Lost52Project

Honoring the men, their memory and their mission

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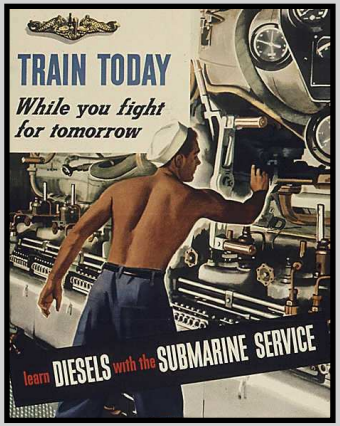
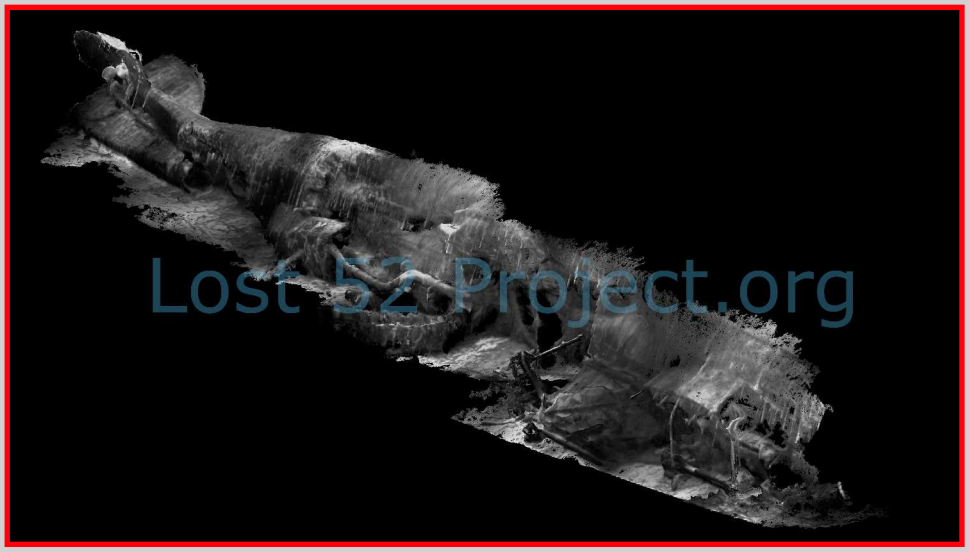


Introduction

The Lost 52 Project is a long-term exploration and underwater archeological project to document and preserve the story of the lost 52 US WWII submarines. Led by renowned explorer Tim Taylor, our project's goal is to leave a foundation of knowledge for future generations. Building on our current discoveries, ocean exploration and underwater robotics expertise, we are organizing, executing and managing expeditions with the aim to discover and survey as many of the lost 52 US WWII submarines as possible.

Our mission objective is to provide the fullest possible documentation and accounting of these lost submarines for the legacy of our missing WWII Navy sailors, for their families and for the nation. We go beyond discovery and exploration and include site surveys, developing a complete database on each submarine, enabling community outreach and building educational components.

A total of 52 U.S. Submarines were lost in WWII with 374 officers and 3131 sailors aboard. To date, eight of the "Lost 52" have been found. Three of them were discovered by our team, and we continue to engage in unique, specialized expeditions to search for more.



USS S-28 Photogrammetry created from 2017 Expedition Discovery

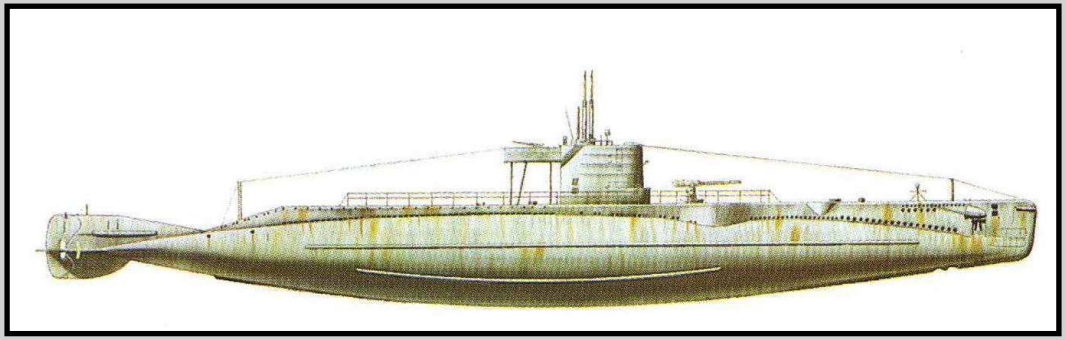
Background

As told in the 1975 book *Silent Service,* by Clay Blair Jr., from the attack on Pearl Harbor, through the end of the war, a top secret a war-within-a-war was being waged by a small volunteer group of specially trained sailors, submariners. In a campaign that will never be repeated, a small force of boats – not ships – engaged in approximately 1600 patrols that resulted in the sinking of 1,000 Japanese merchant ships and significant portion of the Japanese Navy. Their efforts succeeded in choking off Japanese supply lines and commerce and, according to many experts, advanced the winning of the Pacific campaign by years.

Submariner training was all encompassing and crews were most often assigned while their ships were still under construction in the boatyard, so they would learn every detail from the inside out. Every crew member, from captain to cook, was trained in every aspect of his ship. This was dangerous duty and casualty rates were high for submariners. They understood, when volunteering, that one in four would not make it home. The men of the Submarine Force who gave their lives to win the war are said to be on Eternal Patrol. As today's technology opens up more of the underwater world, we will be able to locate many of the remaining lost war graves.

Expedition Team

Our professional team is equipped with a top-notch support vessel along with the latest deep autonomous technologies, remote operated vehicles and many long hours dedicated to research, planning and execution.



From 2007 to 2012 Tim Taylor pioneered a deep water AUV expedition in search of submerged cultural heritage sites. Tim lead the team that developed a prototype Bluefin deep water AUV system and mapped 1800 square miles of continental shelf East of Cape Canaveral Florida in depths up to 1500 meters. Discovering a half dozen historical sites Tim next used AUV technology to search for and discover the lost submarine USS R-12 in the straits of Florida. In 2014 Tim lead the expedition to Pacific Panama in a successful search for the USS S-26. The basis of these discoveries lead to the creation of the Lost 52 Project. With sponsorship from STEP Ventures the Lost 52 Expedition is coordinating a multi-year Pacific expedition to search for more of the lost US Submarines.

A total of 52 U.S. Submarines were lost in WWII with 374 officers and 3131 enlisted men of the Submarine Force who gave their lives. Currently, of the seven discovered US WWII submarines, the Lost 52 Project was created by Tim Taylor building off his personal discoveries of the USS R-12 and USS S-26 The first L52 expedition resulted in the discovery of the USS S-28 in 2600 meters of of Oahu, Hawai'i.

Building on our current discoveries, ocean exploration and underwater robotics expertise, our team has organized and is executing expeditions throughout the Pacific Ocean. Additional information can be found at www.lost52project.org. or www.stepventuresllc.com

Tim Taylor - Principle Investigator

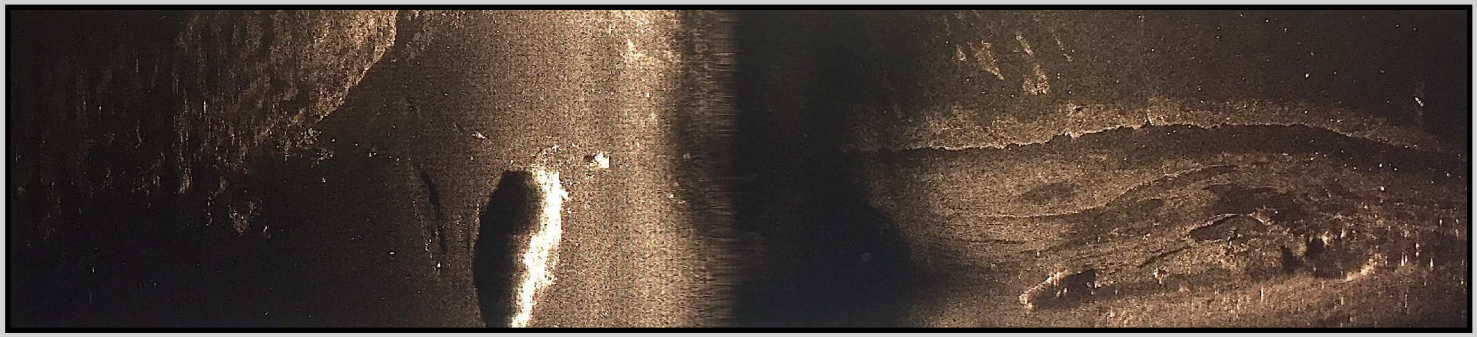
Tim is an accomplished ocean explorer and entrepreneur and currently the Founder and CEO of Tiburon Subsea. He has spent over thirty years working in the marine industry with innovative diving technologies and leading underwater expeditions. His work with the scientific, archaeological and oceanographic fields has yielded his discovery of numerous reefs, including Sherwood Forest Reef, considered the centerpiece of the Tortugas Ecological Reserve; and Pulley Ridge, the deepest hermatypic coral reef in the world. Tim has also devoted his expertise working on numerous shark research projects, underwater archeological discoveries in Cuba and has hosted numerous cross-disciplined National Geographic expeditions across the globe.

Tim created and led the team to map 1800 square miles of remote (200 miles offshore) ocean bottom at 1500 meters utilizing state of the art Bluefin 12D AUV system working from his US Coast Guard certified research vessel Tiburon. His most recent accomplishments include the discovery, exploration, and documentation of the WWI submarine USS R-12 that was lost in WWII in 600 feet of water entombing 42 sailors. The discovery of the USS S-26 off of the Pacific coast of Panama and the deep water discovery of the USS S-28 off of Oahu Hawai'i.

Tim currently is CEO and President of Tiburon Subsea Services, based in New York City, specializing in underwater autonomous robotic operations. As owner and Captain of his Research Vessel (RV Tiburon) for 25 years, Tim has worked hand-in-hand with noted biology, geology, ichthyology, archaeology, environmental and climate change experts around the globe.

Tim is a Fellow in the Explorers Club and in 2008 he was the 40th person in the club's 104-year history to receive its prestigious Citation of Merit award in recognition of his explorations. Tim is also the recipient of the Brazilian Navy Honorary Submariner Medal and the Brazilian Navy League Medal of Honor for his discovery and exploration work with the USS R-12. The USS R-12 crew also consisted of Brazilian naval officers at the time of its sinking.

Tim has been profiled in the London Financial Times, The New York Times, Bloomberg News and appears regularly on FOX, CNBC, BBCn CBC and CNN as an ocean technology and robotics expert. Tim is an on-air expert for CNN, BBC, CBC, FOX, MSNBC and CCTV for ocean search, exploration, diving operations, sciences, ocean environmental issues, climate change, conservation and advanced underwater robotics.



STEP Ventures represents a close-knit company of explorers and historians who share a passion in locating submerged cultural resources. STEP is committed to honoring and preserving the memory of lost mariners, submariners, airmen, and service platforms. STEP aims to answer longstanding questions and seeks to advance the state-of-the-art in marine research and exploration using the latest technologies and data analytic methods. It is from the most sacred of these projects that STEP derives its name, Searching for Those on Eternal Patrol.

Donald T. "Boysie" Bollinger - Expedition Partner STEP Ventures

A native of Lockport, Louisiana, Mr. Bollinger devotes considerable time to professional and civic organizations including the Shipbuilders Council of America and National Ocean Industries Association. After hurricanes Katrina and Rita, he served with the Louisiana Recovery Authority and Bring New Orleans Back Commission. Mr. Bollinger is involved with the United States Coast Guard Foundation, The National World War II Museum, Offshore Marine Services Association, Business Council of New Orleans, The Nature Conservatory of Louisiana, United Way, and the Boy Scouts of America. Mr. Bollinger and his wife Joy have generously donated to the World War II Museum of New Oreans, which stands alone in its collections and exhibits and is designated by the US Congress as America's official National World War II Museum.

Expedition 2018

Underwater archeology provides valuable information about practically all aspects of life and organization of past societies. WWII history, in turn with the advent and development of submarines and their application represent a unique time in history that will never be repeated. The L52 sites serve as the resting place for numerous US Sailors, no doubtedly still entombed within and provide a glimpse into this aspect of WWII warfare.

A primary interest of the archaeological investigation is to extract, in a non-invasive way, as much information as possible with minimal impact to the local environment and commerce. Utilizing robotics allows our team to perform deep ocean research with little to no impact on fisheries or ocean traffic patterns. The study of WWII Submarine warfare and the advancement of naval architecture represents an important research field, with the main goal preserving history and honoring the fallen sailors. Archeological destroying activities, such as trawling or site robbing, continuously threaten important underwater archaeological areas, (i.e., ship wrecks); which has made a systematic recording and mapping necessary. It has long been sponsored by cultural heritage public institutions of both US and Japan. Tim's and the L52 Project mission is to search for, and when discovered, provide an accurate documentation and record of the site.

Photogrammetry Imagery of the USS S-28 Discovered on the 2017 Expedition. Examples of work being produced from the Lost 52 Expeditions.

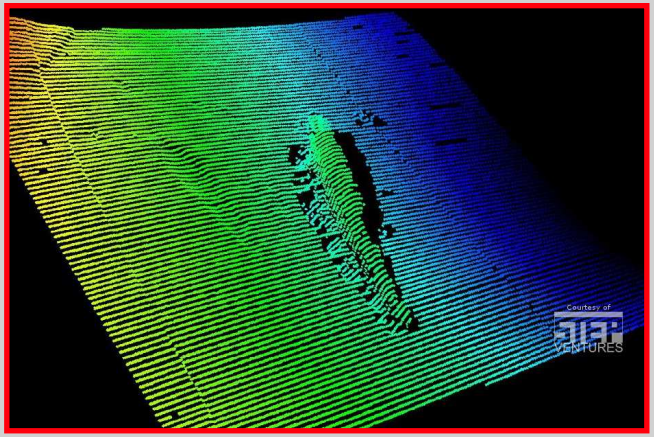
Traditional underwater archeology methodology for studying sites has evolved. By utilizing the latest technology our expedition can search vast areas and record 3D non-invasive sonar and photogrammetry scans of discovered targets with no impact on the site or environment.

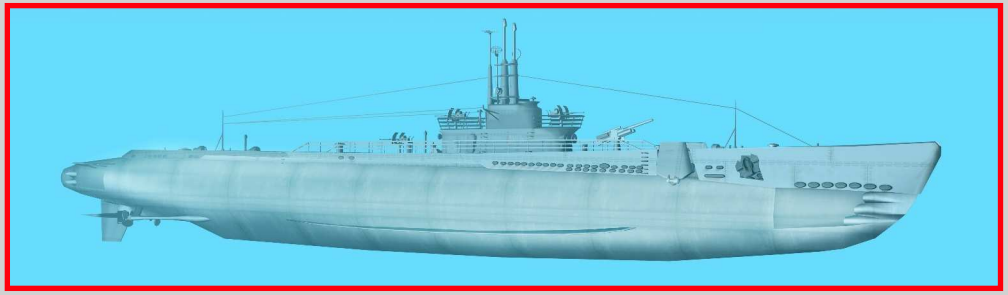
The 2018 expedition is planning to be off the shore Japan and is designed to collect the fullest possible documentation and accounting of multiple US Submarine targets lost in WWII. All information acquired on these expeditions are archived with US Navy Heritage Command in Washington DC. and made available to the public and our international partners by the Heritage Command.

