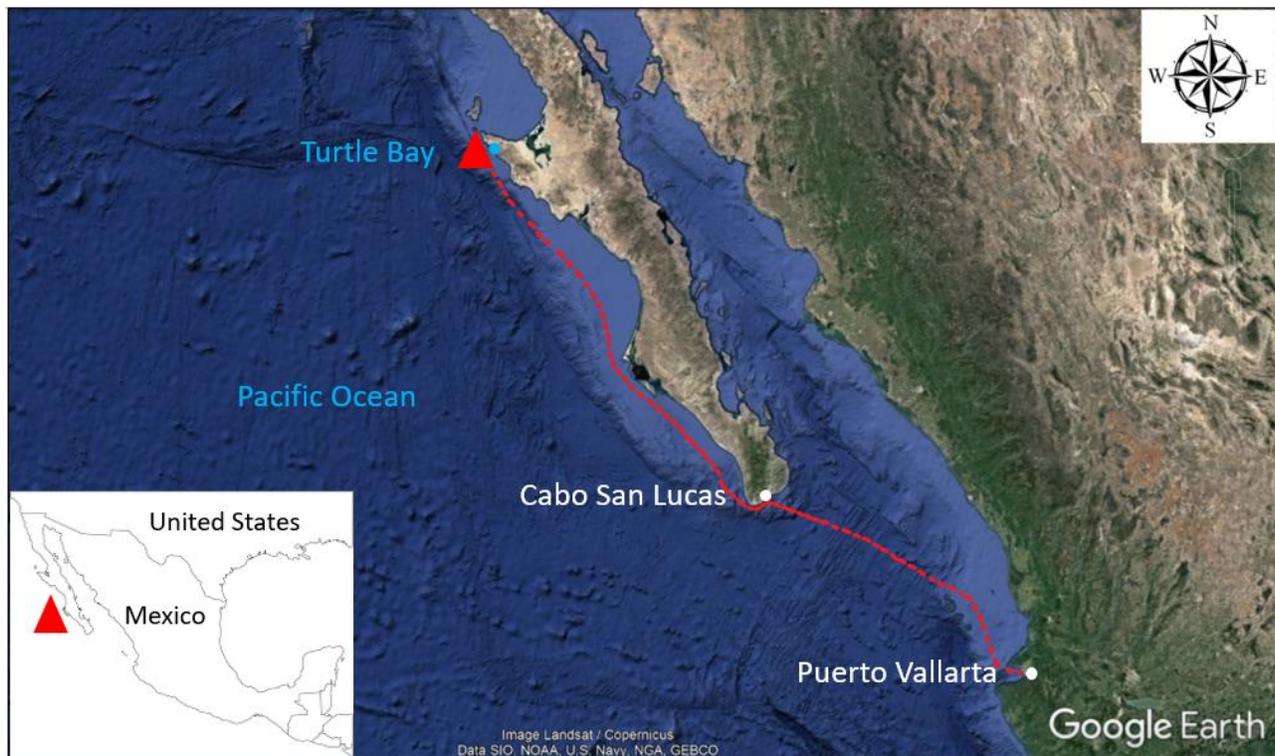


Maximus in Cabo San Lucas, Mexico, before the accident. (Photo by Maximus Sportfishing)

¹ All miles in this report are nautical miles (1.15 statute miles).

Flooding and Sinking of Small Passenger Vessel *Maximus*

The *Maximus* was built in 1984 by Oxnard boatyard in Channel Islands Harbor, Oxnard, California, and successfully completed a US Coast Guard-supervised simplified stability test that same year for the carriage of 49 passengers on exposed waters. The vessel was owned and operated by Maximus Sportfishing Inc. during its final 6 years and served as a chartered sportfishing vessel with two schedules, summer and winter (October through April). During the summer, the *Maximus* made offshore fishing trips out of San Diego, California. In the winter, the vessel worked out of Puerto Vallarta, Mexico. The captain had 32 years of experience in the fishing industry; for the last 15 years, he had been credentialed as master of 100-gross-ton vessels.

