



H-Gram 019: A Mysterious Swift Boat Loss, "Black May," and "Black Sunday"

22 June 2018

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"Vigil," painting, oil on canvas board, by R. G. Smith, 1969 (88-160-FJ).

*I regret that due to the IG inspection of Naval History and Heritage Command the commemorations for the Battle of Midway and the USS *Scorpion* (SSN-589), the untimely upgrade of my NIPR computer, and the press of my day job, I got behind. So, a couple of these items would have been better last month, but I hope you find them of interest anyway. As always, I produce these in response to the CNO "Campaign Design for Maintaining Maritime Superiority" task to "know our history," with the intent of hopefully stimulating greater interest in U.S. naval*

history. I do not claim that these are "scholarly," but I go to great length to make them accurate, and hopefully compelling, with a focus on the command-and-control challenges faced by Navy leaders who came before, and on the valor and sacrifice of U.S. Navy personnel, which should always be remembered. Further dissemination is encouraged and appreciated.

50th Anniversary of Vietnam War

The Mystery of Swift Boat PCF-19

Shortly after midnight on 16 June 1968, according to witnesses, the Swift boat PCF-19 “disappeared in a flash of light” while on patrol off the coast of Vietnam, just south of the demilitarized zone (DMZ). Two badly wounded members of PCF-19’s crew were rescued, including the skipper, Lieutenant Junior Grade John Davis. However, four crewmen were lost, in addition to a South Vietnamese navy petty officer-interpreter. One of the American crewmen, QM2 Frank Bowman, is still missing in action. PCF-12 responded to the sinking and reported engaging and possibly downing a helicopter, presumably North Vietnamese. The U.S. Coast Guard cutter Point Dume (WPB-82325) reported being attacked by rockets and automatic weapons fire, which missed.

At almost the same time the next night and in the same area as the loss of PCF-19, the Australian destroyer HMAS Hobart (D-39) was attacked by a jet aircraft and struck by three missiles, two of which detonated, killing two crewmen and wounding 11 others. As the aircraft closed for a third pass, Hobart opened fire with her forward gun and drove the plane off. At about the same time, missiles exploded close aboard the cruiser USS Boston (CA-69), spraying her with shrapnel. Shortly after, still in early morning darkness, the destroyer USS Edson (DD-946) came under aerial attack, but escaped damage. The subsequent court of inquiry concluded that Hobart and Boston had been hit by Sparrow air-to-air missiles (based on identifiable missile fragments found on board) fired by U.S. Air Force F-4 Phantom jets from the 366th Tactical Fighter Wing, which thought they were firing on low-flying helicopters. The court of inquiry also concluded that PCF-19 had been hit by friendly fire—and even conflated the two incidents—and the confusion persists to this day. In this case, the preponderance of reliable evidence suggests that the court of inquiry got it wrong. As rare as it was for North Vietnamese helicopters to engage in offensive action (they were used almost exclusively for resupply) it appears that was the case in the loss of PCF-19. (The UFO Community believes

this is a case of extraterrestrials studying Earth’s defensive capabilities—not very likely, but it makes for entertaining reading.) For more on the sinking of PCF-19 and the attack on HMAS Hobart, please see attachment H-019-1.

First Medal of Honor for Naval Aviator in Vietnam War: Lieutenant Junior Grade Clyde Everett Lassen

Lieutenant Clyde Everett Lassen was awarded the Medal of Honor for a daring night helicopter rescue of the pilot and radar intercept officer (RIO) of a downed Navy F-4J Phantom II inside North Vietnam on 19 Jun 1968 (in the same confined area described in the PCF-19 article). A lieutenant junior grade at the time, Lassen made multiple attempts to extract the pilot and RIO, which were thwarted by collision with trees, dense jungle undergrowth, hills, darkness due to flares burning out, and enemy fire. With fuel running very low, Lassen ultimately had to turn on his landing lights, which drew heavy enemy fire, in order to successfully accomplish the rescue. Avoiding additional North Vietnamese missiles and anti-aircraft fire on the egress, Lassen recovered on a U.S. Navy destroyer off the North Vietnamese coast with less than five minutes of fuel remaining. Lassen was the first naval aviator, and the only rotary wing naval aviator, to be awarded a Medal of Honor for action in Vietnam (Rear Admiral James Stockdale and Captain Michael Estocin would be the other two naval aviators to receive the Medal of Honor). Lassen’s co-pilot was awarded a Navy Cross, and his two aircrewmen/gunners were each awarded a Silver Star for their gallantry under heavy fire. For more on this heroic rescue and the text of Lassen’s Medal of Honor Citation, please see attachment H-019-2.

50th Anniversary of Loss of USS Scorpion

On 27 May 1968, the USS Scorpion (SSN-589) became officially overdue when she did not arrive in Norfolk as scheduled, having been lost with all 99 of her crew in an accident at about 1800Z on 22 May 400 nautical miles southwest of the Azores while returning to the United States from a Mediterranean deployment. The loss of Scorpion, along with the earlier accidental loss of USS Thresher (SSN-593) on

10 April 1963 (with 129 aboard), resulted in lessons learned that led to an extremely rigorous program of submarine safety (the SUBSAFE program) including rugged design, rigorous quality control, procedural compliance, oversight, and selecting and training the best possible people. The result has been that no U.S. submarine has been lost in the 50 years since the Scorpion disaster, although there have been several close calls. This compares very favorably with the Soviet/Russian navy, which has lost ten submarines since Scorpion. The year 1968 was a particularly bad year for submarines: The Israeli submarine Dakar, the French submarine Minerve, and the Soviet Golf II-class ballistic missile submarine K-129 were all lost to accidents. The 50th anniversary of the loss of Scorpion provides an opportunity to remember and honor the courage of those who have served in harm's way under the sea, and to particularly remember the extraordinary sacrifices made by their families.

The reality is that submarine operations, whether in peace or war, have always been inherently and extremely dangerous, and that remains so today. The fact that no U.S. submarines have been lost in 50 years is not the result of chance, but to the lessons learned and incorporated from previous accidents. Prior to the loss of Thresher, the U.S. Navy lost over 21 submarines to accidental causes (not counting "friendly fire" or circular-running torpedoes). The number may be even higher, because eight submarines are assessed to have been lost to Japanese mines, but the exact cause (and location) of their loss is unknown. In fact, the very first U.S. Navy submarine, USS Alligator (and you probably thought it was Holland-SS-1) was lost in a storm while under tow off Cape Hatteras on 2 April 1863. There was also a dozen or so significant submarine accidents resulting in fatalities, but not loss of the boat. In several instances, lost submarines were raised and returned to service; the most noteworthy example of this was USS Squalus (SS-192), which sank off Portsmouth, New Hampshire, on 23 May 1939, with the loss of 26 of her crew, but was raised, repaired, and renamed USS Sailfish (SS-192). The boat then conducted 12 war patrols and earned the Presidential Unit Citation as the first submarine to sink a Japanese carrier (Chuyo). Of the 52 U.S. submarines lost during World War II, only 33 are

known to have certainly been sunk as a result of enemy action, although others are probable, and some others were combat-related, such as USS Tang (SS-306) and USS Tullibee (SS-289), sunk by their own circular-running torpedoes.

For more on the history of U.S. Navy submarine non-combat losses and significant accidents, please see attachment H-019-3.

75th Anniversary of World War II

"Black May"—The Tide of the Battle of the Atlantic Turns

On 9 June 2018, at the age of 105, Reinhard Hardegan, the last-known surviving German U-boat commander passed away. Kapitän-Leutnant Hardegan commanded the first German U-boat to reach American waters after Pearl Harbor and commenced attacks on 15 January 1942, achieving significant success thanks to U.S. unpreparedness (and the lights of U.S. cities that silhouetted his targets) and resulting in what became known as the "Second Happy Time" for the U-boats and months of extremely heavy Allied shipping losses in the western Atlantic. (Of note, at the age of 100, Hardegan had a great quote in an interview with the Atlanta Journal-Constitution: "Now I sink putts. Not ships!"—Washington Post obituary, 19 June 2018.)

However, on 24 May 1943—in what the Germans referred to as Schwarzer Mai ("Black May")—Grossadmiral Karl Dönitz issued a general recall message as U-boat losses in the Atlantic reached unsustainable levels without inflicting sufficient losses on Allied shipping. "Black May" is generally considered the turning point in the Battle of the Atlantic, and it happened with surprising rapidity given the brutal see-saw convoy battles that characterized the first months on 1943 and saw very heavy losses on both sides. In May 1943, 43 U-boats were lost to all causes, equaling 25 percent of the operational force. Losses included Dönitz's son, aboard U-954, in an attack against convoy SC-130, in which five U-boats were lost without sinking any of the Allied ships. March 1943 had actually been the

peak of the Atlantic convoy battles, with the Allies losing 120 ships and Germany losing 12 U-boats (15 in some sources). In May, the Allies lost 58 ships, while the German losses were three times greater than the worst month since the war began.

The Germans never really recovered after “Black May,” although they were pursuing advanced technologies that had the potential to turn the tide back in their favor, but were unable to bring those on line in sufficient quantity before the war would end. There would still be hard-fought battles and losses on both sides in the Atlantic, but U.S. and Allied hunter-killer task groups would be on the offensive for the rest of the war. As important as the Battle of Midway was, a strong case can be made that the Battle of the Atlantic was even more important. Although not won in a single day as Midway was, had the Battle of the Atlantic, which stretched over the course of the entire war, been lost, Europe would likely be speaking German (or possibly Russian) and our world would be a very different place. For more about the turning of the tide in the Battle of the Atlantic, in particular the critical roles of intelligence, and advanced technologies, please see attachment H-019-4.

100th Anniversary of World War I

“Black Sunday” and the Battle of Orleans—World War I Comes to American Waters

On 2 June 1918, in what would become known in the press as “Black Sunday,” the Imperial German Navy “U-cruiser” U-151 sank six ships off the New Jersey coast in a single day, bringing World War I to American waters for the first time, and provoking public hysteria up and down the eastern seaboard. Actually, the war had arrived on 21 May, when U-151 (under the command of Korvettenkapitän Heinrich von Nostitz und Janckendorf) laid 18 mines off the Delaware capes and cut the submerged telegraph cable between New York and Nova Scotia. On 25 May, U-151 stopped three U.S. schooners off Cape Hatteras, sank them with gunfire, and took all 26 U.S. fishermen on board in order to remain undetected.

