United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name USS Clamagore (SS-343)
other names/site number Clamagore

2. Location

street & number Patriot's Point ☐ not for publication
city, town Mount Pleasant ☐ vicinity
state South Carolina code SC county Charleston code 019 zip code N/A

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
		Contributing	Noncontributing
☒ private	☐ building(s)		buildings
☐ public-local	☐ district		sites
☐ public-State	☐ site	1	0 structures
☐ public-Federal	☒ structure		objects
	☐ object		Total

Name of related multiple property listing:

Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☐ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official Date

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

☐ entered in the National Register.
☐ See continuation sheet.
☐ determined eligible for the National Register. ☐ See continuation sheet.
☐ determined not eligible for the National Register.
☐ removed from the National Register.
☐ other, (explain:) _____

Signature of the Keeper Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)

Government (Naval)

Current Functions (enter categories from instructions)

Museum

7. Description

Architectural Classification (enter categories from instructions)

N/A

Materials (enter categories from instructions)

foundation N/A
walls N/A
roof N/A
other N/A

Describe present and historic physical appearance.

The Balao class World War II "fleet boat" submarine USS Clamagore (SS-343), modernized after the war to her present configuration as a FRAM II/GUPPY Type III "fleet snorkel" submarine, is a floating museum vessel moored opposite Charleston harbor at the Patriot's Point Naval and Maritime Museum in Mount Pleasant, South Carolina. Clamagore is open to the public for self-guided tours.

USS CLAMAGORE AS BUILT AND MODIFIED

As built in 1945, USS Clamagore, like all of her sister Balao class submarines, was 311.9 feet long, with a 27.3-foot beam, and a 15.3-foot draft. Clamagore displaced 1525 tons surfaced and 2415 tons submerged. [1] Similar to the earlier Gato class submarine, if not virtually identical, the Balao class submarines were known as "thick-skinned boats," being built with a thicker (nearly 1 inch) welded high tensile steel pressure hull capable of submerging to 400 feet. [2] Clamagore's twin screws were driven by a Diesel-electric system. Two General Electric motors, each rated at 2740 shaft horsepower and directly coupled to the shafts, were powered by four General Motors 16-cylinder, Diesel engines, each rated at 1600-h.p., for a total submarine horsepower rated at 5400-h.p., capable of driving Clamagore at 20.25 knots surfaced and 8.75 knots submerged. Balao class

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[X] See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:
☐ nationally ☐ statewide ☐ locally

Applicable National Register Criteria ☐A ☐B ☐C ☐D NHL CRITERIA 1, 4

Criteria Considerations (Exceptions) ☐A ☐B ☐C ☐D ☐E ☐F ☐G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Architecture (Naval)	1945-1963	1963
Military	1945-1973	
NHL IX: Political and Military Affairs After 1945		

Cultural Affiliation: N/A

Significant Person:

Architect/Builder: Electric Boat Works

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The 1945-built Balao class submarine USS Clamagore is one of 132 Gato, Balao, and Tench class submarines built during World War II, Clamagore was a typical World War II "fleet boat" built as part of a major submarine construction program that followed the Japanese attack on Pearl Harbor. The submarine warfare pursued by the United States and supported by this construction program was instrumental in securing an American victory in the Pacific. Of the hundreds of "fleet boats" built during the war, only 15, which include two subsequent GUPPY II conversions, Torsk and Becuna, remain preserved in the United States. Subsequently modified in 1947 and 1962 into a FRAM II/GUPPY III submarine by the US Navy, Clamagore, one of only nine submarines converted to a GUPPY III, is now the only surviving GUPPY Type III submarine in the United States. She represents the continued adaptation and use of war-built diesel submarines by the Navy for the first two decades after the war; unlike her guppied sisters, Clamagore as the sole surviving GUPPY III represents the ultimate use and technological adaptation of war-built diesel submarines by the Navy. The GUPPY (Greater Underwater Propulsive Project) or "fleet snorkel" submarines, of which Clamagore is an example, comprised the bulk of the United States' submarine forces through the mid-1960s. A well-preserved vessel, Clamagore, as the

SEE CONTINUATION SHEET

☒ See continuation sheet

9. Major Bibliographical References

PLEASE SEE FOOTNOTES CITED IN TEXT.