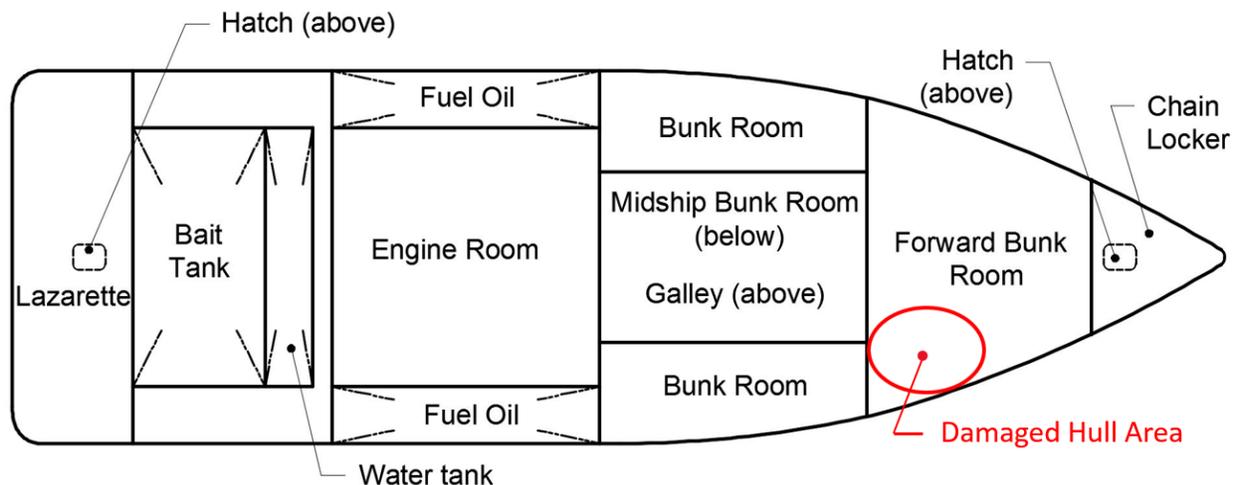


Overlaid symbols on an excerpt from Google Earth Pro depict the *Maximus* trackline and sinking location near Turtle Bay, Mexico.

The accident voyage began about 1 week before the *Maximus* sank during the transit north to San Diego for the summer fishing season. At 1900 on May 4, 2016, the *Maximus* left Puerto Vallarta with no passengers and four crewmembers on board. The captain and the mate shared a navigation watch rotation of 6-hours-on, 6-hours-off (captain 0400–1000, mate 1000–1600, captain 1600–2200, mate 2200–0400). Two days later, on May 6, their weather routing service provider advised them to hold over in Cabo San Lucas, Mexico, due to a heavy weather system approaching the area. While waiting for favorable weather conditions, the crew topped off the diesel fuel tanks, which had an approximately 1,300-gallon capacity, and purchased additional food and supplies. They also purchased a new battery for the electrical generator and repaired a saltwater leak on the generator’s heat exchanger in the engine room (the leak was initially discovered 70 miles from Cabo San Lucas when saltwater accumulated in the bilge and activated the high-level bilge alarm). The captain continued to monitor the weather and contacted the service provider for an update on the forecast and the optimum route for the remaining legs of the voyage. The trip resumed on the evening of May 10 when the *Maximus* departed Cabo San Lucas; favorable weather was predicted by the service provider for the remainder of the voyage to San Diego.

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On May 12, 2016, at 1655, the *Maximus* was about 4 miles from the entrance of Turtle Bay, Mexico, when the captain discovered flooding while having dinner (during meal relief from duty) in the galley. From where he was sitting, he could see 3 feet of water in the forward berthing compartment, commonly referred to as the forward bunk room. He immediately alerted the crew to the flooding and instructed the mate to put the main propulsion engines in neutral. The mate slowed the vessel; doing so reportedly caused water inside the v-shaped hull to surge forward, after which the vessel responded slowly and sluggishly to the seas. Concerned with the stability of the vessel, the crew began to search for the source of flooding. Neither the captain nor the mate recalled hearing or seeing the vessel's high-level bilge audio and visual alarms in the wheelhouse.



Simplified top-view diagram of below-deck compartments. The area of hull damage is circled in red.