Actually, U.S. Navy officials were well aware of U-151’s transit and arrival, having been kept informed by regular updates from British Royal Navy intelligence, which had broken the German codes. However, in order to preserve the secrecy of the code-breaking success, no operational reaction was authorized based solely on the code-breaking intelligence. Aside from its foreknowledge, the U.S. Navy would discover that despite having built hundreds of submarine chasers and commandeered (and armed) over 500 yachts for just such an eventuality, trying to find a single submarine cruising up and down the U.S. east coast was an extremely difficult task with the technology of the time. U-151 would go on to sink 23 ships on this deployment (mostly fishing boats), but the howl from the public and politicians to bring back the U.S. Navy destroyers from European waters was intense. Although there had been significant opposition in the Navy to the deployment of most of the Navy’s destroyers to Europe in 1917, that opposition had faded once it became better known just how desperate the situation was in the spring and summer of 1917 due to U-boat depredations. Although political pressure in the United States was intense, the Navy stayed the course with the strategy of escorting convoys as they entered the approaches to the United Kingdom and France.

With the apparent success of U-151’s mission, she was followed by U-156, which operated off the U.S. east coast in July and August 1918 with equal impunity. U-156 laid the mines off Fire Island, New York, which were probably responsible for sinking the armored cruiser USS San Diego (Armored Cruiser No. 6), the largest U.S. Navy warship lost during the war, although casualties were relatively light at six sailors killed. U-156 also engaged in what became known as the Battle of Orleans, when she surfaced just off the coast of Orleans, Massachusetts, on Cape Cod, and sank a tug and three barges with gunfire in plain sight of the shore, with some of her shells going long, although they caused no significant damage to the village. Nevertheless, this was the first shelling of the U.S. mainland since the Mexican War. U.S. Navy seaplanes from the newly established Naval Air Station Chatham sortied and attacked the U-156 with bombs. Unfortunately, most

of the bombs were defective, but they drove U-156 under. However, U-156 resurfaced and reloaded her guns with shrapnel rounds and engaged the aircraft, with equal lack of success. This incident was the first time U.S. Navy aircraft attacked a submarine in the western Atlantic. Despite the apparent success of U-156's mission, a key metric was that during August 1918 U.S. convoys delivered 286,375 U.S. troops aboard 140 transport ships, without loss to U-boats. U-156, on the other hand, struck a mine in the North Sea mine barrage and sank with all hands while trying to return to Germany. For more on "Black Sunday" and other U-boat operations along the U.S. east coast, please see attachment H-019-5.



A U.S. Navy fast coastal patrol boat (PCF-94) cuts through the water of the Gulf of Thailand on a patrol along the coast to prevent the infiltration of Viet Cong and their supplies by sea, March 1968 (USN 1130649).

H-019-1: The Mystery of PCF-19

H-Gram 019, [Attachment 1](#)

Samuel J. Cox, Director NHHC

June 2018

PCF-19 was one of four Swift boats lost in combat during the Vietnam War (seven more were lost to heavy seas or severe weather, some after being transferred to the South Vietnamese navy). *PCF-4* was destroyed by a command-detonated mine

in February 1966 (four killed, two wounded). *PCF-41* was damaged by heavy shore fire and a mine in May 1966 and abandoned (one killed, others wounded) and later deemed unsalvageable. In April 1969, *PCF-43* came under recoilless-rifle and rocket fire, and was beached and burned when a cargo of explosives detonated (four killed). However, what sank *PCF-19* remained lost in the fog of war for many years, although the initial court of inquiry assessed that it was the result of friendly fire from U.S. Air Force aircraft.

After President Johnson unilaterally called a halt to U.S. bombing north of the 19th parallel on 31 March 1968, U.S. Navy aircraft from carriers on

Yankee Station in the Gulf of Tonkin and U.S. Air Force aircraft from bases in Thailand and South Vietnam continued to strike targets in North Vietnam, north of the demilitarized zone (DMZ) between the 17th and 19th parallels. The result was a lot of aircraft crowded into a relatively confined area, with what some senior commanders at the time assessed as inadequate command and control. The North Vietnamese responded to the partial bombing halt (and "good will" gesture) by pulling surface-to-air missile batteries from the heavily defended Hanoi and Haiphong areas and moving them into the confined space where U.S. aircraft were still conducting strikes, making the southern part of North Vietnam even more dangerous.

Throughout the spring of 1968, U.S. Marine Corps and other observers reported hovering lights at night flying just north of the DMZ and even out over water between North Vietnam and Tiger Island (which was held by the North Vietnamese). In typical American black-humor fashion, these contacts were frequently referred to as "UFOs." Although the lights were presumed to be helicopters, daylight reconnaissance missions could find no trace of helicopters in the vicinity of the DMZ or on or near Tiger Island, nor was there any other intelligence indicative of North Vietnamese helicopter operations in that area, not to mention the obvious question: Why would they have their lights on? Various theories, such as thermal ducting, were postulated to try to explain why hovering lights could plainly be seen, but no helicopters could be found. At the time, North Vietnam had Soviet-supplied MI-4 Hound helicopters that could be equipped with rockets and machine guns, but they were used almost exclusively for urgent resupply missions along the Ho Chi Minh trail in Laos. Some sources erroneously call them Hind helicopters, but that Soviet attack helicopter was still in development at the time. (I could find no reports of North Vietnamese helicopter attacks, other than the *PCF-19* incident, although I can't say I exhausted every possible source.)

PCF-19 was definitely hit by something shortly after midnight on the night of 15/16 June 1968, and it was sudden, catastrophic, and a surprise. The U.S. Coast Guard Cutter *Point Dume* reported seeing *PCF-19* hit by two rockets from an unidentified source, and several hours later came under fire herself from an unidentified aircraft (the *Wikipedia* entry for *Point Dume* conflates this incident with the attack of the following night on *HMAS Hobart* (D-39) and *USS Boston* (CAG-1), as do other sources, and as did the court of inquiry.) *Point Dume* pulled two badly wounded survivors from *PCF-19* from the water. The explosion and rapid sinking of the Swift boat was also reported by the naval gunfire liaison officer at Alpha One, an observation post at the DMZ.

PCF-12, under the command of Lieutenant Junior Grade Pete Snyder, responded to the attack on *PCF-19*, and the eye-witness accounts of the crew of *PCF-12* are remarkably clear that they were fired on by a helicopter (which was subsequently identified as matching the characteristics of an MI-4 Hound). *PCF-12* also reported returning fire, and hitting and possibly downing the helicopter (although no wreckage or parts of the helicopter were found during searches the next day). While searching for survivors of *PCF-19*, *PCF-12* was lit up by four amber-colored illumination rounds directly overhead that did not come from *Point Dume*, which had already departed with the two survivors. At this point, *PCF-12* sighted two aircraft hovering off both port and starboard beams. Radio requests from *PCF-12* to U.S. authorities ashore to verify the identity of the two aircraft confirmed that there were no friendlies in the area, and that the shore observation post had both radar and night scope contact on the unidentified aircraft, and that they were not squawking IFF. (Of note, the PCFs didn't have IFF either.) *PCF-12* turned to put the two helicopters on the bow and stern, at which point one of the helicopters opened fire with machine guns with tracer rounds. In the running gun battle that followed, *PCF-12* returned fire with .50-caliber machine guns, radioing that it was under attack by

unidentified aircraft. Gunners on *PCF-12* reported hitting one helicopter and hearing it splash in the water, at which point the other helicopter broke contact. Later, as *Point Dume* returned to the scene, *PCF-12* observed her firing tracers at blinking lights in her vicinity.

With daylight on 16 June, and continuing to 18 June, U.S. Navy divers from USS *Acme* (MSO-508) surveyed the wreck and initially recovered three bodies, which were later identified as two U.S. and one Vietnamese. Years later, in 2001, a third U.S. body was recovered on another dive. *PCF-19* was resting right side up on the bottom, with damage consistent with being hit by two rockets, with two entry holes in the forward berthing compartment and no exit holes. Three U.S. crewmen in the compartment were killed, and the South Vietnamese liaison was killed in the main compartment. The skipper and two other sailors topside were blown off the boat into the water. The skipper was blinded and all were severely wounded. One was Bowman, who apparently died in the water; his body was never found. GMG2 John R. Anderegg would be awarded a Silver Star for his actions in saving his skipper and trying to save Bowman. Those lost were GMG2 Billy S. Armstrong, QM2 Frank Bowman, BM2 Anthony Chandler, EN2 Edward Cruz, and Bui Quang Thi, the South Vietnamese liaison.

On the night of 16/17 June, HMAS *Hobart* was operating with the USS *Boston*, USS *Edson* (DD-946) and USS *Theodore E. Chandler* (DD-717) off the coast of North Vietnam in the vicinity of Tiger Island. *Hobart* was on her second of three Vietnam deployments in support of U.S. and allied forces, and was an Australian version of a *Charles F. Adams*-class guided missile destroyer. The ships had been conducting shore bombardments of the North Vietnamese coast as part of Operation Sea Dragon and had been fired upon unsuccessfully by enemy shore batteries in the previous days. They were operating near Tiger Island to investigate the reports of North Vietnamese helicopter activity the night before.

At 0309 on 17 June, *Hobart* tracked an incoming aircraft that had no IFF transponder active, but did not open fire. At 0314, the aircraft fired a missile that hit *Hobart*, killing one sailor and wounding two others, and damaging the chief petty officer's mess, air search radar and missile control compartments, and the funnels. Two minutes later, the same aircraft attacked again and fired two missiles, which hit simultaneously. Although one missile did not detonate, it penetrated the superstructure and caused damage. The other missile hit in the same area as the first, causing considerable damage in the vicinity of the Ikara missile magazine, and killing another sailor and wounding six more. As *Hobart* was not carrying any Ikaras (an anti-submarine weapon), there was no risk of the resulting fire detonating the magazine. The aircraft then made a third pass, and *Hobart* opened fire with her forward 5-inch /54-caliber gun mount under local control, firing five rounds that caused the plane to break off. A total of two Australian sailors were killed and 11 were wounded. (Accounts of the *Hobart* incident also confuse the timing of the *PCF-19* attack.)

Also after midnight on the night of 16/17 June, USS *Boston* (CA-69) came under attack and was damaged by shrapnel from near-misses by air-launched missiles and automatic-weapons fire—many accounts also conflate this with the attack on *PCF-19* the night before. (For the purists, *Boston* was converted to a missile cruiser in 1952 and reclassified from CA-69 to CAG-1, but in May 1968 was reclassified back to CA-69—although she was still a missile cruiser.... I am sure this is perfectly clear!)

