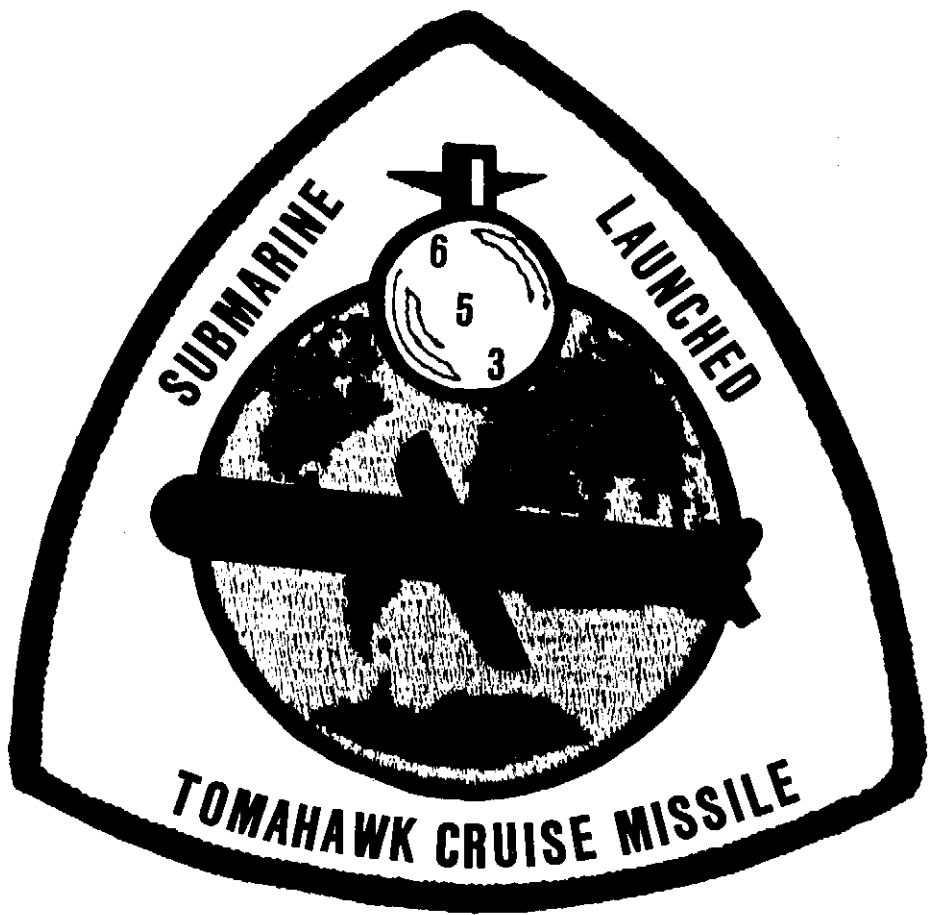


WELCOME ABOARD



USS RAY (SSN 653)



USS RAY (SSN 653)

Built by

Newport News Shipbuilding and Dry Dock Company

Newport News, Virginia

Keel Laid 4 January 1965

Launched 21 June 1966

Commissioned 12 April 1967

Sponsored By Mrs. Thomas H. Kuchel

Length 292 feet

Beam 32 feet

Displacement Surfaced 4271 tons

Speed Over 20 knots

Diving Depth Over 400 feet

USS RAY (SSN 653)