Photogrammetry image of the USS-S28 Deck gun discovered on 2017
Lost 52 Project Expedtion.

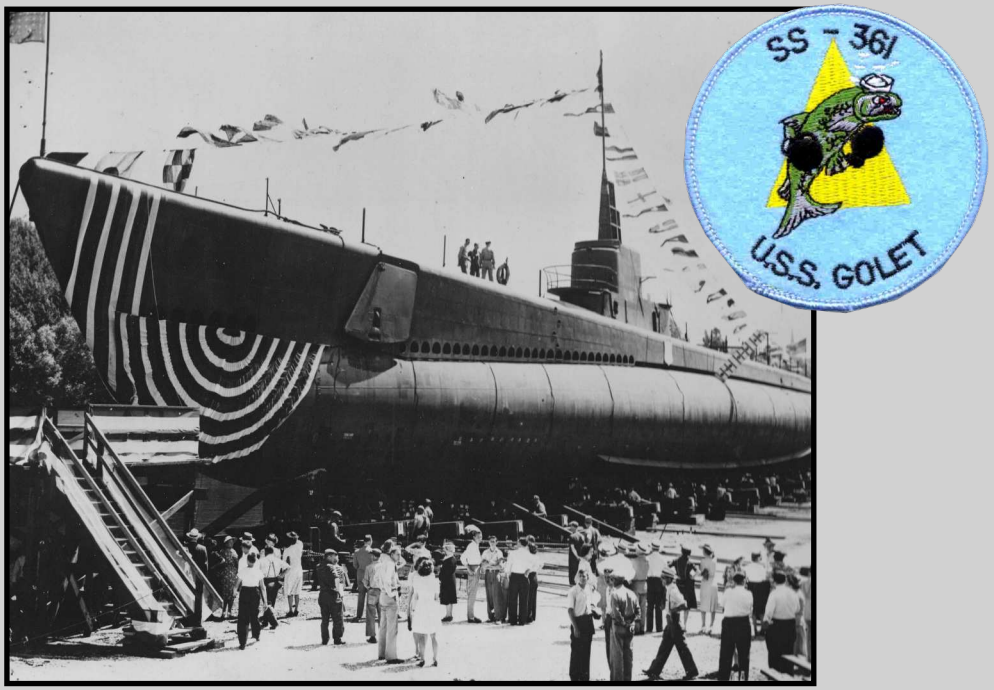
Expedition 2018- Japan Lost Submarine Target List

· Golet	SS-361	41°04'00"N	141°30'00"E
· Pickerel	SS-177	41°06'57"N	141°26'26"E
· Pompano	SS-181	41°28'28"N	141°26'00"E
· Runner	SS-275	41°00'00"N	141°30'00"E
· Scamp	SS-277	33°37'60"N	141°00'00"E
· Swordfish	SS-193	29°25'00"N	141°07'.00"E
· Trigger	SS-237	32°16'00"N	132°04'60"E
· Kete	SS-369	29°33'04"N	129°07'00" E





USS Golet (SS-361)



Name: USS Golet (SS-361)
Date Lost: 14 June 1944
L**ast Known Position:** 41° 04'N, 141° 31'E
Current Position: Probably North of Honshu

Vessel Specifications
Class and type: Gato-class diesel-electric submarine
Length: 311 ft. 9 in (95.02 m)
Beam: 27 ft. 3 in (8.31 m)
Draft: 17 ft. (5.2 m) maximum Crew: 6 officers, 54 enlisted

Historical Information

USS Golet (SS-361), a Gato-class submarine, was the only ship of the United States Navy to be named for the Golet, a California trout. Her keel was laid down by the Manitowoc Shipbuilding Company of Manitowoc, Wisconsin. She was launched on 1 August 1943 sponsored by Mrs. Wiley, wife of United States Senator Alexander Wiley of Wisconsin, and commissioned on 30 November 1943 with Lieutenant Commander James M. Clement in command. Golet was initially ordered with the Balao-class. However, Manitowoc did not receive the drawings for this class from Electric Boat in time to build SS-361 through SS-364 to the new design, so they were built as Gato class. Thus, in some references, these boats are listed with the Balao class.

Loss

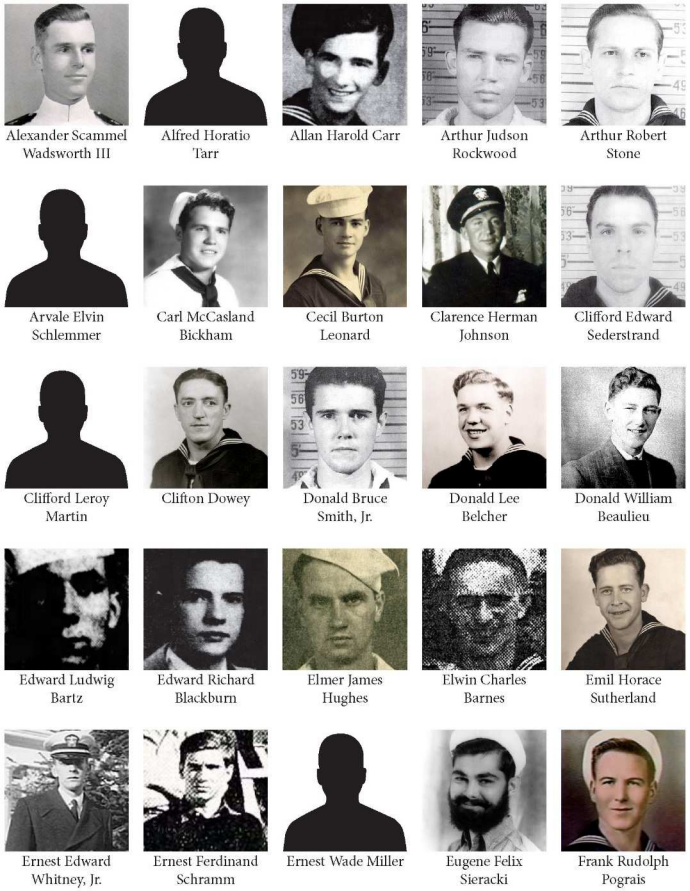
Lieutenant James S. Clark took command of *Golet*, departed Midway Island on 28 May 1944 to patrol off northern Honshū, Japan, and was never heard from again.

Golet had been scheduled to depart her area on 5 July and was expected at Midway Island about 12 July or 13 July. She failed to acknowledge a message sent her on 9 July and was presumed lost 26 July 1944.

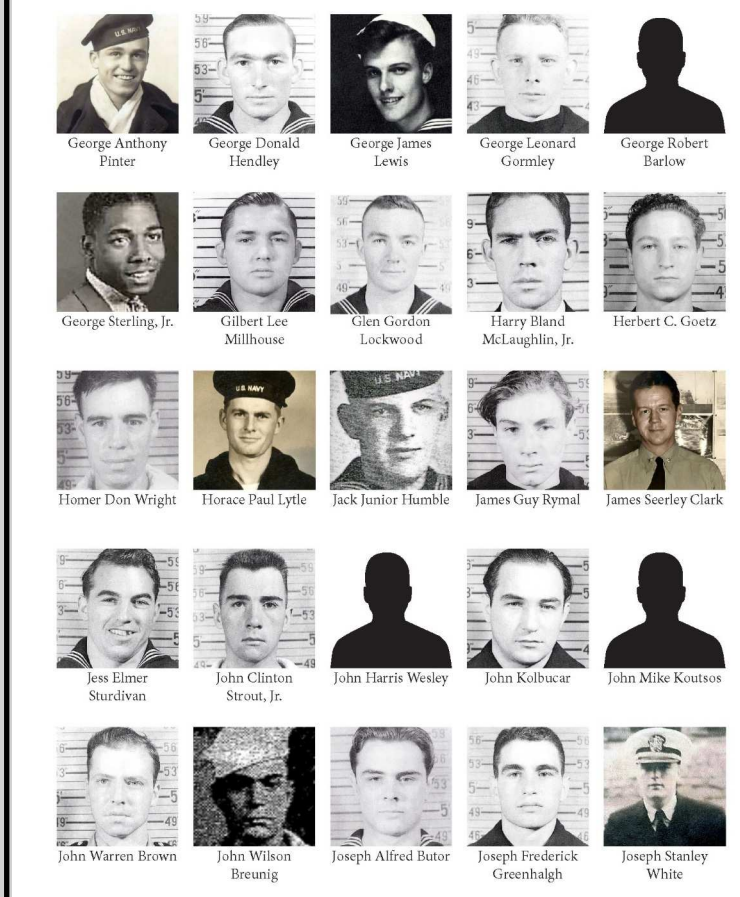
Japanese antisubmarine records available after the war revealed that *Golet* was the probable victim of a Japanese antisubmarine attack made 14 June 1944 (at 41° 04'N, 141° 30'E). These records mention that the attack brought up cork, rafts, and other debris and a heavy pool of oil of 50 by 5,200 meters, all evidence of the sinking of a submarine.

USS Golet was credited with no sinkings or damage to enemy ships on her first patrol, conducted in the Kuriles, and the area south of Hokkaido and east of Honshu.

Crew of the USS Golet

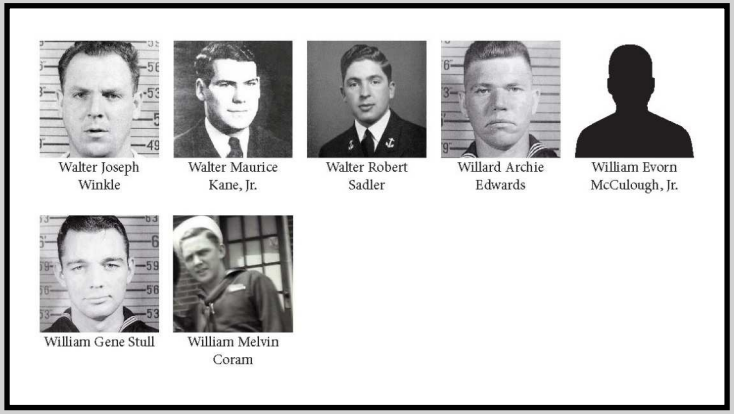


Alexander Scammel Wadsworth III
Alfred Horatio Tarr
Allan Harold Carr
Arthur Judson Rockwood
Arthur Robert Stone
Arvale Elvin Schlemmer
Carl McCasland Bickham
Cecil Burton Leonard
Clarence Herman Johnson
Clifford Edward Sederstrand
Clifford Leroy Martin
Clifton Dowey
Donald Bruce Smith, Jr.
Donald Lee Belcher
Donald William Beaulieu
Edward Ludwig Bartz
Edward Richard Blackburn
Elmer James Hughes
Elwin Charles Barnes
Emil Horace Sutherland
Ernest Edward Whitney, Jr.
Ernest Ferdinand Schramm
Ernest Wade Miller
Eugene Felix Sieracki
Frank Rudolph Pograis

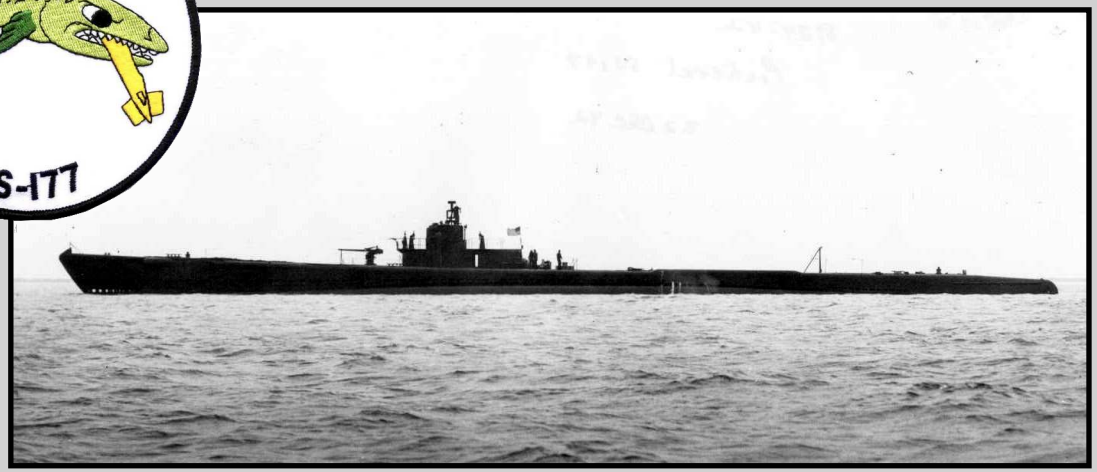


George Anthony Pinter
George Donald Hendley
George James Lewis
George Leonard Gormley
George Robert Barlow
George Sterling, Jr.
Gilbert Lee Millhouse
Glen Gordon Lockwood
Harry Bland McLaughlin, Jr.
Herbert C. Goetz
Homer Don Wright
Horace Paul Lytle
Jack Junior Humble
James Guy Rymal
James Seerley Clark
Jess Elmer Sturdivan
John Clinton Strout, Jr.
John Harris Wesley
John Kolbucar
John Mike Koutsos
John Warren Brown
John Wilson Breunig
Joseph Alfred Butor
Joseph Frederick Greenhalgh
Joseph Stanley White


Julius Rose
Leo Richard Leinwand, Jr.
LeRoy Leo Germann
Melvin Lars Peterson
Michael Parry
Oliver Clark Guest, Jr.
Peter Paul Milus
Raymond Beverly Tinker
Raymond Lavern Harville
Raymond Robert Walz
Richard Andrew Barta
Robert Anton Simandl
Robert Charles Reichelt
Robert Edward Hanley
Robert Edward Hoffman
Robert Edwin Hardy
Robert Raymond Danko
Woodrow Wilson Swartzback
Robert William Infalt
Roland Norris Thompson
Roy Edgar Williams
Solomon Joseph Numair
Stanley Erwin Grumet
Vinton Jordan Earle
Walter Dearl Davidson
U.S. NAVY


Walter Joseph Winkle
Walter Maurice Kane, Jr.
Walter Robert Sadler
Willard Archie Edwards
William Evorn McCulough, Jr.
William Gene Stull
William Melvin Coram

USS Pickerel (SS-171)



Name: USS Pickerel (SS-171)
Date Lost: 3 June 1943
L**ast Known Position:**
Current Position:

Vessel Specifications
Class and type: Porpoise-class diesel-electric submarine
Length: 300 ft. 6 in (91.59 m)
Beam: 25 ft. 7/8 in (7.6 m)
Draft: 15 ft. 10 in (4.6 m) maximum
Crew: 5 officers, 45 enlisted

Historical Information

USS Pickerel (SS-177), a Porpoise-class submarine, was the first ship of the United States Navy to be named for the pickerel, species of freshwater fish native to the eastern United States and Canada. Her keel was laid on 25 March 1935 by the Electric Boat Company in Groton, Connecticut. She was launched on 7 July 1936 sponsored by Miss Evelyn Standley, daughter of Rear Admiral William Standley, acting Secretary of the Navy. She was commissioned on 26 January 1937, Lieutenant Leon J. Huffman in command.