Following the attacks on the *Hobart* and *Boston*, the commander of the U.S. Seventh Fleet, Vice Admiral William F. Bringle, initiated an investigation. Aided by missile components that were definitely from U.S. air-to-air Sparrow missiles, the inquiry concluded that the ships had been attacked by mistake by U.S. Air Force F-4 Phantoms. This was correct, but based on the

confusing timelines, and since there was no other evidence of enemy helicopter activity (except for the eyewitness accounts), the inquiry also concluded that *PCF-19* had been hit by friendly fire from U.S. aircraft. Thus, the pilots and RIOs of two USAF F-4 Phantoms that reacted to the reports of helo activity got the blame. The upside was that both the U.S. Navy and U.S. Air Force took immediate corrective steps to resolve command, control, and coordination issues identified in the inquiry, and no other similar attacks occurred.

(Sources include NHHHC Dictionary of American Fighting Ships [DANFS] entries for individual ships involved, and "Swift Boat Down: The Real Story of the Sinking of PCF-19," 2006, by ENC [Ret.] Jim Steffes—who was on PCF-12—which I found to be very well-researched.)



A UH-2A Seasprite helicopter awaits rescue assignment onboard USS Bonhomme Richard (CVA-31) in the South China Sea, March 1967 (USN 1142103).

H-019-2: Medal of Honor for LTJG Clyde Lassen

H-Gram 019, Attachment 2
Samuel J. Cox, Director NHHC
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On the night of 18/19 June 1968, an F-4J Phantom II ("Root Beer 210") of VF-33, flying off USS *America* (CVA-66), was shot down by an SA-2 surface-to-air (SAM) missile over the southern panhandle of North Vietnam while on a night interdiction mission. The F-4J, piloted by Lieutenant Commander John "Claw" Holtzclaw, out-maneuvered the first pair of missiles. However, the evasive action left the plane low and

slow in a classic case of, as later described by Holtzclaw, "out of airspeed, altitude, and ideas," and the jet was hit and downed by a third missile. Holtzclaw and his radar intercept officer (RIO), Lieutenant Commander John "Zeke" Burns, both survived ejection and parachuted into a rice paddy (Burns with a leg fracture) in North Vietnam surrounded by hills, trees, and enemy soldiers.

Lieutenant Junior Grade Clyde Everett Lassen and his crew, flying in a UH-2A Seasprite ("Clementine Two") of HC-7 Det 104, launched shortly after midnight from USS *Preble* (DLG-15/DDG-46), off the coast of Vietnam to attempt a rescue of the two downed survivors. Of the UH-2A's four-man flight crew, only Lassen had previous experience with an overland combat search-and-rescue mission. Two North Vietnamese SAMs were fired at Lassen's helo after crossing the beach, but

missed. Guided by the burning wreckage of the crashed F-4J, and aided by flares dropped by other aircraft, Lassen went in for the rescue, which is best described in the text of his Medal of Honor citation:

"For conspicuous gallantry and intrepidity at the risk of his life above and beyond the call of duty as pilot and aircraft commander of a search and rescue helicopter, attached to Helicopter Support Squadron 7, during operations against enemy forces in North Vietnam. Launched shortly after midnight to attempt the rescue of two downed aviators, LT (then LTJG) Lassen skillfully piloted his aircraft over unknown and hostile terrain to a steep, tree-covered hill on which the survivors had been located. Although enemy fire was being directed at the helicopter, he initially landed in a clear area near the base of the hill, but, due to the dense undergrowth the survivors could not reach the helicopter. With the aid of flare illumination, LT Lassen successfully accomplished a hover between two trees at the survivors' position. Illumination was abruptly lost as the last of the flares were expended, and the helicopter collided with a tree, commencing a sharp descent. Expertly righting his aircraft and maneuvering clear, LT Lassen remained in the area, determined to make another rescue attempt, and encouraged the downed aviators while awaiting resumption of flare illumination. After another unsuccessful illuminated rescue attempt, and with his fuel dangerously low, and his aircraft significantly damaged, he launched again and commenced another approach in the face of enemy opposition. When flare illumination was again lost, LT Lassen, fully aware of the dangers in clearly revealing his position to the enemy, turned on his landing lights and completed the landing. On this attempt, the survivors were able to make their way to the helicopter. En route to the coast he encountered and successfully evaded additional hostile anti-aircraft fire and, with fuel for only five minutes of flight remaining, landed safely aboard USS JOUETT (DLG-29.)"

Lassen initially attempted to use a jungle penetrator to get a hoist through the tree canopy, but two attempts failed due to the density of growth. When he collided with the tree in darkness, the horizontal stabilizer was damaged, as was the starboard cabin door, which later blew off during the egress. Throughout the encounter, Lassen's two gunners, Aviation Machinist's Mate Third Class (ADJ3) Don West and Aviation Electrician's Mate Second Class (AE2) Bruce Dallas (each awarded a Silver Star), responded to and suppressed heavy incoming enemy fire with M-60 machine-gun fire, while co-pilot Lieutenant Junior Grade LeRoy Cook (awarded a Navy Cross) assisted with maintaining situational awareness on the harrowing flight in and out of the trees. The skipper of *Jouett*, Captain Robert Hayes (awarded a Bronze Star), displayed great initiative and daring in bringing his ship within three miles of the North Vietnamese coast and turning on his flight deck lights, which greatly aided Lassen in getting his bullet-riddled aircraft on board (*Jouett* rescued eight flyers downed by enemy fire during this deployment). The helicopter Lassen flew would later be lost in an accident in the South China Sea in 1969. Lassen retired from the Navy as a commander in 1982, but, sadly, would die from cancer in 1994 at age 52. The *Arleigh Burke*-class destroyer USS *Lassen* (DDG-82), commissioned on 21 April 2001, was named in Clyde Lassen's honor.



USS Scorpion (SSN-589) alongside USS Tallahatchie County (AVB-2) outside Claywall Harbor, Naples, Italy, in April 1968, shortly before she departed on her last voyage. This is believed to be one of the last photographs taken of Scorpion (NH 68140).

H-019-3: U.S. Navy Non-Combat Submarine Losses and Major Accidents

H-Gram 019, [Attachment 3](#)

Samuel J. Cox, Director NHHC

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Any compilation of losses and accidents will skew perception, so it is important to note that the list below must be compared against several thousand successful and safe submarine patrols, often completed despite the most arduous and dangerous conditions demanding an

extraordinary degree of professionalism by their crews to operate safely.

Determining how many U.S. Navy submarines have been lost to accident is a challenge and depends on how they are counted. Some submarines were lost before being commissioned, some were lost after being decommissioned, some were lost in shipyard accidents, some were lost but raised and returned to service, some were not lost but were so severely damaged that they were not returned to service, and some were lost by accident in a combat environment. The following is list of all significant accidents involving U.S. submarines that are in the public domain.

Losses and Accidents Prior to World War II

On 2 April 1863, USS *Alligator* broke loose from her tow in a storm off Cape Hatteras and foundered. No one was aboard. *Alligator* is the first known U.S. Navy submarine and was an extraordinarily sophisticated piece of machinery for her day (with a diver lock-out chamber, for example.) *Alligator* was designed as a counter (along with the ironclad USS *Monitor*) to the Confederate ironclad CSS *Virginia* (ex-USS *Merrimack*), which Union Intelligence reports indicated was under construction. *Alligator* conducted one reconnaissance mission up the James River as far as City Point, Virginia. The Union naval commander in the area determined that any Confederate targets were in water too shallow for *Alligator* to attack, and should the vessel run aground and fall into Confederate hands, his own ships would be defenseless against her. So, she was returned to the Washington Navy Yard for further tests and was en route to participate in the blockade of Charleston, South Carolina, when she sank. (As an aside, the Confederate submarine CSS *Hunley* was sunk while attacking, and sinking, the Union frigate USS *Housatonic* off Charleston on 17 February 1864. Even though *Hunley* has been raised, the exact cause of her sinking is still unknown, and none of the theories seem to fit the observed evidence.)

On 10 December 1910, in the first known significant U.S. submarine accident, the USS *Grampus* (SS-4—later re-named A-3) suffered an explosion in her main engine (which was gasoline-powered), which killed one crewman. The dangers of gasoline engines on submarines were becoming increasingly apparent, and then-Lieutenant Chester Nimitz was a leader in the effort to transition submarine power plants to diesel engines.

In late 1912, the USS *F-1* (SS-20) slipped from her mooring in Monterey Bay, California, and was driven aground. Two of her crewmen were killed and 17 were rescued. *F-1* was recovered,

repaired, and returned to commission (only to be sunk several years later).

On 25 March 1915, USS *F-4* (SS-23) sank near Hawaii in 300 feet of water due to an acid leak that caused corrosion of the lead lining of the battery, resulting in hull compromise and battery failure. All 21 of her crew were lost. This was the first loss of a manned, commissioned U.S. Navy sub at sea. The submarine was subsequently raised on 29 August 1915. One of the divers involved was John Henry Turpin, probably the first African-American to qualify as a U.S. Navy master diver.

On 15 January 1916, USS *E-2* (SS-25) suffered a battery explosion at the New York Navy Yard that killed four crewmen and injured seven. The subsequent investigation was led by Lieutenant Chester Nimitz. The commanding officer, Lieutenant Charles M. Cooke, Jr., was not blamed for the accident (more on him later).

On 24 July 1917, USS *A-7* (SS-8) suffered a gasoline explosion in Manila Bay that killed seven crewmen, including the commanding officer, Lieutenant Junior Grade Arnold Marcus, who despite his burns remained aboard attempting to beach the boat, and refused medical treatment until all his crew had been attended to first. Although *A-7* did not sink, she was not returned to service. The destroyer USS *Marcus* (DD-321) was named in honor of the commanding officer, the first ship named for a submarine officer.

On 17 December 1917, USS *F-1* (SS-20) sank off San Diego after colliding with submarine USS *F-3*; five crewmen who were topside were rescued, but 19 were lost.

On 7 March 1918, a U.S. Navy liaison officer on board HMS *H-5* was killed (along with the entire British crew) when *H-5* was mistaken for U-boat, rammed, and sunk.

On 30 July 1919, USS G-2 (SS-27), which had been decommissioned and was being readied for use as a depth-charge test target in Niantic Bay near New London, sank at her mooring. Three members of a six-man inspection party were lost with the submarine, which was not salvaged. On the evening of 12 March 1920, USS H-1 (SS-28) ran aground in Magdalena Bay (Baja), Mexico, while transiting from the U.S. east coast to the west coast. The crew had to swim for shore and three drowned while the commanding officer, Lieutenant Commander James R. Webb, was washed off the bridge by a large wave and lost. The repair ship USS *Vestal* (AR-4), of later Pearl Harbor fame, pulled H-1 off the rocks, but the sub sank shortly thereafter in 50 feet of water.