The mate ran to the engine room, opened the suction valve for the forward bunk room, and started the bilge pump. The captain ordered the remaining crewmembers to grab 5-gallon buckets and start bailing water out of the forward bunk room and to find the location of flooding. The captain and the mate quickly eliminated all sources of seawater going forward from the engine room to the forward heads and the bait tanks. Then the captain instructed the crew to use the portable electric fuel-transfer pump to remove water from the forward bunk room as he attempted to contact the US Coast Guard on marine single-sideband (SSB) radio without success. The captain used a satellite phone to contact his wife and asked her to relay their emergency and coordinates to the Coast Guard; at 1727, Coast Guard Sector San Diego received her call. The captain left the wheelhouse to assess the flooding. When he stood outside the engine room hatch, he noticed water in the midship bunk room, indicating that the flooding had progressed aft to a second watertight compartment. The location of water ingress was not identified from inside the bunk rooms and the water continued to rise.

The mate went forward, opened the chain locker hatch forward of the forward bunk room, and entered the space to assess the water level, which was normal. He then grabbed a snorkel mask and jumped overboard, attempting to survey the underside of the hull. However, the ocean waves were pounding against the hull, and poor water clarity prevented him from effectively surveying below the waterline. As he made his way toward the bow on the starboard side, he discovered a “softball-size” section of the hull missing at the wooden spray rail at the waterline. As the mate described it, “a V-shaped piece was missing, a chunk [of the hull] was gone.” He did not stay in the water long because the waves continued to pound him against the vessel. The cook used a gaff to pull the mate from the water, and the mate told the captain what he had found.

Flooding and Sinking of Small Passenger Vessel *Maximus*



***Maximus* in Cabo San Lucas before the accident. A red circle indicates the reported area of hull damage. (Photo by Maximus Sportfishing)**

For more than an hour and a half, the *Maximus* captain and crew continued to dewater the vessel without success. The captain determined that the flooding could not be slowed based on the hole in the hull and the limited capacity of the bilge pump, and that he and the crew should abandon ship. He instructed the mate to distribute lifejackets to the crew, and they all went to the top deck to manually launch the liferaft that was stowed there. The captain removed the hydrostatic release unit and lashing. The crew attached an additional 45 feet of line to the painter and threw the liferaft canister from the top deck into the water. The liferaft inflated and was tied off on the leeward side of the vessel while the crewmembers began collecting their personal items. Then the captain activated the emergency position-indicating radio beacon (EPIRB).²

At 1836, the crew of towing vessel *Shannon Dann*, located about 6 miles away, heard the *Maximus* captain hailing the Coast Guard on the radio and offered assistance. The *Shannon Dann* was towing a barge with the space shuttle *Endeavour*'s external fuel tank (ET-94) at the time, bound for San Diego. Aboard the *Maximus*, the rolling seas were entering through the main deck scuppers located on the after half of the vessel, and the main deck began to hold water. The captain went to the wheelhouse one last time to activate the navigation lights and to radio the *Shannon Dann* about his decision to abandon the vessel. The main engines, generator, and bilge pumps were left running.

² An emergency position-indicating radio beacon (EPIRB) alerts search and rescue services in an emergency by transmitting a coded message on the 406 MHz distress frequency via satellite and Earth stations to the nearest rescue coordination center. The device can be activated manually or automatically when submerged and deployed from the vessel.

Flooding and Sinking of Small Passenger Vessel *Maximus*



Towing vessel *Shannon Dann* with space shuttle *Endeavour's* external fuel tank (ET-94) under tow. (Image by Emmert International)

About 1850, as the sun was setting, the four *Maximus* crewmembers safely entered the liferaft and drifted away from the sinking vessel. At 1856, Coast Guard helicopter 6501, which was aboard the Coast Guard cutter *Active* about 35 miles away, launched with a dewatering pump on board to assist the *Maximus* crew.

A half hour later, at 1925, helicopter 6501 arrived on scene and spotted the *Maximus* crewmembers in the liferaft. About 10 minutes after that, the *Shannon Dann* arrived on scene and helped the *Maximus* crew from the liferaft onto the towing vessel. Testing for alcohol and other drugs was conducted at 1945; all results were negative. No injuries were reported.

At 1959, helicopter 6501 departed the scene after confirming that the *Maximus* crewmembers were safely on board the *Shannon Dann*. As the helicopter departed, the flight crew observed the *Maximus* floating high in the water with a slight starboard list and trim by the bow, its navigation lights energized. The last recorded position of the vessel was 27°29.5'N, 114°50.1'W.