Loss

The loss of USS Pickerel (SS-177) during her seventh war patrol is one of the many mysteries of World War II. She left Pearl Harbor in 18 March 1943, topped off with fuel at Midway on the 22nd, departed for the waters around Honshu, Japan, and was never heard from again.

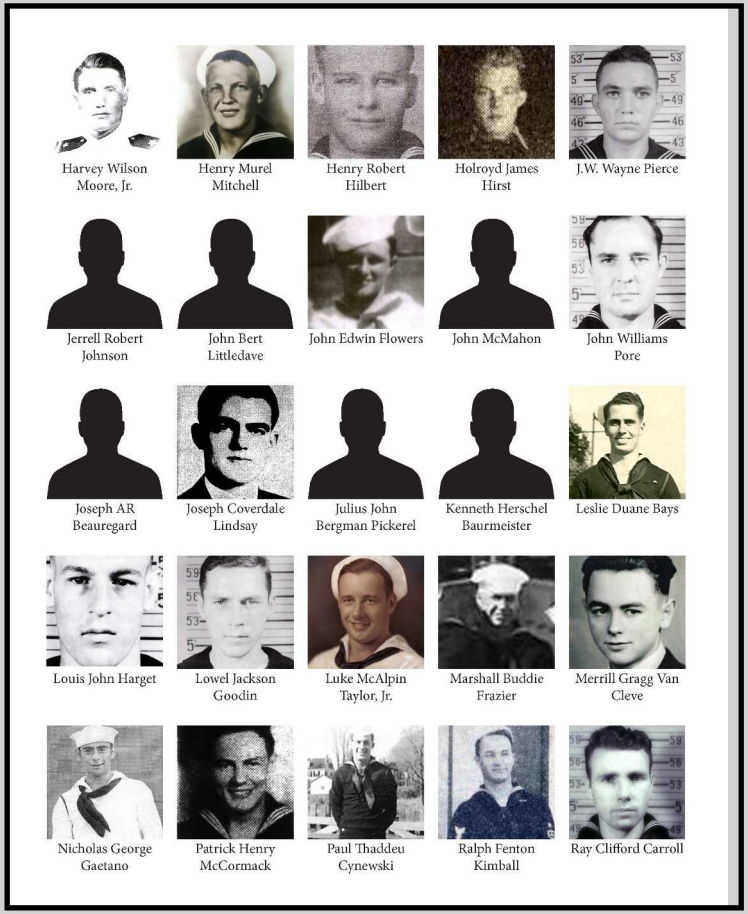
Post-war analysis of Japanese records give conflicting suggestions about Pickerel's fate.
It was initially thought that on 7th of April a cargo ship was sunk in Pickerel’s area; there were no other American subs in the vicinity and she was awarded the kill during post-war reckoning.

The Japanese officially credit her with sinking Submarine Chaser Number 13 on the 3rd of April and Fukuei Maru on 7th of April, and give no official report of her destruction. Shortly after the attack April 3rd attack, a Japanese aircraft spotted an American sub and dropped 23 bombs. The Japanese records describe an action off Shiramuka Lighthouse on northern Honshū on 3rd of April 1943 in which naval aircraft first bombed an unidentified submarine, then directed Shiragami and Bunzan Maru to the spot where the two ships arrived and pounded the area of the sighting with 26 depth charges.. Shortly thereafter they spotted oil floating on the water and assumed that they had hit their target.

This large quantity of oil floating to the surface, was often enough for Japanese ASW (Anti-submarine Warfare) ships to believe their target was sunk. It is likely Pickerel's fuel oil bunkers leaked. Since there were several other ASW operations in the area in that period, and Pickerel was the only American submarine in that area; one of these other attacks, sometime after 7th of April, probably claimed her.

It is also possible that the dates listed in the records were wrong, or that *Pickerel* was a victim of one of the several other anti-submarine attacks the Japanese launched in her area during the time period. Still others have argued that the boat may have been sunk by one of the many mines the Japanese had placed in the waters around Honshu. Ultimately the cause of *Pickerel's* demise doesn't matter nearly as much as the fact that her loss left 74 families without a loved one and with many questions that will probably never be answered.

Crew of the USS Pickerel



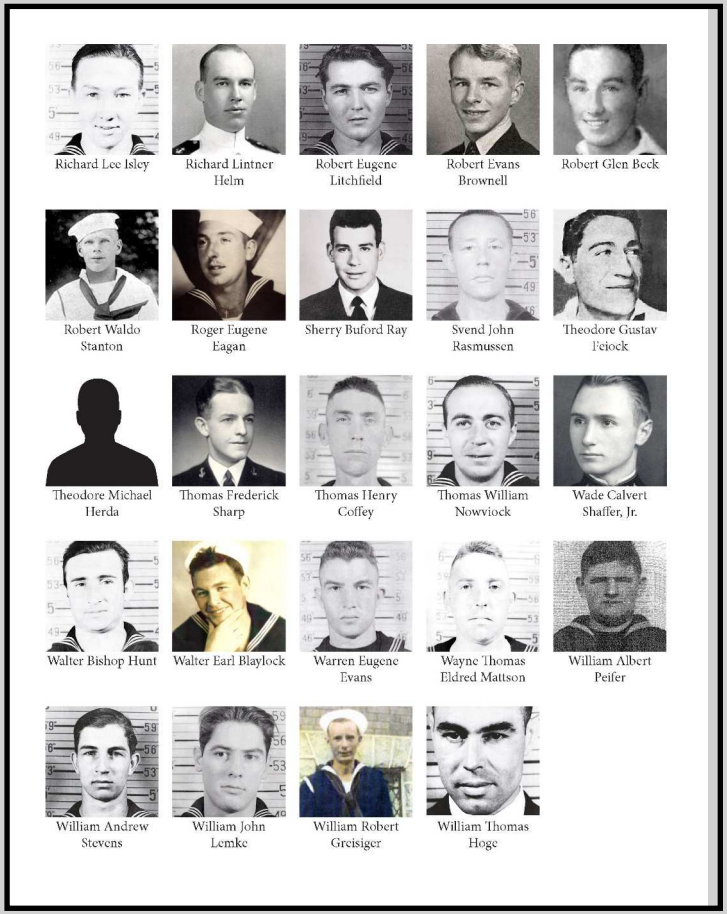

Richard Lee Isley
Richard Lintner Helm
Robert Eugene Litchfield
Robert Evans Brownell
Robert Glen Beck
Robert Waldo Stanton
Roger Eugene Eagan
Sherry Buford Ray
Svend John Rasmussen
Theodore Gustav Feiock
Theodore Michael Herda
Thomas Frederick Sharp
Thomas Henry Coffey
Thomas William Nowviock
Wade Calvert Shaffer, Jr.
Walter Bishop Hunt
Walter Earl Blaylock
Warren Eugene Evans
Wayne Thomas Eldred Mattson
William Albert Peifer
William Andrew Stevens
William John Lemke
William Robert Greisiger
William Thomas Hoge


Photo # 19-N-38942 USS Pickerel at the Mare Island Navy Yard, 28 December 1942

USS Pompano (SS-181)

Name: USS Pompano (SS-181)
Date Lost: September 1944 (credited for sinking Japanese ships in September)
Last Known Position: Left Midway on 20 Aug. then attacked at 40° 12′ N, 141° 55′ E on 3 Sept.
Heading for: Hokkaidō and Honshū
Current Position: Most recent discoveries indicate Shiriyasaki Sea, off Aomori Prefecture, at northeast Honshu Island

Vessel Specifications
Class and type: Porpoise-class diesel-electric submarine
Length: 300 ft. 6 in (91.59 m)
Beam: 25 ft. 7/8 in (7.6 m)
Draft: 15 ft. 10 in (4.6 m) maximum
Crew: 5 officers, 45 enlist

Historical Information

USS Pompano (SS-181), a United States Porpoise-class submarine, was the second ship of the United States Navy to be named for the pompano.

Her keel was laid down on 14 January 1936 by the Mare Island Navy Yard in California. She was launched on 11 March 1937, sponsored by Mrs. Isaac I. Yates, wife of Captain Isaac I. Yates, manager of Mare Island Navy Yard. The boat was commissioned on 12 June 1937, Lieutenant Commander Lewis S. Parks in command.

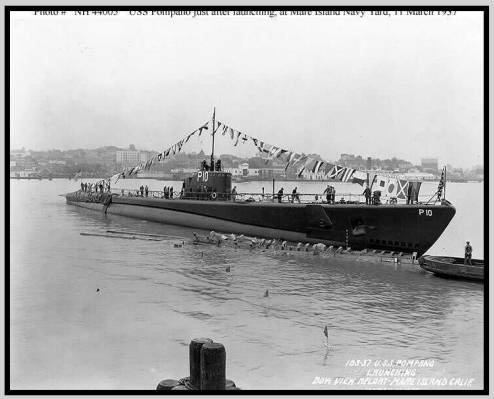
Loss

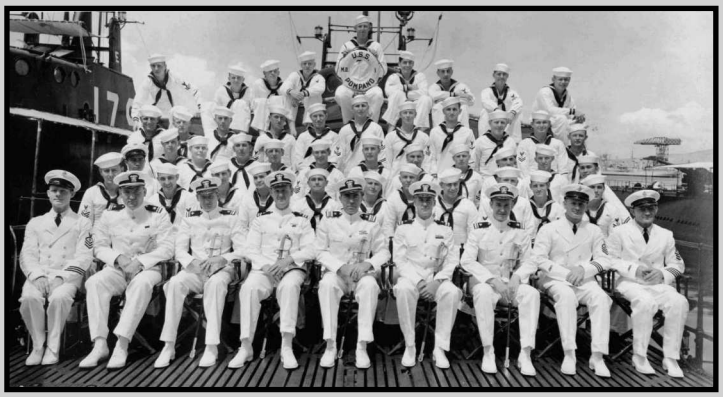
Pompano left Midway on 20 August, bound for Hokkaidō and Honshū. Her orders were to patrol off the east coast of Honshu from about 29 August to sunset of 27 September 1943, and then to return to Pearl Harbor for refit, stopping at Midway en route for fuel. She was never heard from again, and when she failed to return, was presumed lost. On 6 September Pompano was informed by dispatch that the area to the north of her own was open. Since that area was considered more productive of sinkings than the one she was in, it is quite possible that she moved into it. Both the one between Honshu and Hokkaido, and the one east of northern Honshu are known to have been mined by the enemy, with the greatest concentration of mines in the northern area. The Japanese knew she was in her area, however, for two ships fell to her torpedoes during September: Akama Maru on 3 September (east of Kuji Bay, at the geographic position 40° 12′ N, 141° 55′ E), and Taiko Maru on 25 September. The enemy made no anti-submarine attacks during this period in Pompano's area, so newly-laid mines in the vicinity, not known to U.S. Navy intelligence until after she sailed, probably sank her. Pompano was stricken from the Naval Vessel Register on 12 January 1944.

The official version is that she was lost while patrolling off the coasts of Hokkaido and Honshu, probably to Japanese mines. The date usually given (27 September) is an approximate one.

However Japanese records show that a submarine was sunk on 17 September by air attack off the Aomori Prefecture near Shiriya Zaki. Though we cannot be certain the boat was actually sunk here, it must be taken into consideration since it can only have been directed against Pompano as this is within her patrol area and as there were no other submarines operating in that area. They say a seaplane based on Ominato attacked a surfaced sub, which returned fire (this is critical since it leaves little doubt about what the plane attacked) then dived. The Japanese minelayer Ashizaki dropped depth charges the following day on a spot where oil was surfacing, bringing up more oil.

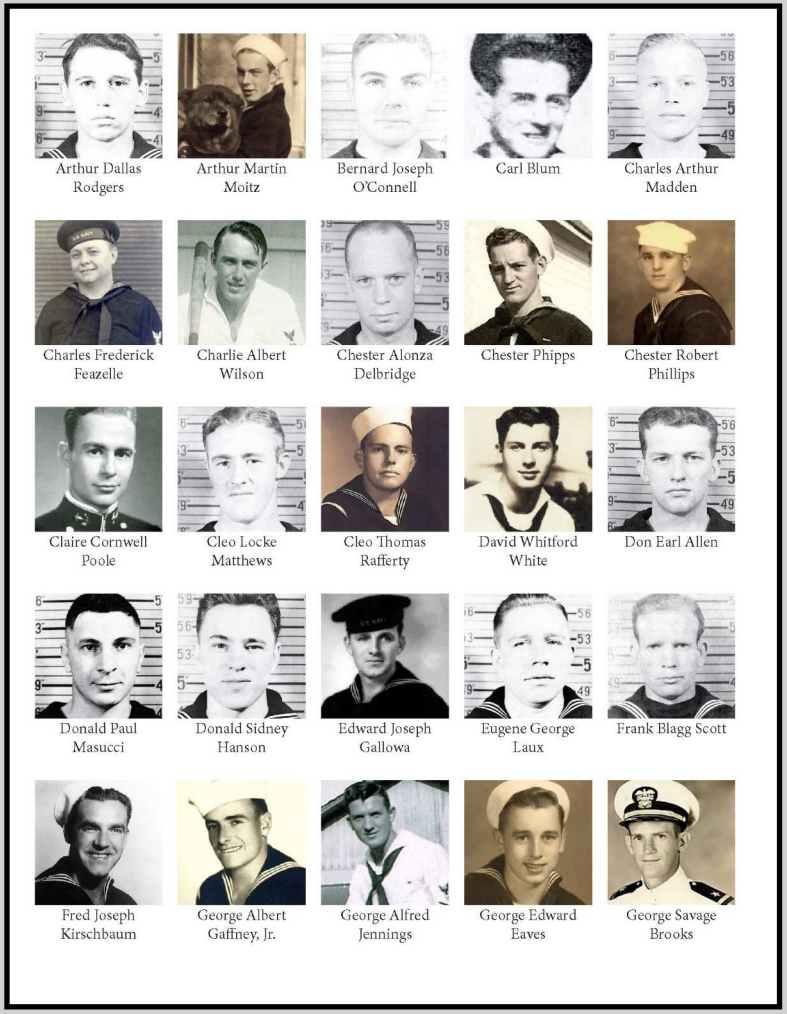
Although the fate of the Pompano has been unknown for years, new evidence from Japan suggests it may have been hit by depth charges from members of the Japanese Navy following an oil slick on top of the water, which they took as an indication there was a submarine below. A possibility is that she was sunk on September 17, 1943, by a bomb and depth-charge attack in the Shiriyasaki Sea, off Aomori Prefecture, at northeast Honshu Island, by a Japanese seaplane and surface vessels. The seaplane spotted and attacked a surfaced submarine, which returned gunfire. Oil rose to the surface after the attack. Consecutive depth-charge attacks were then made by five surface vessels on the submerged submarine, which was stopped and possibly sunk. A Tabular Record of Movement for one of the Japanese surface vessels indicates the submarine was possibly the Pompano.