On 1 September 1920, USS S-5 (SS-110) flooded and sank during full power trials off the Delaware Capes, resulting in one of the most remarkable cases of submarine crew survival. Under command of Lieutenant Commander Charles M. "Savvy" Cooke, Jr., S-5 took in water via the main air induction system and sank to the bottom in 180 feet of water. Unable to pump water from the forward torpedo room, the crew was able to blow the aft tanks causing the stern to rise above the surface. The crew then attempted to cut a hole through the hull, but after 36 hours the hole was still only several inches wide. On 3 September, the wooden steamship *Alanthus* sighted the S-5's stern above water, and was able to determine via Morse code hull taps that S-5's crew was still alive. In one of the most famous submarine signals, in response to "Where bound?" the S-5 replied "Hell by compass." *Alanthus* had no radio, but was able to signal via flag hoist another steamer, SS *General G. W. Goetha*, which had the necessary tools to enlarge the hole enough to enable S-5's entire crew to escape. Lieutenant Commander Cooke was the last of 38 men out. Cooke went on to be commanding officer of the battleship USS *Pennsylvania* (BB-38) at Pearl Harbor, and then served throughout World War II as Admiral King's lead planner and strategist (Cooke was actually one of the most brilliant and influential, but

unheralded, senior officers in the war) and retired as a vice admiral in command of the U.S. Seventh Fleet after World War II.

On 7 December 1921, S-48 (SS-159) took in water via an unsecured manhole plate in the aft ballast tank during a pre-commissioning dive off Long Island, and the stern sank in 80 feet of water. The entire crew, contractors, and observers were able to escape via a forward torpedo tube, which was above water. S-48 was raised, repaired, and commissioned, serving as a training submarine during World War II before being scrapped in 1946.

On 10 October 1923, USS S-37 (SS-142) suffered a battery explosion at San Pedro, California, which killed three crewmen. S-37 was repaired and conducted several war patrols in the Pacific during World War II.

On 28 October 1923, the steamer SS *Abangarez* collided with the USS O-5 (SS-66) on the surface in Limon Bay off Panama. Three crewmen died, but 16 were able to escape before O-5 sank in 42 feet of water. Torpedoman Second Class Henry Breault could have escaped, but went back below to retrieve Chief Electrician's Mate Lawrence T. Brown, who had been sleeping. Unable to escape, Breault was able to dog the compartment hatch and the two were trapped in the sunken submarine, but were alive. Multiple unsuccessful attempts were made to raise the submarine with crane-equipped salvage barges, before finally succeeding after 31 hours. Breault and Brown both survived, and Breault was awarded the Medal of Honor for his bravery; he was the first submarine crewman awarded the Medal of Honor and the only enlisted submarine sailor to be so recognized.

On the night of 25 September 1925, USS S-51 (SS-162) sank off Block Island, Rhode Island, after a collision with SS *City of Rome*. Thirty-three of 36 crewmen were lost. S-51 was raised, but not returned to service.

On 20 April 1926, USS *S-49* (SS-160) suffered a battery explosion at New London, which killed four crewmen and injured nine. *S-49* was repaired and returned to service, but was sold in 1931 to a private entity and used as a floating tourist attraction. She was re-acquired by the Navy in 1941 for use in mine warfare experiments, but she foundered in the Patuxent River in 102 feet of water on 16 December 1942.

On 17 December 1927, USS *S-4* (SS-109) sank after being rammed by USCGC *Paulding* off Provincetown, Massachusetts. All 40 crewmen were lost. Six crewmen survived the initial sinking, but were trapped aboard the sunken submarine. Although divers were able to determine the six were still alive and were able to communicate with them via tap Morse code, adverse weather thwarted all attempts to rescue them. Navy diver Chief Gunner's Mate Thomas Eadie was awarded the Medal of Honor for rescuing, at great risk, another diver who had become entangled while trying to attach an air supply to the sub. The *S-4* was subsequently raised in 1928 in a salvage effort commanded by Captain Earnest J. King (future CNO). *S-4* was recommissioned in October 1928, used as a test platform for submarine rescue, decommissioned in 1936, and deliberately sunk on 15 May 1936.

On 11 January 1934, a signal cartridge accidentally exploded on board USS *S-34* (SS-139,) killing one crewman.

On 26 February 1936, the USS *R-8* (SS-85), which had been decommissioned in May 1931, sank at her mooring in Philadelphia. She was subsequently raised and used as a bomb target off Cape Henry, Virginia, where she sank.

On 23 May 1939, USS *Squalus* (SS-192) sank off Portsmouth, New Hampshire, in 243 feet of water during a post-overhaul test dive due to failure of the main induction valve. Flooding in the aft compartments of *Squalus* drowned 26 sailors

immediately, but 33 sailors in the forward compartments remained alive. A rescue effort was mounted under the command of Lieutenant Commander Charles B. "Swede" Momsen (who had received the Navy Distinguished Service Medal in 1929 for inventing the Momsen lung underwater escape device) using the new McCann rescue chamber. This saved the 33 crewmen, including the commanding officer, Lieutenant Oliver Naquin (who would later play a role in the decisions ashore that led to the loss of the cruiser USS *Indianapolis*—CA-35—at the end of World War II). Four Navy divers would be awarded the Medal of Honor for their actions during the rescue operation. After several failed attempts, *Squalus* was raised, repaired, and renamed *Sailfish*, which went on to a distinguished combat record during World War II (see overview).

On 19 June 1941, USS *O-9* (SS-70) sank off Portsmouth, New Hampshire, in 450 feet of water during a deep submergence test (her test depth was 212 feet). All 33 crewmen were lost. Divers set depth and endurance records locating the submarine before further efforts were deemed too dangerous. The sub was raised, repaired, and used as a training submarine during World War II.

Accidental U.S. Submarine Losses During World War II

During World War II, 52 U.S. submarines were lost, along with 375 officers and 3,131 enlisted sailors, a loss rate of about one in five of those who served in the submarine force during the conflict. At least six of the 52 submarines were lost to accident or grounding.

On 20 January 1942, *S-36* (SS-141) ran aground in Makassar Strait, Dutch East Indies. All crewmen survived and were rescued by a Dutch launch.

On 24 January 1942, *S-27* (SS-132) ran aground off Amchitka Island in the Aleutians. All crewmen were able to reach the shore and survived several days before rescue.

On 14 August 1942, S-39 (SS-144) ran aground on Rossel Island in the Coral Sea. All crewmen were rescued.

On 12 June 1943, R-12 (SS-89) was lost due to unknown cause during a training exercise off Key West. Five crewmen on the bridge were rescued, but 42 others were lost.

On 4 July 1944, S-28 (SS-133) was lost due to unknown cause during an ASW exercise off Oahu with all 42 hands. Her wreck was only recently discovered.

On 24 October 1944, USS *Darter* (SS-227) ran aground while pursuing the Japanese heavy cruiser *Takao* in Palawan Passage, Philippines. *Darter's* entire crew was rescued by the USS *Dace* (SS-247).

On 15 March 1945, USS *Lancefish* (SS-296), commissioned that February, flooded via an aft torpedo tube and sank at her pier in Boston with no loss of life. She was raised, but never completely repaired, and never went to sea before being scrapped in 1959. She is not counted in the 52 submarines lost in World War II.

Of the 52 submarines lost, eight are assessed as being sunk by Japanese mines, as there were no recorded Japanese ASW attacks in their operating areas at the time of loss. However, the exact cause of loss of these submarines remains unknown. Only their general operating area is known and, as there were no survivors from any of the subs, accidental causes cannot be completely ruled out.

U.S. Submarines Lost in World War II Due to Defective Torpedoes

On 26 March 1944, USS *Tullibee* (SS-284) fired two torpedoes at a large Japanese freighter in a convoy near the Palau Islands. One of the torpedoes circled back and hit and sank the submarine. Only one crewman survived; he was

picked up by a Japanese destroyer and became a POW.

On 25 October 1944, for the second night in a row, USS *Tang* (SS-306) got into the middle of a large Japanese convoy for a night surface attack in the Formosa Strait, torpedoing multiple cargo ships and a destroyer. Under the command of Commander Richard O'Kane, *Tang* fired her 24th (and last) torpedo (a new Mark 18 electric torpedo), which broached and ran circular. *Tang* took evasive action, but was hit and sunk by the torpedo in 180 feet of water. Four of the nine crewmen topside survived. Of 30 crewmen still alive in the forward part of the boat, 13 escaped via the forward escape trunk using Momsen lungs (the only known instance of this escape device actually being used), five of the 13 were rescued. Of *Tang's* crew, 78 perished. Nine survivors, including O'Kane, were picked up by a Japanese frigate, which was also carrying survivors of the ships *Tang* had sunk the night before. These then severely beat the *Tang* crewmembers, who, however, survived the war as POWs. O'Kane was awarded the Medal of Honor for his actions during the two nights of attacks.

U.S. Submarines Possibly Lost to "Friendly Fire" During World War II

On 24 January 1942, USS S-26 (SS-131) was mistaken for a German U-boat in the darkness and was rammed and sunk by USS *Sturdy* (PC-460) at night in the Gulf of Panama. The commanding officer, executive officer, and a lookout, who were all topside, survived, but 46 crewmen were killed.

On 15 October 1943, the new submarine USS *Dorado* (SS-248) was en route to the Pacific when she was possibly attacked and sunk by a U.S. Navy PBM patrol aircraft while approaching the Panama Canal. The crew of the aircraft had been given incorrect coordinates of the moving restricted area for *Dorado* and attacked a submarine identified as a U-boat in what was actually the restricted area. Postwar records showed that a U-boat was in the same area, but did not record

being attacked. It is also possible that *Dorado* struck a mine laid by another U-boat (*U-214*) that was also operating in the approaches to the Panama Canal. Regardless, there were no survivors from the submarine.

On 4 October 1944, USS *Seawolf* (SS-197), on her 15th war patrol, en route Samar, Philippines, with U.S. Army troops embarked, was possibly attacked and sunk by mistake by the USS *Richard M. Rowell* (DE-403) near Morotai. No Japanese subs were in the area. It is possible *Seawolf* was sunk as a result of an unrecorded attack or an accident, but the evidence suggests "friendly fire" is the most likely cause. There were no survivors among 83 crew plus 17 Army passengers.

Former U.S. Submarines Lost in Foreign Service During World War II

Former *R-19* (SS-96) was transferred to the Royal Navy on 9 March 1942. As RMS *P.514* she was mistaken for a German U-boat, and rammed and sunk by HMCS *Georgian* and lost with all hands.

Former *S-25* (SS-130) was transferred to the Royal Navy on 4 November 1941 as RMS *P.551*. She was then transferred to the Free Polish Navy as ORP *Jastrzab* and was sunk by "friendly fire" on 2 May 1942 by a Royal Navy minesweeper and a destroyer; she was lost with all hands.