☐ See continuation sheet

Previous documentation on file (NPS):
- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:
- ☐ State historic preservation office
- ☐ Other State agency
- ☒ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository: Naval Historical Center, Washington

10. Geographical Data

Acreage of property .1

UTM References

	Zone	Easting	Northing
A	17	602280	3628300
B			
C			
D			

☐ See continuation sheet

Verbal Boundary Description

All that area encompassed within the extreme length, beam, and draft of the vessel as she floats at her berth.

☐ See continuation sheet

Boundary Justification

The boundary incorporates the entire area of the submarine.

☐ See continuation sheet

11. Form Prepared By

name/title James P. Delgado, Maritime Historian
organization National Park Service (418) date December 28, 1988
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submarines carried between 94,000 and 116,000 gallons of diesel oil; when submerged, the submarine was powered by 504 Exide acid-cell batteries. [3] The primary armament was Clamagore's ten 21-inch torpedo tubes, four aft, six forward. Clamagore carried 24 torpedoes. The secondary armament was a single 5-inch/25 caliber deck gun mounted on the deck aft of the conning tower, and two 40-mm antiaircraft guns, singly mounted on either side of the conning tower. [4]

Clamagore as built was divided into 16 principal compartments, one compartment being added to make 17 when she was converted in late 1962 to a GUPPY Type III submarine. Starting at the stern is the aft torpedo room, with four torpedo tubes and eight torpedoes (four in the tubes and four reloads in torpedo stowage), mines, a signal ejector, the stern plane motors, bunks for crew members, a head, engineering office, and an escape trunk. Moving forward is the manuevering room, where the electrical power was distributed by the main propulsion controls, consisting of levers that operated breakers, which in turn controlled the two double armature main motors located one deck below in the motor room. The after engineroom houses two 1600-h.p. GM diesels, two 1100-KW direct current generators, as well as air conditioning compressors located one deck below, and lubricating and fuel oil purifiers. The forward engineroom also houses two GM Diesel engines and 1100-KW generators, and two fresh water evaporators capable of distilling 1000 gallons of fresh from salt water, 3000 psi air compressors, lighting voltage regulators, overhead ship's supply and exhaust fans, and lubricating and fuel oil purifiers.

The crew's quarters or aft battery compartment, with the majority of bunks (the peacetime complement of Clamagore was 60, the wartime complement 80), washroom and showers, and the main ballast tank flood valves operating gear, also held, below deck, 252 of the battery cells. The crew's mess, which accomodated 20 crewmembers at one sitting, also contains an access hatch, garbage ejector, which disposed of refuge in weighted bags, and the safety tank flood valve operating gear. One deck below is the magazine, storeroom, reefer (capable of holding food for a 90 day voyage) and fresh water tank. The galley contains two electric ranges, coffee urn, deep fat fryer, dough mixer, and other appliances. Next is the radio room, then the control room, with the steering equipment, bow and stern plane controls, depth gauges, main gyrocompass, and the hydraulic manifold, which

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controlled the operation of all major systems, such as steering, diving, periscopes, torpedo doors, and windlass. One deck above, in the conning tower, are two periscopes (for night and day attacks) and the periscope wells. The periscopes are fitted for navigation, radar ranging, and photography. The conning tower also contains navigation, sonar, radar, radio, and fire control systems, as well as various alarms. A ladder and access hatch lead from the conning tower to the bridge. Below the Control Room is the pump room, with the trim manifold, which permitted the transfer of water from one tank to another, the drain pump, air conditioning equipment, a compressor, emergency alarms for diving and collision, and the 1st Class Chief Petty Officers' bunks.

