

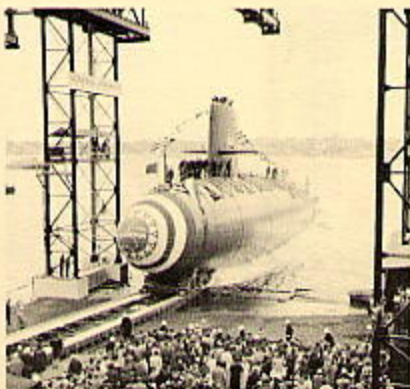
# USS SCORPION SSN589



Sponsor: *Mrs. Elizabeth S. Morrison*

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- Keel Laid: *August 20, 1958*
- Commissioned: *July 29, 1960*
- First CO: *CDR. Norman B. Bessac*



Launched:  
*December 19, 1959*



*Commissioning*

**USS SCORPION (SSN 589)**

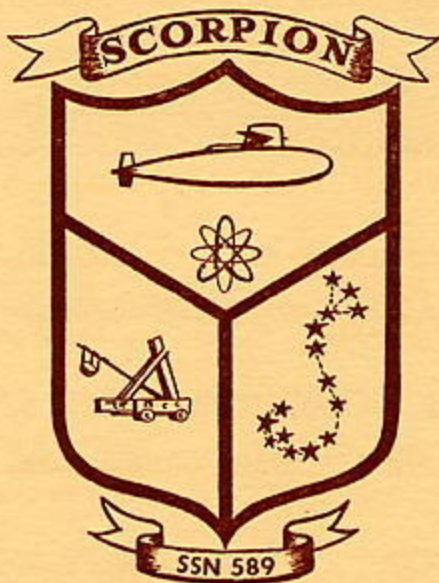
**JULY 29, 1960 — 10:00 A. M.**

**GENERAL DYNAMICS CORPORATION  
ELECTRIC BOAT DIVISION  
GROTON, CONNECTICUT**

## USS SCORPION

The commissioning of the USS Scorpion today marks another increase in the power of the United States Navy, a valuable addition to the Fleet charged with protecting freedom around the world. She joins the fleet as a member of a class of the fastest and most maneuverable submarines afloat, a versatile, powerful striking force that serves as a warning to aggressors that force will be met with greater force.

Scorpion is the eighth nuclear submarine built by General Dynamics Corporation's Electric Boat Division for the U. S. Navy. Her keel was laid August 20, 1958 and she was launched December 19, 1959. Her sponsor is Mrs. Elizabeth S. Morrison, daughter of the commanding officer of the USS Scorpion lost in action during World War II.



## *Schedule of Events*

- INVOCATION . . . . . Lieutenant Commander Ralph G. Caldwell, ChC, USN
- INTRODUCTION OF BUILDER'S REPRESENTATIVE  
Captain William C. Hushing, USN  
Supervisor of Shipbuilding, Groton
- REMARKS . . . . . Mr. Carleton Shugg, President, Electric Boat Division  
General Dynamics Corporation
- INTRODUCTION OF THE REPRESENTATIVE,  
THIRD NAVAL DISTRICT . . . . . Captain William C. Hushing, USN
- REMARKS AND READING OF AUTHORITY  
TO PLACE SHIP IN COMMISSION . . . . . Captain George W. Lautrup, Jr., USN  
Commanding Officer, U. S. Naval Submarine Base, New London  
Representing Commandant, Third Naval District
- HOISTING OF ENSIGN, UNION JACK AND COMMISSIONING PENNANT
- NATIONAL ANTHEM . . . . . United States Coast Guard Academy Band
- ASSUMPTION OF COMMAND  
AND SETTING OF WATCH . . . . . Commander Norman B. Bessac, USN
- BREAKING OF PERSONAL FLAG OF . . . . . Rear Admiral Lawrence R. Daspit, USN
- INTRODUCTION OF SPEAKER . . . . . Rear Admiral Lawrence R. Daspit, USN  
Commander, Submarine Force, U. S. Atlantic Fleet
- ADDRESS . . . . . Rear Admiral Lawson P. Ramage, USN  
Director, Anti-Submarine/Submarine Warfare Division  
Office of the Chief of Naval Operations
- BENEDICTION . . . . . Lieutenant Commander Ralph G. Caldwell, ChC, USN

