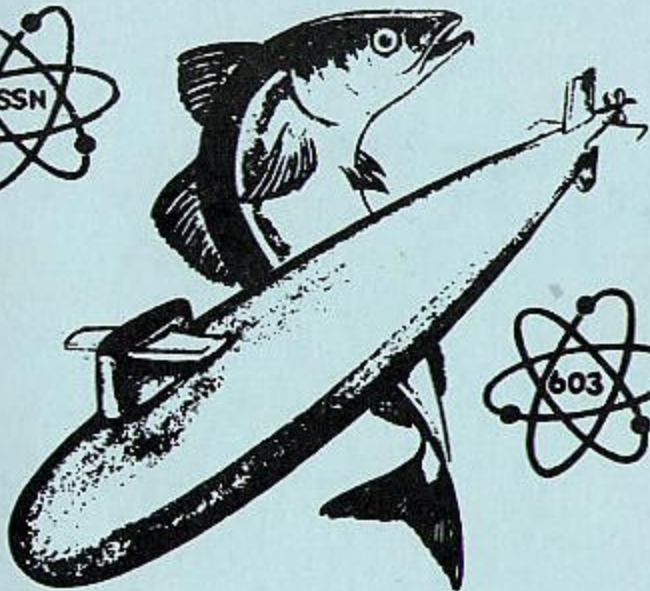


U.S.S. POLLACK



SILENT DEFENSE

## WELCOME ABOARD

Among the proudest and most enjoyable moments in a submariner's professional life are those spent exhibiting his ship to visitors. The relationship between the submariner and his ship is intimate to the point that he tends to radiate a personal pride in his submarine. His link with the heroism of past submarine achievements is strong and close. Most important, the submarine sincerely welcomes the visitor because it is to you that we devote our efforts and accomplishments, our sacrifices and exultations. We are most anxious for you to understand and perhaps even share in these feelings.

POLLACK is a nuclear powered attack submarine of the PERMIT (SSN 594) class. Her principal mission as an attack submarine is to operate against submarine or surface ship targets. Surpassing the underwater capabilities of any class of ship before her, POLLACK carries detection, communications, navigation, propulsion and computerized weapons systems of the most advanced design. For months, she can cruise quietly submerged with a maximum of comfort for her crew, and with an ever ready potential for delivery of any submarine tactical weapon the Navy possesses--against submerged or surfaced vessels. This versatile warship, in addition to her primary capability of firing SUBROC and HARPOON missiles and sophisticated homing torpedoes, can lay mines, perform reconnaissance, support frogman operations, transport troops and equipment, coordinate with surface ships and aircraft in conducting anti-submarine operations, and carry out rescue at sea missions: all without exposing herself to hostile forces or detection.

## U.S.S. POLLACK (SSN 603)

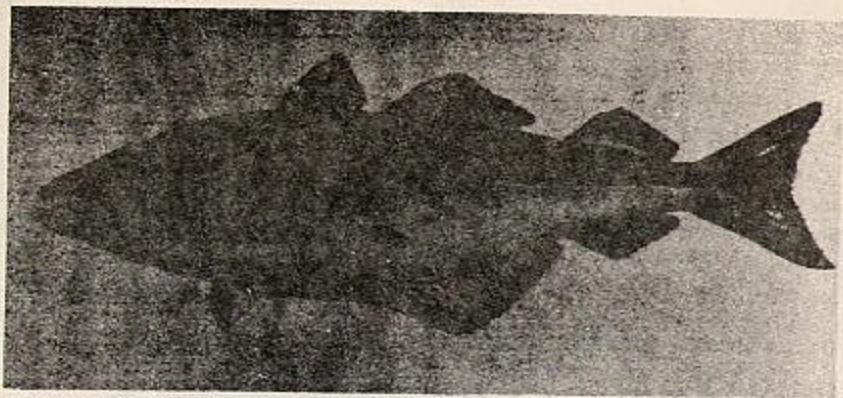
One of the most serious problems currently facing the United States is that of defense against the modern submarine. The best defensive weapon against the submarine is another submarine. USS POLLACK (SSN-603) is the sixth ship in a class of nuclear powered attack submarines designed specifically for the anti-submarine mission.

POLLACK's advanced streamlined hull is driven by a single propeller powered by a water cooled nuclear reactor. While submerged POLLACK can be controlled both on course and in depth by a single man. An automatic feature is also included in the control system which can keep the ship on ordered course at the ordered depth.

POLLACK operates more silently than any previous class of submarine. Detection by surface ships and other submarines is virtually impossible unless POLLACK chooses to reveal herself. This capability also provides for maximum performance of POLLACK's elaborate sonar system. This highly advanced installation is capable of searching for and detecting targets on the surface and submerged at great ranges. Along with the highly advanced sonar system, POLLACK is equipped with the most modern submarine weapon system to enable her to sink submarines at great distances. This weapon system is capable of firing the latest in this country's arsenal of anti-submarine weapons including the SUBROC missile.