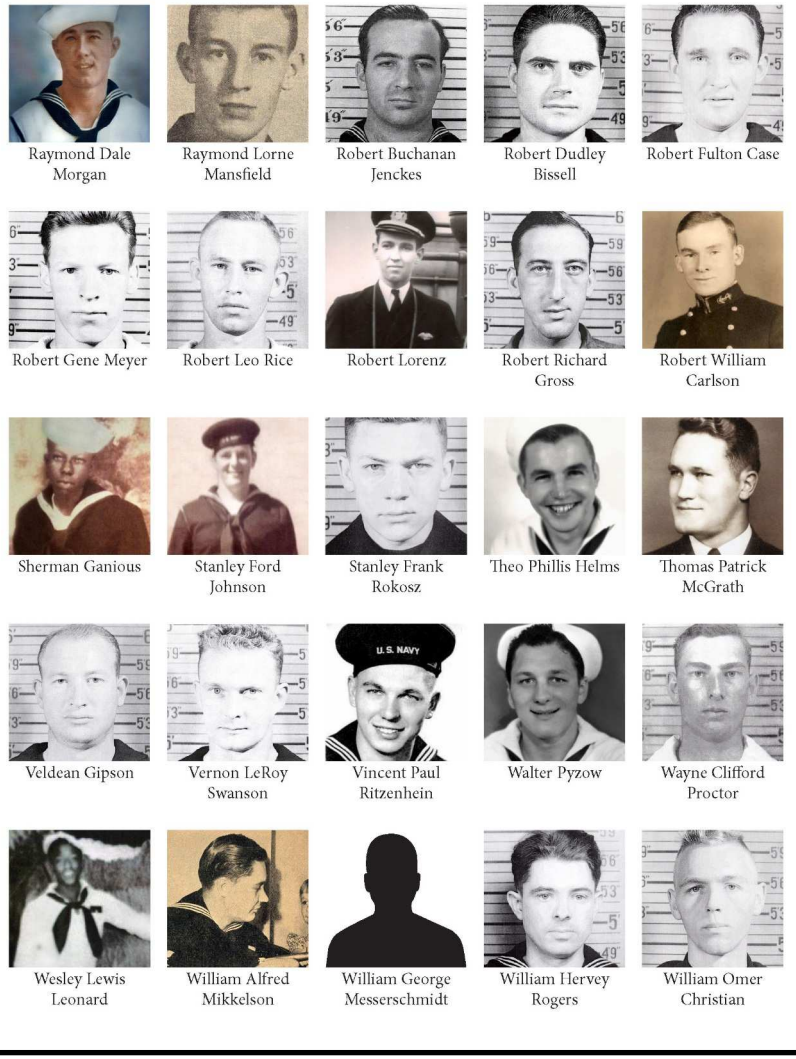


In August 2014, the U.S. Navy investigated a wreck site in the Tsugaru Strait that was possibly the remains of the USS Pompano. Its findings have been published in the document "Field Report: 2014 Search For USS Pompano." (This document has been included in the USS Pompano important files folder) It was determined that the wreck was a cargo or fishing vessel constructed after the 1930s. The Navy concluded that the Japanese Ominato Guard did not sink a submarine in that area as stipulated in historical records.

Crew of the USS Pompano



Also, the oil slicks reported in the area of the attacks possibly came from this wreck and the depth charging. The Pompano may have been attacked and sunk elsewhere in the Tsugaru Strait or at another location. She may also have been sunk within the 250-fathom curve off northeast Honshu by one of the anchored mines cited by Wilfred J. Holmes.



Raymond Dale Morgan | Raymond Lorne Mansfield | Robert Buchanan Jenckes | Robert Dudley Bissell | Robert Fulton Case

Robert Gene Meyer | Robert Leo Rice | Robert Lorenz | Robert Richard Gross | Robert William Carlson

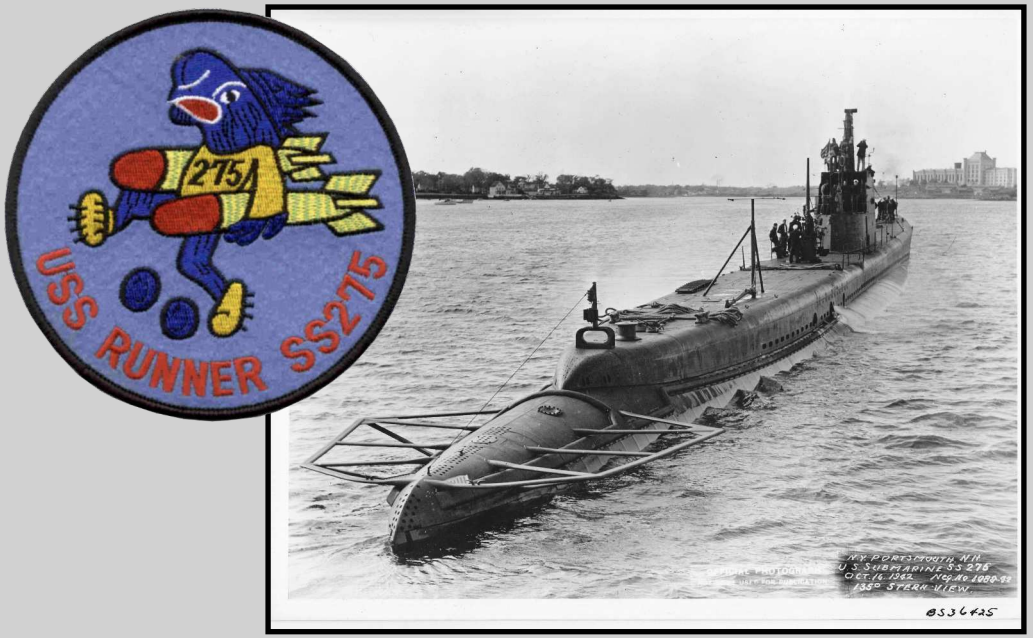
Sherman Ganious | Stanley Ford Johnson | Stanley Frank Rokosz | Theo Phillis Helms | Thomas Patrick McGrath

Veldean Gipson | Vernon LeRoy Swanson | Vincent Paul Ritzenhein | Walter Pyzow | Wayne Clifford Proctor

Wesley Lewis Leonard | William Alfred Mikkelson | William George Messerschmidt | William Hervey Rogers | William Omer Christian

William Wilson Hastings | William Woodrow Wilson Dennis | Willis Manning Thomas

USS Runner (SS- 275)



Name: USS Runner (SS-275)
Date Lost: 11 June 1943 (attack)
Last Known Position: 41° 00' N, 141° 30' E
Heading for: Latitude 48° 30'N, longitude 154°E (according to mission)
Current Position: in the Tsugaru Strait off Hokkaidō

Vessel Specifications
Class and type: Gato-class diesel-electric submarine
Length: 311 ft. 9 in (95.02 m)
Beam: 27 ft. 3 in (8.31 m)
Draft: 17 ft. (5.2 m) maximum Crew: 6 officers, 54 enlisted (80 – 85 during wartime)

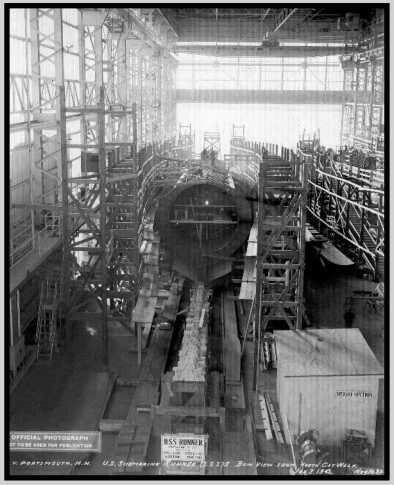
Historical Information

USS Runner (SS-275) was a Gato-class submarine, the first ship of the United States Navy to be named for the runner, an amberfish inhabiting subtropical waters, so called for its rapid leaps from the water.

Runner's keel was laid down on 8 December 1941 by the Portsmouth Navy Yard of Kittery, Maine. She was launched on 30 May 1942 sponsored by Mrs. John H. Newton, and commissioned on 30 July 1942 with Commander Frank W. Fenno, Jr. (previously captain of the USS Trout (SS-202) in command.

Loss

On 27 May, under command of Lieutenant Commander Joseph H. Bourland, Runner departed Midway for the Kuril Islands chain and waters off northern Japan (towards latitude 48° 30'N, longitude 154°E). No report was heard from her. She was to patrol south and west from this spot, until she came into the area south of Hokkaido and east of the northern tip of Honshu, where she was to patrol from about 8 June to 4 July 1943. Captured Japanese records indicated that she sank the cargo ship Seinan Maru on 11 June in Tsugaru Strait off Hokkaidō (at position 41° 00' N, 141° 30' E); on June 22, 1943 Runner was attacked and apparently damaged by IJN naval forces. Runner is also credited with sinking the passenger-cargo ship Shinryu Maru on 26 June off the Kuril Islands. Runner was declared overdue and presumed lost in July 1943 and stricken from the Naval Vessel Register on 30 October 1943.



Crew of the USS Runner


Albert Gerald Shelton


Alonzo Curtis Wright


Basilio Galvan


Broadus Monroe Caldwell


Calvin Ray Jennings


Carl Monroe Johnson


Charles Carroll Robellaz


Charles Edward Leary


Charles Laws


Charles Liggett


Charles Merril Martin


Charles Wendel Stumpf


Dallas William Hunter


Delmont Norman Pace


Dominic Joseph Nesh


Donald McDonald, Jr.


Edward Riley Erickson


Elvin Earl White


Erna Maurice Foltz


Everett Orin Welch


Gene Roger Rice


George Clark Selley


George Frederick Zipp


George Henry Schottler


George Hollister Foote


George Milton Howard Kloster


Gilbert Sherman Martin


Glen Otis Baker


Harold Eugene Emig


Harold Sherman Cleek


Herold George Lampman


Homer Lymon King


Hubert Eugene Gluski


Ira Noble Gregg


Ivan August Priefert


Jack Ludy Day


Jacob Niedwrski


James Donald Sanders


James Ray Evans


John Apen


John Delmont Rogers


John William Ruscoe


Joseph Francis Willinsky


Joseph Hunt Bourland


Joseph Wesley Charters


Josiah Alexander Boone


Jud Francis Yoho, Jr.


Lawrence DeForest Anderson


Louis Eilert Foss


Marion Michael Glowski

Morton Hyman Golden

Ollie Hatcher Marlowe, Jr.

Orlando Joseph Galligani

Parley Winton Price

Primo Luigi Bobba

R.T. Seabaugh

Ralph Childers

Ralph Leonard Reynolds, Jr.

Rex Mace Stevens

Richard Carl Hollar

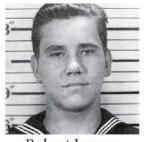
Richard Harold Seligman

Robert Burton Sweatt

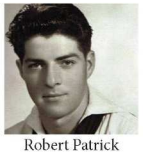
Robert Donald Kiracofe

Robert Edwin Pheifer

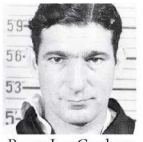
Robert J. Updegrove



Robert Lyman Washburn



Robert Patrick Burns



Roger Lee Gardner

Roy Cole Keefer

Thomas Henry James

Vernon Alton Meyer

Walter Alexander Blanchette

Walter Joseph Smoter

Walter Simon Blank

Wesley Lavern Watt

William Alexander O'Meara

William Henry Kremin

William Norsworthy Gordon

USS Scamp (SS- 277)

Name: USS Scamp (SS-277)
Date Lost: 11 November 1944
Last Known Position: On November 9, she acknowledged a message changing her patrol area to the vicinity of 29° 00'N, 141° 00'E
Current Position: most likely at 33° 38'N, 141° 00'E

Vessel Specifications
Class and type: Gato-class diesel-electric submarine
Length: 311 ft. 9 in (95.02 m)
Beam: 27 ft. 3 in (8.31 m)
Draft: 17 ft. (5.2 m) maximum
Crew: 6 officers, 54 enlisted (80 – 85 during wartime)

Historical Information

USS Scamp (SS-277), a Gato-class submarine, was the first ship of the United States Navy to be named for the scamp grouper, a member of the Serranidae family. Her keel was laid down on March 6, 1942 at the Portsmouth Navy Yard in Kittery, Maine. She was launched on July 20, 1942 sponsored by Miss Katherine Eugenia McKee, and commissioned on September 18, 1942 with Commander W.G. Ebert in command. The radio call sign of the USS Scamp was NAN-WILLIAM-BAKER-VICTOR.

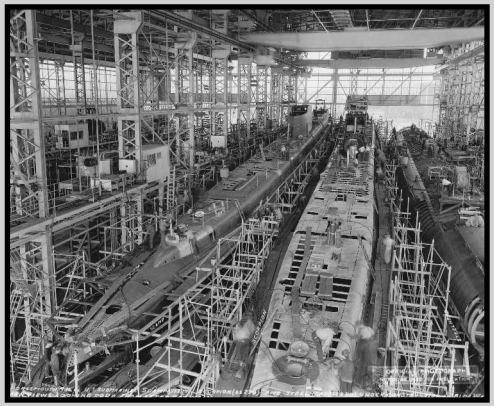
Loss

Scamp fueled at Midway Island on October 20, then set course for the Bonin Islands. On November 9, she acknowledged a message changing her patrol area (her area was changed to the vicinity of 29° 00'N, 141° 00'E). She reported her position to be about 150 miles (240 km) north of the Bonin Islands with all 24 torpedoes aboard and 77,000 US gallons (290,000 L) of fuel remaining. She was told to stay clear of the Bonins area south of 28°N during B-29 raids and she acknowledged, saying she was in 28° 44'N, 141° 44'E, and had made no torpedo attacks. On November 14 she was ordered to take up the life guard station off Tokyo Bay in support of B-29 Superfortress bomber strikes, but failed to acknowledge the message. Scamp was never heard from again. From records available after the war, it appears that Scamp was sighted by Japanese planes and reported depth charged by Kaibokan CD-4 to the south of Tokyo Bay on November 11, 1944. Scamp was struck from the Naval Vessel Register on April 28, 1945.

Since the end of the war, the following facts have been learned from Japanese sources. On 11th of November 1944, a Japanese patrol plane bombed what appeared to be oil trails left by a submarine, in 33° 38'N, 141° 00'E. A coast defense vessel was led to the scene by the plane and dropped some seventy depth charges in three runs on the target whereupon a large oil pool appeared.

The position of the attack is one in which Scamp might be expected to be on 11th of November, in proceeding toward her lifeguard station. (It is unlikely that Scamp would have been "proceeding toward her lifeguard station" on November 11th, as the orders to do so were not transmitted until November 14).

