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# SALUTE



Puget Sound Naval Shipyard & Intermediate Maintenance Facility

## 50 Years of Steely Purpose A Moment to Fail and a Lifetime to Succeed

By Cristy Gallardo and Kristina Miller, PSNS & IMF Public Affairs

*Suddenly, listeners on Skylark heard a noise "like air rushing into an air tank." Then, silence.*

In 1963, USS Thresher (SSN 593), the first of her class, was a state-of-the-art submarine with the most modern technology of the day, allowing her to be fast, quiet and deep diving. However, on April 10, none of that would matter when, in less than 20 minutes, deficient specifications, deficient shipbuilding practices, deficient maintenance practices and deficient operational procedures would cause an event that would permanently change the future of submarine construction and maintenance.

### ONE MOMENT IN TIME, CHANGED IT ALL

On April 10, Thresher was off the coast of Massachusetts, conducting sea trials after a nine-month maintenance period. The seas were calm. Wind was 7 knots and visibility was about 10 miles. No other ships were known to have been in the vicinity. There were 16 officers and 96 enlisted Sailors onboard, plus 17 civilian technicians from Portsmouth Naval Shipyard, who were going to observe the boat's performance during the deep-diving tests. Thresher was accompanied by USS Skylark, a submarine rescue ship that would monitor the testing from the surface.

According to the official documents, this is the short, but dramatic, chain of events:

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**Suddenly, listeners on the Skylark heard a noise "like air rushing into an air tank." Then...silence.**

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7:45 a.m. - The two vessels were in close proximity and were communicating. Shortly thereafter, Thresher began a deep dive which according to Skylark personnel appeared to "proceed satisfactorily."

9:13 a.m. (approximately) - Thresher reported to Skylark something to the effect, "Experiencing minor difficulties.

Have positive up angle. Am attempting to blow. Will keep you informed."

After that last clear message, Skylark received two garbled communications then heard rushing air followed by deafening silence.

9:15 a.m. - On the surface, Skylark's crew tried to re-establish communications by sonar, radio and underwater telephone, using the query, "Are you in control?"

10:40 a.m. - Skylark dropped a series of hand grenades indicating to Thresher that she should surface

10:45 a.m. - Skylark's commanding officer ordered a message reporting the loss of contact. Transmission difficulties held up the communication.

12:45 p.m. - Radio New London received the message that communication had been lost.

### INVESTIGATION FINDINGS

While the exact cause of the loss is not known, a thorough investigation revealed significant deficiencies.

**THRESHER continued on pg. 10**





## THRESHER cont.

In a 2003 brief to the House Science Committee, Rear Adm. Paul E. Sullivan, NAVSEA's deputy commander for ship design, integration and engineering, briefed the following issues:

-Thresher had about 3000 silver-brazed piping joints exposed to full submergence pressure. During her last shipyard maintenance period 145 of these joints were inspected on a not-to-delay vessel basis using a new technique called Ultrasonic Testing. Fourteen percent of the joints tested showed sub-standard joint integrity. Extrapolating these test results to the entire population of 3000 silver-brazed joints indicates that possibly more than 400 joints on Thresher could have been sub-standard. One or more of these joints is believed to have failed, resulting in flooding in the engine room.

-The crew was unable to access vital equipment to stop the flooding.

-Saltwater spray on electrical components caused short circuits and loss of propulsion power.

-The main ballast tank blow system failed to operate properly at test depth. Investigators believe that various restrictions in the air system coupled with excessive moisture in the system led to ice formation in the blow system piping. The resulting blockage caused an inadequate blow rate. Consequently, the submarine was unable to overcome the increasing weight of water rushing into the engine room.

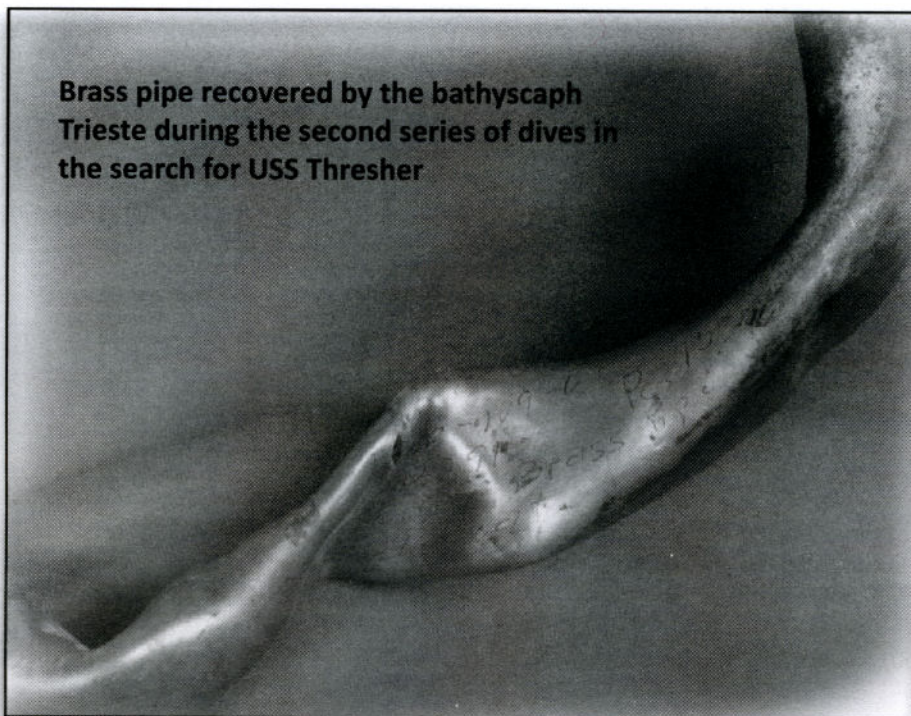
### SUBSAFE IS BORN

Thresher changed the face of the submarine service. It drilled into our collective minds, 129 times, how critically vital every specification was to the safety and successful operation of that essential national asset and the work it was required to accomplish.

The Judge Advocate General Court of Inquiry Report contained 166 Findings of Fact, 55 Opinions, and 19 Recommendations. In June 1963, not quite two months after Thresher sank, the SUBSAFE Program was created. The SUBSAFE Certification Criterion was issued by BUSHIPS letter Ser 525-0462 of 20 December 1963, formally implementing the Program.

The Submarine Safety Certification Criterion provided

### Brass pipe recovered by the bathyscaph Trieste during the second series of dives in the search for USS Thresher



the basic foundation and structure of the program that is still in place today. The program established:

- \* Submarine design requirements

- \* Initial SUBSAFE certification requirements with a supporting process, and

- \* Certification continuity requirements with a supporting process.

### LEST WE NEVER FORGET

This is about history, right? Far from it. If anything, this lesson

from 50 years ago is even more relevant now because of a real danger that we all must battle.

"Ignorance, arrogance, and complacency prove the three biggest threats facing the SUBSAFE Program," said Cdr. Daniel Ettlich, director of the Submarine Safety and Quality Assurance Division at NAVSEA. "These threats continually attack and erode the long established safety culture."

Staying conscious of that and forcing ourselves to stay vigilant is what will continue to make SUBSAFE more than just a program birthed in tragedy. It must be a mantra of sorts...with a drumbeat that constantly reminds us nothing is more important than doing the job right.

"The pressures of cost and schedule are great," said Ettlich, "thus requiring us to ensure standards are upheld, even under the harshest of pressures." Because, after all, he said, "*an honest mistake can kill someone just as dead as malpractice.*"

APRIL 10, 1963.

129 LIVES LOST.

Will you remember their lesson?

