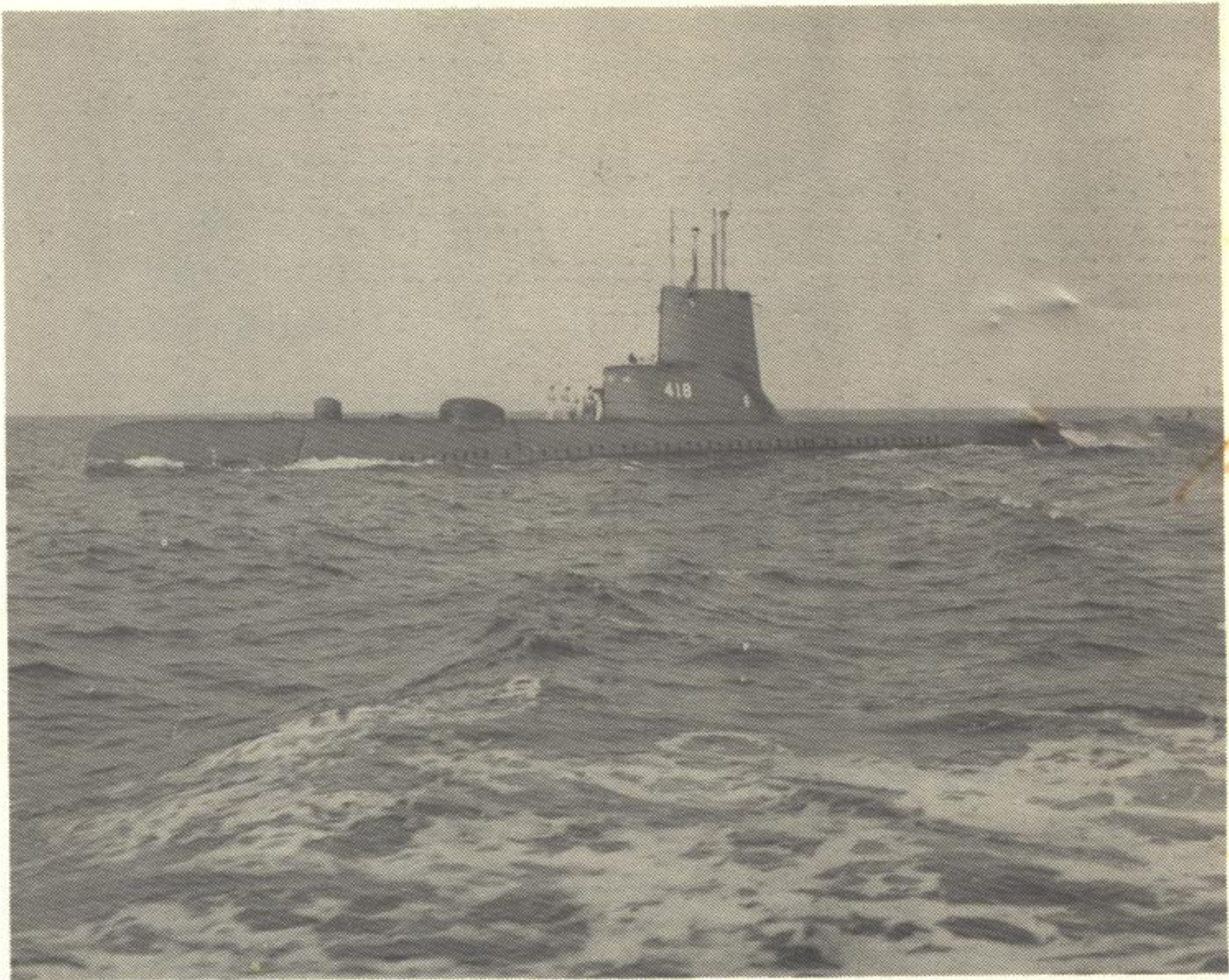


The
 *Undersea Navy*



USS Thornback
SS 418

Lieutenant Commander Jesse E. Sampson, USN
Commanding Officer

WELCOME ABOARD



The officers and crew welcome the opportunity to show you the USS THORNBACk. We of the "Silent Service" believe it is important for you to become better acquainted with submarines, for it was the submarine that dominated the scenes of the last two World Wars. Only by the narrowest margin did the Allies in each of these wars defeat the German U-boats which ranged the Atlantic, while in the Pacific American submarines carried the war to the Japanese Home Islands within days after Pearl Harbor, and remained there to the end. Although submarines never comprised more than 2% of the Navy's personnel in World War II, they sank about 55% of all Japanese shipping, both merchant and naval, sunk by all agencies. These crippling losses inflicted upon the Imperial Navy and Merchant Marine produced a campaign of attrition assuring defeat. And in any future war, as you know, our continued mastery of the seas and the survival of our interests both at home and abroad will be contested most strongly by the Soviet Submarine Force. Our prime mission in THORNBACk is to train and be ready to help insure that we do not lose control of the seas.

We urge that you ask us about our ship and our work. Submariners are proud of their Service and anxious for you to know about it. With the advent of the nuclear submarine and the fleet ballistic missile (Polaris) submarine, we feel that our value to the Navy and the Nation--in the strategic and anti-submarine as well as in pro-submarine roles--has only begun to be appreciated.

We sincerely hope that you enjoy this visit. When you leave us, may you carry away a bit of submarine "lore" with a better understanding of how we function, both in our complex systems and mechanisms and in the intangible bonds of *esprit de corps* that mark all submariners.

COMMANDING OFFICER, OFFICERS AND CREW

HISTORY OF THE THORNBACK