## OFFICERS

CDR Norman B. Bessac, USN, Commanding Officer  
LCDR William H. Layman, USN, Executive Officer  
LT Guy H. B. Shaffer, USN, Engineer Officer  
LT Richard E. Lumsden, USN, Navigator  
LT Buele G. Balderston, USN, Operations Officer  
LT Albert J. Baciocco, Jr., USN, Main Propulsion Assistant  
LT Norman Earl Griggs, USN, Gunnery Officer  
LT Richard A. Currier, USN, Supply Officer  
LT Clinton J. McGrew, Jr., (MC), USN, Medical Officer

## CHIEF PETTY OFFICERS

John P. Casey, TMCM(SS), USN, Chief of the Boat

|                                  |                                     |
|----------------------------------|-------------------------------------|
| Robert H. Briggs, ICCA(SS), USN  | William R. Hutterman, ENCA(SS), USN |
| George L. Engle, FTCA(SS), USN   | George J. Hughes, HMC(SS), USN      |
| James M. Fogarty, RMCA(SS), USN  | John J. Kaiser, SOCA(SS), USN       |
| Orman A. Graham, ENCA(SS), USN   | William J. Spoulos, EMCA(SS), USN   |
| Daniel T. Hackney, ENCA(SS), USN | Walter D. Ward, ETC(SS), USN        |
| Samuel N. Hedrick, ETCA(SS), USN |                                     |

## ENLISTED

|                                      |                                       |
|--------------------------------------|---------------------------------------|
| Leslie G. Adams, RM3(SS), USN        | Claude A. Midgett, EM1(SS), USN       |
| Joseph H. Allman, IC2(SS), USN       | James J. Mugavero, END3(SP), USNR     |
| Walter W. Bishop, TM1(SS), USN       | Luisito R. Mulato, TA, USN            |
| Billy B. Blackburn, ET1(SS), USN     | Douglas E. Neilson, EMFN, USN         |
| Melton C. Bratley, EN3(SS), USN      | Dominic C. Pacilli, TM1(SS), USN      |
| Alden K. Bugbee, HM1(SS), USN        | Charles R. Parker, HM1(SS), USN       |
| Carl Burton, EN1(SS), USN            | William G. Paul, ET2(SS), USN         |
| Richard G. Buscher, EM3(SS), USNR    | James M. Percy, TM2(SS), USN          |
| Keith W. Cook, ET1(SS), USN          | Robert L. Perdue, ET1(SS), USN        |
| George L. Coon, CSSN(SS), USN        | Walter E. Pilotte, IC2(SS), USN       |
| George G. Crowder, EN2(SS), USN      | Leslie L. Reed, EN1(SS), USN          |
| Charles W. Darron, EMFN, USN         | Leonard A. Reneau, FT2(SS), USN       |
| Albert L. Deckard, CS2(SS), USN      | Jimmy R. Roberts, EN3(SS), USN        |
| Earl R. Des Armier, CSI(SS), USN     | Thomas E. Rogers, ET2(SS), USN        |
| Ernest C. Dick, Jr., IC2(SS), USN    | Herman T. Running, EM1(SS), USN       |
| James R. Dunnivan, TM1(SS), USN      | William H. Ruth, III, FTU3(SS), USN   |
| James M. English, CS2, USN           | William F. Siegole, Jr., QM2(SS), USN |
| Mauricio Gil, SD2(SS), USN           | John A. Slebodnick, IC1(SS), USN      |
| Joseph E. Green, SOS2(SS), USN       | Jimmy F. Smith, TM3(SS), USN          |
| Michael J. Howley, EM2(SS), USN      | Carl T. Smith, EN2(SS), USN           |
| James L. Hughes, EM2(SS), USN        | Robert M. Smith, ET1(SS), USN         |
| Ted L. Hunt, EN2(SS), USN            | Glen D. Snyder, ET1(SS), USN          |
| Eugene L. Jackman, EM2, USN          | Hilary E. Snyder, EM1(SS), USN        |
| Murl R. Jones, EN1(SS), USN          | Robert C. Sykes, EM1(SS), USN         |
| Woodrow W. Jones, SD1(SS), USN       | Alan C. Truehart, SK2, USN            |
| Randal L. Kilgore, QM2(SS), USN      | Louis D. Ulrich, EN3(SS), USN         |
| Richard H. Kilroy, QM2(SS), USN      | Paul E. Walker, RM1(SS), USN          |
| Glenn A. Kline, ET1(SS), USN         | Alvin W. Wand, EN1(SS), USN           |
| Earl W. Kortering, TM2(SS), USN      | Otto H. Welper, MM1(SS), USN          |
| Carleton H. Landers, EM1(SS), USN    | Harold R. Williams, YN1(SS), USN      |
| Robert E. Law, SOS3(SS), USN         | Earl M. Willis, QM1(SS), USN          |
| George F. Lay, Jr., TM2(SS), USN     | James H. Wilson, YN3(SS), USN         |
| Larry D. Linn, EM2, USN              | Charles A. Wise, SA(SS), USN          |
| Paul G. Lovejoy, MM2(SS), USN        | James O. Woodward, ETRSN, USN         |
| Eugene G. Loyd, ETRSN, USN           | Gary A. Wright, EN2(SS), USN          |
| Richard C. Lukasiewski, EN3(SS), USN | Wilburn E. Van Dyke, IC1(SS), USN     |
| James L. Maney, RM1(SS), USN         | John J. Zywczak, EN1(SS), USN         |
| Stephen M. Matusewic, ETNSN, USN     |                                       |

