

How the Ehime Maru tragedy happened

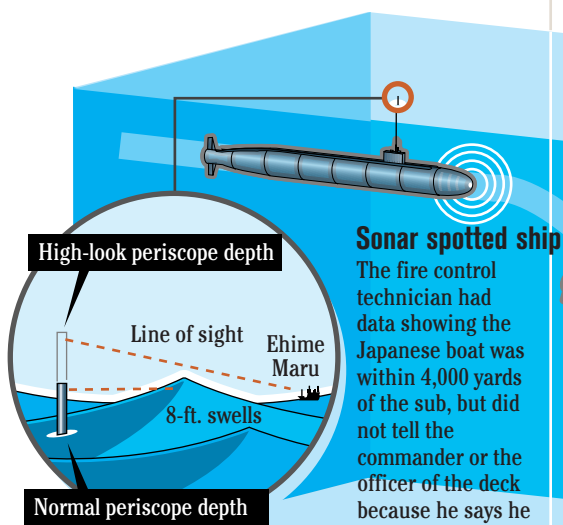
Events that occurred nine miles south of Oahu on Feb. 9, according to testimony at the Navy's court of inquiry, the National Transportation Safety Board, and news reports.

1 Flawed sonar and visual check failures

The 16 civilians in the control room and a rushed emergency surfacing drill contributed to a flawed periscope and sonar check.

Lunch with civilian guests ran long and caused the crew to spend only 80 seconds scanning the horizon with the periscope, rather than the prescribed three minutes.

At the time of the periscope sweep, the Ehime Maru was only 2,200 feet away. Also, there was an inoperable sonar display in the control room.



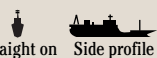
High-look periscope depth

Line of sight
Ehime Maru
8-ft. swells

Normal periscope depth

Periscope check

High waves could have hidden the Ehime Maru because the Greeneville did not spend enough time at a periscope depth of 60 feet, and then again at 58 feet.



Straight on Side profile

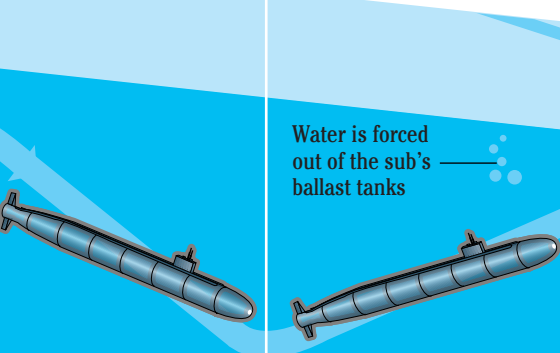
If the white-painted Ehime Maru was heading toward the submarine against a light, overcast sky, it would have appeared as a small, narrow silhouette. This view is more difficult to see than a side profile.

Sonar spotted ship

The fire control technician had data showing the Japanese boat was within 4,000 yards of the sub, but did not tell the commander or the officer of the deck because he says he didn't see the sonar contact. The process to analyze surface sonar contacts usually takes 10-15 minutes, and the Greeneville did it in six minutes.

2 The dive

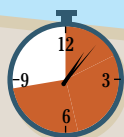
Once the submarine conducted its search for vessels or other objects, it began a dive to gain enough speed and depth to perform a practice main emergency ballast blow. This involves a 10-minute dive to 400 feet before leveling



Water is forced out of the sub's ballast tanks

Crucial minutes under water

At 1:06 p.m., just 37 minutes before the collision, the executive officer reminded Cmdr. Scott Waddle of the time. Waddle replied, I have it under control.



Intact and upright

The Ehime Maru settled on the ocean floor in an upright position 2,003 feet below the surface. Based on the videotape taken by the Navy's remotely operated vehicle, the ship is intact and only 1,000 yards from where it was hit.

3 The ascent

Ten minutes after diving, the crew conducted the main emergency ballast blow by forcing air into the ballast tanks while simultaneously forcing out water. This instantly lightened the submarine and propelled it to the surface at a speed of 35 mph.

4 Surfacing and collision

Crew members of the Ehime Maru spotted the Greeneville's nose suddenly surfacing off the port side of their ship's stern. The submarine's rudder sliced open the ship's hull, directly under the engine room. Water flooded the ship and electrical power was lost, disabling the radio.

Impact

When the Greeneville struck the Ehime Maru, civilians on the sub remember hearing a loud bang, and then the sub shuddered. Greeneville Cmdr. Waddle then said, What the hell was that?



Ehime Maru

Ehime Maru sinks

The ship sank in less than 10 minutes. Six life rafts came to the surface. Of the 35 crewmen, 26 swam to them and were rescued by the Coast Guard.



5 USS Greeneville halts and stabilizes

After the collision, the Greeneville stabilized on the surface. The crew knew they had hit something, due to the shudder of the sub when it hit the Ehime Maru. The crew radioed the Coast Guard for help, then turned the sub around and remained at the scene. The crew would later be criticized for not attempting to pick up survivors, but the Navy has insisted that due to the rough seas, the attempts would have only endangered more lives.

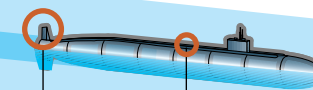
USS Greeneville

Normal crew:

146 enlisted, 17 officers

Feb. 9, 2001 crew:

95 enlisted, 11 officers



Evidence of the collision visible on the rudder and port quarter side of the submarine

Nine Japanese from the Ehime Maru are still missing and are presumed to have drowned. They are:

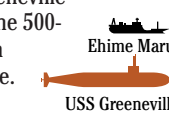
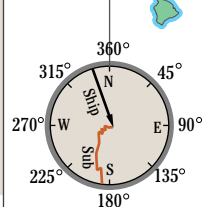
- Toshimichi Furuya
- Hiroshi Makizawa
- Takeshi Mizuguchi
- Jun Nakata
- Hiroshi Nishida
- Katsuya Nomoto
- Toshiya Sakashima
- Hirotaka Segawa
- Yusuke Terata

Collision course

At the time of the collision, the Ehime Maru was heading southeast at 166 degrees, while the Greeneville was heading northeast at 120 degrees at 20 knots.

Greeneville 14 times heavier

Built with case-hardened steel that is many times thicker than the Ehime Maru's hull, the 6,927-ton Greeneville collided with the 500-ton vessel with enormous force.



Ehime Maru

USS Greeneville

0 400 ft.

GRAPHIC BY DAVID SWANN/
STAR BULLETIN