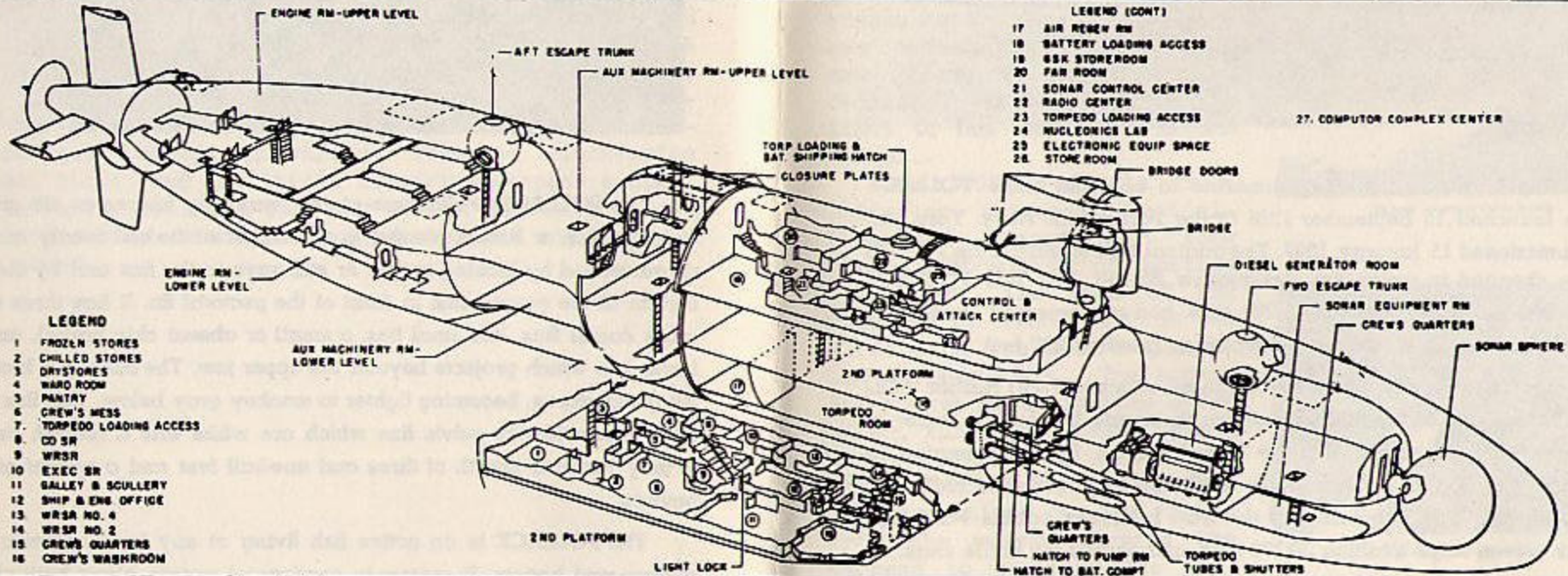
Living conditions aboard POLLACK have been designed to permit the crew to live comfortably while totally submerged for extended periods of time. The ship has a 300 ton capacity air conditioning system. The atmosphere is continuously monitored while submerged. An air purification system removes irritants and maintains the proper balance of oxygen and other atmospheric elements. The refrigerated and frozen food storage areas coupled with a well equipped galley affords the crew fine meals during prolonged cruises.

USS POLLACK combines the endurance and environmental independence of nuclear power with deep submergence high speed, quietness, advanced electronics capabilities, and the latest submarine weapons system. These characteristics make her one of the Navy's most effective anti-submarine warfare weapons and a power for peace.



The POLLACK, *Pollachius virens*, variously known as the green cod, coalfish, or Boston bluefish is a member of the cod family and is characterized by lacking spines or stiff rays in the fins and by the insertion of the ventral fins in front of the pectoral fin. It has three separate dorsal fins, two anal fins, a small or absent chin barbel, and a lower jaw which projects beyond the upper jaw. The color is a brownish green above, becoming lighter to smokey gray below. The fins are olive except for the pelvic fins which are white with a reddish tinge. It may reach a length of three and one-half feet and a weight of 35 pounds.

The POLLACK is an active fish living at any level between the surface and bottom. It ranges in continental waters, along both sides of the North Atlantic, mainly from New Jersey and the Bay of Biscay northward to Spitzbergen, Iceland, and Greenland. It has considerable commercial importance.





The first United States submarine to bear the name POLLACK was launched 15 September 1936 at the Portsmouth Navy Yard and commissioned 15 January 1937. The original hull identification P-9 was later changed to match her designation SS-180. The first POLLACK was 300 feet long, displaced 1,900 tons, had a submerged speed of 8 knots, and could submerge to depths as great as 280 feet.