On 13th of November Greenling, herself on a lifeguard station, contacted a ship at 29° 41'N, 140° 10'E. Due to the nature of radar interference, Greenling thought that her contact was on Scamp, although she was unable to sight anything. On 16 November two attacks were made by the Japanese, one in 32° 10'N, 139° 30'E, the other in 29° 21'N, 141° 30'E. Amplifying data on these attacks reveal that on the latter attack, "Great explosive sounds came as a result of this attack."



New Construction

Scamp (SS-277) collided with the destroyer Chew DD-106 during training exercises on 9 September 1944

It would seem then, that *Scamp* was attacked several times during her period of lifeguard duty. (There were three reported Japanese attacks that could have been against *Scamp*, one on November 11 and two on November 16. However, if she had been damaged on November 11 and was trying to work her way south to Saipan, as some believe, it is doubtful that she would have been at 32° 10N, 139° 30E on November 16 to be the target of the first attack on that day. This would have required her to double back to the north (toward Hachijo-Jima) after meeting up with *Greenling* southwest of Sofu Gan on November 13. *Scamp* probably never assumed her lifeguard duties, as the orders to do so were not transmitted until November 14.) Whether she was badly damaged and withdrawing from the Japanese coast at the time of the last two attacks is impossible to say. No attack cited here ties in with any anti-submarine attacks

reported by submarines returning from patrol. It is probable that damage to *Scamp* became progressively more serious as she absorbed each successive attack, and she may have been withdrawing from the Empire without transmission facilities when the end came. *Scamp* (SS-277) earned seven battle stars for World War II service.

Crew of the USS Scamp

John Christie Hollingsworth

John Harvey Savage

John Robert McNeill

John William Howell

John William Steinmann

Joseph Simpson

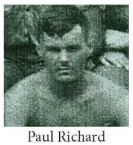
Maynard Frank Wickham

Morris A. Cartee

Neuman Pratt Houchen

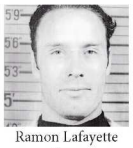
Odie Bass

Orlando Joseph Di Nicola



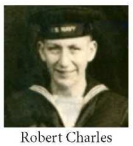
Paul Richard Thompson

Pedro Fonantilla Baysa

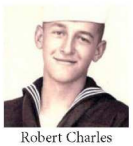


Ramon Lafayette Cary

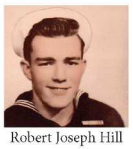
Richard William Penrose



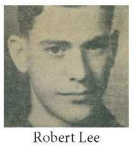
Robert Charles Hegmann



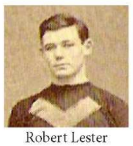
Robert Charles Rasmussen, Jr.



Robert Joseph Hill



Robert Lee McClunny



Robert Lester Cappel

Robert Nelson Graham

Robert Starrett Crawford

Sol Kushner

Stuart Samuel Dienno

Thomas Arnold Hagen

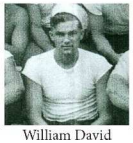
Thomas Harold Wilkinson

Tom Slaughter Sutherland

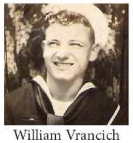
Victor Cerveny

Walter Levis Shaffer

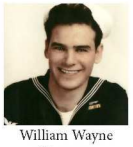
William Albert McLaughlin



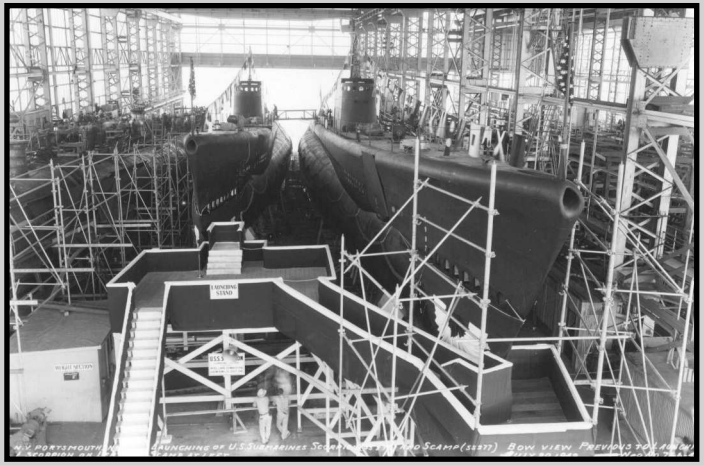
William David Burns, Jr.



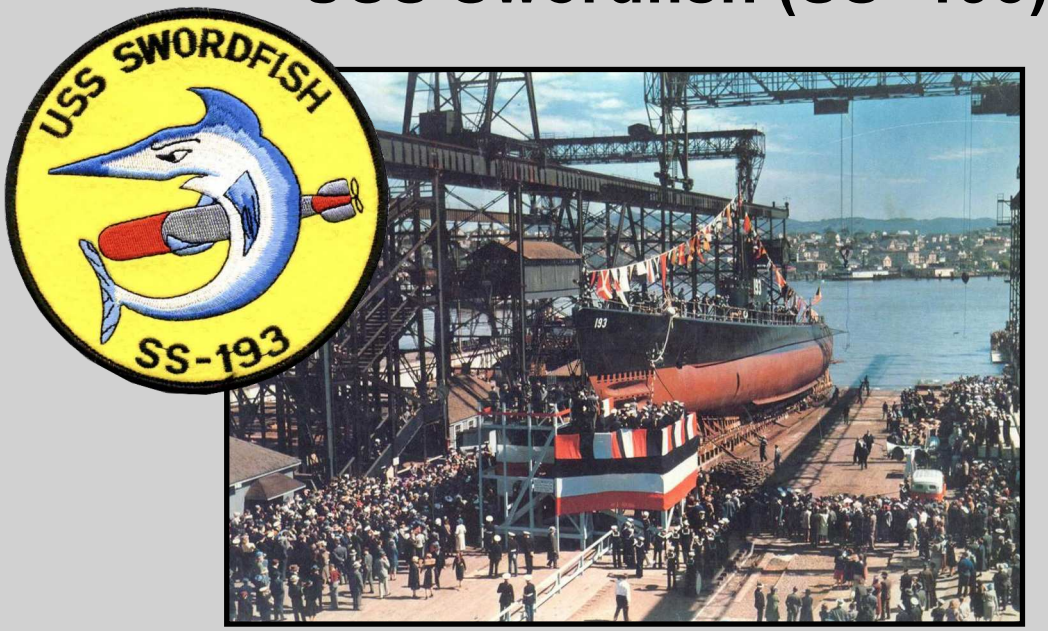
William Vrancich



William Wayne Chapman



USS Swordfish (SS- 193)



Name: USS Swordfish (SS-193)
Date Lost:
Last Known Position: The general vicinity of 30°N; 132°E
Heading for:
Current Position:

Vessel Specifications
Class and type: Sargo-class diesel-electric submarine
Length: 310 ft. 6 in (94.64 m)
Beam: 26 ft. 10 in (8.18 m)
Draft: 16 ft. 7 1⁄2 in (5.067 m)
Crew: 5 officers, 54 enlisted

Historical Information

USS Swordfish (SS-193), a Sargo-class submarine, was the first submarine of the United States Navy named for the swordfish, a large fish with a long, sword-like beak and a high dorsal fin. She was the first American submarine to sink a Japanese ship during World War II.

Her keel was laid down on 27 October 1937 by the Mare Island Naval Shipyard of Vallejo, California. She was launched on 3 April 1939, sponsored by Miss Louise Shaw Hepburn, and commissioned on 22 July 1939 with Lieutenant (later Rear Admiral) Chester C. Smith in command. The radio call sign of the USS Swordfish was NAN-UNCLE-DOG-GEORGE.

Loss

On 2 January, Swordfish was ordered to delay carrying out her assigned tasks in order to keep her clear of the Nansei Shoto area until completion of carrier-based air strikes that were scheduled. She was directed to patrol the general vicinity of 30°N, 132°E until further orders were received. Her acknowledgement of those orders on 3 January was the last communication received from Swordfish.

On 9 January 1945, Swordfish was directed to proceed to the vicinity of Okinawa to carry out her special mission. It was estimated that the task would not take more than seven days after arrival on station, which she should have reached on 11 January. Upon completion of her mission, Swordfish was to proceed to Saipan, or to Midway if she was unable to transmit by radio. Since neither place had seen her by 15 February, and repeated attempts to raise her by radio had failed, she was reported as presumed lost on that date.

In the report of her loss, mention was made that Kete (SS-369), which at the time was patrolling the vicinity of Okinawa, reported that on the morning of 12 January she contacted a submarine by radar. It was believed that contact was with Swordfish (since it was in 27° 00'N, 128° 40'E). Four hours later Kete heard heavy depth charging from this area, and it was believed that this attack might have been the cause of Swordfish’s loss.

Japanese information on antisubmarine attacks does not mention the attack heard by Kete on 12 January, and records no attacks in which Swordfish is likely to have been the victim. However, it is now known that there were many mines planted around Okinawa, since the Japanese were expecting an Allied invasion of that island. The majority of the mines were planted close in. It is considered about equally likely that Swordfish was sunk by depth charge attack before she reached Okinawa for her special mission or that she was lost to a mine at that place. Japanese sources sometimes credit her with sinking Shoto Maru on January 4 and being sunk in return by her escort, Kaibokan CD-4, since no claims for Shoto Maru match her sinking time. Admiral William S. Pye's son, Lt. Commander John Briscoe Pye, was on the USS Swordfish (SS-193) for her 13th and final war patrol.

The main loss possibilities are therefor:

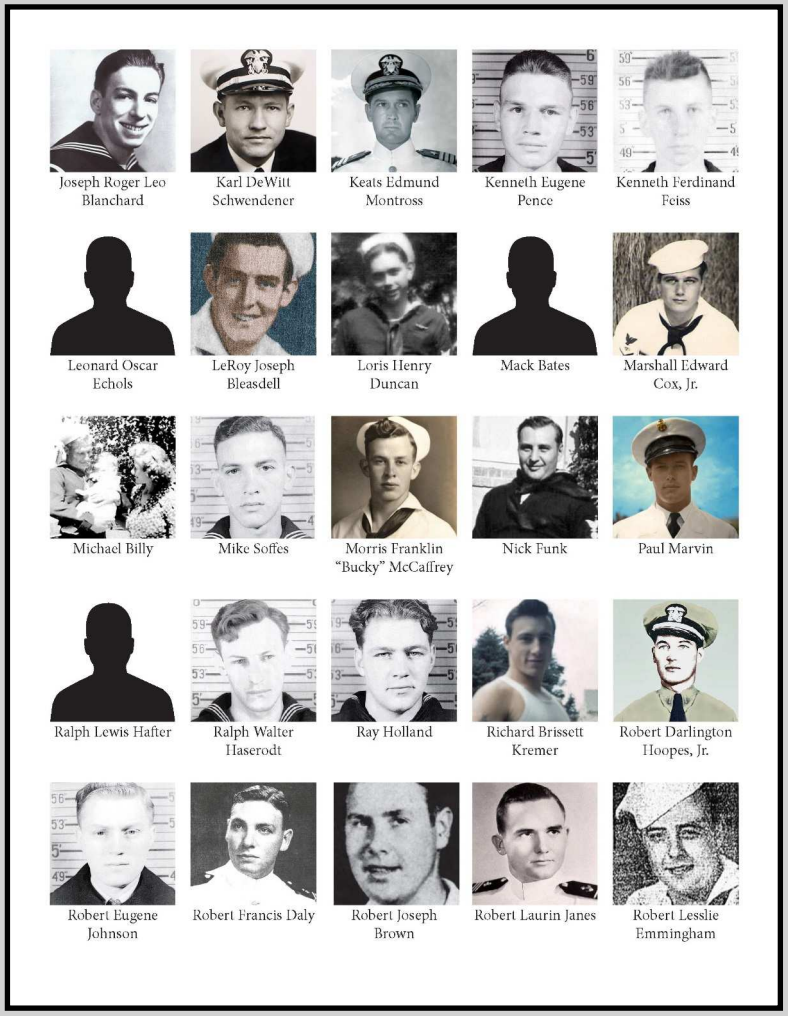
1. The *Swordfish* was probably sunk by depth charges, on January 5, 1945, at the approximate geographic position 29° 25' N, 141° 07' E, which is southeast of Tori-shima island, an uninhabited volcanic island at the south end of the Izu Islands. On that date, near that location, at about 1705 hours, the 572-ton Japanese Army cargo vessel *Shoto Maru* was hit in the bow by a torpedo and sank at about 1906 hours. John D. Alden attributes this attack and the sinking to the *Swordfish*. The Japanese coastal defense vessel *CD-4* conducted a counterattack with depth charges and reported that oil continued to rise to the surface for the next thirty hours.

2. The *Swordfish* possibly sank sometime after January 9, 1945, as a result of hitting a mine. During the first half of 1944, the Japanese had laid four minefields in the Okinawa area. On January 9, 1945, the *Swordfish* had been ordered to proceed to this area to complete a photographic reconnaissance assignment. This mission may have taken her into one of the minefields laid in 1944 or into freshly laid inshore minefields planted to defend Okinawan beach approaches.

3. On January 12, 1945, the *USS Kete* (SS-369), while on station in the Okinawa area, reported a possible contact with a nearby submersible. The *Kete* was unable to positively identify the contact,

but the *Swordfish* was expected to be in the vicinity at that time. About four hours later, the *Kete* heard the sound of a heavy barrage of depth charges. Japanese records reviewed after the war did not record the event heard by the *Kete*. But such a heavy barrage could have been aimed at the *Swordfish*.