SHIP'S HISTORY

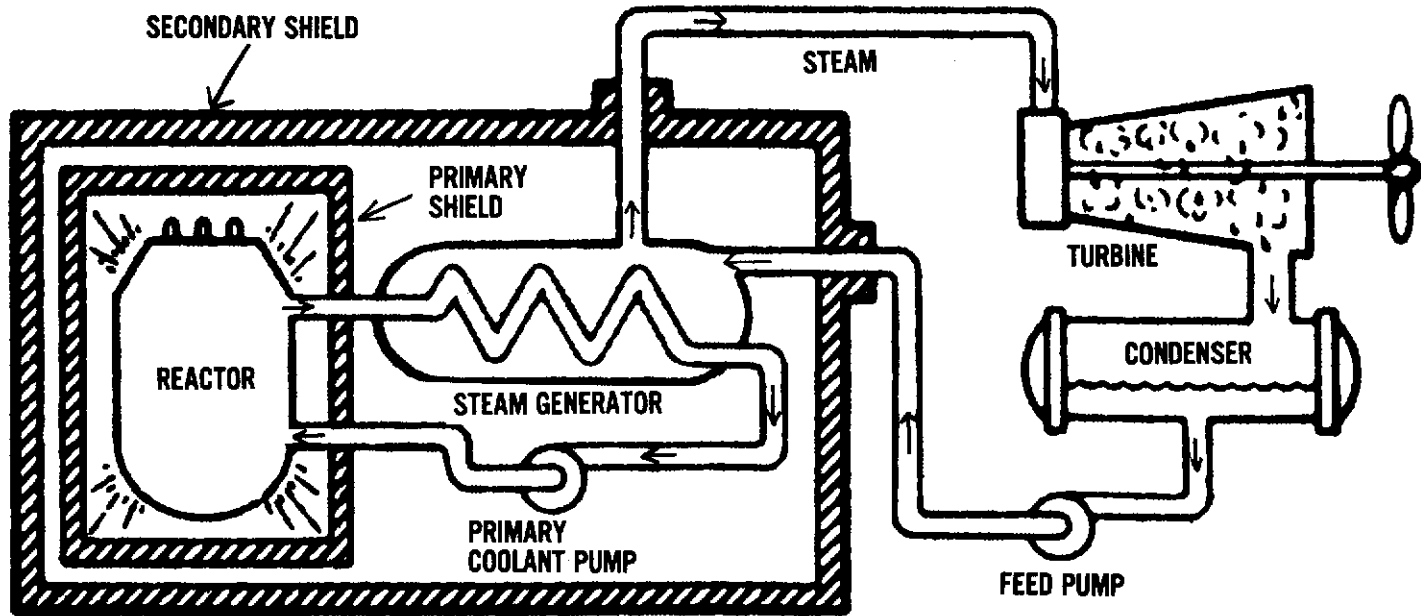
UNITED STATES SHIP

RAY

USS RAY (SSN 653), the second ship to bear the name, is a 637 class nuclear powered fast attack submarine designed for maximum speed and maneuverability submerged. RAY was constructed by the Newport News Shipbuilding and Dry Dock Company of Newport News, Virginia and was commissioned on 12 April 1967.

In the eighteen years since her commissioning, RAY has served as a member of both Submarine Squadron SIX in Norfolk, Virginia, and Submarine Squadron FOUR in Charleston, South Carolina, where she is presently homeported. RAY has successfully completed numerous deployments to both the Mediterranean Sea and Atlantic Ocean. Many of these deployments have been missions of great importance to the safety and security of the United States. For her actions, RAY has been awarded five Navy Unit Commendations and four Meritorious Unit Commendations as well as earning several Battle "E" Efficiency Awards.

During the last two years RAY completed a regular overhaul at Charleston Naval Shipyard receiving advanced cruise missile, underwater fire control and sonar systems. RAY is the first 637 class submarine to be certified to fire the Navy's TOMAHAWK cruise missile.



POWER PLANT DIAGRAM

THE POWER PLANT

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 turbine 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 generators, 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 turbine 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 a crew member receives less radiation on submerged operations than from natural sources ashore.



USS RAY (SS 271)

HISTORY OF THE FIRST USS RAY (SS 271)

The first USS RAY was a valiant veteran of World War II and had a long and distinguished career.

Commissioned on July 27, 1943, RAY arrived at Brisbane, Australia in late October, ready for her first war patrol. By the time the Pacific war ended, RAY had sent a confirmed 56,000 tons of Japanese shipping to the bottom. Probable kills more than double the total, and added to this are the countless small craft which RAY sank or damaged with her deck guns. In recognition of achievements as one of the most aggressive of our silent raiders, RAY was awarded the Submarine Combat Insignia eight times, giving the ship a perfect score of eight successful war patrols.

