NPS Form 10-900
(3-82)

War in the Pacific Ship Study
Federal Agency Nomination

OMB No. 1024-0018
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United States Department of the Interior
National Park Service

For NPS use only

received

date entered

National Register of Historic Places Inventory—Nomination Form

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic USS Torsk (SS-423)

and/or common

2. Location

street & number Pier IV Pratt Street ___ not for publication

city, town Baltimore ___ vicinity of

state Maryland code 24 county Independent City code 510

3. Classification

Category	Ownership	Status	Present Use	
___ district	X public	X occupied	___ agriculture	X museum
___ building(s)	___ private	___ unoccupied	___ commercial	___ park
___ structure	___ both	___ work in progress	___ educational	___ private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
X object	___ in process	X yes: restricted	___ government	___ scientific
	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
		___ no	___ military	___ other:

4. Owner of Property

name Baltimore Maritime Museum

street & number Pier IV Pratt Street

city, town Baltimore ___ vicinity of state Maryland

5. Location of Legal Description

courthouse, registry of deeds, etc. Department of the Navy

street & number Naval Sea Systems Command

city, town Washington state DC 20362

6. Representation in Existing Surveys

title None has this property been determined eligible? ___ yes ___ no

date ___ federal ___ state ___ county ___ local

depository for survey records

city, town state

B-4112

Warships Associated with World War II in the Pacific

National Historic Landmark Theme Study

This theme study has been prepared for the Congress and the National Park System Advisory Board in partial fulfillment of the requirements of Public Law 95-348, August 18, 1978. The purpose of the theme study is to evaluate surviving World War II warships that saw action in the Pacific against Japan and to provide a basis for recommending certain of them for designation as National Historic Landmarks.

During the course of this study more than 40 surviving warships and merchantmen dating from World War II were identified and visited. Twenty-five of these were found likely to meet the criteria of the National Historic Landmarks Program and are represented by inventory forms in this study. A twenty-sixth ship, USS Missouri, is written up because it is listed on the National Register of Historic Places, but is not likely to meet the criteria because of substantial changes made to her since listing.

These vessels include most of the major types and classes of warships to see service from 1941 to 1945. The theme study is organized by classes because this is the best way to organize and describe the types of ships that saw service in the war. Many of these classes, especially for the destroyers and submarines, represent the development of warship design theory that evolved as a result of the hard lessons learned in battle against the Japanese during the war. Because of this, many of these classes are individually important and represent either an interim or final point in warship design. Included in this study are aircraft carriers, battleships, cruisers, destroyers, submarines, minesweepers, and a number of other types such as Liberty Ships, and PT Boats. One German submarine is included in this theme study for several reasons: first, it is the only surviving one of its type anywhere; second, it relates to War in the Pacific in that the German submarine threat had to be defeated in order to shift strategic emphasis to the Pacific theater.

The American battle fleet that fought against Japan in World War II was made up of many of these types of ships, each performing her specialized mission and supporting general fleet operations. The battle fleet in the Pacific provided an attack capability that destroyed Japan's warships and merchant marine and spearheaded the amphibious attacks that threatened the home islands with invasion. The success of the fleet was dependent upon the successful operation of its many component ships, each performing a specialized mission to accomplish the overall objective of defeating Japan. These 26 ships represent the elements of a World War II battle fleet in the Pacific that will best enable future generations of Americans to appreciate the magnitude and complexity of naval power that eventually won the war against Japan in 1945.

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Aircraft Carriers

Essex class

1. USS Intrepid (New York, New York)
2. USS Yorktown (Charleston, South Carolina)

USS Intrepid and USS Yorktown appear to meet the criteria for designation. Both ships are Essex class aircraft carriers that fought against Japan in World War II and represent the role and power of the aircraft carrier as the principal capital ship of the navy after 1941. The Pacific War against Japan was fought over vast reaches of ocean employing aircraft carriers as highly mobile weapons capable of destroying enemy ships and bases at great distances. Japan's success early in the war and that of the United States later in the conflict was directly dependent on the achievements of the carrier battlegroups deployed by each side. Essex class carriers represent the determination and industrial potential of the United States to achieve victory in World War II. Both ships have been altered from their World War II configuration with the addition of angled flight decks. Both ships are in good condition and are preserved as museum ships.

Two other Essex class carriers inspected during this study are USS Lexington and USS Shangri La. USS Lexington is still in active service with the navy as a training carrier based in Florida. During the course of this study she was in the Philadelphia Navy Yard undergoing a refit. She is expected to remain on active duty with the navy until the 1990s. It is recommended that she be reexamined again after her retirement by the navy to determine if her condition and integrity, at that time, warrant her designation as a National Historic Landmark.

USS Shangri La is in the Philadelphia Navy Yard awaiting final disposition by the navy. She has been promised to a group of citizens in Tampa, Florida as the centerpiece of an air, sea, and space museum. USS Shangri La is not recommended for designation due to her poor condition.