USS SCORPION SSN 589

COMMISSIONING CEREMONY

FRIDAY, JULY 29, 1960

10:00 A. M.

ADMIT BEARER AND PARTY  
TO THE RESERVED AREA

Please present this card  
at Commissioning Area

General Dynamics Corporation  
Electric Boat Division



*USS Scorpion (SSN 589) was a Skipjack-class nuclear fast attack submarine. She was lost at sea in the mid-Atlantic while making a transit to her homeport of Norfolk, Virginia. The boat went down in water over 12,000 feet deep. Although the wreckage has since been located and studied, the exact cause of her sinking has not been determined. The depth of the ocean in most parts of the world is well beyond the depth at which the submarine's hull will collapse; thus, in most of the submarine's domain, rescue is impossible.*



## COMMANDER SUBMARINE FORCE, U.S. FORCE, U.S. PACIFIC FLEET

# USS Scorpion (SSN 589) May 27, 1968 - 99 Men Lost

**USS Scorpion (SSN-589) was declared lost on 2 June-1968 with the loss of 99 officers and men when it sank west of Azores while in transit from Mediterranean Sea.**



- Keel laid down by Electric Boat Div., General Dynamics Corp., 20AUG58;
- Launched: 19DEC59; Sponsored by Mrs. Elizabeth S. Morrison;
- Commissioned: 29JUL60 with Cdr. Norman B. Bessac in command.

Assigned to SubRon5, SubDiv62, USS SCORPION (SSN-589) departed New London, Connecticut, on 24 August 1960 for a two-month deployment in European waters. During that period, she participated in exercises with units of the 6th Fleet and of other NATO navies. After returning to New England in late October, she trained along the eastern seaboard until May 1961; then crossed the Atlantic again for operations which took her into the summer. On 9 August, she returned to New London and, a month later, shifted to Norfolk, Virginia.