Upon commissioning in October 1944, THORNBACK underwent a period of training before joining the Pacific Fleet in March of 1945. Loading in Pearl Harbor THORNBACK departed on her first war patrol in June 1945 and was the leader of a seven-sub wolfpack operating with Admiral Halsey's Third Fleet. With two other submarines THORNBACK conducted a surface bombardment of Urakawa, Hokkaido destroying several buildings and damaging one train.

After termination of hostilities THORNBACK returned to the United States, was decommissioned and joined the reserve fleet in New London. In 1953 THORNBACK underwent an extensive overhaul and modernization and was recommissioned as a "Guppy II A".

On November 6, 1954, THORNBACK performed a "first" in submarine history by snorkeling up the Mississippi River to New Orleans. From 1954-1958, as a unit of Submarine Squadron Four, THORNBACK was stationed in Key West, Florida, operating in various exercises with other local activities. On July 1, THORNBACK was awarded the "E" for excellence as the outstanding unit of Submarine Squadron Four for fiscal year 1958.

While on the second of her three Mediterranean cruises, THORNBACK in 1958 performed two more "firsts" for submarines when she became the first submarine to be replenished at sea by a Sixth Fleet supply ship and when she became the first submarine to moor directly alongside an aircraft carrier. Host for the operations was the "Super Carrier" SARATOGA in Rhodes, Greece.

On February 1, 1959 THORNBACK's homeport was officially changed to Charleston, S.C., the first submarine based in Charleston since the Confederate States Navy's HUNLEY in 1864.

THORNBACK has since participated in anti-submarine and submarine exercises in the Western Atlantic along with another trip to the "Med" in the spring of 1960. She is presently commanded by Lieutenant Commander Jesse E. Sampson, USN.

ABOUT THE THORNBACK

LENGTH	306 Feet 6 Inches
BEAM	27 Feet 4 Inches
DRAFT	16 Feet
DISPLACEMENT (SURFACED)	1840 Tons
DISPLACEMENT (SUBMERGED)	2420 Tons
ARMAMENT	Ten 21 Inch Torpedo Tubes
COMPLEMENT	8 Officers, 74 Enlisted
SPEED (SURFACED)	17 Knots
POWER PLANT	Three Fairbanks Morse Diesel Engines
SUBMERGED POWER PLANT	2 Sargo II type Storage Batteries
TOTAL SHAFT HORSEPOWER	5400 Horsepower
COMMISSIONED	13 October, 1944
RECOMMISSIONED	2 October, 1953
NAMED FOR	A Member of the shark family SQUALIDAE



