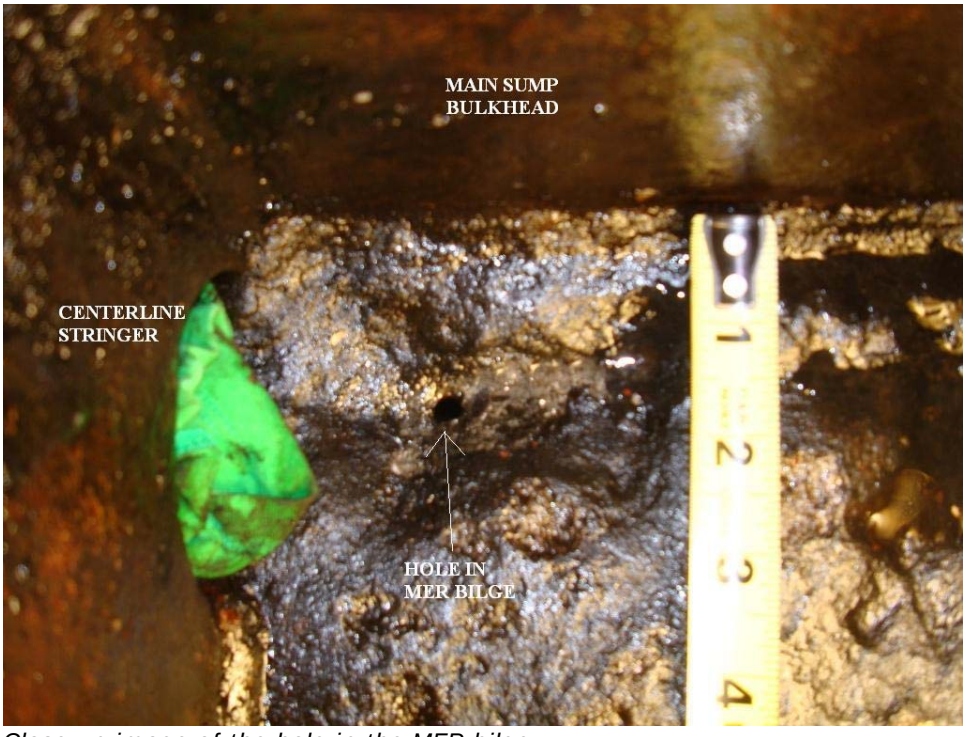
USS BOONE (FFG 28) Voyage Repairs Complete – Safely Resumes Deployment

9 May 2011

While underway for an international exercise in the USSOUTHCOM AOR, USS BOONE (FFG 28) experienced flooding in the bilge of the Main Engine Room (MER). After dewatering and investigating a hole was found; this was subsequently plugged and reinforced with shoring. BOONE then released a casualty report requesting assistance to repair the hole. Based on the information provided, the SUPSALV Underwater Husbandry (UWSH) division, SEA 00C5, was concerned with the integrity of the skeg. SUPSALV was tasked by Southeast Regional Maintenance Center (SERMC)to investigate the ship's integrity and conduct needed repairs.

SUPSALV deployed an UWSH Specialist and a team of contract welder divers to Rio de Janerio, Brazil to identify the source of compromise in the skeg/inner bottom of BOONE. The SUPSALV team's plan was to perform an underwater inspection of the skeg, locate the source of water ingress, seal the skeg (either temporarily or permanent based on conditions found), and conduct a weld repair of the MER hull breach.

With the assistance of the U.S. Consulate the SUPSALV team obtained visas and arrived in country on 24 April. Working with a Brazilian subcontractor supplying the dive system, the team was able to assemble their dive station and conduct the first inspection dive Tuesday 26 April. This inspection dive looked for gross damage and examined known access plates and plugs for leaks. After dewatering the flooded portions of the skeg, a more thorough inspection and investigation was conducted to locate the source of the water ingress. Additionally, the team conducted an ultrasonic testing (UT) inspection of the area surrounding the hull breach to determine the degree to which corrosion had affected the hull plate thickness. Results from the inspection indicated water ingress was through a 3/8" hole in a recessed area less than two-inches aft of the Main Reduction Gear (MRG) lube oil sump. The proximity to the MRG sump (full of oil) was of concern for conducting a weld repair.



Close up image of the hole in the MER bilge.

After dewatering, the level of the remaining liquid in the skeg was measured and monitored through the night; there was no change. The final piece of testing was a pressure test with accompanying internal inspection by ship's force and external inspection of the skeg by the divers; there was no drop in pressure for a period that exceeded 20 minutes. After conducting a conference call with the SERMC engineers, NAVSEA technical authorities, and ship's force representatives and, based on the satisfactory results of the UT and pressure testing, the decision was made, and authorization granted, to drill out the hole to a slightly larger size (to stabilize the stresses) and patch the hole using a J-Hook-type mechanical patch.

J-Hook and steel patch set in epoxy in bilge of MER.

After drilling but before installation of the patch, a final magnetic particle testing (MT) inspection was performed in the vicinity of the hole. The J-Hook was installed and stabilized with external bracing and the ship's condition was documented. SUPSALV's Mr. William Reid, who supervised the repair said, "Our primary concern was to confirm the integrity of the skeg and hull to ensure there was no danger to the ship or crew. We were well satisfied with the skeg conditions as found. The hull, skeg and bilge tested satisfactory with the single discrepancy being an isolated case. The patch installation went smoothly. Though this was not a permanent repair, the mechanical patch achieved the objective of returning BOONE to her mission on schedule SAFELY."

Metal patch stabilized by welded brace.

USS BOONE was authorized to continue its mission without restrictions until permanent repairs could be conducted back at her homeport.