On November 13, 1943, RAY left on her first patrol in the area north of the Bismarks, which lasted 24 days. During that time she attacked and sank the 2,526 ton gunboat NAKKAI MARU.

The second patrol began on December 11 from Milne Bay, where the ship had been repaired and refueled. The patrol lasted 32 days and resulted in the sinking of two Japanese ships, a 5,792 ton tanker and a 2,904 ton gunboat. No damage was sustained from subsequent depth charging, and RAY returned to Fremantle for provisioning.

The third war patrol, which began on February 6, 1944 and included a special mission to lay a minefield off the coast of Indo-China, lasted 51 days and was completely successful.

After three weeks refitting and training, the fourth patrol commenced on April 23, 1944. During the 54 day period, RAY sank the 6,094 ton passenger cargo ship TENPEI MARU.

The fifth war patrol consisted of two phases. In the first, RAY expended her torpedoes and was credited with sinking the 5,255 ton tanker JANBI MARU. After reloading at Fremantle, she sighted a convoy in the Maccassar Straits and sank a 2,612 ton cargo vessel. Nine days later on August 13, she sighted a 12 ship convoy, five of which were escort vessels. From then until the 21st, RAY began to fight a running battle. On the night of the 20th, the USS HARDER and USS HADDO joined her for a coordinated attack. During this seige RAY sank three large enemy ships.

The sixth patrol was a mixture of suspense and action beginning on September 23, 1944. On October 12, RAY sank another passenger cargo ship. Two days later, while making a quick dive to avoid aircraft detection, the conning tower was flooded, but there were no casualties. On October 27, after repairs, RAY was back on patrol. After sinking a small cargo vessel, she proceeded to Mindoro on a special mission, successfully landing three men and some cargo on the island and picking up three escaped war prisoners and two aviators. On November 4, during a concerted attack with three other submarines, RAY saw torpedoes passing along either side of her, apparently fired by one of the other submarines but missing their target. RAY arrived in Pearl Harbor on December 8 after the 72 day patrol.

For both the fifth and sixth war patrols, RAY was awarded the Navy Unit Commendation.

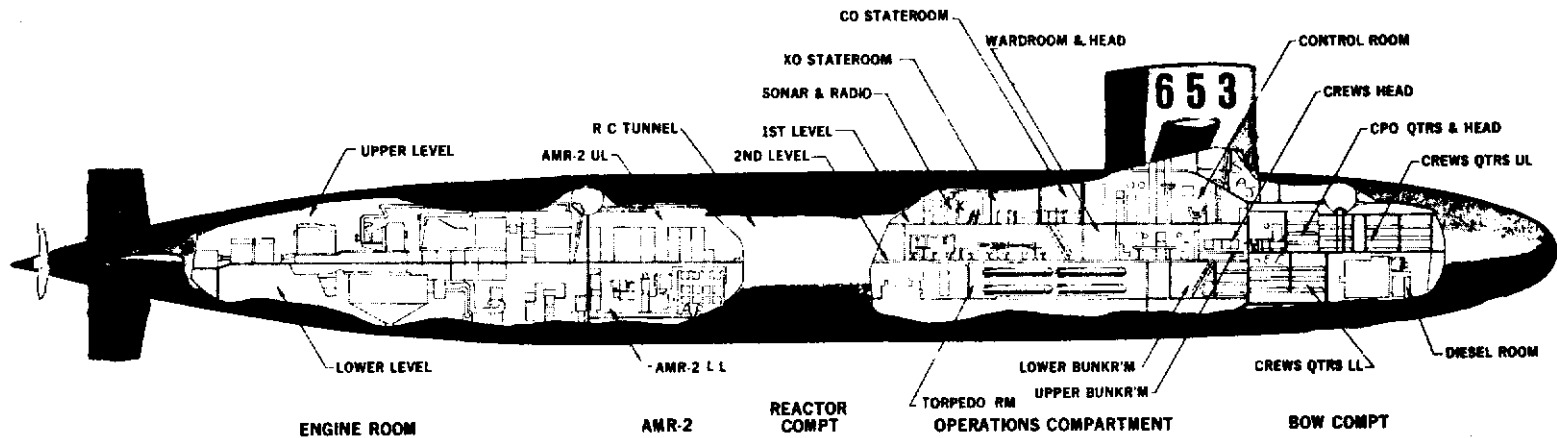
During the seventh patrol, which began on April 30, 1945, RAY rescued 20 aviators at sea and sank or damaged an uncounted number of small craft with her 5 inch gun. The eighth patrol started on July 21. RAY became the scourge of the coast in the Gulf of Siam, damaging, sinking and burning every small boat she could find. However, it was the shortest patrol of her career. RAY was called back when the Japanese began to make peace overtures.