WELCOME ABOARD



The Undersea Navy

USS THORNBACK SS-418



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COMMANDING OFFICER, OFFICERS AND CREW



LCDR Ronald E. Pitkin, USN,
COMMANDING OFFICER

LCDR Ronald E. PITKIN, USN, graduated from St. Lawrence University in June 1952 and from the Rackham School of Graduate Studies at the University of Michigan in June of 1953. He entered the Navy in July of 1953 and was commissioned in November of 1953 upon graduation from Officer Candidate School, Newport, Rhode Island. He was then assigned to the USS KEPPLER (DDE-765), Staff, Commander Destroyer Division 242 and Staff, Commander in Chief, U. S. Naval Forces Eastern Atlantic and Mediterranean in London, England prior to entering the U. S. Naval Submarine School, New London, Connecticut in June 1958. Following graduation from Submarine School, LCDR PITKIN served on USS ANGLER (SSK-240) and USS HARDHEAD (SS-365). In 1962, he attended the U. S. Naval Guided Missiles School, Dam Neck, Virginia and was then assigned to Staff, Commander Submarine Squadron SIXTEEN and Staff, Commander Submarine Flotilla EIGHT in Naples Italy. Following this, he served as Executive Officer of USS RUNNER (SS-476).

LCDR PITKIN relieved as Commanding Officer, USS THORNBACK (SS-418) on 9 March 1967.

HISTORY OF THE THORNBAC

THORNBAC, commissioned at the Portsmouth Naval Shipyard in October 1944, participated in her first war patrol as leader of a seven-submarine wolfpack in June 1945. She later conducted a surface bombardment of the Japanese island of Hokkaido.

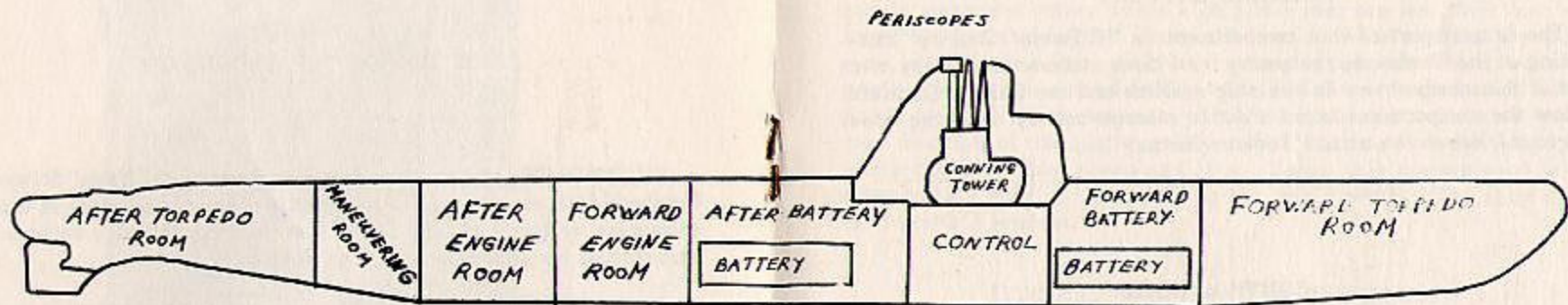
At the end of World War II, she returned to the United States, was decommissioned and placed in the Reserve Fleet at New London, Connecticut. In 1953, THORNBAC underwent an extensive overhaul and modernization and was recommissioned as a Guppy II A type submarine.

THORNBAC was assigned to Submarine Squadron FOUR, then homeported in Key West, Florida. In 1959 THORNBAC's home port was shifted to Charleston, S. C. - The first submarine based here since the Confederate States Navy's HUNLEY in 1864.

She has participated in numerous anti-submarine and fleet exercises in Atlantic, Caribbean, North Sea, and Mediterranean waters.

