NATIONAL REGISTER ELIGIBILITY ASSESSMENT
VESSEL: ex- USS *Pigeon* (ASR-21)

USS Pigeon *(ASR-21) underway. Pigeon was the first of two catamaran-hulled SRVs. Location and date are unknown.* http://www.navsource.org/archives/09/32/3221.htm

Vessel History

The USS *Pigeon* (ASR-21) was the first of two catamaran-hulled submarine rescue vessels commissioned by the U.S. Navy in 1973. Alabama Drydock and Shipbuilding Company in Mobile, Alabama won the construction contract on November 15, 1967. Its keel was laid on July 17, 1968 and it was launched on August 13, 1969. *Pigeon* was commissioned on April 28, 1973. It was the navy's third vessel that carried the name.

Pigeon was assigned to the U.S. Navy's Pacific Fleet, spending most of its career homeported at Naval Base San Diego. Its sistership, the USS *Ortolan* (ASR-22) was assigned to the U.S. Navy's Atlantic Fleet in Norfolk, Virginia. The *Pigeon* spent the next two decades in readiness for the submarine disaster that fortunately never occurred. It spent frequent periods at sea conducting drills and training, including general training in saturation diving. The *Pigeon* successfully performed the navy's first open ocean working saturation dive when it recovered the engine and ejection seat of an F-14 jet fighter that had crashed in 730 feet of water.

The construction and design of the ships were a result of the loss of the nuclear-submarine USS *Thresher* (SSN-593) in the deep waters of the North Atlantic in April 1963, and the subsequent loss of a hydrogen bomb in the western Mediterranean off of Spain's coast in January 1966.

Responding to *Thresher*'s loss, the navy created the Deep Submergence Systems Review Group to develop a system that could rescue sailors from depths greater than 1,000 feet, the limit of the McCann rescue bell then in use. The result was the Deep Submergence Rescue Vehicle (DSRV), a submarine-shaped submersible 49-feet in length and 8-feet in breadth, capable of carrying a crew of three and 24 survivors on each trip from a maximum depth of 5,000 feet. It was designed for quick deployment in the event of a submarine accident and was transported by truck, aircraft, ship, or by specially-configured attack submarines. At the accident site, the DSRV would work with a "mother" ship. It would dive, conduct a sonar search, and attach to the disabled submarine's hatch. It came equipped with an arm to clear hatches on a disabled submarine and a combined gripper and cable cutter. The gripper was designed to lift 1,000 pounds. The DSRV-1, named *Mystic,* was assigned to *Ortolan*, and the DSRV-2, named *Avalon,* was assigned to *Pigeon*. In June 1968, a month before construction began on *Pigeon,* a second nuclear submarine, the USS *Scorpion,* was lost in the North Atlantic.

When not being used in exercises, the two DSRVs were kept in readiness at the North Island Naval Air Station in San Diego, California. One complete exercise of the system was conducted from December 6 through 22, 1982. The DSRV-1 *Mystic* was loaded on board a C-5A cargo plane at San Diego and flown to Charleston, South Carolina. Additional equipment was transported on board two C-141s. The *Mystic* was first installed on the deck of the submarine USS *Seahorse* (SSN-669) for training in this delivery method. It was then installed on board the *Ortolan* and both vessels proceeded to a location south of Grand Bahama Island. The *Ortolan* launched and retrieved the *Mystic* twice with the *Seahorse* on the bottom simulating a disabled submarine. The *Ortolan* then returned the *Mystic* to the Charleston Navy Yard where it was flown back to San Diego. The exercise was regarded as a complete success.

The navy originally proposed ordering 12 DSRVs from the Lockheed Missiles and Space Company, but eventually reduced the number to two, one for each of the ships designed to launch them, the *Pigeon* and *Ortolan*. One reason for the reduction in the program was the realization that seventy-seven percent of the world's oceans were too deep for their use and any submarines lost there would be totally destroyed by the pressure.

DSRV-1 Mystic *attached to the USS* La Jolla *(SSN 701) during training exercises in Japan in 2002. Photo by JO3 Wes Eplen.* http://www.navy.mil/view_single.asp?id=1366

Maritime Administration

The *Pigeon* was decommissioned on August 31, 1992 and placed in the Maritime Administration's (MARAD) National Defense Reserve Fleet (NDRF) at Suisun Bay in Benicia, California. The navy transferred title to MARAD on December 18, 1998, but re-acquired the vessel on March 26, 2001 to serve as a non-operational training platform at the Naval Station in San Diego. *Pigeon* returned to the NDRF in September 2005.

No further catamaran-hulled submarine rescue vessels have been built for the navy. One very similar vessel to the *Pigeon* and *Ortolan*, the slightly smaller USNS *Hayes* (T-AG-195), was built as an oceanographic research vessel by the Todd Shipyards in Seattle in 1970. It was most recently employed in acoustic research in support of the submarine noise reduction program.