Forward of the Control Room was the forward battery compartment and officers' quarters or "Wardroom Country." The battery compartment contains the remaining 252 battery cells; the officers' quarters house the ship's office, CPO stateroom, the Executive Officer's quarters, Commanding Officer's quarters, the officers' pantry, and the wardroom. The final compartment was the forward torpedo room, with six torpedo tubes, torpedo stowage, sound equipment, forward trim manifolds, bunks, head, and escape trunk. In 1962, during her last conversion, Clamagore was cut in half, just forward of the control room, and a 15-foot section housing then modern electronic and fire control systems was added to the hull. This room increased the number of interior compartments to 17, the submarine's length to 327 feet, and Clamagore's surfaced displacement to 1731 tons.

Other modifications to Clamagore occurred first in 1947, when the deck armament was removed, the sail enlarged, and a snorkel underwater air-intake was installed as part of a GUPPY Type II conversion. At this time Clamagore also received an enlarged sonar dome on deck at the bow. In late 1962, when the submarine was again modernized to her present GUPPY Type III configuration, the bridge was enclosed in a larger fiberglass sail, the original teak deck around the sail was replaced with fiberglass, and three sonar domes or PUFFS (BQG-4) for passive ranging sonar were added to the deck while the vessel was enlarged. [5]

PRESENT APPEARANCE OF USS CLAMAGORE

Clamagore is in good condition, last being hauled and refitted in 1973 prior to her 1975 decommissioning. The submarine is watertight. The hull coatings appear sound, though there is some

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surface corrosion along the pressure hull and superstructure. The original teak decking is in place both fore and aft; some teak was replaced since 1975 as part of on-going in-kind preservation maintenance of the submarine. The exterior is painted dark grey, with "343" stencilled on the enlarged GUPPY Type III fiberglass sail that covers the pressure hull conning tower and original bridge. Three sonar domes, with the original equipment inside, remain on deck, and two hatches and companionways leading into the fore and aft torpedo rooms, for public access and egress, have been cut into the torpedo loading hatches.

The interior of the vessel is in excellent condition and evidences much of the World War II appearance, layout, and technology of a Balao class submarine while reflecting with excellent integrity the technological adaptations of the GUPPY Type III submarine. There are subtle changes in some equipment, particularly in the galley, where new mess tables and benches were installed in 1962, and the radio room, which has updated 1960s and 70s equipment. The most notable changes are in the officers' quarters, where formica panels and linoleum impart a feeling more akin to the 1960s than the 1940s, and the new sonar room with 1962 addition electronic and fire control equipment added forward of the control room. These modifications from the 1945 "as-built" configuration of Clamagore do not diminish her integrity but reflect changing technology and the nature of the now obsolete "GUPPY" modifications performed on many post-war submarines through the 1970s. Many staterooms and spaces contain exhbits and are furnished as if the submarine were on active duty; modifications for display purposes include removal of some doors from hinges and the installation of clear plexiglass to allow visual access to staterooms, radio room, and sonar room, the shifting of the main gyro from the center of the control room, and the removal of the bunks from the crew's quarters and the installation of memorial plaques for submarines lost during the Second World War in the Pacific.

NOTES

1
Conway's All the World's Fighting Ships, 1922-1946 (New York: Mayflower Books) p. 145. Also see Thomas F. Walkowiak, Fleet Submarines of World War Two (Missoula, Montana: Pictorial Histories Publishing Company, 1988) p. 27, and Robert C. Stern and Don Greer, U.S. Subs in Action (Carrollton, Texas: Squadron/Signal Publications, 1983) p. 38.

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2
Stern, U.S. Subs in Action, p. 34.

3
Ibid., p. 38; Walkowiak, Fleet Submarines, p. 27.

4
Walkowiak, p. 27; also see Conway's All The World's Fighting Ships, p. 147.

5
Clark G. Reynolds, The Ships of Patriot's Point (Charleston, South Carolina: Patriot's Point Development Authority, 1983) pp. 20-21.

sole surviving GUPPY Type III, fortunately retains an exceptional level of integrity as a postwar GUPPY III, "fleet snorkel" submarine.

The preceding statement of significance is based on the more detailed statements that follow.

