



# THIS DAY IN NAVAL SAFETY HISTORY

AUGUST 21, 2017

**USS JOHN S. MCCAIN (DDG 56) COLLISION  
10 KILLED, 48 INJURED,  
ESTIMATED OVER \$223 MILLION IN DAMAGES**

**EVENT:** At around 5:24 a.m. August 21, 2017, 10 crewmembers were killed and 48 were injured when USS John S. McCain (DDG 56) collided with tanker Alnic MC in the waters of the Singapore Strait. Findings indicated the crew was unprepared for the situation they found themselves in due to insufficient training, inadequate compliance with operating procedures and lack of operational oversight.

On the morning of June 16, 2017, John S. McCain, an Arleigh Burke-class destroyer with a crew of 280, was transiting the Middle Channel passage of the Singapore Strait en route to a routine port visit in Singapore. As the ship entered the strait, one of the busiest waterways in the world, she had a full bridge team of 14 watch standers, including the commanding officer (CO). The CO elected not to station a Sea and Anchor Detail in order to give the crew more time to rest. This was not in compliance with Navy policy for narrow or congested port approaches, and the ship's navigator, operations officer and executive officer had brought this to the CO's attention.

At 5:19 a.m., the CO noticed that the helmsman, was having trouble adjusting engine orders and steering at the same time. The helmsman was compensating for the effects of currents with 1 to 4 degrees of right rudder to stay on course. To correct the problem, the CO ordered the officer of the





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deck (OOD) to split the duties of the helmsman with the Lee helmsman. The Lee helmsman would assume throttle control and the helmsman would keep steering control.

While attempting to transfer to the throttle control, the watchstanders accidentally transferred steering control to the Lee helmsman's console and "un-ganged" the throttles, separating the port and starboard throttle controls from a coupled control to individual throttle control. When steering control was accidentally transferred to the Lee helm console, the helmsman recognized that he no longer had control over the rudder and reported loss of steering. Without steering control, he could not maintain the John S. McCain's heading, and the vessel began to slowly turn to port.

The CO ordered the OOD to slow to 10 knots. The OOD passed this order to the conning officer, who in turn ordered the Lee helmsman to slow. The Lee helmsman responded by pulling back on the throttle control for the port shaft. Since the throttles were un-ganged, this only slowed the port shaft, and with the starboard shaft still turning at a faster speed. The imbalance between the 2 shafts turning at different speeds resulted in an increase rate of turn to port.

Three minutes later, the aft steering helmsman took control of the helm in backup manual mode. However, unbeknownst to the aft helmsman, the aft steering station already had an indicated rudder position of 33 degrees left.





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**This preexisting condition caused the rudder to swing hard left when the aft station took control, further exacerbating the turn to port. Several more transfers of control occurred over the course of this evolution. At no point had the ship actually suffered a mechanical casualty leading to loss of steering or propulsion.**

**In the confusion that followed, John S. McCain's bridge team failed to notice they were crossing the bow of a nearby merchant ship, Alnic MC, a 600-foot oil and chemical tanker with a gross tonnage of 30,000 – about three times the size of the 8,300-ton destroyer. The two ships closed rapidly and collided just five minutes after the CO's order to switch control of speed to the Lee helmsman. Neither vessel sounded five short blasts to indicate impending risk of collision, neither attempted to make contact via VHF bridge-to-bridge communications, and John S. McCain's bridge team did not sound the collision alarm until after the collision occurred.**

**The destroyer was severely damaged, and some crewmembers initially thought the vessel had come under attack. Alnic MC's bulbous bow struck the destroyer's port quarter at berthing compartments 3 and 5 where Sailors were sleeping. Berthing 5, normally a 15-foot-wide space, was reduced by impact to 5 feet and completely flooded by a mixture of fuel and water in less than a minute.**

**Two Sailors out of the 12 in Berthing 5 managed to escape. The remaining 10 crewmembers did not survive. Forty eight others throughout the ship sustained injuries requiring medical treatment and five were so severely injured that they could not return to duty within 24 hours. The collision was the Navy's worst accident in 40 years. John S. McCain underwent extensive repairs and returned to operations in the 7th Fleet in June 2020 – nearly three years after the collision.**



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**LESSONS LEARNED/PREVENTATIVE ACTIONS:** The investigation would determine numerous failures occurred on part of the leadership and watchstanders to include:

- The decision to transfer the location of thrust control onboard the John S. McCain while the vessel was in a congested waterway
- The lack of VHF radio communications between the vessels
- The automatic identification system data transmission policy for Navy vessels
- The procedures for the transfers of steering and thrust control onboard John S McCain
- The training and proficiency of Navy bridge watchstanders
- The design of the destroyer's Integrated Bridge and Navigation System
- Navy watchstanders' fatigue
- Navy oversight of the John S. McCain

The crew was unprepared for the situation they found themselves in due to insufficient training, ineffective command and control, and deficiencies in their watchstanding and navigation processes.

**Major lessons that continue to apply to today's Sailors:**

**Crew Endurance:** Naval Surface Forces implemented a Comprehensive Fatigue and Endurance Management Program that mandates that all surface ships use one of several watch rotations that align with the body's natural circadian rhythm, which generally means standing watch and sleeping at the same time each day in a 24-hour cycle. It also requires ships to have a supporting schedule to protect periods of sleep for watchstanders – no matter when they have watch. Additionally, there is an individual risk management tool used to assess each Sailors' contribution to operational risk for an evolution based on their fatigue level.



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**Actions to Avoid Collision:** As this mishap played out, the bridge team became so hyper-focused on what was going on internal to the ship, that they lost situational awareness regarding the movement of ships around them. When they realized they were in extremis, they failed to take all required actions to avoid the collision. Ships are required to keep a proper look out at all times, to proceed at a safe speed such that they can take effective action to avoid collision, and when the risk of collision exists to promptly take appropriate action in accordance with the Convention on the International Regulations for Preventing Collisions at Sea.

**Configuration Variance:** Many weapon systems and control systems throughout the surface fleet have a number of different configurations. This variance is similar to how a home computer may have windows 10 or 11 as the base operating system. The variance can be enough that a Sailor being trained/qualified on one system does not enable them to safely operate other variations of the same system. In this mishap, the Lee helmsman was TAD from a CG who had a very different ship control console. A similar train of logic can be applied when new systems or upgrades to current systems are fielded on a ship, do they come with new training such that Sailors can safely operate the new/upgraded systems.

**References:**

**National Transportation Safety Board (NTSB) Marine Accident Report NTSB/MAR-19/01 "Collision between US Navy Destroyer John S McCain and Tanker Alnic MC Singapore Strait, 5 Miles Northeast of Horsburgh Lighthouse August 21, 2017"**