With Norfolk her home port for the remainder of her career, SCORPION specialized in the development of nuclear submarine warfare tactics. Varying her role from hunter to hunted, she participated in exercises which ranged along the Atlantic coast and in the Bermuda and Puerto Rican operating areas; then, from June 1963 to May 1964, she interrupted her operations for an overhaul in Charleston, South Carolina. Resuming duty off the eastern seaboard in late spring, she again interrupted that duty from 4 August to 8 October to make a transatlantic patrol. In the spring of 1965, she conducted a similar patrol.

During the late winter and early spring of 1966, and again in the fall, she was deployed for special operations. Following the completion of those assignments, her commanding officer



received the Navy Commendation Medal for outstanding leadership, foresight, and professional skill. Other SCORPION officers and men were cited for meritorious achievement.

On 1 February 1967, SCORPION entered the Norfolk Naval Shipyard for another extended overhaul. In late October, she commenced refresher training and weapons system acceptance tests. Following type training out of Norfolk, she got underway on 15 February 1968 for a Mediterranean deployment. She operated with the 6th Fleet, into May, then headed west. On 21 May, she indicated her position to be about 50 miles south of the Azores. Six days later, she was reported overdue at Norfolk.

A search was initiated; but, on 2 June, SCORPION and all hands were declared, "presumed lost." Her name was struck from the Navy List on 30 June 1968.

The search continued, however and, at the end of October, the Navy's oceanographic research ship, Mizar, located sections of SCORPION's hull in more than 10,000 feet of water about 400 miles southwest of the Azores. Subsequently, the Court of Inquiry was reconvened and other vessels, including the submersible, Trieste, were dispatched to the scene, but, despite the myriad of data and pictures collected and studied, the cause of the loss remains a mystery.

SCORPION is in two major sections. The forward hull section including the torpedo room and most of the operations compartment is located in a trench that was formed by the impact of the hull section with the bottom. The sail is detached. The aft hull section including the reactor compartment and engine room is located in a separate trench that was formed by the impact of the hull section with the bottom. The aft section of the engine room is inserted forward into a larger diameter hull section in a manner similar to a telescope.

#### ***Shipmates on Eternal Patrol in USS SCORPION (SSN-589):***

Keith A.M. Allen, FTG2 / Thomas Edward Amtower, IC2 / George Gile Annable, MM2 / Joseph Anthony Barr, Jr., FN / Michael Jon Bailey, RM2 / Walter William Bishop, TMC / Michael Reid Blake, IC3 / Robert Harold Blocker, MM1 / Kenneth Ray Brocker, MM2 / James Kenneth Brueggeman, MM1 / Robert Eugene Bryan, MMC / John Patrick Burke, LT / Daniel Paul Burns, Jr., RMSN / Ronald Lee Byers, IC2 / Douglas Leroy Campbell, MM2 / Samuel Cardullo, MM2 / Francis King Carey, MM2 / Gary James Carpenter, SN / Robert Lee Chandler, MM1 / Mark Helton Christiansen, MM2 / Romeo Constantino, SD1 / Robert James Cowan, MM1 / Joseph Cross, SD1 / Garlin Ray Denney, RMC / Michael Edward Dunn, FN / Richard Philip Engelhart, ETR2 / George Patrick Farrin, LT / William Ralph Fennick, FTGSN / Robert Walter Flesch, LT / Vernon Mark Foli, IC3 / James Walter Forrester, Jr., LTjg / Ronald Anthony Frank, SN / Michael David Gibson, CSSN / Steven Dean Gleason, IC2 / William Clarke Harwi, LT / Michael Edward Henry, STS2 / Larry Leroy Hess, SK1 / Richard Curtis Hogeland, ET1 / John Richard Houge, MM1 / Ralph Robert Huber, EM2 / Harry David Huckelberry, TM2 / John Frank Johnson, EM3 / Robert Johnson, RMCS / Steven Leroy Johnson, IC3 / Julius Johnston, III, QM2 / Patrick Charles Kahanek, FN / Donald Terry Karmasek, TM2 / Richard Allen Kerntke, MMCS / Rodney Joseph Kipp, ETR3 / Dennis Charles Knapp, MM3 / Charles Lee Lamberth, LT / Max Franklin Lanier, MM1 / John Weichert Livingston, ET1 / David Bennett Lloyd, LCDR / Kenneth Robert Martin, ETN2 / Frank Patsy Mazzuchi, QMCS / Michael Lee McGuire, ET1 / Steven Charles Miksad, TM3 / Joseph Francis Miller, Jr., TM3 / Cecil Frederick Mobley, MM2 / Raymond Dale Morrison, QM1 / Michael Anthony Odening, LTjg / Daniel Christopher Petersen, EMC / Dennis Paul Pherrer, QM3 / Gerald Stanley Pospisil, EM1 / Donald Richard Powell,