Post-World War II U.S. Submarine Losses and Major Accidents

On 21 February 1946, the decommissioned submarine *R-1* (SS-78) sank at her moorings at Key West. Originally commissioned in 1918 and decommissioned 12 years later, she was returned to commission in 1941. In February 1942, *R-1* fired four torpedoes at a surfaced German U-boat (*U-582*) that either missed or failed to detonate. *R-1* was raised and then scrapped.

On 25 August 1949, USS *Cochino* (SS-345), operating in the Norwegian Sea, suffered an electrical fire and subsequent battery explosion, which released chlorine and hydrogen gas.

Cochino's crew fought for 14 hours to save the boat before a second battery explosion doomed their efforts. USS *Tusk* (SS-426) came close aboard and succeeded in rescuing all of *Cochino's* crew except for one civilian "engineer" who was washed overboard along with six of *Tusk's* crew, who all perished in the heavy, cold seas.

On 20 February 1945, USS *Pomodone* (SS-486) suffered a battery explosion at San Francisco Navy Yard, which killed five crewmen and injured six. *Pomodone* was repaired and returned to service.

On 8 June 1957, USS *Tarpon* (SS-175), decommissioned on 15 November 1945, foundered off Cape Hatteras while under tow to the scrap yard.

On 23 April 1958, USS *Cutlass* (SS-478) encountered a severe Atlantic storm and one officer was washed overboard and was lost.

On 28 May 1959, USS *Stickleback* (SS-415) lost power and broached just ahead of USS *Silverstein* (DE-534) off Pearl Harbor. *Silverstein* was unable to back down in time and rammed the submarine, which resulted in slow, but uncontrollable flooding. None of *Stickleback's* crew were lost.

On 14 June 1960, while in Pearl Harbor after completing her North Pole operations, USS *Sargo* (SSN-583), suffered an oxygen feed-line fire that resulted in a low-order detonation of two torpedoes, which killed one crewman. This was the first significant accident involving a U.S. nuclear submarine. Machinist's Mate Third Class James E. Smallwood was posthumously awarded the Navy and Marine Corps Medal for heroism, and the Pearl Harbor BEQ was named for him.

On 23 June 1962, USS *Tiru* (SS-416) suffered a fire in the forward torpedo room, which injured 18 crewmen due to toxic gas.

On 10 April 63, USS *Thresher* (SSN-593) sank while conducting post-overhaul deep-dive trials

east of Boston, and 112 Navy crewmen and 17 civilian shipyard technicians were lost. The exact sequence of events that led to her loss is still debated today, although the court of inquiry reached the conclusion that *Thresher* probably suffered a weld failure in a salt water piping system, leading to flooding and the reactor shutdown ("scram"), which then resulted in an inability to control depth and prevented her from "driving" to the surface (normal procedure). This may have been compounded by possible ice in the valves to blow the main ballast tanks, which prevented her from reaching the surface by an emergency de-ballasting blow (not normal procedure at depth). However, acoustic experts have argued that at maximum depth at which *Thresher* was operating, the pressure is so great that any leak would have resulted in a major acoustic event, which was not detected on acoustic recordings of the sinking. This would suggest something other than flooding led to the reactor shut down. Regardless, the loss of the lead boat of the most advanced class of submarine designed and built to that date was a significant traumatic event, and the fact that it was a nuclear submarine only added to the shock. The result, however, was an extensive top-to-bottom review of all aspects of submarine design, construction, training, and operation. Key aspects of this were codified as the "SUBSAFE" program. SUBSAFE provides a maximum reasonable assurance of the integrity of submarine design, systems, and materials via design review, shipboard system testing, and objective quality evidence that all materials and components meet drawing and specification requirements. Since the implementation of SUBSAFE, no U.S. submarine having all of the program's upgrades and certifications has been lost.

On 30 January 1968, USS *Seawolf* (SSN-575) grounded off the coast of Maine, suffering considerable damage but no serious casualties. She was towed back to New London, repaired, and put back to sea on 20 March 1969.

On 22 May 1968, USS *Scorpion* (SSN-589) was lost due to accident while returning to the United States from a successful Mediterranean deployment. All 99 aboard were lost. Numerous theories have been postulated to explain her loss; everything from a defective trash compactor to a Soviet attack. The original court of inquiry (concluded before the wreckage was subsequently located) examined numerous possible causes, but was unable to reach a definitive conclusion, although a torpedo accident was listed first. The subsequent structural analysis group (SAG), convened after the wreckage had been located and photographed, also did not reach a definitive judgment. As should be obvious from the first 60 years of U.S. submarine operations, there are numerous things that can sink a submarine, even in peacetime. The SAG carefully analyzed all possible causes for loss of a submarine; some scenarios were certainly far more plausible than others. Some scenarios were highly unlikely, but due to their being no survivors, the extreme depth, and condition of the wreck made it impossible to conclusively rule some of them out. Based on the evidence, however, the likelihood that *Scorpion* was sunk by a surprise attack (or any attack) by a Soviet submarine is about zero.

On 11 September 1969, USS *Chopper* (SS-342) lost electrical power while conducting an ASW exercise off Cuba. In a cascading series of events, *Chopper* wound up nearly vertical, with her bow at a depth of 1,011 feet and stern at 720 feet (her test depth was 400 feet.) Counteractions resulted in the bow making a rapid ascent, and the sub was again nearly vertical in the opposite direction as her bow broke the surface all the way to the aft edge of the sail. When the sub fell back into the water, she submerged to 200 feet before stability was regained. Although *Chopper* returned to port under her own power, the stress damage to her hull was deemed excessive and she was decommissioned on 15 September 1969. I couldn't find any information on injuries, but there appeared to be no deaths.

On 15 May 69, USS *Guitarro* (SSN-665) flooded and sank pier-side at Mare Island Shipyard before she was completed. She was raised, but completion was delayed almost three years and she was commissioned on 9 September 1972. There were no casualties.

On 1 June 1971, USS *Bugara* (SS-331,) which had been decommissioned on 1 October 1970, sank off Cape Flattery, Washington, while under tow.

On 2 December 1973, the commanding officer of USS *Plunger* (SSN-595), Commander A. L. Wilderman, was washed overboard and lost during a storm off San Francisco.

On 24 April 1988, a fire on board USS *Bonefish* (SS-582) off the coast of Florida killed three crewmen. The damage was extensive enough that repair was not attempted. *Bonefish* was decommissioned in September 1988.

On 1 May 1989, heavy seas off Kyushu, Japan, washed three crewmen of USS *Barbel* (SS-580) overboard; one was rescued and two drowned.

On 9 February 2001, the USS *Greeneville* (SSN-772) struck and sank the Japanese fishery high school training ship *Ehime Maru* while conducting a demonstration emergency main ballast tank blow off Oahu. Although damage to *Greeneville* was relatively minor, the *Ehime Maru* sank in ten minutes, killing nine crewmembers, including four high school students. *Greeneville* was somewhat star-crossed, later running aground while entering port on Saipan, and then even later colliding with USS *Ogden* (LPD-5) during a personnel transfer. However, she did however the Battle E in 2016.

On 21 May 2002, a fire aboard USS *Dolphin* (AGSS-555) resulted in partial flooding off San Diego. All 43 crewmen aboard were safe and the damaged sub was towed to port.

On 8 January 2005, USS *San Francisco* (SSN-711) hit a seamount south of Guam at high speed. One crewman was killed in the impact and 25 were injured. Damage to the sub's bow was severe, but she was able to surface. *San Francisco* was subsequently repaired using major components from the decommissioned USS *Honolulu* (SSN-718).

On 23 May 2012, USS *Miami* (SSN-755) suffered a fire during overhaul at Portsmouth Naval Shipyard, Virginia. A civilian shipyard worker later confessed to arson. There was no loss of life, but repairs were estimated to cost over \$700 million, which was deemed not economical, and *Miami* was decommissioned on 28 March 2014.

Other Submarines Lost in 1968

On 25 January 1968, the Israeli submarine INS *Dakar* was lost with all 69 of her crew. *Dakar* was a modified World War II British T-class submarine that had been purchased by Israel, completed two years of testing and training in the UK, and was transiting to Israel when she disappeared. Her wreckage was found in 1999 at depth of 9,000 feet between Crete and Cyprus. Although the exact cause of her loss is still undetermined, Egyptian propaganda claims to have sunk *Dakar* with depth charges, denied by Israel at the time, were proven to be false.

On 27 January 1968, the French submarine *Minerve* (S647) disappeared south of Toulon, France, in heavy weather after radioing that she would be at her berth in an hour. No trace of *Minerve* or her 46 crewmen has ever been found.

On 8 March 1968, the Soviet Golf II-class SSG ballistic missile submarine *K-129* sank in the northern Pacific with all hands. Soviet search efforts were unsuccessful. In 1974, the CIA led a partially successful top secret (at the time) effort (Project Azorian) to raise the submarine from a depth of 16,000 feet (the deepest salvage recovery ever to that point) using a specially built ship, the *Glomar Explorer*, which operated under

the cover of one of billionaire Howard Hughes's manganese nodule mining operations. The cover was quickly blown by U.S. media. The return of the USS *Swordfish* (SSN-579) to Yokosuka, Japan, on 17 March 1968 with a bent periscope (due to ice) not long after the loss of *K-129* fueled conspiracy theories that *Swordfish* was involved in the loss of the Soviet sub, although no U.S. vessels of any kind were within 300 miles of *K-129*. Some have gone so far as to claim that *Scorpion* was sunk by the Soviets in retaliation for the loss of *K-129*, for which there is much speculation but little actual evidence.

Soviet/Russian Federation Submarine Losses Since 1968

On 24 May 1968, a radiation leak from the experimental liquid metal reactor aboard the modified November-class SSN *K-27* resulted in the death of nine crewmen and contamination of the submarine, which was ultimately scuttled in the Kara Sea on 6 September 1982.

On 23 June 1968, the Whiskey twin cylinder-class SSG *S-80* was found in the Barents Sea, having been missing with her crew of 68 since 27 January 1961.

On 8 April 1970, November-class SSN *K-8* suffered a fire in the Bay of Biscay during the major Soviet *Okean* exercise. Eight crewmen died in the initial fire and the submarine was subsequently abandoned. In an attempt to save the sub, 52 crewmen re-boarded the vessel only to all be overcome by toxic gas. *K-8* subsequently sank, but 73 of her crew were rescued. This was the first loss of a Soviet nuclear submarine, although other November-class subs had suffered serious radiation leaks and contamination accidents previously.