Battleships

North Carolina class

3. USS North Carolina (Wilmington, North Carolina)

South Dakota class

4. USS Alabama (Mobile, Alabama)
5. USS Massachusetts (Fall River, Massachusetts)

Iowa class

6. USS Missouri (Long Beach, California)

These ships represent the World War II role of the American battleship which changed from the principal capital ship of the navy to a support ship designed to protect and screen the fast Essex class carrier battlegroups.

USS North Carolina, USS Alabama, and USS Massachusetts appear to meet the criteria for designation. These ships were all fast new American battleships that illustrate the role of the battleship as the protector of the aircraft carrier. USS North Carolina and USS Alabama are in excellent condition and retain their World War II integrity. USS Massachusetts is in good condition and retains her World War II integrity. All three ships saw action in the Pacific during World War II.

USS Missouri does not appear to meet the criteria for designation. USS Missouri is perhaps the most famous American battleship dating from the war. It was on her deck on September 2, 1945, that the Japanese signed the surrender ending World War II. For many years she was in reserve in the navy yard at Bremerton, Washington. In 1983 the navy moved her from Bremerton to Long Beach, California, to prepare the ship for active duty. As a result of her modernization, USS Missouri has lost her World War II integrity. It is recommended that in view of her significant association with the end of the war, that when she is released from active service, that her condition be examined again to determine her potential for designation as a National Historic Landmark.

In addition to the above battleships, USS New Jersey, USS Iowa and USS Wisconsin were examined in the study. USS New Jersey and USS Iowa do not appear to meet the criteria for designation because they have been modernized and returned to active service by the navy and have lost their World War II integrity. USS Wisconsin is the last Iowa class battleship still retained by the navy that has not been modernized. USS Wisconsin is now in the Philadelphia Naval Yard and is scheduled for activation in 1986. Because this activation will result in the destruction of the historic character of USS Wisconsin, the ship will not meet the criteria for designation as a National Historic Landmark.

USS Texas now preserved in San Jacinto, Texas, is a World War I era battleship that saw extensive service in World War II and is already a National Historic Landmark.

Cruisers

Des Moines class

7. USS Des Moines (Philadelphia, Pennsylvania)

By 1942 cruisers had become the principal surface combat ship in the Pacific. In addition to screening the fast attack carriers, cruisers carried out gunnery raids on enemy held shores, provided fire support for amphibious operations and were given many assignments in support of general fleet operations. Of the many existing types and classes of American cruisers that fought in the Pacific none has survived unaltered today. USS Des Moines is the culmination of wartime American cruiser development. She is the first of a class of ships designed to effectively compete against Japanese cruisers in World War II. Although she was not commissioned until after the end of the war her design concept and equipment date from the war. She represents one of the last big gun wartime cruisers in existence today. She is still retained by the navy in the reserve fleet at the Philadelphia Naval Yard along with two other Des Moines class crusiers, USS Salem and USS Newport News. She is the first ship of her class and is in the best condition of the three cruisers.

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USS Little Rock, a Cleveland class heavy cruiser, now preserved as a war memorial in Buffalo, New York, was also inspected. Although she is in good condition and well maintained, USS Little Rock has lost her historic character and does not appear to meet the criteria for designation as a National Historic Landmark. In 1960 the navy converted USS Little Rock to a Talos missile cruiser. She was commissioned on June 1945 and saw no World War II service.

Destroyers

Fletcher class

8. USS Kidd (Baton Rouge, Louisiana)
9. USS Cassin Young (Boston, Massachusetts)
10. USS The Sullivans (Buffalo, New York)

Allen M. Sumner class

11. USS Laffey (Charleston, South Carolina)

Gearing class

12. USS Joseph P. Kennedy, Jr. (Fall River, Massachusetts)

Destroyers in World War II were general all purpose ships ready to fight off attacks from the air, on the surface, or from below the sea. They could be called upon to give fire support to troops, deliver mail and people to other ships, rescue pilots, and serve as the distant early warning eyes of the fleet in hostile waters.

Fletcher class destroyers are particularly significant and played a major role in the defeat of Japan in the Pacific. Fletcher class destroyers were the first to break with design practices that had developed as a result of the London Treaty of 1930. They were large ships that carried sufficient food, fuel, ammunition and stores for extended operations in the Pacific. With 175 built, Fletcher class destroyers were the largest class of destroyers constructed by the United States in World War II. USS Kidd, USS Cassin Young, and USS The Sullivans are all Fletcher class destroyers. USS Kidd is in excellent condition and retains her World War II integrity. USS Cassin Young and USS The Sullivans are in good condition and retain most of their World War II integrity. All three appear to meet the criteria for designation.

USS Laffey, an Alan M. Sumner class destroyer, also appears to meet the criteria for designation. The Alan M. Sumner class was an interim design between the Fletcher class and the much improved Gearing class. USS Laffey is particularly significant because of her action on April 16, 1945, when she fought one of the most famous destroyer-kamikaze duels of the Pacific War. In the space of 90 minutes she was attacked by 22 Japanese kamikazes and bombers. During this action USS Laffey managed to shoot down 11 of the attacking planes while being hit by five kamikazes and two bombs killing 32 and wounding 71 of her crew. USS Laffey was awarded a Presidential Unit Citation for this action.