IC3 / Earl Lester Ray, MM2 / Jorge Louis Santana, CS1 / Lynn Thompson Saville, HMC / Richard George Schaffer, ETN2 / William Newman Schoonover, SN / Phillip Allan Seifert, SN / Francis Atwood Slattery, CDR (CO) / George Elmer Smith, Jr., ETC / Laughton Douglas Smith, LTjg / Robert Bernard Smith, MM2 / Harold Robert Snapp, Jr., ST1 / Daniel Peter Stephens, LCDR / Joel Candler Stephens, ETN2 / David Burton Stone, MM2 / John Phillip Sturgill, EM2 / Richard Norman Summers, YN3 / John Driscoll Sweeney, Jr., TMSN / John Charles Sweet, LT / James Frank Tindol, III, ETN2 / Johnny Gerald Veerhusen, CSSN / Robert Paul Violetti, TM3 / Ronald James Voss, STS3 / John Michael Wallace, FTG1 / Joel Kurt Watkins, MM1 / Robert Westley Watson, MMFN / James Edwin Webb, MM2 / Leo William Weinbeck, YNCS / James Mitchell Wells, MMC / Ronald Richard Williams, SN / Robert Alan Willis, MM3 / Virgil Alexander Wright, III, IC1 / Donald Howard Yarbrough, TM1 / Clarence Otto Young, Jr., ETR2

dp. 3075 (surf.), 3515 (subm.); l. 252'; b. 31.5'; s. 15 K. (surf.), 29 k. (subm.);  
a. 6-21" tt fwd.; td. 700 ft.; cpl. 8 officers - 85 enlisted men; cl. SKIPJACK  
Keel laid down by Electric Boat Division, General Dynamics Corp., 20 August 1958;  
Launched 29 December 1959; Sponsored by Mrs. Elizabeth S. Morrison;  
Commissioned 29 July 1960; Cdr. Norman B. Bessac in command.

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The submarine USS SCORPION (SSN-589) sank May 22, 1968 in more than 10,000 feet of water about 400 miles southwest of the Azores. SCORPION is in two major sections. The forward hull section including the torpedo room and most of the operations compartment is located in a trench that was formed by the impact of the hull section with the bottom. The sail is detached. The aft hull section including the reactor compartment and engine room is located in a separate trench that was formed by the impact of the hull section with the bottom. The aft section of the engine room is inserted forward into a larger diameter hull section in a manner similar to a telescope.

**NUCLEAR WEAPONS:** There were two Mark 45 ASTOR torpedoes with nuclear warheads aboard SCORPION when she was lost in 1968. The warheads were low-yield tactical nuclear weapons. The special nuclear material from the warheads has not been recovered.

The most likely scenario is that the plutonium and uranium core of these weapons has corroded to a heavy, insoluble material soon after the sinking and remains at or close to its original location inside the torpedo room of the submarine. If the corroded materials were released outside the submarine, their large specific gravity and insolubility would cause them to settle in the sediment.