At left, *Maximus* and its liferaft. At right, the *Maximus* crewmembers about to be brought aboard *Shannon Dann*. (Photo by Shannon Dann crew)

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One of the *Maximus* crewmembers was a Mexican national. Arrangements were made for a Mexican military vessel to rendezvous with the *Shannon Dann* and transfer him onto that vessel before the *Shannon Dann* left Mexican territorial waters. On May 15, 2016, at 0300, the *Shannon Dann* arrived at the 10th Avenue Marine Terminal in San Diego and disembarked the three remaining *Maximus* crewmembers.

Analysis

The *Maximus*'s most recent Coast Guard annual inspection took place about a year before the accident, in July 2015, when Sector San Diego marine inspectors issued the vessel's certificate of inspection. A month earlier, on June 8, 2015, the Coast Guard surveyed the *Maximus*'s hull and internal structure, which was constructed of laminar plywood and fastened primarily with adhesives and mechanical fasteners. The following deficiencies were recorded by the Coast Guard marine inspector: a broken beam through the collision bulkhead; dry-rotted wood in multiple areas of the engine room; and repair needed of the watertight bulkhead in the lazarette. On June 15, 2015, during reinspection, all of the deficiencies were noted as corrected.

The *Maximus* was not salvaged by the owner. Therefore, a postaccident vessel survey or inspection could not be conducted to determine the cause or location of the hull failure. However, investigators interviewed the crew and reviewed the sequence of events and maintenance performed on board the vessel to determine any relevant circumstances of the accident.

The *Maximus* had high-level bilge alarms located in the chain locker, forward bunk room, midship bunk room, galley, engine room, bait tanks, and lazarette. Crew interviews revealed that on the evening of May 5, when the vessel was 70 miles off Cabo San Lucas and water levels rose in the engine room bilge from the leaking heat exchanger, the high-level bilge alarm in the wheelhouse worked (both audibly and visually). The bilge alarm panel was designed to stay active until the float switch in the affected space was lowered to the original position by removing the water. The captain stated that the crew tested and checked the engine room high-level bilge alarms in Cabo San Lucas before departing. However, no high-level bilge alarms sounded on the day of the flooding, and the captain could not explain why they did not function correctly on the day of the accident.

A good marine practice is to ensure that all high-level bilge alarms are tested periodically and that the sensors are arranged to provide the earliest warnings of accumulated water. The sensors should be set as low as possible to the deck or bilge-well and positioned along the centermost area of the compartment or in a location toward which fluid will gravitate first. In areas where bilge water routinely accumulates, the bilge high level sensors should be placed just above the point where under normal working conditions the accumulation would be pumped either to a holding tank, overboard, or through an oily-water separation system (if required). Alarms may be fitted with short time delays to prevent nuisance alarms triggered by the rolling and pitching of the vessel.

A second good marine practice applicable to this vessel is to ensure that all watertight decks and bulkheads are inspected periodically by the vessel owner and operators to verify that there are no unprotected openings or improper penetrations that will allow progressive flooding. Also, closure devices (such as watertight doors, hatches, duct closures, and so on) should be in place and working correctly. Investigators were unable to determine the extent of the hull breach (which may have spanned two compartment) or how the flooding progressed from the forward bunk room through the watertight bulkhead to the midship bunk room.

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Probable Cause

The National Transportation Safety Board determines that the probable cause of the flooding and sinking of small passenger vessel *Maximus* was a hull breach near the waterline from an unknown cause. Contributing to the accident was the ineffectiveness of the installed high-level bilge alarm system to alert the crew to water accumulating in the hull.

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Vessel Particulars

Vessel	<i>Maximus</i>
Owner/operator	Maximus Sportfishing Inc.
Port of registry	San Diego, California
Flag	United States
Type	Small passenger vessel
Year built	1984
Official number (US)	676682
IMO number	None
Classification society	N/A
Construction	Laminated wood
Length	59.8 ft (18.2 m)
Draft	4.75 ft (1.45 m)
Beam/width	20 ft (6.1 m)
Gross ITC tonnage	42 gross tons
Engine power, manufacturer	2 X 510 hp (380 kW) Cummins marine diesel engines
Persons on board	4

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

For more details about this accident, visit www.ntsb.gov and search for NTSB accident ID DCA16FM039.

Issued: October 3, 2017

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. 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).