On 13 June 1973, Echo II-class SSGN *K-56* was seriously damaged in a collision off Vladivostok, resulting in the deaths of 27 crewmen. The commanding officer was able to run the sub aground on a sand bar before she could sink, thus

saving the rest of his crew (and numerous senior observers on board to observe a missile shoot). The submarine was raised and towed to port, where it became a pier queen.

On 21 October 1981, Whiskey-class SS *S-178* sank off Vladivostok as a result of a collision, resulting in the immediate deaths of 18 crewmen. Seven of the 11 crewmen who were topside during the collision were rescued. Those still on board attempted free ascent from about 100 feet; three of those died and three disappeared, but others succeeded. In the end, 31 of 52 crewmen perished.

On 23 June 1983, Charlie-class nuclear guided missile submarine *K-429* sank during a test dive off Petropavlovsk, killing 14 crewmembers immediately. Two volunteers then made a free ascent from 128 feet, were able to swim to shore (where they were arrested by military police), and were able to get word to headquarters to mount a rescue operation. The remainder of the crew of about 100 made free ascent to the rescue ships, with only two being lost in the process. *K-429* was subsequently raised before sinking again at her mooring on 13 September 1985. She was raised again and decommissioned.

On 3 October 1986, Yankee-class nuclear ballistic missile submarine *K-219* suffered a fire and explosion in a ballistic missile tube while the boat was on ballistic missile patrol in the western Atlantic. Four crewmen were killed initially and two died later. The submarine was able to surface, but attempts to tow her were unsuccessful and she sank. This is the only loss of a nuclear-powered ballistic missile submarine by any navy.

On 25 June 1989, Echo II-class nuclear guided missile submarine *K-131* suffered a fire in the Barents Sea that killed 13 crewmen. The sub was towed to shore, but radiation contamination was so severe that the reactors remain on board to this day.

On 7 April 1989, Mike-class SSN K-278 suffered an electrical fire that resulted in her sinking in the Norwegian Sea. The commanding officer was able to bring the boat to the surface, where most of the crew was able to abandon ship—although many perished of hypothermia before rescue could arrive. The submarine sank with the CO and four others still aboard, who then attempted to ascend in an escape pod; however, only one man got out before the pod sank in the heavy seas with the CO. All told, 42 of the crew of 69 perished.

On 12 August 2000, Oscar-class nuclear guided missile submarine K-141 "Kursk" suffered a torpedo explosion while operating in the Barents Sea. The explosion killed all but 23 of the crew of 118; the survivors were trapped in an aft compartment as the submarine sank in 108 feet of water. A chemical oxygen generator had been contaminated with seawater and, when activated, instead of generating oxygen, caused a flash fire that used up the remaining oxygen, suffocating those who weren't burned to death.

On 30 August 2003, the November-class SSN K-129, which had been contaminated in a radioactive discharge event on 2 March 1965, was lost in the Barents Sea while under tow to a scrap yard, killing nine aboard.

(Sources include: Naval History and Heritage Command archived document "Casualties: U.S. Navy and Marine Corps Personnel Killed and Injured in Selected Accidents and Other Incidents Not Directly the Result of Enemy Action," and NHHHC Dictionary of American Fighting Ships entries for individual submarines.)



German U-boat U-118 attacked and sunk 12 June 1943 by aircraft from USS Bogue (ACV-9) (80-G-68694).

H-019-4: "Black May"— The Tide Turns in the Battle of the Atlantic

H-Gram 019, [Attachment 4](#)

Samuel J. Cox, Director NHHC

June 2018

There were many factors that caused the sudden turn of fortune in the Allies' favor during May 1943, and to say that any one of them was the decisive factor would not be accurate. However, to briefly re-cap the Battle of the Atlantic prior to May 1943, the battle had see-sawed throughout the course of the war to that point. In the months after the outbreak of World War II in September 1939, German U-boats had great success (the

"First Happy Time"), but an insufficient number of submarines at the start of the war was a major factor in Great Britain's ability to survive the first year of the conflict despite heavy losses of both merchant ships and warships. However, effective use of convoys, improved ASW sensors, weapons, and tactics enabled the British to decrease their losses and make the U-boats pay a higher price. Nevertheless, the period 1940 to 1941 was very desperate for the British as the island nation faced acute shortages of just about everything, including fuel oil and food, which at times reached critical levels.

When the United States entered the war after Japan attacked Pearl Harbor, Germany immediately (unlike in World War I) sent U-boats to attack shipping right off the U.S. east coast. With the United States unprepared for the onslaught of "Operation Drumbeat," the result

was unprecedented carnage at sea. For the U-boats, the first months of 1942 were the "Second Happy Time." For the Allies, they were a near-disaster that cost more lives, and many more ships, than Pearl Harbor. As the United States got its act together along the eastern seaboard in the late spring of 1942, the Germans shifted their operations to the Gulf of Mexico and the Caribbean, with initial great success. In the summer of 1942, Arctic convoy PQ-17 was also a disaster in which most of the ships carrying critical supplies to Russia were lost. (Although it is true that the amount of war material produced by the Soviet Union by itself dwarfed that provided to the Soviet Union by the United States and United Kingdom, the material that did get through—at great cost—came at a critical time when the Soviet Union was hanging on by a thread. Had it not been for the Allied supplies, the Soviet Union might not have survived long enough to build the hordes of tanks that eventually took the war to Berlin.)

Throughout late 1942 and early 1943, convoys fought their way across the Atlantic, and although U-boat losses increased, they were still manageable and the submarines were still inflicting serious losses on the convoys. However, increasingly capable and longer-range Allied air cover made operating in certain areas extremely dangerous for the U-boats, and the mid-Atlantic gap, where convoys were most vulnerable because they had no air cover, was getting smaller and smaller. The peak of pitched Atlantic convoy battles occurred in March 1943, when U-boats sank 567,000 tons of Allied shipping. (Note that statistics in the Battle of the Atlantic should be taken with a grain of salt, because many different sources use different frames of reference for how they count things.) Nevertheless, a lot of Allied shipping went to the bottom in March 1943, and the rate of loss would make a build-up for an early Allied invasion of Europe very problematic. In the space of one ten-day period in March, 40 Allied merchant ships would be sunk by U-boats in the Atlantic.

One key factor in the Battle of the Atlantic was the continuing war for intelligence by both sides, and, as in the battles at sea, it was very much a back-and-forth affair, sometimes without either side knowing it. One reason for the Germans' success was that their naval radio intelligence and code-breaking organization, "*B-Dienst*," was very good, and, from 1941 into most of 1943, the Germans were breaking and reading the British convoy codes fast enough to take operational action (although, like the Allies, the Germans were very careful in how they used code-breaking intelligence so as to not give away the fact that they were doing it). In fact, the British had no idea the Germans were reading their convoy-routing traffic. The British finally changed their convoy-routing code in June 1943 at the urging of the U.S. Navy cryptologic organization, OP20G.

The British had good initial success against the German *Enigma* encoding machine (which was an extraordinary electro-mechanical device that was close to impervious to being broken, even if a machine was captured). Nevertheless, the British had caught some early breaks with captured code books and development of "cribs" resulting from rare but periodic German communications security lapses that enabled the British to read a fair amount of *Enigma* code traffic at a useful pace, which they shared with the U.S. However, in February 1942, the German navy added a fourth rotor to their *Enigma* machines, which resulted in an astronomical (literally) increase in possible numeric combinations, making it impossible to break except by developing electro-mechanical devices even more sophisticated (and costly) than the *Enigma* machines. The new naval *Enigma* system was known as "Triton" by the Germans, and "M4 Shark" by the British. Partly as a result of the loss of ability to read *Enigma* traffic, convoy losses in the Atlantic in the latter half of 1942 were three times that of the same period in 1941.

The counter to the *Enigma* were massive machines, known as "bombes," which were a marvel of technology at the time, because they

required extremely high quality control for components, which were in constant high-speed motion in order to brute-force their way through many millions of possible combinations. Even then, the machines, even when operating in large numbers, could not do it themselves. Code-breaking art by skilled cryptanalysts was still required to give the machines a chance of success. Nevertheless, with the advent of the four-rotor *Enigma* in the German navy, Britain's best source of Intelligence mostly dried up. (The German army and air force kept using the three-rotor device, so the Allies had much greater success breaking their communications.) The British could still read a German weather signals code and gain some intelligence about U-boat operations, but on 10 March 1943, the Germans switched to a new set of weather codes, and the British lost even that tenuous hold, which was one key factor in the high convoy loss rates in the latter half of March 1943.

Meanwhile, while the British were having serious production difficulties developing and building bombs (and enough of them) to work the four-rotor *Enigma*, the U.S. Navy had embarked on a hugely expensive crash program to do the same thing. In fact the U.S. bombe effort was given the same resource priority as the Manhattan Project (atom bomb development) and the technological challenges were arguably as great. The bombs were developed at the U.S. Naval Computing Machine Laboratory on the National Cash Register (NCR) compound in Dayton, Ohio. Cost overruns in the program were in the millions (in 1942 dollars). The first two "Desch" bombs, known as Adam and Eve, followed by Cain and Abel, were all prone to serious technical difficulties. For many months it appeared as if the Navy was pouring huge sums of money and resources (advanced materials) down a rat hole, all to the frustration of U.S. Navy cryptologist, who for the first year of the war were highly dependent on British intelligence.

Of note, the type of code-breaking employed against the Japanese was completely different

than that employed against the Germans. The Japanese used old-fashioned paper-and-pencil code systems and didn't have *Enigma* machines or an equivalent (except for the diplomatic "Purple" code) in any kind of scale operation. However, success against the Japanese contributed nothing to success against the Germans. Nevertheless, by the spring of 1943, the United States had overcome most of the technical challenges of the bombs, and was starting to build them in large numbers (hundreds would be required to perform the necessary calculations). The Navy also enlisted a small army of several hundred women (WAVES) to mind the hundreds of bombs that were put in operation in a commandeered women's college on Nebraska Avenue in Washington, DC (in what for many years after the war was the headquarters of Naval Security Group). This duty was not without danger, as the bombs were prone to throwing metal components at high velocity. In theory, the WAVES did not know the true purpose of the machines they were minding, other than that it was an extremely important top secret program to which they were sworn to a lifetime of secrecy (and the WAVES kept their oath until the end). Although the U.S. Navy bombs didn't play a significant role in "Black May," by the end of June 1943 they were having significant effects and results. For the duration of the war, the U.S. Navy code-breaking effort emerged into the lead against the Germans. (More on this in a future H-gram.)