Enroute to Hawaii when the Japanese attacked Pearl Harbor, POLLACK was one of the first submarines to invade the empire water of Japan. She is credited with the first ship sunk by a submarine in World War II. Two days later she made the first confirmed night surface sinking by a submarine of the war. In eleven patrols POLLACK sank eleven ships totalling 30,278 tons, and earned ten battle stars.

POLLACK was decommissioned 21 September 1945 in the yard that built her, and removed from the Navy list of ships in 1947.

## SUBROC THE FLYING TORPEDO

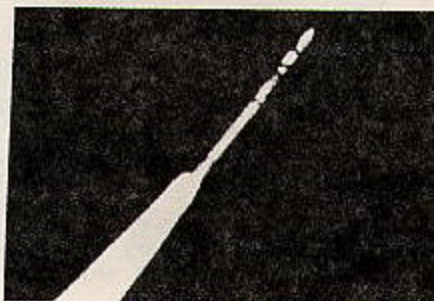
SUBROC is the most revolutionary submarine attack weapon ever developed. It was conceived by submariners and technical experts who realized that there is a limit to how far torpedos can travel.

The SUBROC missile is a submarine launched inertially-guided weapon for long range destruction of hostile submarines. The size of the missile is such that it is fired from a standard submarine torpedo tube. The powerful rocket motor ignites under water, turns the SUBROC upward and propels it out of the sea, high into the atmosphere.

Separation of the motor from the weapon permits the warhead to continue its trajectory and sends the spent motor tumbling into the sea. The warhead plunges into the sea over the target.



*Subroc emerges from below*



*Mid-flight acceleration*



*Warhead Separation*



## HOW NUCLEAR POWER OPERATES A SUBMARINE

The power plant of a nuclear submarine is based upon a nuclear reactor which provides heat for the generation of steam. This, in turn, drives the main propulsion turbines and the ship's turbo-generators for electric power.

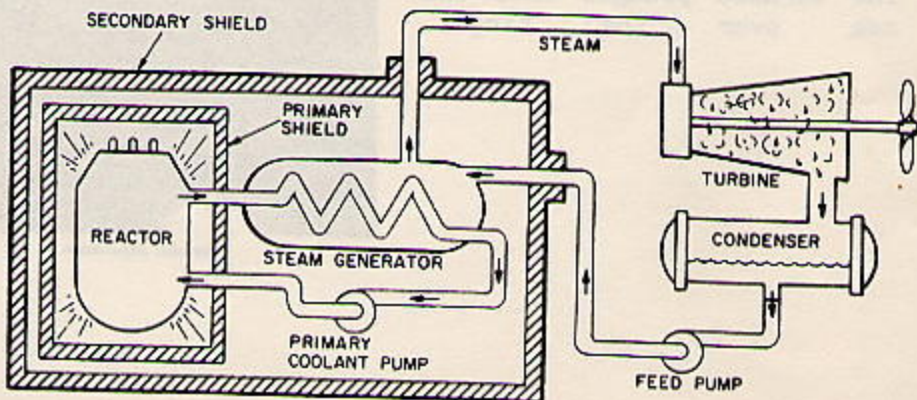
The primary system is a circulating water cycle and consists of the reactor, loops of piping, primary coolant pumps and steam generators. Heat produced in the reactor by nuclear fission is transferred to the circulating primary coolant water which is pressurized to prevent boiling. This water is then pumped through the steam generator and back into the reactor by the primary coolant pumps for reheating in the next cycle.

In the steam generator, the heat of the pressurized water is transferred to a secondary system to boil water into steam. This secondary system is isolated from the primary system.

From the steam generators, steam flows to the engine room where it drives the turbo-generators, which supply the ship with electricity, and the main propulsion turbines, which drive the propeller. After passing through the turbines, the steam is condensed and the water is fed back to the steam generators by the feed pumps.

There is no step in the generation of this power which requires the presence of air or oxygen. This fact alone allows the ship to operate completely independent from the earth's atmosphere for extended periods of time.

During the operation of the nuclear power plant, high levels of radiation exist around the reactor and personnel are not permitted to enter the reactor compartment. Heavy shielding protects the crew so that the crew members receive less radiation on submerged patrol than he would receive from natural sources ashore.



## GENERAL CHARACTERISTICS AND DATA

### SHIP'S COMPLEMENT:

OFFICERS	12
CHIEFS	12
ENLISTED	92
TOTAL	<u>116</u>

### PRINCIPAL DIMENSIONS:

Length	278 Feet
Breadth	31 Feet
Water Line Midship	25 Feet
Displacement (Submerged)	4309.33 Tons
Displacement (Surfaced)	3745.67 Tons
Operating Depth	In excess of 400 Ft
Maximum Speed	In excess of 20 Kts



**U. S. S. POLLACK (SS-180)**  
**BLACK PANTHER OF THE PACIFIC**

Ship's emblem of the first USS POLLACK (SS 180) displaying the namesake given her by Tokyo Rose during the war in the Pacific.

DE PROFUNDIS TRIDENS



III