USS Laffey is the only Alan M. Sumner class destroyer surviving today in the United States. She is in fair condition and has lost some of her World War II integrity.

USS Joseph P. Kennedy Jr., a Gearing class destroyer, appears to meet the criteria for designation. The Gearing class was a late World War II design and represents the ultimate development in World War II destroyer design. USS Joseph P. Kennedy, Jr. is in good condition and, although modernized, retains much of her World War II integrity. She is the only surviving Gearing class destroyer today in the United States.

USS Stewart, a World War II DET class destroyer escort, was also examined during the course of this study. USS Stewart is in Galveston, Texas displayed with the submarine USS Cavalla at Sea Wolf Park.

Although USS Stewart is the last surviving destroyer escort dating from World War II she does not appear to meet the criteria for designation because of her poor condition. It is recommended that USS Stewart be examined again in the future and, if her condition is improved, that she be considered for possible designation because she is the last representative of an important class of warship that saw service in the Pacific.

Submarines

Gato class

13. USS Silversides (Chicago, Illinois)
14. USS Drum (Mobile, Alabama)
15. USS Cobia (Manitowoc, Wisconsin)
16. USS Cod (Cleveland, Ohio)

Balao class

17. USS Bowfin (Honolulu, Hawaii)
18. USS Pampanito (San Francisco, California)
19. USS Lionfish (Fall River, Massachusetts
20. USS Becuna (Philadelphia, Pennsylvania)

Tench class

21. USS Torsk (Baltimore, Maryland)

The role of American submarines in the war against Japan cannot be overestimated. During four years of war, American submarines sank more than 600,000 tons of Japanese warships and more than 5,000,000 tons of merchant shipping. This was accomplished by a force that never numbered more than two percent of naval personnel engaged in the war. American submarines formed a blockade that denied Japan the oil, food, and other raw materials she needed to continue to fight. By 1945, without this commerce and the raw materials it supplied to her war effort, Japan found it impossible to continue the war outside of the homeland.

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The Gato class was the standard design for American submarines at the beginning of World War II. The Gato class, and its successor, the Balao class, bore the brunt of the fighting against Japan during the war. Gato class submarines were successful boats that proved to be fast, strong, well armed, and suited to the long-range patrols necessary to fight in the Pacific. USS Silversides, USS Drum, USS Cobia, and USS Cod are all Gato class submarines. They all appear to meet the criteria for designation as National Historic Landmarks. USS Silversides and USS Drum are in excellent condition, retain their World War II integrity, and have significant war records. USS Cobia is in excellent condition, retains her World War II integrity and saw service in the Pacific during the war. USS Cod is in good condition, retains her World War II integrity and saw service in the Pacific during the war. USS Cod is the only World War II submarine preserved as a war memorial that has not been altered to accommodate visitor access. Visitors to USS Cod must enter the submarine the same way the sailors did in World War II.

Two additional Gato class submarines, USS Croaker (Groton, Connecticut) and USS Cavalla (Galveston, Texas), were inspected during this study. USS Croaker shows a severe loss of her World War II integrity and for this reason does not appear to meet the criteria for designation as a National Historic Landmark. USS Croaker is missing two of her forward torpedo tubes, one complete diesel engine, parts of two other diesel engines, both periscopes, and much of her internal equipment.

USS Cavalla had a highly significant war record in the Pacific, earning a Presidential Unit Citation, and sinking the Japanese aircraft carrier Shokaku on June 19, 1944. After the war, USS Cavalla was converted into a snorkel-equipped Guppy submarine. USS Cavalla does not appear to meet the criteria for designation because of her seriously deteriorated condition. The wooden deck of USS Cavalla has been replaced with concrete, her interior is dirty and vandalized, and her exterior is severely rusted.

Balao class submarines were an improved version of the previous Gato class. They were designed to dive to a depth of 400 feet as opposed to the 300 feet for Gato class boats. Like Gato class submarines they were built in large numbers and carried much of the burden of the submarine war in the Pacific. USS Bowfin, USS Pampanito, USS Lionfish and USS Becuna are all Balao class submarines. They all appear to meet the criteria for designation as National Historic Landmarks.

USS Bowfin and USS Pampanito are in excellent condition, retain their World War II integrity, and have significant war records. USS Lionfish is in excellent condition, retains her World War II integrity, and saw service in the Pacific. USS Becuna is in good condition, has some loss of her World War II integrity, and saw service in the Pacific.

USS Ling (Hackensack, New Jersey) was not visited during this study because she saw no service in the Pacific. USS Batfish (Muskogee, Oklahoma) was not visited because the owners could not be located. USS Clamagore does not appear to meet the criteria for designation because of the loss of her World War II integrity and her lack of service in the Pacific.

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USS Torsk appears to meet the criteria for designation because she is the only surviving Tench class submarine that saw service in the Pacific. Tench class boats were improved copies of the previous Gato/Balao classes and represent the final submarine design of World War II. USS Torsk is particularly significant in that she fired the last torpedoes of World War II and is credited with sinking the last Japanese combat ships to be lost in the war. USS Torsk is in good condition with some loss of her World War II integrity.