Like the British, the Germans didn't think their codes were vulnerable either. As a result, the Germans were prolific communicators, which created vulnerability through techniques of traffic analysis and radio direction finding even during periods when the Allies could not read the contents of the messages. *Grossadmiral* Karl Dönitz, who had moved from commander of the German submarine force to supreme commander of the German navy (after *Grossadmiral* Erich Raeder had been relieved when Hitler became unenthused about the performance of the German surface navy), was in frequent

communications with German U-boats, providing locations and routing of Allied convoys, and forming wolf packs of multiple submarines to attack the convoys. The Allies were trying just as hard to route the convoys away from where the wolf packs were forming, and the failure to do so in late March 1943 was a factor in the high convoy losses.

Led by the British, the Allies embarked on a crash program for high frequency radio-direction finding (HFDF) on both ships and aircraft, with such considerable and rapid success that the Germans did not really grasp their vulnerability to the technology. The Germans ascribed the sudden appearance of Allied anti-submarine ships and aircraft in unexpected places to a wide variety of other factors, particularly airborne radar and a belief that the British had developed an infrared (IR) sensor (abetted by false reports deliberately planted by the British as deception), which led the Germans to invest considerable resources in special paint for their submarines to imitate the optical properties of sea water, as well as a crash German program to develop IR sensors of their own, with some limited progress before the war ended.

For all the importance of intelligence in the overall Battle of the Atlantic, during the turning point in May, Allied intelligence capability against the U-boats was at the weakest point of the entire war. Fortunately several other factors and technologies came to fruition at the same time, resulting in a radical shift of fortune.

The first factor was Allied air power, with significantly greater numbers of longer-range aircraft operating from increasing numbers of bases around the Atlantic, as well as from a growing number of small escort carriers, such as the USS *Bogue* (CVE-9), which played a significant role in operations against German submarines in May 1943. The modified, very long-range B-24 Liberator bombers closed the mid-Atlantic gap,

and the escort carriers could provide near continuous air cover to the convoy.

The U-boats were acutely vulnerable to aircraft attack, and the Germans even developed "flak" U-boats, designed with a heavy defensive anti-aircraft armament intended to duke it out on the surface with aircraft. The Allies received a rude shock (due to surprise) during the first encounter with a flak U-boat, before they quickly adapted and it became readily apparent that this was not one of the Germans' better ideas. The British, in particular, also resumed air attacks (after early heavy losses) against U-boats returning to their bases in occupied France on the Bay of Biscay. The last few miles of a U-boat patrol quickly become the most dangerous, and many were lost almost within sight of the safety of their massively reinforced U-boat pens. Increasingly equipped with airborne radar, ASW aircraft became significantly more dangerous and could attack at night when the U-boats preferred to surface to recharge their batteries. The preferred tactic by wolf packs was also a night surface attack; taking away the U-boats' sanctuary in the darkness had a major adverse effect on U-boat success and survival.

Another factor was sheer numbers. The anti-submarine production effort was given top priority (and U.S. Navy commanders felt the resulting shortages first-hand during the brutal battles around Guadalcanal in late 1942) but, by 1943, Allied (primarily U.S.) shipyards were cranking out more of everything: ships, aircraft, weapons, sensors. Even during the worst of the U-boat attacks, Allied ship building was keeping pace with losses (sometimes barely) while German shipyards were also keeping pace with their submarine losses. By May 1943, those curves had changed radically. U.S. shipyards were producing many more ships than the Germans could sink, and the Germans were losing more submarines than their shipyards could replace—hence, Dönitz's recall order on 24 May 1943. The Germans didn't make a concerted effort to

resume submarine operations in the Atlantic until the fall of 1943, and from then on they were almost constantly on the defensive.

Rapidly improving Allied technology, and the tactics to use it effectively, coupled with advances in scientific operational analysis, also reached a key inflection point in May 1943. The new U.S. Navy short-range communications system, "Talk-Between Ships" (TBS), developed just before the start of the war, represented a significant advance over the CW 936 radio-telephones that had proved very effective when first introduced in World War I. New weapons technology included better sonar, the advent of sonobouys, and FIDO, which was termed the Mark 24 mine, but was actually a U.S. air-dropped passive acoustic homing ASW torpedo, introduced in March 1943.

Another weapons technology was the proliferation of the British-designed forward-throwing ASW Hedgehog depth bomb aboard both British and U.S. ships. (In the Pacific, in May 1944, USS *England* (DE-635) sank six Japanese submarines in as many days using Hedgehog). With the Hedgehog, the attacking surface ship did not have to first steam over the contact and drop depth charges in her wake, thus allowing the submarine much less time to take evasive maneuvers. Quickly recognizing the deadly threat posed by the Hedgehog (one in five Hedgehog attacks resulted in a kill, compared to one out of 80 for conventional depth charges), the Germans introduced the *Falke* ("Falcon") acoustic homing torpedo in mid-1943, which was in turn countered by the Allied Foxer noisemaking decoy. The Germans also developed the *Wanze* ("Tick") radar-warning device to try to counter increasingly deadly attacks by Allied aircraft equipped with microwave anti-surface vessel (ASV) radar. The Allies countered with radars at a frequency *Wanze* could not detect. In early May 1943, this 10-centimeter radar aboard aircraft detected all 26 attempts by U-boats to attack convoy ONS 5, which were driven off.

Greatly improved Allied tactics were primarily a function of hard-won lessons learned and experience. Commanders and crews had simply gotten better than they were earlier in the war. Scientific analysis was also used to refine tactics. With more assets, independent support groups could be placed at strategic points along the convoy routes, where they could more rapidly reinforce a convoy's organic escorts in the event the convoy came under wolf-pack attack. The German wolf-pack tactics (later used with great effect by U.S. submarines against the Japanese) and Allied support group tactics are arguably early examples of "swarm" tactics.

Allied operational capability had so improved by mid-1943 that it would have actually made more sense to draw the U-boats to the convoy rather than using Ultra (broken *Enigma* traffic) to avoid them, under the theory that the more U-boats that attacked, the more that could be sunk. Nevertheless, U.S. and British commanders balked at the idea of using convoys as "bait," instead choosing to employ hunter-killer task groups, often driven by intelligence on U-boat locations. Although use of the hunter-killer groups was raised to a fine art, they were resource-intensive and less efficient than letting the U-boats come to the target, but much better for the morale of those on the troopships.

Another major development in May 1943 was the creation of the U.S. Tenth Fleet on 20 May. CNO/COMINCH Admiral King directed that the responsibilities of technological development, scientific operational analysis, ASW doctrine, and training be combined in one command, along with significant intelligence capability. Although the Tenth Fleet did not have its own forces, it would serve as the central command responsible for protecting convoys and hunting down U-boats. Despite being stood up too late to effect the convoy battles in early 1943 or the turning of the tide, Tenth Fleet would have significant effect on the remainder of the Battle of the Atlantic, and would serve as a forerunner of the operational

intelligence (OPINTEL) concept that served the U.S. Navy throughout the Cold War, integrating all types of intelligence into a very close operational cycle.

(Sources include The Secret in Building 26: The Untold Story of America's Ultra War Against the U-boat Enigma Codes, by Jim DeBrosse and Colin Burke, 2004, "Turning Point in the Atlantic" by Commander In H. Ha, USN, in the April 2018 issue of Naval History magazine, and Information at Sea: Shipboard Command and Control in the U.S. Navy from Mobile Bay to Okinawa by Timothy S. Wolters, 2013, as well as a host of U-boat books in my personal library.)



Historical marker commemorating the 21 July 1918 U-boat attack on Orleans, Massachusetts (used with permission of Jarrett A. Lobell, Archaeology magazine).

H-019-5: "Black Sunday" and the Battle of Orleans

*H-Gram 019, Attachment 5
Samuel J. Cox, Director NHHC
June 2018*

Although the quick arrival of numerous U.S. destroyers in European waters in May 1917 and the subsequent arrival of relatively small numbers of U.S. Marines and U.S. Army troops in France in June 1917 improved Allied morale, the vast majority of U.S. troops had yet to arrive in France by the spring of 1918. With a large number of German troops on the Eastern Front freed up by

the collapse of Czarist Russia, the Germans gambled on launching a massive offensive in France in the spring of 1918, hoping to knock Britain and France out of the war before significant numbers of U.S. reinforcements could arrive. Although the offensive gained considerable ground, casualties were extremely heavy on all sides, and the offensive ran out of steam before achieving its objective and the bloody stalemate on the Western Front resumed. At the same time, the Allied convoy effort, improved technology and anti-submarine tactics (including the use of air cover), along with reading the Germans' message traffic, resulted in increasing ability for the Allies to get men and supplies through to Europe, and increasing losses of German U-boats. Because the British had

broken the German navy submarine codes, the Allied strategy was generally to route convoys to avoid where they knew the U-boats were—to the growing frustration of the German navy.

Increasingly desperate to reverse the situation in the Atlantic, the Germans decided to convert several very large submarines that had been originally built as unarmed “merchant” submarines (in an attempt to run the highly effective British naval blockade) into U-cruisers (*Unterseeboots-Kreuzer*). Two of these submarines had made successful voyages to the United States in 1916 when the country was still officially neutral. Seven of the merchant cruisers had been built (and even larger ones were under construction) and five would be converted to U-cruisers. Armed with two 5.9-inch deck guns, two 20-inch torpedo tubes, 18 torpedoes, as well as mines, these were the largest (1,500 tons and a crew of six officers and 50 men), most heavily armed submarines in the world, and possessed enough range to reach the U.S. east coast and operate there for over a month.

U-151 departed Kiel, Germany, on 14 April 1918, destined for the United States, the first time a German submarine sailed to the western Atlantic intent on attacking shipping. The voyage was no secret to the Allies due to the broken codes, but this fact was successfully kept from the Germans. After laying mines, cutting cable, and sinking three fishing schooners, *U-151* finally made her presence known (or so she thought) on 2 June. On that day, the submarine sank six ships and damaged two more over the course of about two hours. These included the liner *SS Carolina*, the freighters *Winneconne* and *Texel*, the schooner *Isabel B. Wiley*, and two other schooners, all with a combined crew and passengers of about 448 people. In all cases, *U-151* fired warning shots and gave the crews time to abandon ship in an orderly fashion—women and children first in the case of *Carolina*—before sinking them with gunfire. The only fatalities were 13 dead (eight male passengers and five crewmen out of 218

passengers and 117 crew), when one of *Carolina's* lifeboats capsized.

On 3 June, the tanker *Herbert L. Pratt* struck one of the mines previously laid by *U-151* off the Delaware Capes and sank, although it was later raised. On 9 June, *U-151* stopped the Norwegian cargo ship *Vindeggan* off Cape Hatteras and set scuttling charges after transferring a very valuable cargo of 70 tons of copper ingots off the vessel. On 14 June, *U-151* sank the Norwegian barque *Samoa*, also with no casualties.