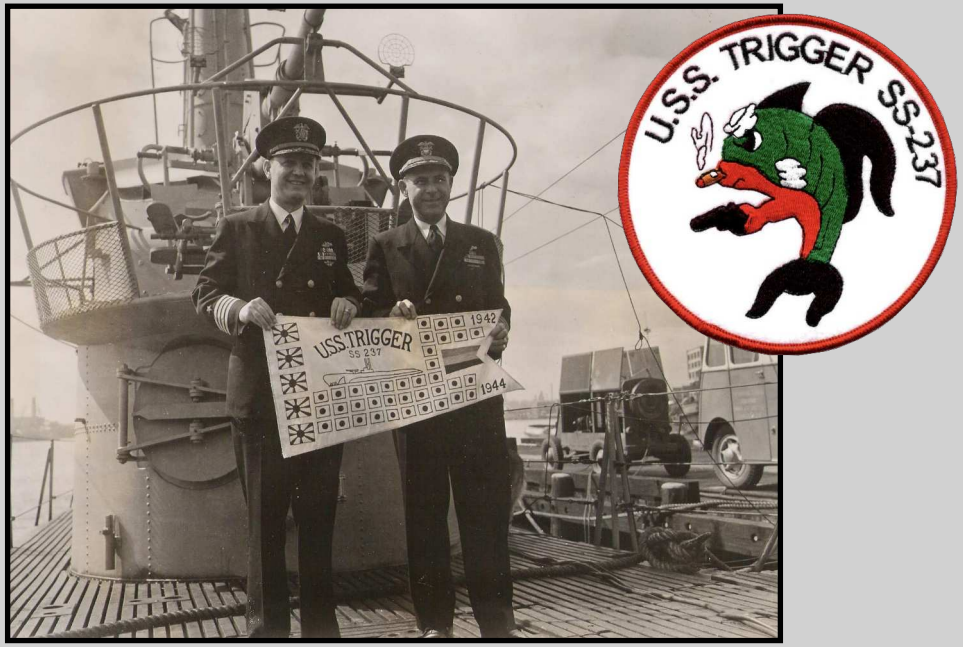
Crew of the USS Swordfish



Joseph Roger Leo Blanchard
Karl DeWitt Schwendener
Keats Edmund Montross
Kenneth Eugene Pence
Kenneth Ferdinand Feiss
Leonard Oscar Echols
LeRoy Joseph Bleasdell
Loris Henry Duncan
Mack Bates
Marshall Edward Cox, Jr.
Michael Billy
Mike Soffes
Morris Franklin "Bucky" McCaffrey
Nick Funk
Paul Marvin
Ralph Lewis Hafter
Ralph Walter Haserodt
Ray Holland
Richard Brissett Kremer
Robert Darlington Hoopes, Jr.
Robert Eugene Johnson
Robert Francis Daly
Robert Joseph Brown
Robert Laurin Janes
Robert Lesslie Emmingham

Roy Earl Kroll, Jr.
Roy Gordon Arold
Russell LoPresti
Stephan John Johnson
Thurman August Williams
Timothy Joseph Connors
Vernon Kirk
Wallace Greeley "Wally" Statton
Warren Dillon
Wesley Clement Bogdan
William Edward Kohler
William Eugene Russell
William Penn Grandy
William Siskaninetz

USS Trigger (SS- 237)



Name: USS Trigger (SS-237)
Date Lost: 28 March 1945
Last Known Position: 31°N, 132'E
Current Position: probably in the area of 32° 16'N, 132° 05'E

Vessel Specifications
Class and type: Sargo-class diesel-electric submarine
Length: 310 ft. 6 in (94.64 m)
Beam: 26 ft. 10 in (8.18 m)
Draft: 16 ft. 7 1⁄2 in (5.067 m)
Crew: 5 officers, 54 enlisted

Historical Information

USS Trigger (SS-237) was a Gato-class submarine, the first ship of the United States Navy to be named for the triggerfish. Trigger's keel was laid down on 1 February 1941 at Mare Island, California, by the Mare Island Navy Yard. She was launched on 22 October 1941 (sponsored by Mrs. Walter N. Vernou), and commissioned on 30 January 1942, with Lieutenant Commander Jack H. Lewis (US Naval Academy Class of 1927) in command. The submarine sailed for Hawaii on 22 May and reached Pearl Harbor the following week. She sortied for Midway Island with Task Group 7.2 (TG 7.2) on 29 May in anticipation of a Japanese attack on that island. Her station during the ensuing Battle of Midway was northeast of Midway, and she remained there without contacting any enemy shipping until she was ordered back to Pearl Harbor on 9 June. The radio call sign of the USS Trigger was NAN-CHARLIE-CHARLIE-FOX.

Loss

For some time, Allied forces had been aware of a large Japanese restricted area west of the Nansei Shoto in the East China Sea. On 24 March, *Trigge*r was ordered to begin patrolling west of the islands the next day (between 29°N and 31°N), outside the 100 fathom curve, and to steer clear of restricted areas. On 26 March, she was ordered to join a wolf pack called "Earl's Eliminators" (at 31°N, 132'E) with *Seadog* and *Threadfin*. The group was to be commanded by CDR. E. T. Hydeman in *Seadog* and to acknowledge receipt of the message. A weather report came from the submarine that day but no confirmation of her having received the message. The weather report was *Trigger's* last transmission. On 4 April, she was ordered to proceed to Midway, but she had not arrived by 1 May and was reported as presumed lost.

Since she knew the position of the enemy restricted area containing mines, and had been told to keep clear of it, it is extremely doubtful that *Trigger's* loss was due to a mine. Postwar records indicate she torpedoed and sank the repair ship *Odate* on 27 March. The next day,

Japanese planes and ships joined in a two-hour attack on a submarine heard by *Silversides*, *Seadog* (SS-401), *Hackleback* (SS-295), and *Threadfin* (SS-410) in adjacent areas. Threadfin was the only one of these submarines attacked that day, and she reported hearing many depth charges and several heavy explosions east of her after the attack on her ceased.

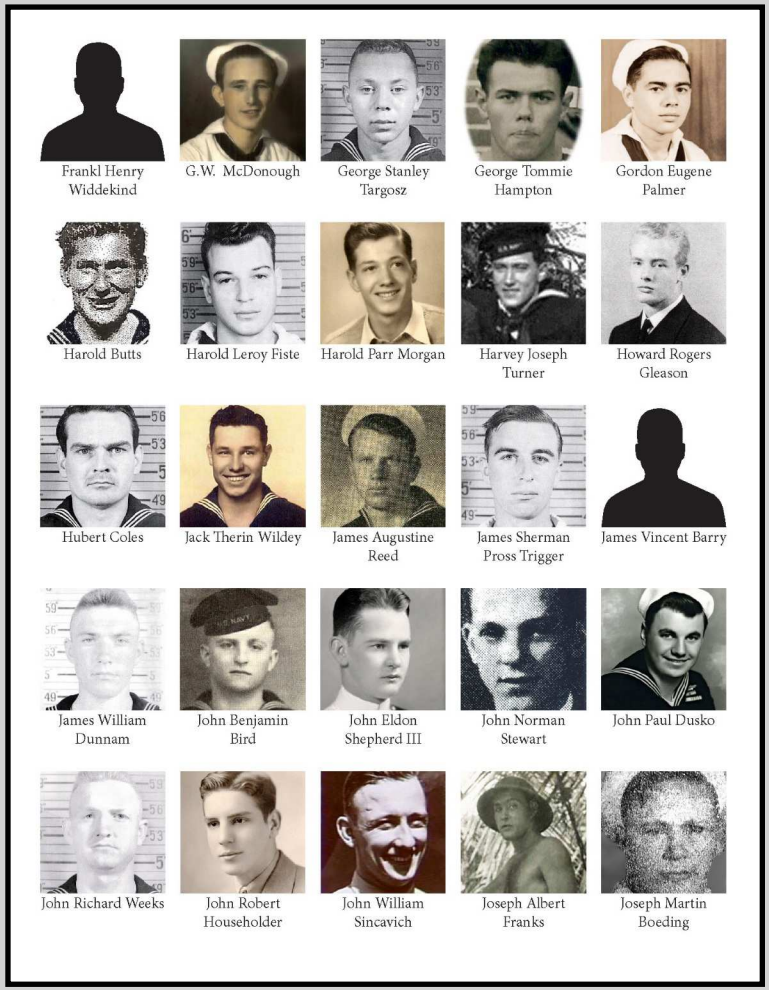
Postwar Japanese records showed a Japanese aircraft detected and bombed a submarine on 28 March 1945 (in 32° 16'N, 132° 05'E). Southwest of Shikoku, the *Trigger* (most likely) was detected by Magnetic Anomaly Detector equipped reconnaissance seaplanes from the Saki Naval Air Group. The aircraft directed antisubmarine surface vessels from the ComKure Guard Unit's 3rd Sweeping Unit to the area in the Nansei Islands (Nansei Shoto) area. Beginning at about 1300 hours, at the geographic position 32° 16' N, 132° 05' E, the 3rd Sweeping Unit escort vessels *Mikura*, *CD-33*, and *CD-59* conducted several attacks on the submerged submarine with Type 3 streamlined depth charges. After about two hours, a large amount of oil and submarine debris was sighted on the surface. *The Trigger* was the only submarine known to be operating in the immediate vicinity of the reported attack.

Threadfin obtained two torpedo hits on a DE in 31° 49.5'N, 131° 44'E, and she was depth charged by accompanying escort vessels. Eighteen charges were dropped on her, none particularly close, but she reported that the charges were set for 450 feet, which made them much more dangerous than the usual run of depth charges. An hour later, *Threadfin* reports, "Many distant strings of depth charges and several heavy explosions heard from what was believed to be the eastward (in the opposite direction from the location of our attacks). It sounded as though someone was getting quite a drubbing." No other submarine in the vicinity reported having been attacked, although all reported hearing many explosions.

The Japanese report of the above attack states, "Detected a submarine over eight times and bombed it. Ships also detected it-depth charged. Found oil pool of 1 x 5 miles in size the following day." Since it is extremely doubtful that *Threadfin* received sufficient damage to have left the oil

pool described by the Japanese, it must be presumed that *Trigger* was lost in this action. That it occurred two days after *Trigger* had been told to acknowledge a message, and none was ever received is not considered unusual. Conditions often forced submarines to delay transmissions for considerable periods of time. Trigger was stricken from the Naval Vessel Register on 11 July 1945. She was immortalized and eulogized in Beach's 1952 book Submarine! Destroyer escort US Connole (DE-1056, later FF-1056) was named in honor of Commander David R. Connol.

Crew of the USS Trigger




Joseph_Paul_Fisher_Trigger.jpg


Karl_Addison_Livingston_Trigger.jpg


Kenneth_Wilmer_Bolz_Trigger.jpg


Laddie_Oster_Trigger.jpg


Lawrence_John_McHugh_Jr__Trigger.jpg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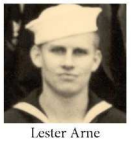
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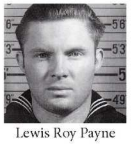
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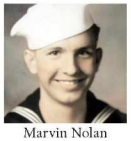
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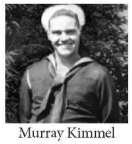
Maurice Vincent DeLone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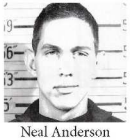
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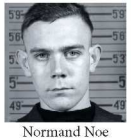
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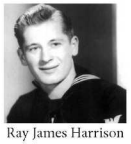
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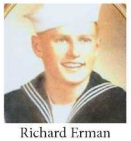
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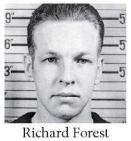
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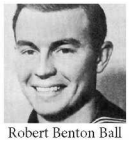
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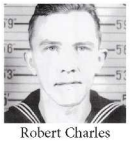
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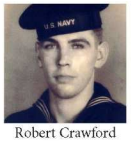
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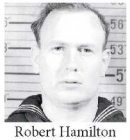
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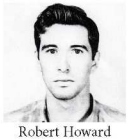

Robert Howard Greenwell


Robert Lee Dodane


Robert McClellan Foster


Robert Michael Kelly


Robert William Murray


Rudolph Charles Beranek


Rustislav Nicholas Kemarsky


Stanley Gottfried Johnson


Vern Wesley Cain


Vincent Thomas Iovino

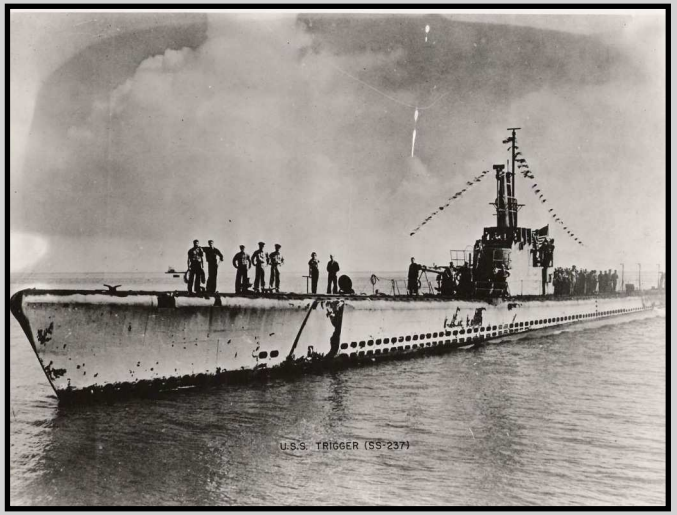

Warren Charles Thompson


William Clyde Craig, Jr.

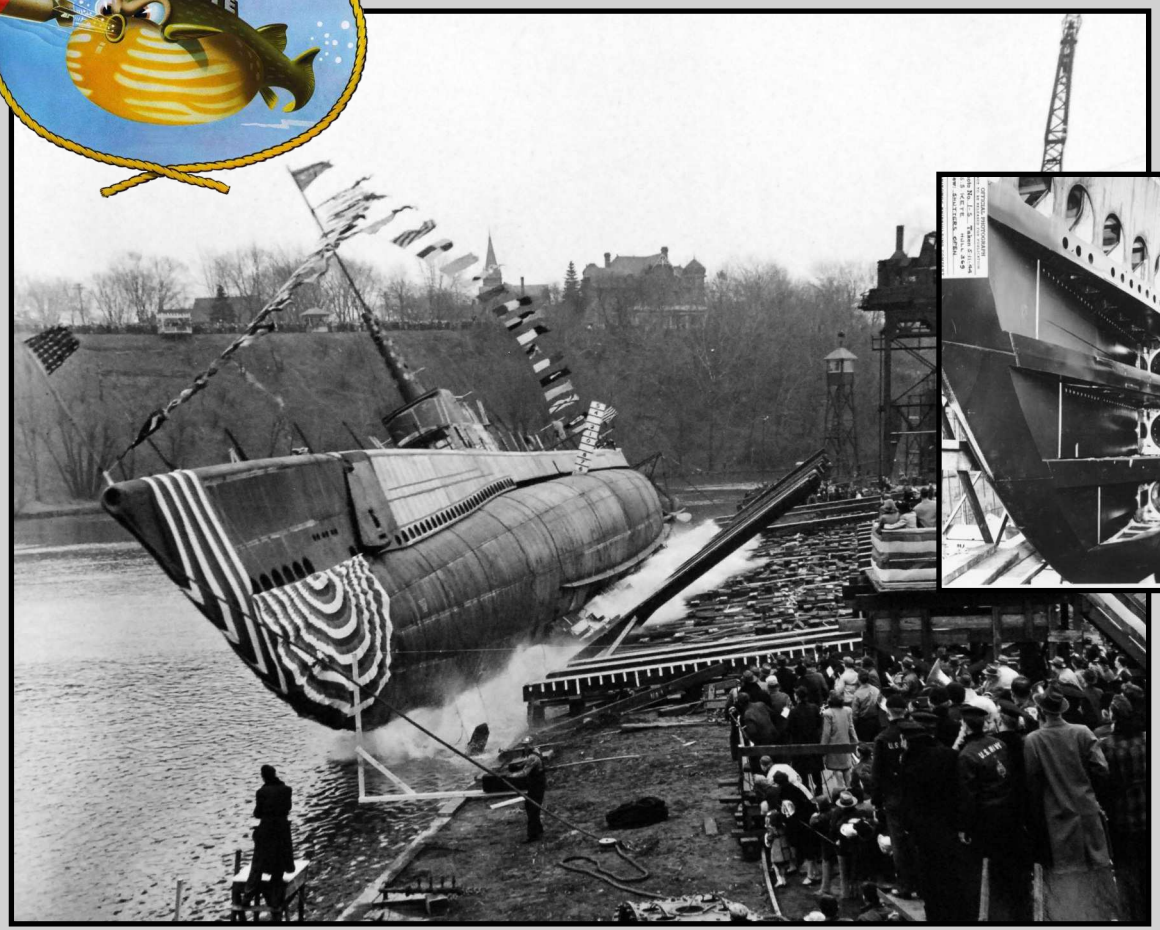

William Edward Dow


William Hatfield Rae


William LeRoy Emmons, Jr.