USS Requin, (Tampa, Florida), another Tench class submarine, is now preserved as a war memorial. USS Requin was not visited because of her lack of service in the Pacific. USS Requin arrived at Pearl Harbor just two weeks before the end of the war.

Minesweepers

Admirable class

22. USS Hazard (Omaha, Nebraska)
23. USS Inaugural (St. Louis, Missouri)

USS Hazard and USS Inaugural appear to meet the criteria for designation as National Historic Landmarks. They are fleet minesweepers of the Admirable class that represent the role of the many support ships designed to service and protect larger naval vessels in operation against Japan in World War II. The purpose of fleet minesweepers was to arrive before the main battle fleet and sweep the area for mines. Minesweepers remained with the fleet during operations constantly sweeping for enemy mines. Minesweepers were the first navy vessels to arrive in a new area and the last to leave.

USS Hazard is one of the best preserved and maintained World War II warships in the country today. She was taken out of operation in 1946 and has survived as a museum ship in Omaha with all of her systems and equipment intact. She possesses total integrity and is a time capsule of a World War II-era navy minesweeper. USS Hazard served in the Pacific in 1945.

USS Inaugural is in fair condition and has lost a substantial amount of her World War II integrity. She is now being restored to her World War II configuration. She served in the Pacific in 1945.

Torpedo Boats

24. PT 796 (Fall River, Massachusetts)

PT 796 is a Higgins-type torpedo boat built for service in World War II. PT Boats were small, fast, and ultimately expendable interdiction ships, armed with torpedoes and machine guns for cutting enemy communication lines, for harassing enemy forces, and for short-range oceanic scouting. PT Boats were a significant American naval warship type in World War II and were responsible for numerous enemy losses in warships, material, and personnel.

PT 796 appears to meet the criteria for designation because she is the best remaining example of this type of warship in the country today. She is in excellent condition and retains her World War II integrity.

Liberty Ships

25. SS Jeremiah O'Brien (San Francisco, California)

Liberty Ships were an emergency response to a critical shortage of maritime cargo ships in World War II. Manned by merchant seamen and a naval armed guard, they carried all types of war supplies throughout the Pacific and Atlantic oceans. More than 2,700 Liberty Ships were constructed during the war. They were all built to a standardized design and represent the unexcelled industrial capacity of the United States to prepare and transport war supplies all over the world during the war. Liberty Ships were armed for defense and many of them participated in combat with enemy forces.

SS Jeremiah O'Brien appears to meet the criteria for designation because she is the sole operable unaltered survivor of this great fleet of ships built during the war. She represents the largest class of ships constructed by the United States during the war. SS Jeremiah O'Brien is in excellent condition and retains her World War II integrity.

Foreign Warships

Submarines

26. U-505 (Chicago, Illinois)

U-505 is a German World War II type IXC submarine that served in the Atlantic during World War II. Between 1941 and 1945 the American Navy and Merchant Marine fought bloody battles with German submarines for control of the sea lanes to Europe. It was only after the defeat of the German submarine menace by 1943 that men and war materiel began to flood British ports in preparation for the invasion of France in June 1944.

U-505 was selected to be preserved by the United States Navy as a tribute to the heroism of thousands of Americans who fought in the Battle for the Atlantic in World War II and as a war memorial to the many who died in this effort. U-505 represents the determination of the United States to gain victory over Germany in World War II. It was only after victory was won in the Atlantic that the full attention of the United States could be directed to the naval war against Japan. U-505 is in good condition and substantially retains her World War II integrity. She is the only surviving German type IXC submarine in the world today.

7. Description

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Condition		Check one	Check one
___ excellent	___ deteriorated	___ unaltered	N/A original site
X good	___ ruins	X altered	___ moved date _____
___ fair	___ unexposed		

Describe the present and original (if known) physical appearance

USS Torsk (SS-423) was built by the U.S. Navy at Portsmouth, New Hampshire. She was launched on September 6, 1944, and was placed in commission on December 16, 1944.

USS Torsk is a fleet-type submarine of the Tench class. The Tench class were virtual copies of the Gato and Balao classes; however, they were more strongly built than the Gato/Balao classes and had a better internal layout, which increased their displacement by about 35-40 tons. The deck of the boat is made of teakwood, and the exterior is painted black.

Specific ship data concerning USS Torsk is:

Length: 311 feet Displacement: 1,800 tons surface / 2,500 tons submerged

Beam: 27 feet Draft: 17 feet

Speed: 20 knots surface / 9 knots submerged

Design Depth: 400 feet Crew: 8 Officers 74 Enlisted

Armament: Ten torpedo tubes, 6 forward and 4 aft, with 14 reloads, total 24 torpedos, various combinations of antiaircraft guns

USS Torsk was a pre-snorkel submarine operating underwater on batteries, and powered by a diesel electric system. In 1951 USS Torsk was converted to a snorkel-equipped Guppy submarine that allowed the boat to operate her diesel engines underwater. During this conversion all the boat's exterior guns were removed and the conning tower was enclosed by a new sail casing designed to reduce underwater water resistence.