Historic Context

Since the middle of the nineteenth century, the navy has used divers in ship salvage and repair, construction work, and military operations. Early navy divers were generally swimmers and skin divers. During the Civil War Battle of Mobile Bay, swimmers were sent in ahead of Admiral Farragut's ships to locate and disarm Confederate mines that had been planted to block the entrance to the bay.

Prior to 1900, the navy operated submarines on a limited basis. As technology grew, so did its submarine fleet. However, from 1912 through 1939, the development of the navy's F, H, and S class boats was marred by a series of accidents, collisions, and sinkings. Several of these submarine disasters resulted in a rapid growth of the navy's diving capability.

In 1925 a passenger liner struck the USS *S-51* (SS-162), sinking the submarine off of Block Island, Rhode Island. Public pressure to raise the submarine and recover the crew was intense. Salvage of the *S-51* covered a 10-month period of difficult and hazardous diving. The submarine was finally raised and towed to the Brooklyn Navy Yard in New York. The loss of the *S-51* provided the impetus for expanding the navy's diving ability; however, the navy's inability to rescue people trapped in a disabled submarine was not met until another major submarine was lost.

In 1927 the navy lost the submarine USS *S-4* (SS-109) in a collision with the U.S. Coast Guard cutter *Paulding.* Nearly one day after the sinking, divers reached the submarine in 102 feet of water and exchanged hand signals with the men trapped inside. The submarine had a hull fitting designed to take an air hose from the surface, but what had looked feasible in theory proved too difficult in reality. With heavy seas causing repeated delays, the divers could not make the hose connection until it was too late. Tragically, all of the men on board the *S-4* perished. Even if the hose connection was completed in time, rescuing the crew would have posed significant problems.

The navy pushed for development of a rescue chamber that was essentially a diving bell with special fittings for connection to a submarine deck hatch. The apparatus, named the McCann-Erickson Rescue Chamber, was used in 1939 after the USS *Squalus* (SS-192) sunk in 242 feet of water. The rescue chamber made four trips and safely brought 33 men to the surface. The remaining crew was trapped in the flooded after-section of the submarine and died in the sinking. The *Squalus* was raised by salvage divers using air and helium-oxygen mixtures. Following its repair, *Squalus*, renamed USS *Sailfish* (SS-192), compiled a proud record in World War II.

Navy divers were used in rescue and salvage operations after the 1941 Japanese raid on Pearl Harbor. Within two hours of the start of the raid, the first salvage teams were already cutting through the hull of the overturned battleship USS *Oklahoma* (BB-37) to rescue trapped sailors. Teams of divers recovered ammunition from the magazines of sunken ships in the event of a

second attack. The enormous salvage effort was highly successful. There were 101 ships in the harbor at the time of the attack and most sustained damage. The battleships suffered the brunt of the attack. Six battleships were sunk and one was heavily damaged. Of this number, four were salvaged and returned to the fleet for combat duty; the *Oklahoma* was righted and refloated but sank en route to a shipyard in the United States. Only the USS *Arizona* (BB-39) and the former battleship USS *Utah* (BB-31/AG-16) could not be salvaged.

Battleships were not the only subjects of salvage efforts. Throughout 1942 and part of 1943, navy divers worked on destroyers, supply ships, and other vessels, often using makeshift shallow water apparatus inside water and gas-filled compartments. In the course of the Pearl Harbor effort, navy divers spent 16,000 hours underwater during 4,000 dives. Contract civilian divers contributed another 4,000 diving hours.

Diving since World War II

Navy diving has not been limited to tactical combat operations, wartime salvage, and submarine sinkings. Fleet diving has become increasingly important and diversified since World War II. A major part of the diving mission is the inspection and repair of naval vessels to minimize downtime and the need for dry-docking. Other aspects of fleet diving include the recovery of practice and research torpedoes, installation and repair of underwater electronic arrays, underwater construction, and location and recovery of downed aircraft. Sinkings and beachings caused by storms and human error continue to demand the fleet's salvage and harbor clearance capabilities in peaceful as well as in hostile times

Loss of the USS *Thresher* (SSN-593)

The loss of the *F-4, S-51, S-4* and the sinking of the *Squalus* all led to improvements in the navy's diving capabilities. In the 1960s, however, a submarine disaster of major proportions had a profound effect on the development of new diving equipment and techniques in the postwar period. This was the loss of the nuclear attack submarine USS *Thresher* (SSN-593) and all its crew in April 1963. The submarine sank in 8,400 feet of water, a depth beyond the survival limit of the hull and far beyond the capability of any existing rescue apparatus. An extensive search was initiated to locate the submarine and determine the cause of the sinking. The first signs of the *Thresher* were located and photographed a month after the disaster. Collection of debris and photographic coverage of the wreck continued for approximately one year.