USS Kete (SS-369)



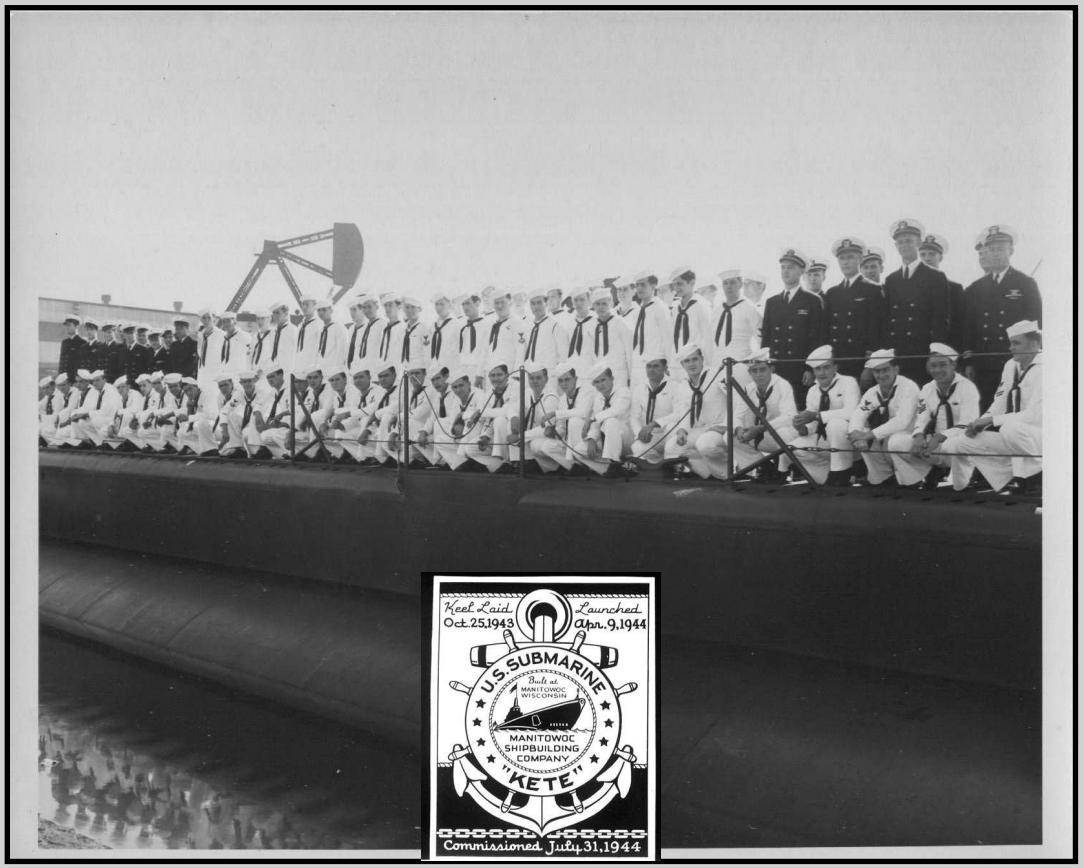
With Lieutenant Commander Edward Ackerman in command, Kete cleared Guam on 1 March for her second war patrol. Assigned to waters surrounding the Nansei Shoto Chain, she resumed lifeguard duty and gathered weather data for the forthcoming invasion of Okinawa. While patrolling west of Tokara Retto on the night of 9 March and 10 March, she surprised an enemy convoy and torpedoed three marus totaling 6881 tons. During the night of 14 March, she attacked a cable-laying ship.

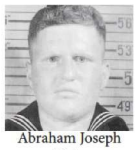
With only three torpedoes remaining, she was ordered to depart the area 20 March, refuel at Midway Island, and proceed to Pearl Harbor for refit. Kete acknowledged these orders 19 March (from position 29° 38'N, 130° 02'E); and, while steaming eastward the following day, she sent in a weather report from a position south of Colnett Strait. She was neither seen nor heard from again. She was scheduled to arrive Midway by 31 March; when repeated attempts to contact her by radio failed she was reported as presumed lost on 16 April.

Circumstances surrounding her loss remain a mystery. The cause could have been an operational malfunction, a mine explosion, or enemy action. Some Western sources credit the medium-size Japanese submarine RO-41 (type Kaichū) with the sinking of Ketebut the only undisputable fact is that this submarine crossed the same area on the day Kete sent a weather report there. RO-41 was possibly sunk on 23 March 1945, 3 days after a supposed kill. It is very unlikely the Japanese captain (Lt Honda) would not report such an attack. It is even emphasized by the last radio contact with RO-41, happening on 22 March 1945 and mentioning just "sighting an enemy destroyer".

There were mine-lines (one-thousand mines were laid in that area on February 27, 1945, by the Japanese minelayer Tokiwa and the auxiliary minelayer Koei Maru) in the Nansei Shoto Chain, but since Kete was already east of the islands at the time of her last message on 20 March and was heading home, loss through a mine is considered highly improbable. It is now known that a number of

enemy submarines were in the area through which Kete was required to pass enroute to Midway. RO-41 was sunk east of Okinawa by a U.S. destroyer on 23 March 1945, and two other Japanese submarines were sunk southeast of Okinawa near this date. Conditions attendant to Kete's loss suggest the likehood that one of these submarines might have torpedoed and sunk her and been unable to report the attack before being sunk. Thus, Kete must be considered probably a loss due to an unreported enemy attack. Kete received one battle star for World War II service.

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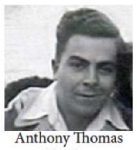
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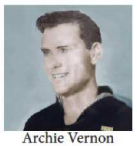
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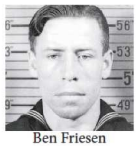
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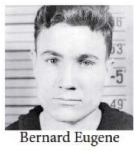
Bernard Cobrin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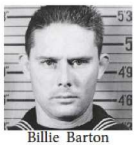
Bernard Henry Haag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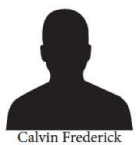
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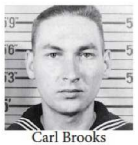
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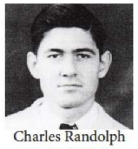
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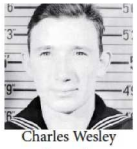
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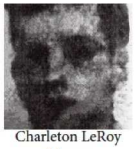
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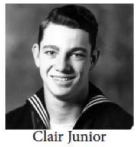
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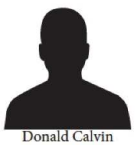
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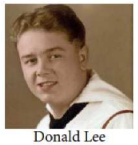
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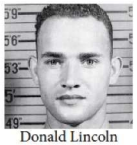
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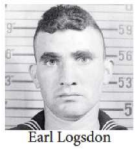
Donald Paul Egen


Douglas Grant Fenton


Earl Henderson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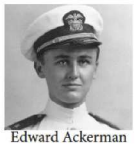
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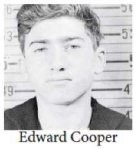
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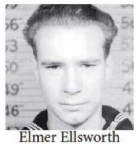
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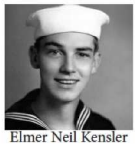
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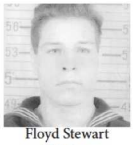
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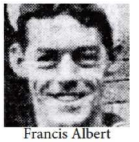
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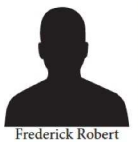
Francis William Braniger


Frank Litzenburger, Jr.


Frank Martini


Fred Joseph Griswold


Frederick Fay Reimers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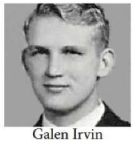
French Lee Thomas, Jr.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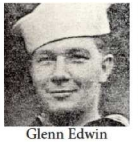
George Joseph Schemm


George Thomas Page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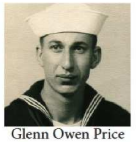
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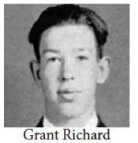
Glenn Raymond Malko


Gordon Ray Thompson


Gordon Weaver Wilson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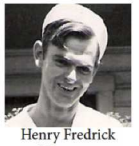
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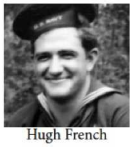
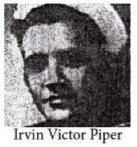

Hugh French


Hugh Mack Cole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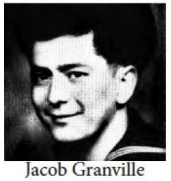
Jack Lee Lasiter



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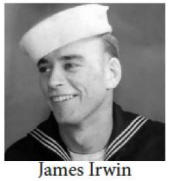

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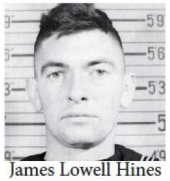

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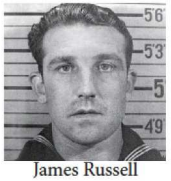

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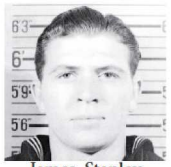
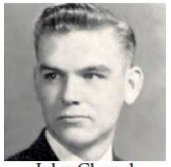
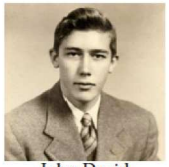


James Stanley Waggoner



John Clausel Adams, Jr.



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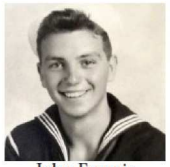

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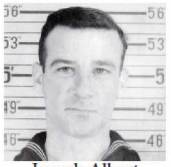
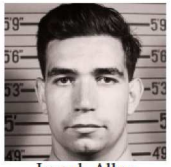


Joseph Albert O'Brien



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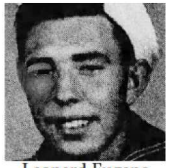
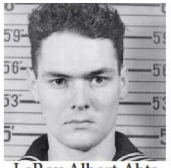
Joseph Henry Gunzinger

Keith Hugo Thorn

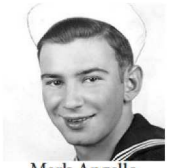


Leonard Eugene Blodgett

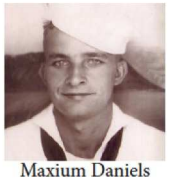


LeRoy Albert Abts

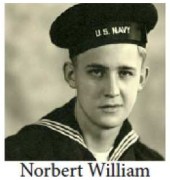
Manuel Lawrence Efferson



Mark Angello O'Connor



Maxium Daniels Schenavar



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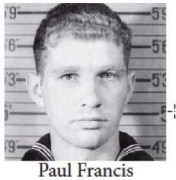
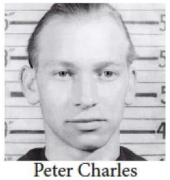
Oliver Harry Simpson



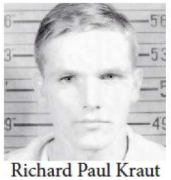
Paul Francis Schumacher

Paul O'Bryan Hayden

Perry Charles Callahan

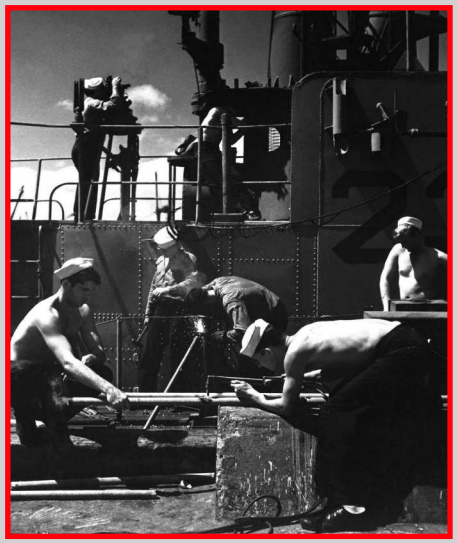


Peter Charles VanDam



Richard Paul Kraut

Robert Arthur Hart



Robert Russell Racer

Robert Stephan Fuller

Robert Willia Crowley

Russel Andrew Wallick

Russell Henry Spikes

Salomon Hernandez Villalba

Samuel Arnold Moccabee

Stanton Lee Hooper

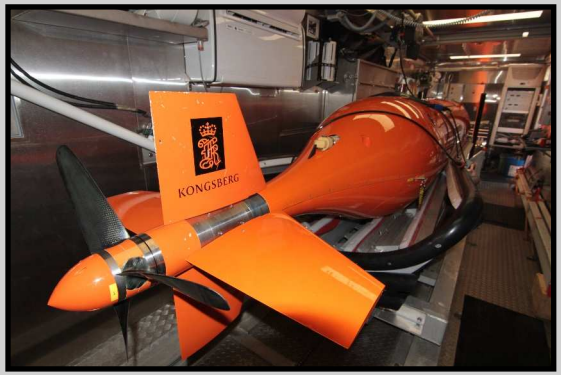
Walter Ernest Kotelman

William Henry Burnside, Jr.

William Howard Dawson

Willis Dul

TECHNOLOGY



HUGIN 4500 Autonomous Underwater Vehicle (AUV)

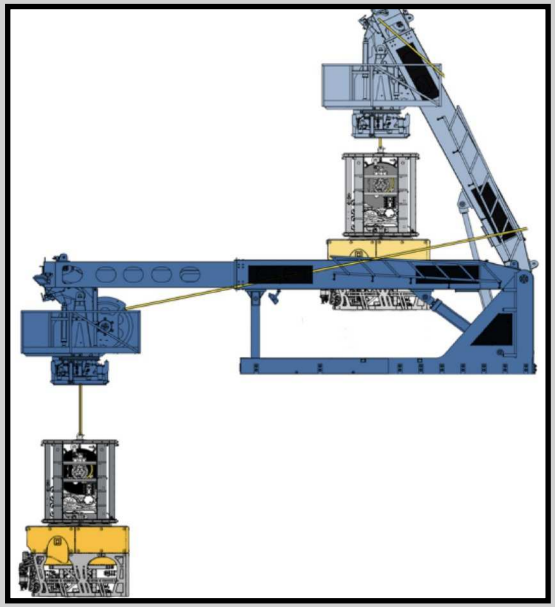
The vehicle has a one meter diameter and 4500 meter depth rating. It is battery powered. The increased size and battery capacity allows HUGIN 4500 to be equipped with even more capable payload sensors, such as higher resolution sub-bottom profiler and sidescan sonar systems.