USS Torsk is in good condition, and aside from the addition of the snorkel and the exterior changes, retains much of her World War II integrity.

8. Significance

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Period	Areas of Significance—Check and justify below			
prehistoric	archeology-prehistoric	community planning	landscape architecture	religion
1400–1499	archeology-historic	conservation	law	science
1500–1599	agriculture	economics	literature	sculpture
1600–1699	architecture	education	X military	social/ humanitarian
1700–1799	art	engineering	music	theater
1800–1899	commerce	exploration settlement	philosophy	transportation
X 1900–	communications	industry	politics government	other (specify)
		invention		

Specific dates 1944-1945 **Builder Architect** Portsmouth Naval Shipyard

Statement of Significance (in one paragraph)

In the conflict against Japan in World War II, the role and importance of the submarine forces of the United States cannot be overestimated. American submarines sank more than 600,000 tons of enemy warships and more than 5,000,000 tons of merchant shipping, thus destroying much of Japan's ocean commerce. This was accomplished by a force that never numbered more than two percent of naval personnel engaged in the war. The American submarine war against Japan created a blockade that denied her the oil, iron ore, food, and other raw materials she needed to continue to fight. By 1945 this submarine war made it all but impossible for Japanese ships to sail the ocean. Without this commerce and the raw materials it supplied to her war effort, Japan found it impossible to continue the war outside of the homeland.[1]

USS Torsk represents U.S. Submarine forces that fought against Japan in World War II for the following reasons:

1. USS Torsk is a World War II Tench class submarine. The Tench class was a late World War II submarine design that represented the continued attempt by the U.S. Navy to improve on the previously successful Gato/Balao classes. Only ten Tench class submarines, including USS Torsk, were commissioned in time to see service in the Pacific during World War II.

2. USS Torsk conducted two war patrols and sank 3 Japanese ships totaling 2,473 tons. USS Torsk was awarded two battle stars for her World War II service.

3. USS Torsk is credited with firing the last torpedoes and sinking the last Japanese combatant ships of World War II, when on August 14, 1945, she sank the Japanese Coast Defense Vessel No. 13 and Coast Defense Vessel No. 47. With the sinking of these two vessels the U.S. Navy completed its mission, begun on December 7, 1941, to sweep the oceans of Japanese merchant shipping and warships.

4. USS Torsk is in good condition and, although altered as a Guppy submarine, retains much of her World War II integrity.

FOOTNOTES

[1]Drew Middleton, Submarine--The Ultimate Navy Weapon-Its Past, Present, and Future (Chicago, Illinois: Playboy Press, 1976), pp. 109-12.

Edwin P. Hoyt, Submarine at War--The History of the American Silent Service (New York: Stein and Day, 1983), pp. 297-98.

Richard H. O'Kane, Clear the Bridge (New York: Bzantam Books, 1981), pp. 465-67.

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Alden, John A. The Fleet Submarine in the U.S. Navy--A Design and Construction History. Annapolis, Maryland: Naval Institute Press, 1979.

Blair, Clay, Jr. Silent Victory--The U.S. Submarine War Against Japan. Philadelphia, Pennsylvania: J. B. Lippincott Company, 1975.

Hoyt, Edwin P. Submarine at War--The History of the American Silent Service. New York: Stein and Day, 1983.

Middleton, Drew. Submarine--The Ultimate Naval Weapon--Its Past, Present, and Future. Chicago, Illinois: Playboy Press, 1976.

O'Kane, Richard. Clear the Bridge. New York: Bantam Books, 1981.

Roscoe, Theodore. United States Submarine Operations in World War II. Annapolis, Maryland: United States Naval Institute, 1965.

9. Major Bibliographical References

B-4112

SEE CONTINUATION SHEET

10. Geographical Data

Acreage of nominated property N/A

Quadrangle name Baltimore East

Quadrangle scale 1:24,000

UTM References

	Zone	Easting	Northing
A	18	361220	4349400
B			
C			
D			
E			
F			
G			
H			

Verbal boundary description and justification

N/A

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
state	code	county	code

11. Form Prepared By

name/title	Harry A. Butowsky		
organization	National Park Service	date	May 1985
street & number	Division of History	telephone	(202) 343-8168
city or town	Washington	state	DC 20013-7127

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national ___ state ___ local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature

title date

For NPS use only

I hereby certify that this property is included in the National Register

date

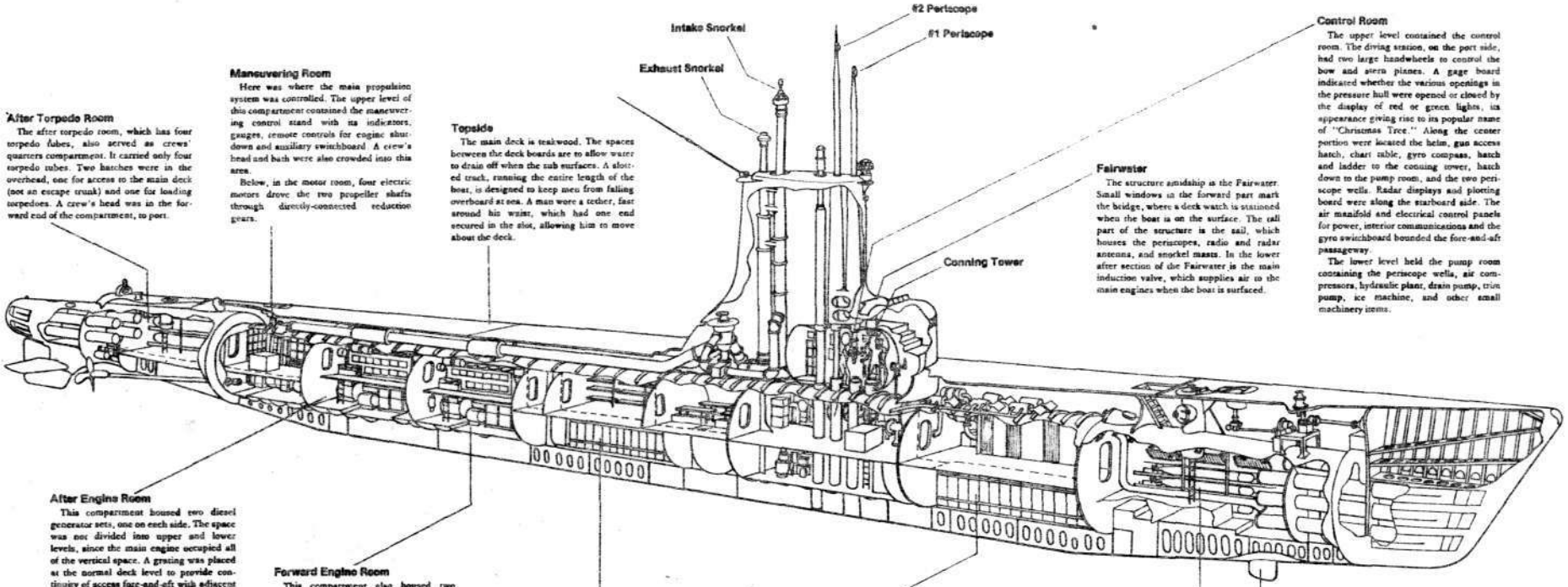
Keeper of the National Register

Attest: date

Chief of Registration

B-4112

Tench Class Fleet Submarine—USS TORSK (SS423)



After Torpedo Room

The after torpedo room, which has four torpedo tubes, also served as crews' quarters compartment. It carried only four torpedo tubes. Two hatches were in the overhead, one for access to the main deck (not an escape trunk) and one for loading torpedoes. A crew's head was in the forward end of the compartment, to port.

Maneuvering Room

Here was where the main propulsion system was controlled. The upper level of this compartment contained the maneuvering control stand with its indicators, gauges, remote controls for engine shutdown and auxiliary switchboard. A crew's head and bath were also crowded into this area.

Below, in the motor room, four electric motors drove the two propeller shafts through directly-connected reduction gears.

Topside

The main deck is teakwood. The spaces between the deck boards are to allow water to drain off when the sub surfaces. A slotted track, running the entire length of the boat, is designed to keep men from falling overboard at sea. A man wore a tether, fast around his waist, which had one end secured in the slot, allowing him to move about the deck.

Fairwater

The structure amidship is the Fairwater. Small windows in the forward part mark the bridge, where a deck watch is stationed when the boat is on the surface. The tall part of the structure is the sail, which houses the periscopes, radio and radar antenna, and snorkel masts. In the lower after section of the Fairwater is the main induction valve, which supplies air to the main engines when the boat is surfaced.

Control Room

The upper level contained the control room. The diving station, on the port side, had two large handwheels to control the bow and stern planes. A gage board indicated whether the various openings in the pressure hull were opened or closed by the display of red or green lights, its appearance giving rise to its popular name of "Christmas Tree." Along the center portion were located the helm, gun access hatch, chart table, gyro compass, hatch and ladder to the conning tower, hatch down to the pump room, and the two periscope wells. Radar displays and plotting board were along the starboard side. The air manifold and electrical control panels for power, interior communications and the gyro switchboard bounded the fore-and-aft passageway.

The lower level held the pump room containing the periscope wells, air compressors, hydraulic plant, drain pump, trim pump, ice machine, and other small machinery items.

After Engine Room

This compartment housed two diesel generator sets, one on each side. The space was not divided into upper and lower levels, since the main engine occupied all of the vertical space. A grating was placed at the normal deck level to provide continuity of access fore-and-aft with adjacent spaces. An access hatch to the main deck was located in the after engine room.

In addition, the after engine room contained the auxiliary diesel generator, fuel oil and lub oil purifiers, and an engine air inboard induction hull valve.

Forward Engine Room

This compartment also housed two diesel generator sets, one on each side. The space was not divided into upper and lower levels, since the main engine occupied all of the vertical space.

The forward engine room also housed the vapor compressor distillers, the standby fuel oil and lub oil pumps, an engine air inboard induction hull valve, and various starting and stopping controls for the main engines.