THORNBAC has received numerous awards including, in 1963, the Marjorie Sterrett Battleship award which is awarded to the finest ship of a type in the entire Atlantic Fleet. Her latest awards include the Battle Efficiency "E" and Torpedo and Fire Control Excellence Award, both received in 1966.





SUBMARINE STRUCTURE

FORWARD TORPEDO ROOM

The main hull, or "pressure hull" of the submarine is basically a cylinder closed at both ends and is built to stand great pressures of deep depths. Atop the pressure hull is another small cylinder of equal strength called the "conning tower". It is within these two cylinders that all the machinery, weapons, working and living spaces are located. Around the pressure hull is another hull. It is between these two hulls that the ship's ballast and fuel tanks are located. On top of this outer hull is a built-up walking deck which is free flooding (hence all the holes). It is only this portion of the submarine that can be seen while it is on the surface, which tends to make it appear smaller than it actually is. The main pressure hull is almost completely below the water.

To aid you in understanding what you see as you walk through THORNBACK, we shall briefly describe the compartments in their sequence beginning at the forward end and proceeding aft.

The bow "nest" of the torpedo tubes occupy the forward part of this room. Here 16 members of the crew sleep, live and stow their clothes and personal gear. In this space are carried all the spare torpedos for the forward tubes and it is here that these torpedos are maintained and repaired. The crew's berths are fitted over, under and around the torpedos and must be removed whenever torpedos are brought on board through a loading hatch in the overhead in the after part of the room. Hydraulic oil, alcohol, and emergency fresh water tanks are also located in this room. As you enter or leave the ship through this compartment you will pass through the escape trunk. This compartment is designed to permit four men at a time to leave the submarine when it is submerged completely. The escape trunk is used for Frogman operations or as a means of escape using the Steinke Hood. On the after starboard bulkhead is the signal ejector which permits launching of various flares and smoke signals while submerged.

FORWARD BATTERY

The largest part of this compartment is "Officers' Country" consisting of the Wardroom, the pantry, and three staterooms. In the after part of this compartment is the ship's office and the Chief's Quarters. Below the compartment is an electric storage battery weighing about 150 tons. Hence the name "Forward Battery".

CONTROL ROOM

In this room you will see practically all the controls for diving the submarine, controlling it while submerged, and surfacing it. The ship's main gyro compass is located in the center of the room. The "Hull Opening Indicator Board" which is the board with all the red lights on it, is used to indicate, at a glance, whether openings in the hull are shut (straight red bar) or open (red circle). We must have a "straight board" before we dive. The Captain, Executive Officer, or Officer of the Deck submerged, whose station is in the Conning Tower, directs the movement of the ship by issuing orders to the "diving" officer in the control room. The radio room is located in the after part of the control room. The sonar and pump rooms are located below the control room.

CONNING TOWER

The small pressure-proof "BARREL" which sits atop the pressure hull, contains the major ship and torpedo fire control stations on board. From here the Commanding Officer directs all maneuvers and conducts battle problems. The "CONN" also contains the ship's underwater eyes (periscope and radar), and therefore is THORNBACK's nerve center submerged.

AFTER BATTERY

This compartment is actually divided into three rooms. First is the crew's mess and galley where eighty-five men are fed, their food prepared and perishable food stored. Below it are located the dry storeroom, a large chill box and a cold room for carrying frozen foods and meats. Meals are served family style and the crew is served effectively in about three settings. Officers enjoy the same food as the crew because of the single galley. Next is the crew's berthing space where thirty-six men sleep and live. Below this compartment is the after battery which is identical to the one forward. The third space is the crew's washroom.