**ENVIRONMENTAL MONITORING:** Comprehensive deep ocean radiological monitoring operations were conducted in August and September 1986 at the SCORPION site. The SCORPION site had been previously monitored in 1968 and 1979 and none of the samples obtained showed any evidence of release of radioactivity from the reactor fuel elements. Very low concentrations of cobalt 60 in the form of corrosion products from SCORPION piping systems were detected in sediment. Cobalt 60 is the predominant activated corrosion product found in the reactor coolant piping system on U.S. nuclear powered warships. Therefore, it was the primary radio-nuclide released when the coolant piping system aboard SCORPION was breached. The conclusion of the earlier surveys was that SCORPION had not had a significant effect on the radioactivity in the environment. The purpose of the monitoring in 1986 was to identify whether radiological conditions had changed and to demonstrate the use of improved sampling and navigation equipment deployed from both a surface ship and a deep ocean submersible.

The 1986 survey confirmed the conclusion of earlier surveys. Fission products were not detected above concentrations typical of world wide fallout levels in sediment, water, or marine life samples. Thus, there continues to be no evidence of release of radioactivity from the reactor fuel elements. Cobalt 60

concentrations in the sediment were generally lower than those found in 1979 as would be expected due to radioactive decay. No cobalt 60 was detected in the large number of fish and other marine life specimens or in undisturbed water samples collected at the SCORPION site. This confirmed that cobalt 60 in the form of insoluble corrosion products is not concentrated in the deep sea food chain.

The maximum cobalt 60 concentration detected in the sediment was 1.16 pCi/gm and most samples contained much less. This is over a factor of ten lower than the concentration of naturally occurring radioactivity in sediment. For perspective, if a person's entire diet contained cobalt 60 at the maximum concentration detected in the sediment in the vicinity of the SCORPION site, that person would receive less than ten percent of the radiation exposure received from natural background radioactivity.

**SPECIAL ENVIRONMENTAL MONITORING FOR SPECIAL NUCLEAR MATERIAL:** Sediment, water, and marine life were analyzed for plutonium isotopes using very sensitive mass spectrometry techniques. The concentrations of total plutonium were not significantly different than the background concentrations due to fallout from past atmospheric nuclear weapons testing. Additional discussion is found in the SCORPION site environmental monitoring report.

The 1986 survey results confirm that the SCORPION has not had a significant effect on the radioactivity in the environment. The reactors used in all U.S. Naval submarines and surface ships are designed to minimize potential hazards to the environment even under the most severe casualty conditions such as the actual sinking of the ship. First, the reactor core is so designed that it is physically impossible for it to explode like a bomb. Second, the reactor fuel elements are made of materials that are extremely corrosion resistant, even in sea water. The reactor core could remain submerged in sea water for centuries without releases of fission products while the radioactivity decays, since the protective cladding on the fuel elements corrodes only a few millionths of an inch per year. Thus, in the event of a serious accident where the reactor is completely submerged in sea water, the fuel elements will remain intact for an indefinite period of time, and the radioactive material contained in these fuel elements should not be released. The maximum rate of release and dispersal of the radioactivity in the ocean, even if the protective cladding on the fuel were destroyed, would be so low as to be insignificant.

Radioactive material could be released from this type of reactor only if the fuel elements were actually to melt and, in addition, the high-strength, all-welded reactor system boundary were to rupture. The reactor's many protective devices and inherent self-regulating features are designed to prevent any melting of the fuel elements. Flooding of a reactor with sea water furnishes additional cooling for the fuel elements and so provides added protection against the release of radioactive fission products.

A report of the 1986 environmental monitoring expedition to the SCORPION site provides details of the environmental sampling of sediment, water and marine life to ascertain whether SCORPION has had a significant effect on the deep ocean environment. It also explains in detail the methodology for conducting deep sea monitoring at the SCORPION site from both surface vessels and submersibles.