Physical Specifications

- **Platform: Hugin 4500**
- **Body Type: Torpedo**
- **Size (LxWxH): 6.00m x 1.00m x 1.00m**
- **Body Size (LxWxH): 6.00m x 1.00m x 1.00m**
- **Hull Material: Titanium**
- **Weight: 1,900.00kg**
- **Maximum Depth: 4,500.00 m**
- **Dynamic Buoyancy: No**
- **Self-Righting: Yes**
- **Obstacle Avoidance: Yes**
- **Endurance (nominal load): 60 hours**

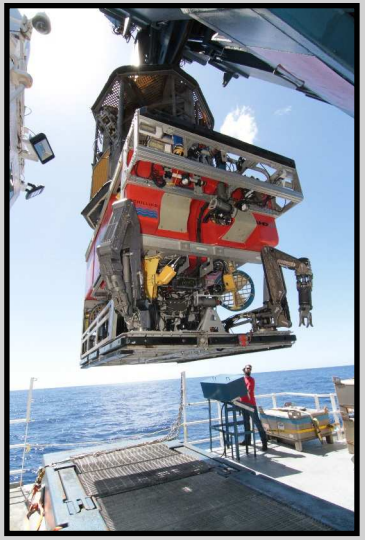
Schilling Remote Operated Vehicle (ROV)

FMC Technologies Schilling Robotics' remotely operated vehicle (ROV) systems provide industry leading performance combined with ease of use, ease of maintenance, and the lowest total cost of ownership. Fully integrated systems consist of the ROV, tether management system (TMS), launch and recovery system (LARS), control van, and workshop van. Our ROVs deliver the highest productivity in the deep water oil and gas industry, with comprehensive global support in all of the major regions.



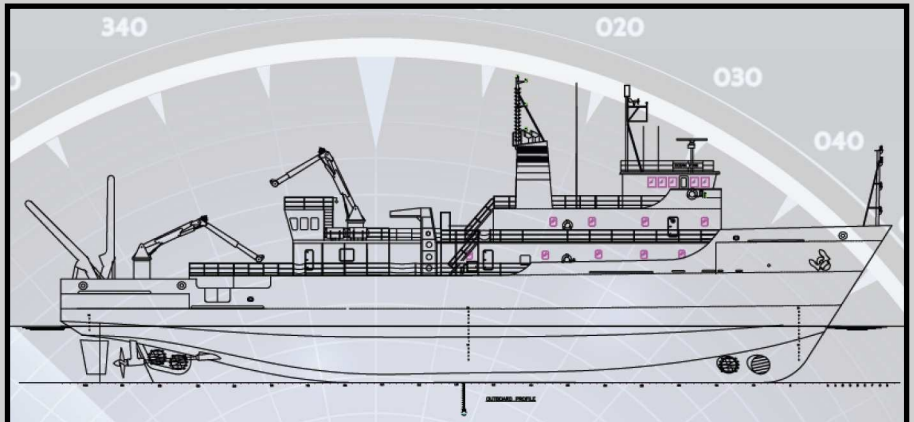
System Versatility

Our HD and UHD-III ROV systems complement each other in terms of market versatility. The HD is a compact 150-hp work-class system, and the UHD-III is a 250-hp, ultra-heavy-duty system that is capable of the most demanding construction tasks. Both systems can be utilized for drill support, inspection, maintenance, and repair (IMR), and construction markets, providing customers with the flexibility of extensive configuration options based on their operational needs.



We provide a comprehensive range of system options including TMS, LARS, vans, and auxiliary tooling. Each customer's unique requirements can be accommodated by configuring the system to suit their specific needs, while providing a high degree of commonality with core components and subsystems

R/V Ocean Titan



Main Characteristics	
Length Overall	224 ft
Gross Tons	2014
Bredth	43 ft
Depth	20 ft
Maximum Draft	15 ft
Weight	1574.9 long tons

Class and Flag

ABS, Ice Class C, DPII. US flag COI Subchapter I and U, Jones Act

Propulsion	
Main	2 x 800 HP VFD / SCR
Bow	2 x 500 HP VFD / SCR
Stern	2 x 500 HP VFD / SCR
Generators	4 x CAT 3512 Tier 2

Speed	
Max	12 kts
Cruising	10.5 kts
Consumption	1800 gpd transit 1100 gpd survey
Cruising Radius	16,800 NM

Deck Equipment	
A-Frame	20,000 lbs
Main Deck Crane	17 Ton Knuckle Boom
Aux Deck Crane	12 Ton Kuckle Boom
J-Davit	10,000 Lbs
CTD Winch	Desh-5 10,000 mtrs of .322" EM cable
Client Power	1500 kVa
Clear Deck	4,263 ft2

Labs	
Dry lab	1,065 ft2
Wet lab	202 ft2
Science store room	324 ft2

Anti - Rolling Tanks

One Anti - rolling heeling system

Tanks	
Fuel	163,000 gallons
Potable Water	17,000
Water makers	5,000 gallons / day

Accommodation	
POB	48
Staterooms / Heads	27 / 20
Singles	6
Doubles	21
Hospital	1 w/ head
Mess	1 seating for 23
Lounge and Gym	1 & 1
Confrence room	1
Ship's Office	1

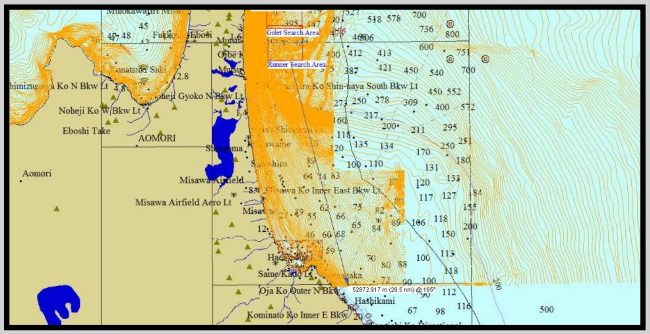
DP - NAV	
DP System	Beier DP2
GMDSS	Full Ocean
Hipap	Kongsberg 501
Power Managment	Fully Automated

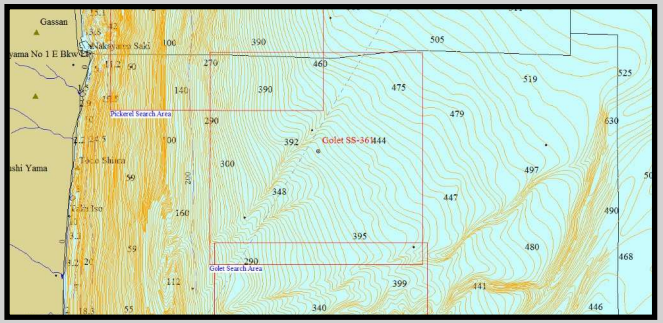
Optional Kit "Charterer Supplied"	
Multibeam	EM 122 or Reason 7150
ROV	250 HP Gen 2 work class 4500m
AUV	Hugin 4500m
Dive	Surface dive spread
Geo	Vibracore

Research Design

The 2018 Expedition will deploy Hugin 4500 AUVs equipped with HISAS sonar, side scan sonar, interferometric bathymetric multi-beam sonar, imaging camera and magnetometer payload. Utilizing preprogramed noninvasive search grids, the AUV's will descend autonomously for up to 24 hours at a time.

The stability offed by the AUV design in conjunction with the computer-controlled track-lines over an archaeological site allow the robot to collect imagery and sonar data for precise mapping. Using the detailed AUV survey data the ROV, with station keeping systems, will fully map and survey sites that are deemed as probable lost US submarines using HD video and high resolution still photography while keeping the ROV system at safe and non-invasive distances from the site.



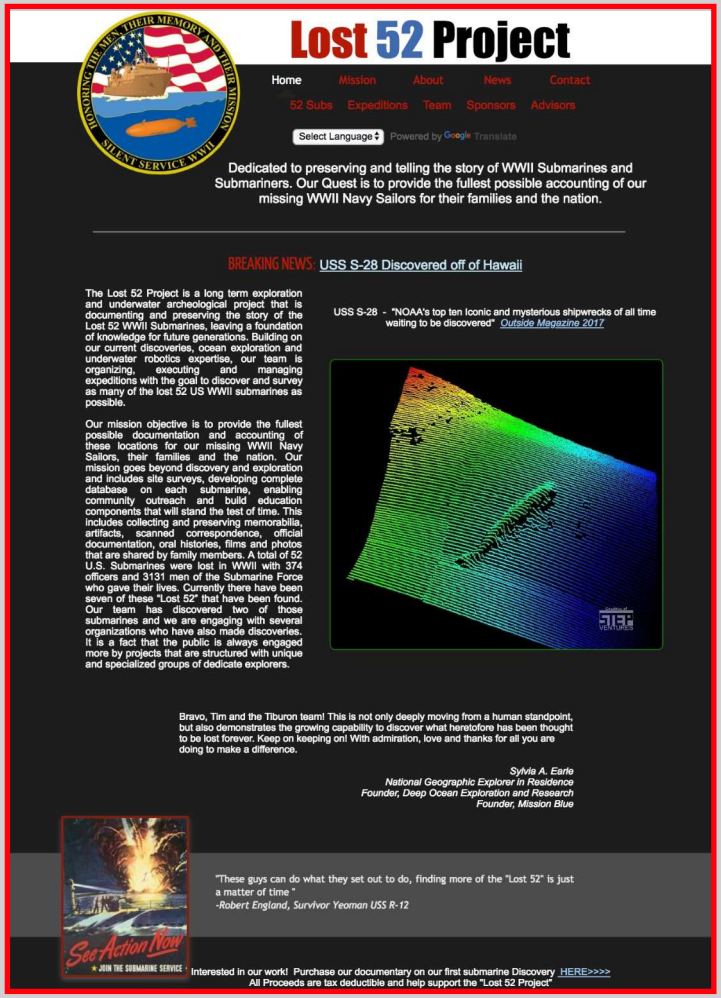


The autonomous nature of the survey vehicle allows the team to virtually eliminate impact on fisheries and fishing equipment in our work locations. Data will be analyzed daily to identify probable targets. Return specialized dives will be executed using the AUV to perform higher frequency sonar and photographic mosaic to determine if further inspection is to be performed. If targets are considered viable archaeological sites, the team will dedicate expedition time to film and photograph the sight utilizing the onboard Schilling ROV. The ROV deployment protocol calls for the vehicle to be slowly lowered to a position on the sea floor just down current from the site. This will be done using a DP (dynamic position) vessel. This DP system

allows the vessel to remain over the target at all times minimizing impact on local vessel traffic and fisheries. The remotely operated vehicle (ROV) will be deployed from the research vessel using a deck mounted launch and recovery system and a tether management system. The site research design focuses on a close, non-disturbance inspection of the high probability targets.

Upon first sighting the bottom, the ROV operator will report the conditions (current, sediment type, other objects, etc.) to the principal investigator and wait for approval to proceed to the wreck. The operator will then proceed up current, at an altitude above the bottom of approximately 1-3 meters, depending upon visibility, approaching the wreck using imaging from a forward-looking scanning sonar as a guide. No human remains are expected to be sighted. Standard operating procedure if human remains are detected required our operator to stop and wait for instructions. The operator will at all times avoid contact with the wreck and associated cultural material.

Once the wreck is in sight, the station keeping ROV will approach slowly, making all attempts to remain approximately down current in order to maintain maximum control and to keep the tether away from the wreck. The operator will then direct the ROV along the side of the hull, following directions from the p.i. Once familiarity with the site has been established, the ROV will inspect the opposite side of the hull. During this initial phase, and



throughout the project, video and still imaging will be recorded and logged to provide a permanent record of the site. The photogrammetry mosaic, assembled by the exploration team will be used as a guide for navigating the site and recording finds.

The ROV will also make parallel transects over the site, at an altitude sufficient to clear the highest parts of the wreckage. Spacing between transects, or lanes, will be close enough to provide at least 50% overlap in video and still photography coverage. Camera systems on the ROV consist of HD video and high resolution still cameras and a three-dimensional multi-beam sonar. Coverage should be sufficient for the post-project generation of a high-resolution photo-mosaic of the entire site.

The final phase involves close-up inspection of areas of particular interest. The primary goal will be to carefully document the current state of the wreck site. No human remains are expected to be encountered, as no one was aboard when the ship was lost. Additional inspection areas may be designated by the p.i., in consultation with the project team.

The lost 52 Project is a non-disturbance survey. There is expected to be little to no environmental damage done to the site. With the exception of disturbing some minor bottom sediment at times when external thrusters create minimal prop wash.

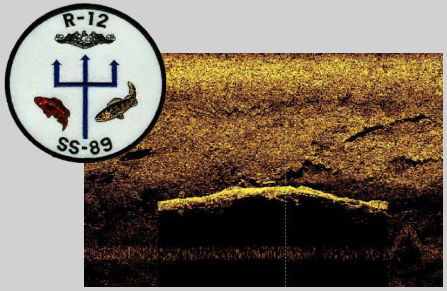
Following the project, the project team will submit to the US Navy's Underwater Archeological Branch a report and data set on the findings.

USS S-28 Photogrammetry created from 2017 Expedition Discovery

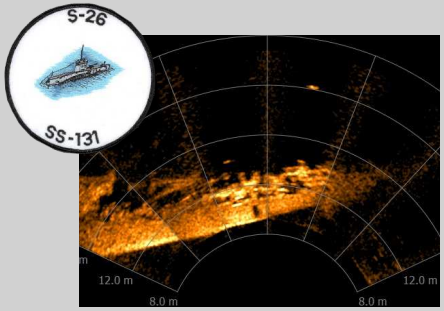
Lost52Project

Honoring the men, their memory and their mission

Current Discoveries



June 12, 1943 the USS R-12, while on the surface between exercises was running transition procedures, the forward battery compartment began to flood. In about 15 seconds, R-12 was lost sweeping 5 crew off the coning tower as it plummeted to the bottom in six hundred feet of water. The commanding officer, one other officer, and three enlisted men were were rescued five hours later. Forty-two lives were lost that day.



On the 24th of January 1942 the USS S-26 (SS-131) was proceeding from Pacific Panama Canal Zone to its patrol station. Shortly there-after Patrol Craft PC-460 mistook submarine USS S-26 (SS-131) at night for a German U-boat and rammed her on the starboard side of the torpedo room and the submarine sank within a few seconds entombing 46 sailors, 36 remained alive for days sending up a buoyed message and could not be rescued. Three men on the conning tower survived the sinking.

On July 3rd 1944 THE USS S-28 ventured into the waters off Oahu with the Coast Guard cutter RELIANCE to conduct antisubmarine warfare exercises. The final exercise called for the S-28 to make a 30 minute simulated torpedo run that began at 1730.The Reliance took up station four nautical miles from the S-28 and began to run Ease North while the S-28 ran the reciprocal course a few miles south of them. After running about 1.6 nautical miles the S-28 turned toward the North and began her run. The last contact was made with sonar at 1820. She was never heard from again.

NOTES:

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46 East 70th Street
New York, NY 10021
www.lost52project.org