After Battery Compartment

The upper level contained the galley, crew's mess and scullery accommodations for thirty-six of the crew, a laundry, head and washroom facilities. A ladder at the aft end of the crew's mess provided access to the main deck just aft of the fairwater.

In the forward portion of the lower level were three storerooms, two of them refrigerated, a magazine for the deck guns and small arms, and the ordnance storeroom. The after part of this compartment contained the after battery room, housing 126 cells. Behind the cells against the after bulkhead, a sanitary tank served the crew's facilities above.

Forward Battery Compartment

A deck divided this compartment (and the two following) in half. The upper level consisted of accommodations for officers and CPOs aft, on the starboard side was a shower, a stateroom for four officers, one for the commanding officer and the boat's office. The officers pantry was on the port side, and aft of that, the wardroom. Underneath is the forward battery well which also held 126 battery cells.

Forward Torpedo Room

This compartment takes up all of the forward single-hulled portion. The breech end of the six bow torpedo tubes project eight feet into the room through the forward bulkhead. The space aft of the tubes was used to store reload torpedoes, which were in racks where they could be inspected and maintained. Crew bunks and lockers surrounded the reloads and a small cubicle in the after starboard corner contained the officer's head. The forward access or escape trunk, and the torpedo loading hatch are located in the overhead. The chain locker and forward trim tank were around the tubes, outside the pressure hull.

Sonar Dome

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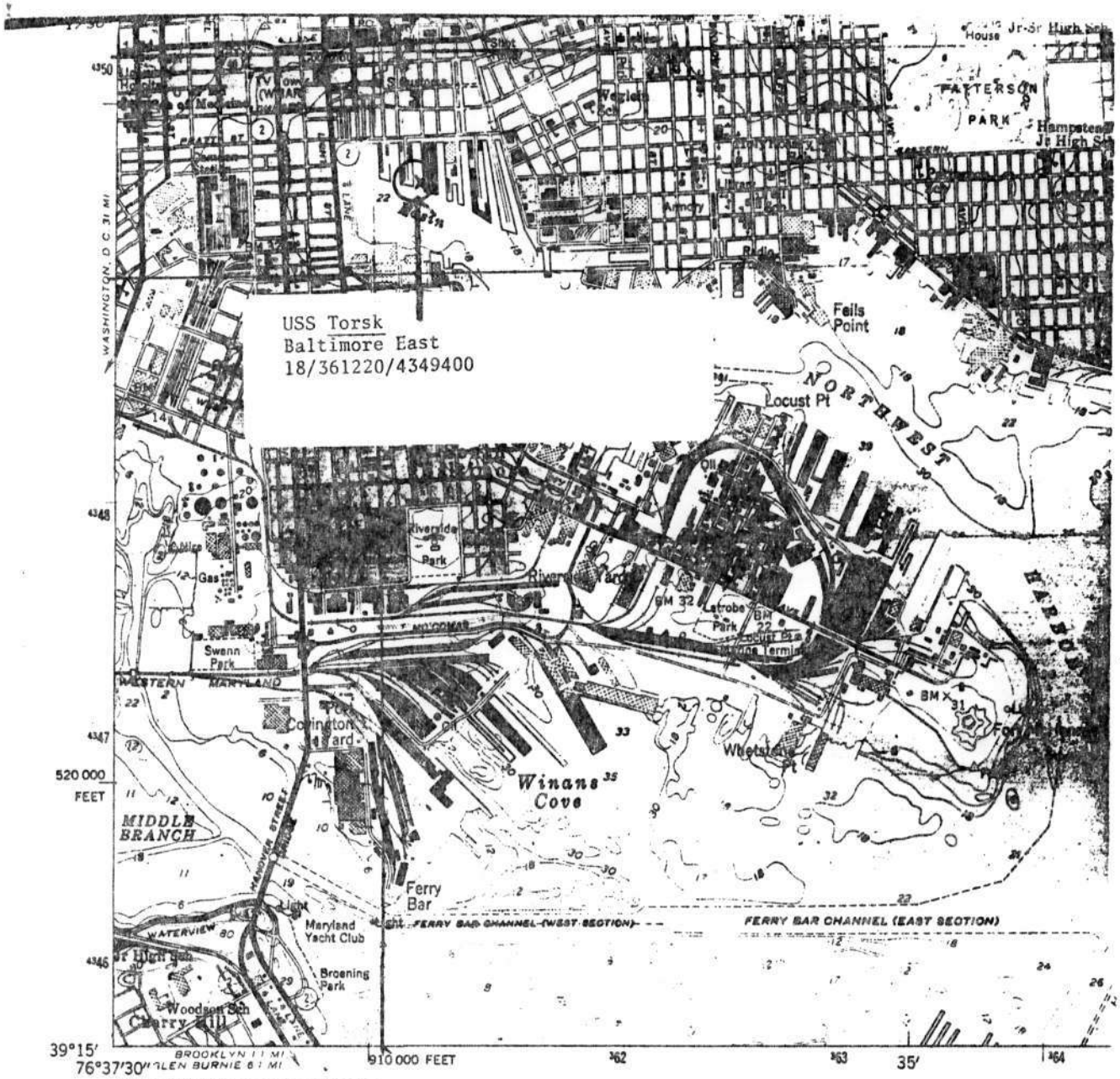