Up to this point, *U-151's* actions had displayed a civility that by this time was absent on the eastern side of the Atlantic, but on 18 June, the submarine sank the British flag liner *SS Dwinsk* and loitered near the seven lifeboats in order to ambush any ships coming to the rescue. The auxiliary cruiser and troopship *USS Von Steuben* (ID-3017) initially took the bait. *Von Steuben* was originally the German passenger liner *SS Kronprinz Wilhelm*, which had been armed and operated as raider, sinking or capturing 15 ships before she was interred in the United States in 1915 when she ran short of coal. Converted to an auxiliary cruiser after the United States entered the war, *Von Steuben* had been one of the first ships to respond to the 7 December 1917 disaster in Halifax, Nova Scotia, when an ammunition ship exploded in the harbor, killing over 2,000 people.

U-151 fired torpedoes at *Von Steuben*, which were sighted by alert lookouts, and the *Von Steuben's* skipper, Captain Yates Stirling, Jr., avoided the torpedoes with the unorthodox maneuver of a hard starboard turn with engines at full astern (normal procedure was to try to turn away from the torpedo and possibly outrun it). After the torpedoes missed, *Von Steuben* responded with a depth charge attack on *U-151* that actually did inflict some damage on the sub. For his actions, Captain Stirling was awarded both the Navy Cross and the French Legion of honor. In the meantime, the captain of the *Dwinsk* ordered all of those in the lifeboats to lie low so as not to

draw any other ships into the trap. Eventually, six of *Dwinsk's* lifeboats made it to safety, but the seventh, with 22 aboard, was never seen again. The *Von Steuben* went on to make nine Atlantic crossings, carrying about 2,000 troops each time. *U-151* returned to Kiel on 20 July after a 94-day cruise that covered 12,500 miles. The commanding officer reported sinking 23 ships totaling 61,000 tons, of which three were later salvaged, and four more were sunk by mines laid by the submarine.

On 15 June, *U-156*, sister of *U-151*, under the command of *Korvettenkapitan* Richard Feldt, deployed from Kiel. She arrived off New York harbor and laid a string of mines in the shipping lanes off Long Island just east of the Fire Island Lightship. On 19 July, the armored cruiser USS *San Diego* (Armored Cruiser No. 6—former USS *California*) suffered a large explosion about 10 miles southeast of Fire Island, with damage severe enough that she sank. No torpedoes had been sighted nor had any other evidence of a submarine. *San Diego* had previously suffered a damaging boiler explosion in January 1915, but she was probably sunk by one of the mines laid by *U-156*. The explosion on the port side flooded the port engine room and warped the bulkhead and watertight door, resulting in flooding of the Number 8 fireroom. Unfortunately, progressive flooding could not be controlled and she sank in 28 minutes. Of her crew of 80 officers, 745 enlisted sailors, and 64 Marines, two were killed instantly and four more died later. Two crewmen were awarded the Medal of Honor for their actions during the sinking. At 14,000 tons, 500 feet long and armed with four 8-inch guns and 14 6-inch guns, *San Diego* was the largest U.S. warship to be sunk in the war. The ship sank in relatively shallow 110 feet of water, and her wreck has been extensively pillaged by divers. However, more sport divers have died on the wreck site than crewmembers were killed in the actual sinking.

On 21 July, *U-156* surfaced just off the Cape Cod town of Orleans and opened fire on the tugboat *Perth Amboy*, which was towing three barges (some accounts say four). The tug was quickly in sinking condition and *U-156* turned her attention to the barges and opened fire. Because of their low silhouettes, a number of shells went long and impacted in a marshy area near Orleans, although some reports say some structures were damaged. The shelling caused startled bathers to flee the water, while at least one towns person opened fire on the U-boat with a shotgun, which, of course, did nothing. There were at least some women and children aboard the tug and barges, so a surfboat from Station 40 of the U.S. Life-Saving Service (later part of the U.S. Coast Guard) valiantly rowed out under fire and succeeded in rescuing all 32 people from the tug and barges. Towns people were immediately on the phone to the *Boston Globe* and to the Naval Air Station at Chatham, Massachusetts. The paper provided an event-by-event reporting, which later became an early example of a media frenzy, and an end result of numerous contradictory reports, such that it is difficult to tell what really happened. The incident served to further fuel the wild rumors and outright hysteria that swept the U.S. east coast during this period, such as reports that German submarines were equipped with aircraft, resulting in anti-aircraft defenses being set up in New York City and the gold dome of Massachusetts' statehouse being painted over so it could not be used as a navigational landmark.

After initially being incredulous that a submarine was that close in to the shore, NAS Chatham quickly launched at least four (and maybe nine—reports vary) Curtis HS-1L flying boats and R-9 seaplanes. (As an aside, over 600 of the HS-1Ls were built and deployed in the space of a little over a year, an example of U.S. industrial might, once mobilized). A small flotilla of U.S. Navy submarine chasers sortied from Provincetown. The first aircraft caught the submarine by surprise, but a release lever failed to work on the first aircraft, and bombs failed to explode from several

others. Some of the aircraft hit close enough to the submarine that, had the bombs worked properly, the submarine would at least have been damaged. In frustration, one pilot claimed to have thrown a wrench at the submarine. The sub quickly submerged, then changed her mind and came back up, apparently intending to duke it out on the surface using shrapnel rounds against the aircraft. (It should be noted that only one submarine was confirmed sunk by air attack during World War I, although air cover was very effective at disrupting U-boat attacks on convoys and no ships were lost in convoys that had air cover).

As the attempted air attacks went on for some time, as did the equally fruitless submarine air defense, the flotilla of sub chasers turned back, apparently deciding that discretion was the better part of valor since the submarine's 5.9-inch guns were much more capable than their own 3-inch guns. The result, however, was that the aircraft and the life-saving boat garnered the glory, which was probably appropriate, and the U.S. Navy did not. *U-156* was on the surface for over 90 minutes and fired almost 150 rounds. In fact, the U.S. Navy took a public beating from politicians and public because despite the hugely expensive naval expansion act of 1916, intended to create a Navy equal to that of any of the world, the Navy could not seem to hunt down and deal with one solitary submarine. Navy leaders, however, quickly reached the conclusion that the U-cruiser operations were just a high-visibility attempt to divert Allied assets from the main effort, i.e., to get as many American troops across the Atlantic as fast as possible in order to regain ground lost to the spring German land offensive.

Following the circus off Orleans, *U-156* went into the Gulf of Maine and ran amok amongst the U.S. fishing fleet, sinking 21 of them herself, while manning and arming a captured Canadian trawler that sank seven more. In the end, *U-156* sank 34 ships for a total 33,500 tons and, like *U-151*, had operated with effective impunity off the U.S. east

coast for a combined three-month period. For the most part, both *U-151* and *U-156* had made an effort to rescue survivors, and their very large hauling capacity and lack of effective opposition gave them the luxury of keeping rescued crewmembers on board until they could be off-loaded safely. However, on 25 September, while attempting to return to Germany, *U-156* struck a mine in the recently laid North Sea mine barrage (mostly laid by the U.S. Navy) and sank with all 77 hands. The 100,000 or so mines laid in the North Sea barrage in the summer of 1918 accounted for about six German submarines lost, but was a big morale buster in the German navy. (More on the North Sea mine barrage in a future H-gram.)

By the time *U-156* departed the western Atlantic, three more U-cruisers had arrived in waters off the U.S. These were the *U-140*, *U-117*, and *U-155*. *U-155* was the former merchant submarine *Deutschland*, which had made two trips to the United States in 1916 before the country entered the war and before it was converted to a heavily armed U-cruiser. *U-140* was of a new class designed from the keel up to be armed U-cruisers, the largest submarines in the world. *U-117* was a long-range minelaying submarine.

Like the first two U-cruisers, *U-140* was having a field day off the U.S. east coast until she attacked the Brazilian passenger liner *Uberaba* on 10 August. Unlike most ships, *Uberaba* attempted to flee when the submarine surfaced to fire warning shots and, as a result, came under direct fire from the U-boat in a running battle and took some hits. Among the 250 passengers (including women and children) aboard the ship were 100 U.S. Navy personnel, many of whom pitched in to stoke coal in order to outrun the U-boat. Nevertheless, *Uberaba* got off a distress call, which was answered so quickly by the destroyer USS *Stringham* (DD-83) that *U-140* was caught by surprise and barely managed to submerge. *Stringham* dropped 15 depth charges and damaged the submarine badly enough that *U-140* had to abort her mission and return to Germany in

September 1918, having sunk only seven ships. *Stringham* would go on to earn nine battle stars during World War II, mostly as a fast personnel transport (APD-9).

After reaching the U.S. east coast about 9 August 1918, *U-117* did score a noteworthy success with her mines. On 29 September, the battleship USS *Minnesota* (BB-22) struck one of *U-117*'s mines off Fenwick Island, Delaware, which resulted in extensive damage that knocked *Minnesota* out of the rest of the war, but caused no casualties. It could have been worse, had not Vice Admiral Albert W. Grant (commander of Battleship Force 1) not initiated his own program to have ships under his command reinforce their bulkheads (an action that spared *Minnesota* the damage that had caused the loss of *San Diego*). *Minnesota* was the largest U.S. warship significantly damaged during World War I. (The battleship had been under the command of then-Commander William Sims, unusual at the time (or any time), thanks to political influence of Theodore Roosevelt. Sims was actually relieved of command of *Minnesota* in 1911 for making public pro-British statements before that was considered socially acceptable in the U.S. Navy.) The *Fletcher*-class destroyer named after Vice Admiral Grant (DD-649) fought at the Battle of Surigao Strait during the larger Battle of Leyte Gulf in October 1944. While conducting a night torpedo attack against the Japanese battleship force, she got caught in the cross-fire and was hit 22 times; many of the hits were 6-inch shells from U.S. cruisers. Heavily damaged, with 38 killed and 104 wounded, her crew nevertheless saved their ship despite encountering a typhoon.

When World War I ended, three more U-cruisers were en route the western Atlantic, but they turned back and were surrendered to the Allied forces along with the entire German navy. Six U-boats would end up in U.S. hands, one of which (UC-97) was commanded by Lieutenant Charles A. Lockwood (future vice admiral in charge of U.S. submarines in the Pacific during World War II) and

is now on the bottom of Lake Michigan. (More on that story in a future H-gram.)

(Sources include America's U-boats: Terror Trophies of WWI by Chris Dubbs, 2014, The Kaiser's Lost Kreuzer: A History of U-156 and Germany's Long-Range Submarine Campaign Against North America, 1918 by Paul N. Hodos, 2017, and NHHHC Dictionary of American Fighting Ships entries.)