In February 1946, RAY was decommissioned and transferred to the Reserve Fleet.

In December 1950, RAY was returned to the fleet for conversion to a radar picket submarine. Her hull was cut in two and a 30 foot section added. The upper half of this new section became a combat information center and the lower half provided room for electronic equipment storage, a sonar room, and air conditioning plant. The old bridge was replaced by a streamlined sail. RAY was equipped with specialized electronic equipment, her communication facilities were greatly expanded, her fuel capacity increased to 139,000 gallons, and her after torpedo tubes were removed to permit expansion and berthing space for additional personnel.

Recommissioned in August 1952, RAY took part in training exercises along the Atlantic coast and participated in fleet operations in the Mediterranean. RAY represented the United States Navy in various international functions, such as a six nation salute to SHAPE while in the Mediterranean in 1956 and the International Naval Review at Hampton Roads in 1957.

RAY was again decommissioned in September 1958, and her proud name was stricken from the Navy List, effective April 1, 1960.



SHIP'S DIAGRAM

GENERAL INFORMATION

FACILITIES

USS RAY was designed with great emphasis on habitability. Little space was wasted, and although living and storage spaces are limited, there are numerous places where crew members may relax. The crew's mess area is used to show movies and features a library, a game collection, a soft drink machine, an ice cream machine, and a stereo and video entertainment system. The ship is equipped with laundry facilities and there are no restrictions on the use of showers. The atmosphere is continuously revitalized.

SECURITY

Most features of the ship are of a classified nature. In addition, Sonar Control, Radio/ESM Room, Sonar Equipment Space, Nucleonics Laboratory and the entire ship aft of the Operations Compartment are security areas. Only authorized personnel are permitted in these spaces. Information concerning speed, depth, weapons, fire control, sonar, ESM, and the propulsion plant are classified.

CAUTION

Do not attempt to operate any equipment, twist knobs, flip switches, or turn any valves. There are members of the crew on watch in every compartment to assist you. Please observe all warning signs.

SHIPS OF

SUBMARINE SQUADRON FOUR

SUBMARINES

USS BONEFISH (SS 582)

USS STURGEON (SSN 637)

USS GRAYLING (SSN 646)

USS SUNFISH (SSN 649)

USS RAY (SSN 653)

USS SAND LANCE (SSN 660)

USS SEA DEVIL (SSN 664)

USS SEAHORSE (SSN 669)

USS NARWHAL (SSN 671)

USS BATFISH (SSN 681)

USS L. MENDEL RIVERS (SSN 686)

SUPPORT SHIPS

USS FRANK CABLE (AS 40)

USS PETREL (ASR 14)

USS ORTOLAN (ASR 22)

USS RAY is named for fish of the family Rajidae, especially abundant in the North Pacific and North Atlantic oceans, some growing to a large size and attaining a weight of over 300 pounds. Most of them, however, are shorefishes, which lie concealed in the sand or mud at the bottom of the water and from that hidden point dart suddenly upon unsuspecting prey. They are also called Devilfish.