(RELAY) 5062 II NW

Mapped by the Army Map Service
Edited and published by the Geological Survey

Control by USGS, USC&GS, USCE, and City of Baltimore

Topography from aerial photographs by photogrammetric methods. Aerial photographs taken 1943. Field checked 1944
Culture revised by the Geological Survey 1953

Hydrography compiled from USC&GS Chart 545 (1951)

Polyconic projection. 1927 North American datum
10,000-foot grid based on Maryland coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 18, shown in blue

Red tint indicates areas in which only landmark buildings are shown

Revisions shown in purple compiled by Geological Survey from aerial photographs taken 1966. This information not field checked

Purple tint indicates extension of urban areas

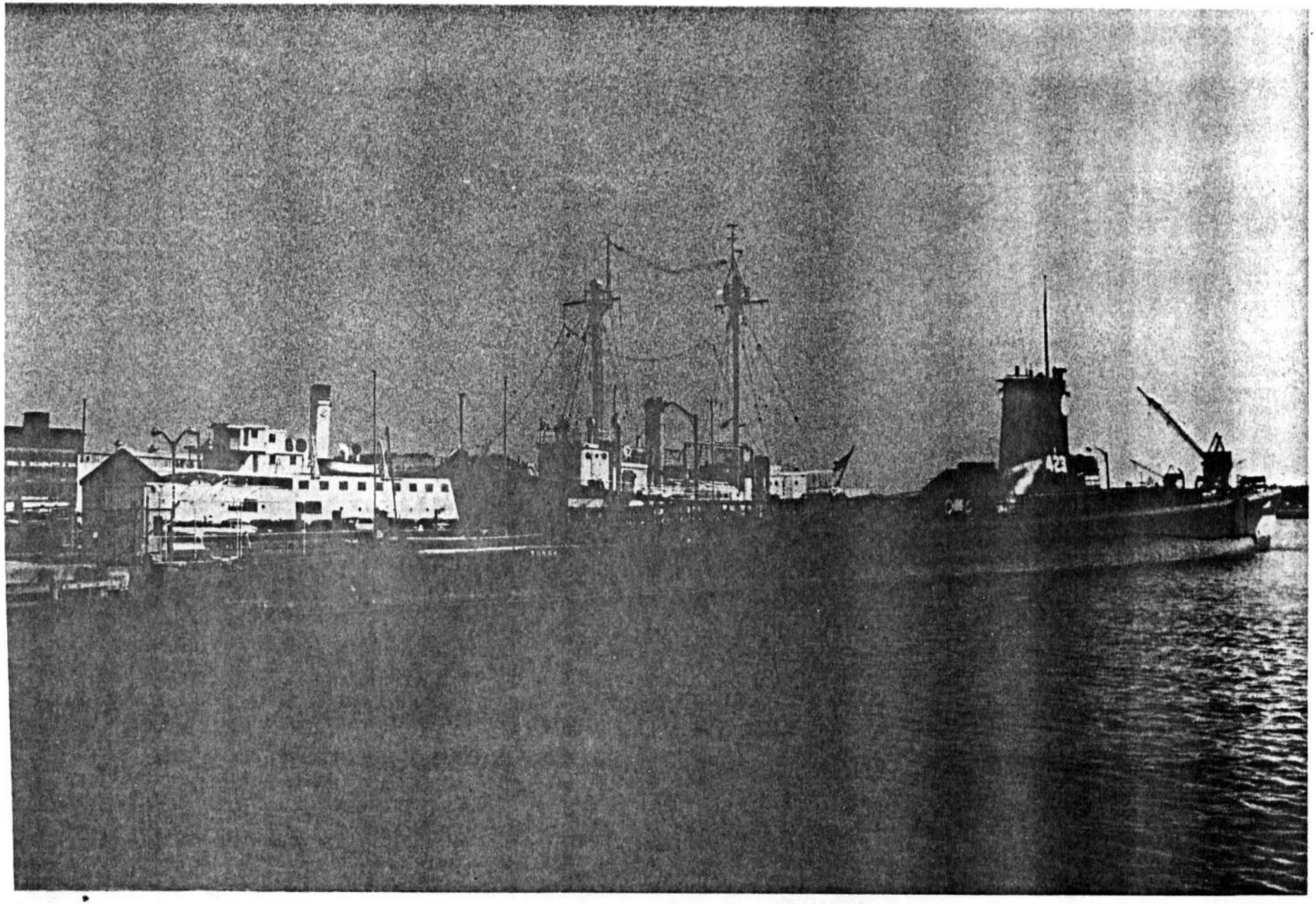
B-4112

MN GN
8° 267 MILS
0°59' 18 MILS

UTM GRID AND 1966 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

1
1000 C
1

DEPTH C
SHO

THIS
FOR SAL
A FOLDER DESC

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