FORWARD AND AFTER ENGINE ROOMS

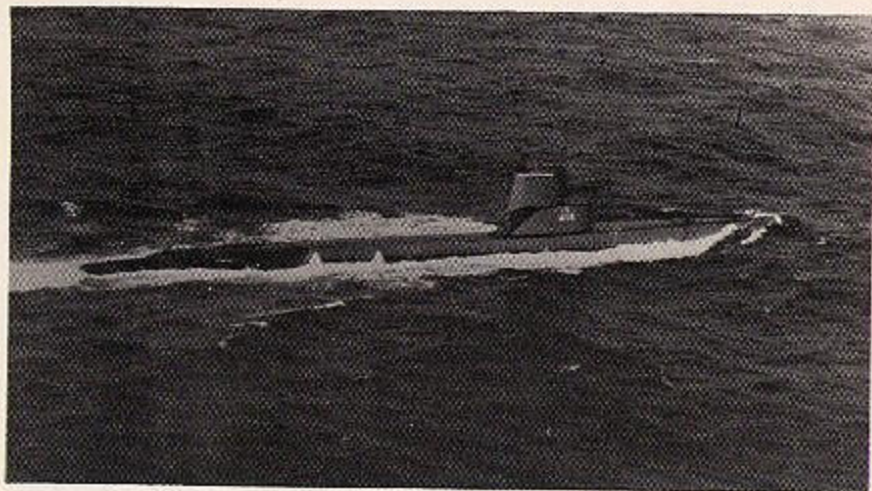
These rooms contain three diesel engines. Attached to each engine is a large electrical generator which can produce electrical power either for propelling the ship or for charging batteries. In the forward end of the Forward Engine Room are two distilling plants which make freshwater from sea water for drinking, washing, and for the batteries. On the lower level in the After Engine Room is the ship's air conditioning plant which provides humidity and temperature control to ensure the efficient operation of the great amount of electrical and electronic equipments.

MANEUVERING ROOM

The electrical power from the engine rooms is brought into the big switch box or "cubicle" that occupies the forward end of this compartment. The two Electricians's Mates on watch can, by pulling various levers, direct the electricity into the batteries or the main motors, or from the batteries into the main motors. They also control the direction and speed of the main motors and propellers. The motors and associated machinery are located in the lower part of this compartment. The diesel engines are also controlled remotely from this room.

AFTER TORPEDO ROOM

This room is smaller but otherwise similar to the Forward Torpedo Room. Here are four torpedo tubes instead of the six the Forward Torpedo Room has. On the after port bulkhead is the signal ejector. This room also serves as a berthing area for the crew.



ABOUT THE THORNBAC

Length: 306 feet, 6 inches

Beam: 27 feet, 4 inches

Draft: 16 feet

Displacement (Surfaced): 1,840 tons

Displacement (Submerged): 2,420 tons

Armament: Ten 21-inch torpedo tubes

Complement: 8 officers, 74 enlisted

Power Plant: Three Fairbanks-Morse Diesel engines

Submerged Power Plant: Two storage batteries

Total Shaft Horsepower: 5,400 horsepower

Commissioned: 13 October 1944

Recommissioned: 2 October 1953

Named for: A member of the shark family Squalidae

Homeport: Charleston, South Carolina

THE SUBMARINE DOLPHIN DEVICE

The officers and men of the United States Navy who wear dolphins do so with great pride. The dolphin device pictured on the front of this booklet is not awarded to a submariner until he has demonstrated his knowledge of submarines and ability to do whatever jobs are necessary to carry out the ship's mission. The dolphins represent many long hours of research and study, combined with practical training.

There are two qualification programs in submarines; the enlisted program which earns the silver dolphins, and the officer program earning the gold dolphins.

The prospective submariner is selected from a number of volunteers according to his physical and mental aptitude. If he fulfills all the requirements and is selected, he is sent to New London, Connecticut where he is enrolled in either the basic enlisted or officers submarine course. The course is eight weeks for enlisted men and six months for officers. Upon graduating, he is sent to an operating submarine. Once on board, the enlisted man has six months and the officer twelve months to earn his dolphins and the designation of qualified in submarines.

Once a submariner becomes qualified he has the responsibility of helping to train and examine the unqualified personnel on board and to continue to improve his own submarine skills.

You will find the men on board are proud of the Navy, their ship and their dolphins.