CONSTRUCTION, CAREER, AND GUPPY CONVERSIONS OF USS CLAMAGORE

At the outbreak of hostilities with Japan on December 7, 1941, the United States had a number of small diesel-powered submersible ships (known, somewhat improperly, as "submarines) in the United States Navy. The lessons taught by successful German U-Boat campaigns in the Atlantic and the necessities of war in the Pacific dictated the need for large fast vessels that could run fast on the surface, bombard shore-based and surface targets with deck guns, conduct effective anti-aircraft defense, and remain in service during prolonged cruises with as many as 24 torpedoes, 40 mines, and fuel and food for 90 days. The fact that Japanese depth charges were set for a maximum depth of 295 feet also dictated the need for vessels that could dive deeper than 300 feet; as a result, the United States built hundreds of Gato, Balao, and Tench class submarines capable of meeting these needs during the war years. This, coupled with improvements in torpedo design, helped win the war in the Pacific; Japanese merchant shipping was literally swept from the ocean, warships were sunk or damaged, and the Imperial Japanese Navy and Army were forced to retreat closer to their home islands and eventual defeat in August 1945. [1]

While the war raged in March of 1944, the Balao-class submarine SS-343, to be named Clamagore, was laid down at the Groton, Connecticut yard of the Electric Boat Company, one of the major producers of the nation's submarines. Launched February 25, 1945, the submarine was christened for a Caribbean tropical reef fish (searus carruleus), a blue parrot fish known popularly as the clamagore. The boat's sponsor was Mary Jane Jacobs, daughter of Chief of Naval Personnel Vice Admiral Randall Jacobs. Hastily completed, Clamagore was commissioned on June 28, 1945, Comdr. Sam C. Loomis, Jr. in command. [2] Loading torpedoes, Clamagore headed for the Panama Canal and the Pacific, where she would commence her first war patrol. Arriving at Balboa, Panama, at the war's end in August 1945, Clamagore was ordered back to the Caribbean and Key West, Florida, to serve as the flagship of

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Submarine Squadron Four (SubRon 4). Arriving at Key West on September 5, 1945, Clamagore remained there, operating with various fleet units and with the fleet sonar school throughout the Caribbean until December 5, 1947, when she was sent to Philadelphia for conversion to a GUPPY Type II submarine. [3]

While all pre-war submarines were disposed of after the war, the majority of the "fleet boats" built during the war, such as Clamagore, were retained, "many being rebuilt as "guppies" or as "fleet snorkels"; some remain in foreign service, and for the first two postwar decades, they comprised the bulk of the US submarine force." [4] Beginning in 1946, the U.S. Navy inaugurated a modernization program with its war-built diesel boats; the "Greater Underwater Propulsive Power Project" (GUPPY) commenced with 24 submarines of the Gato, Balao, and Tench class. Clamagore underwent conversion to a GUPPY Type II submarine at Philadelphia Navy Yard during the period between December 1947 and August 1948. The GUPPY conversions resulted in a "streamlined" appearance with rounded bows, conning tower shapes, topside sonar domes, and tower extensions to house periscopes, radar, and "Snorkel" underwater breathing devices to allow the operation of diesel engines at periscope depths. The secondary deck armament was also removed during GUPPY conversions and new batteries with smaller cells were installed. Representing an important final evolutionary step in the design and operation of diesel submarines, "guppies" extended the wartime U.S. submarine fleet, as well as Great Britain's into longer careers. Only three "GUPPY" submarines survive; the Tench class, GUPPY II USS Torsk, the Gato class, GUPPY II submarine USS Becuna, and USS Clamagore. Three other surviving boats received post-war modifications, but are not guppies. Conversion was expensive, averaging $2.5 million per submarine, but the cost of building a large postwar fleet offset resistance to guppying, particularly when the outbreak of the Korean War signalled a need for a large, "modern" U.S. submarine fleet. [5]

As of January 1, 1950, the Navy had 167 useful submarines; the 73 active submarines included 22 "streamlined" guppies (one of the 24 guppies was lost in 1949 and the other was not yet completed), among them Clamagore, at that time only one of nine guppied Balaos. Eleven additional boats were scheduled for guppying in 1951-1952. [6] By 1952, 48 submarines had undergone GUPPY conversion; 12 to GUPPY Type IA; 24 to Type II, including Clamagore; and 16 to Type IIA. The alterations were similar in