The Deep Submergence Review Group (DSRG) was formed to assess the navy's undersea capabilities. Four general areas were examined: search; rescue; recovery of small and large objects; and the Man-In-The-Sea concept which involved trials that tested man's ability to work underwater for prolonged periods. The basic recommendations of the DSRG called for a vast effort to improve the navy's capabilities in these four areas.

Deep Submergence Systems Project

Direct action on the recommendations of the DSRG came with the formation of the Deep Submergence Systems Project (DSSP) in 1964, and an expanded interest regarding diving and undersea activity throughout the service. Submarine rescue capabilities were substantially improved with the development of the DSRV, which became operational in 1972 and was supported by the *Pigeon.* This deep diving craft is air-transportable, highly instrumented, and capable of rescuing a submarine's crew at a depth of 5,000 feet. Three other significant areas of achievement for the DSSP included: Saturation Diving; the development of Deep Diving Systems; and progress in advanced diving equipment design.

U.S. Navy Saturation Diving

The navy developed and proved saturation diving techniques in its Sealab series as well as in ongoing programs of research and development at the Navy Experimental Diving Unit (NEDU), Naval Medical Research Institute (NMRI), and the Navy Submarine Medical Research Laboratory (NSMRL), as well as many institutional and commercial hyperbaric facilities. Saturation diving using Deep Diving Systems (DDS) is now a proven capability. The navy developed two types of DDS. The DDS MK I supported two 2-man teams of divers through a 14-day mission profile. The DDS MX I system used in trial dives to 1,148 feet is no longer in service. The DDS MX 2 MOD 1, designed for saturation diving, supports two 4-man teams for an extended mission time. DDS MK 2 is installed as part of the basic equipment of the ASR-21 class of submarine rescue ships.

Description/Characteristics of Vessel Type

Type: Submarine Rescue Ship.
Hull Number: ASR-21
Builder: Alabama Drydock and Shipbuilding Co., Mobile, Alabama.
Length: 251'.
Waterline length: 230'.
Beam: 86'.
Draft: 21.4'.
Displacement: approximately 4,200 tons.
Speed: 15 knots.
Propulsion system: four diesel engines, two shafts.
Propellers: two.
Aircraft: helicopter platform only.
Armament: two MK 68 20mm guns.
Crew: 115 and 24 more when underway with the Deep Submergence Rescue Vessel (DSVR).

The *Pigeon* and *Ortolan* were designed with twin hulls between which the DSRVs would be transported, lowered and raised. This design also provided greater stability when lowering underwater gear and included a larger working deck space. Each hull was 251-feet in length with a beam of 86 feet. The space between the hulls was 34 feet wide, providing a total breadth

of 86 feet. The ships were twin-screw powered by four diesel engines with a maximum shaft horsepower of 6,000. Cruising speed was 15 knots. Provisions were made for future installation of a bow thruster in each hull to assist in maintaining the vessel's position. The ships were able to place four-point moorings in depths up to 1,200 feet. Each was fitted with a helicopter landing pad, but no hangar. In addition to accommodating a DSRV, *Pigeon* was fully equipped for saturation diving to depths of up to 850 feet using the EX14 underwater breathing apparatus developed in the Sealab Program. Divers could be brought to the work site in a Personnel Transfer Chamber (PTC) that they would exit in diving gear up to the maximum depth. After performing the work, they were returned in the PTC to a shipboard pressurized habitat. This could be repeated over a number of days to complete the mission with a single decompression at the end. *Pigeon* was equipped with three-dimensional sonar to locate a stricken submarine and monitor operations, and the latest in underwater communications systems.

Statement of Significance

The *Pigeon* was the first of two catamaran-hulled rescue ships commissioned by the U.S. Navy in 1973. The ASR-21 class vessels were built to support the Deep Submergence Rescue Vehicles (DSRVs) during submarine rescue operations. The *Pigeon* successfully performed the navy's first open ocean working saturation dive when it recovered the engine and ejection seat of an F-14 jet fighter that had crashed in 730 feet of water. The Submarine Rescue Diving and Recompression System's (SRDRS) Rescue Capable System (RCS) replaced the DSRVs and the navy phased out the DSRV program in 2008.

Integrity of Characteristics/Features

The overall condition of the vessel is fair. It has been in the NDRF at Suisun Bay off and on since 1992. It has been stripped of equipment and features that are integral to the integrity of the vessel. Artifacts from the *Pigeon* are in the U.S. Navy's collection at the Naval History and Heritage Command in Washington, D.C. They are available for loan.

National Register Eligibility Statement

The ASR-21 design was not revolutionary and it did not contribute to engineering developments. Further, the vessel is not yet 50 years of age and does not possess the "exceptional" historical or technological characteristics or integrity of design and materials necessary to qualify under Criteria Consideration G for listing on the National Register of Historic Places.

Determination: NOT ELIGIBLE
Date: 14 April 2011

Sources

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Internet Site

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