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all cases; Type IIA boats additionally had anchors recessed, propeller guards removed, and one of the engines and main generators removed to provide space for new sonar rooms. This reduced the surface speed of Type IIA boats to 18 knots. [7] In 1958, out of 159 active boats, the Navy had three nuclear submarines and 156 "usable" diesel submarines; there were 102 Balao boats left in commission; of this number, 32 were guppies. [8] The next and last GUPPY conversions were 9 boats converted to GUPPY Type III submarines. Rather than sacrifice an engine, generator, and speed, the hull was cut in half and a 15 to 16-foot section was welded forward of the control room to create a new sonar room. Clamagore underwent this conversion in late 1962-early 1963 at Charleston Navy Yard, South Carolina. [9]

Prior to her last conversion, Clamagore operated with SubRon 4 for 11 years, training in the Gulf of Mexico, the Caribbean, and participating in NATO exercises in the Atlantic and along the eastern seaboard. Transferred to Charleston in 1959, Clamagore continued in service in the Caribbean, including a patrol off Cuba before the Cuban Missile Crisis in 1962. She then returned to Charleston for her last conversion, this time to a GUPPY Type III submarine. Clamagore's conversion was completed in June 1963, when she was transferred to SubRon 2 at New London, Connecticut. Training tours in the North Atlantic, Caribbean, and Meditteranean followed between 1963 and 1975. Clamagore was overhauled for the last time in 1973. The decline of diesel submarines began after 1960; prior to 1960, some 50 of the war-built "fleet submarines" were lost, stricken, sold, transferred to allies, or broken up. After 1960, and up to 1970, nearly 70 boats were decommissioned, and after 1970, a remaining group of submarines, nearly 80, were decommissioned, 15 being preserved, the others principally being scrapped. [10] The last World War II submarine left to operate continually in active service was Clamagore. Slated for transfer to Turkey in 1975, she was decommissioned on June 27, 1975, with the submarine Tigrone. They were the last two World War II diesel submarines to go out of active service in the United States Navy. The transfer to Turkey was prevented by an arms embargo, and the submarine was instead placed in the Philadelphia Navy Yard's "mothball" fleet. Transferred to the State of South Carolina in 1979, Clamagore was towed to Patriot's Point in May of 1981, opening to the public in November of the same year. [11]

SEE CONTINUATION SHEET

NOTES

1
Conway's All the World's Fighting Ships, 1922-1946 (New York: Mayflower Books) pp. 145-147; also see Robert C. Stern and Don Greer, U.S. Subs in Action (Carrollton, Texas: Squadron/Signal Publications, Inc. 1983) and Thomas F. Walkowiak, Fleet Submarines of World War II (Missoula, Montana: Pictorial Histories Publishing Company, 1988).

2
Dictionary of American Naval Fighting Ships, Volume II (Washington, D.C.: Naval Historical Center, 1963) p. 121.

3
Ibid., pp. 121-122; also see Clark G. Reynolds, The Ships of Patriot's Point (Mount Pleasant, South Carolina: Patriot's Point Development Authority, 1983) pp. 19-21.

4
Conway's All the World's Fighting Ships, p. 147.

5
James C. Fahey, The Ships and Aircraft of the United States Fleet, Sixth Edition (Falls Church, Virginia: Ships and Aircraft, 1954, 1956), p. 18; and Norman Friedman, Submarine Design and Development (Annapolis, Maryland: Naval Institute Press, 1981) pp. 64-66, passim.

6
Ibid.

7
Fahey, Ships and Aircraft, Seventh Edition, (Falls Chirch, Virginia: Ships and Aircraft, 1958) p. 22.

8
Ibid., p. 20.

9
Reynolds, The Ships of Patriot's Point, p. 21

10
Conway's All the World's Fighting Ships, pp.145-147

11
Reynolds, op.cit. p. 21.