5. Classification					
Ownership of Property (Check as many boxes as apply)  private public-local public-State public-Federal	Category of Property (Check only one box)    building(s)   district   site   structure   object	(Do not include prev Contributing	sources within Proper viously listed resources in the Noncontributing	count.) buildings sites structures objects	
Name of related multiple pro (Enter "N/A" if property is not part of a r	perty listing multiple property listing.)	Number of contributing resources previously listed in the National Register			
Light Stations of the United Sta	ites	0	<del></del>		
6. Function or Use					
Historic Functions (Enter categories from instructions)		Current Functions (Enter categories from instructions)			
Transportation		Transportation			
Water-related		Water-related			
Lighthouse		Lighthouse			
7. Description					
Architectural Classification (Enter categories from instructions)		Materials (Enter categories from instructions)			
Other		foundation	Stone		
No style		roof	Metal		
		walls	Metal		
		other Lar	ntern: Cast iron and Gla	ass	

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

atement of Significance			
"x" in one or more boxes for the criteria qualifying the property	Areas of Significance (Enter categories from instructions)  Maritime History		
Property is associated with events that have made	Transportation		
a significant contribution to the broad patterns of	Architecture		
our history.	Engineering		
Property is associated with the lives of persons significant in our past.			
Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.	Period of Significance 1839 to 1955		
Property has yielded, or is likely to yield information important in prehistory or history.			
	Significant Dates 1839, 1883		
erty is:			
owned by a religious institution or used for religious purposes.	Significant Person (Complete if Criterion B is marked above)		
removed from its original location.			
a birthplace or a grave.	Cultural Affiliation _N/A		
a cemetery.			
a reconstructed building, object, or structure.			
a commemorative property.	Architect/Builder U.S. Lighthouse Board		
less than 50 years of age or achieved significance within the past 50 years.			
tive Statement of Significance  n the significance of the property on one or more continuation sheets	s.)		
e books, articles, and other sources used in preparing this form on o	ne or more continuation sheets.)		
	Primary Location of Additional Data  State Historic Preservation Office Other State agency Federal agency Local government University Other		
	our history.  Property is associated with the lives of persons significant in our past.  Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.  Property has yielded, or is likely to yield information important in prehistory or history.  ria Considerations  "X" in all the boxes that apply.)  erty is:  owned by a religious institution or used for religious purposes.  removed from its original location.  a birthplace or a grave.  a cemetery.  a reconstructed building, object, or structure.  a commemorative property.  less than 50 years of age or achieved significance within the past 50 years.  ative Statement of Significance In the significance of the property on one or more continuation sheets  ajor Bibliographical References  the books, articles, and other sources used in preparing this form on or ous 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		

10. Geographic	cal Data					
Acreage of Prop	perty: less th	an one ac	ere .			
UTM Reference	e <b>s:</b> 1	Zone 18	Easting 578990	Northing 4500920		
Verbal Boundar	ry Descriptio	n:	The boundar	y aligns with th	e perimeter of t	he structure's foundation.
<b>Boundary Justi</b>	fication:		The bounda	ry completely e	ncompasses th	e light station.
11. Form Prepa	red By					
Headquarters Er	nvironmental l	Managem	ent Division			Ph.D., US Coast Guard
street & number	1849 C Stree	et, NW (22	280)		telephone	202-354-2243
city or town	Washington				state DC	zip code <u>20240-0001</u>
Additional Docu	umentation				· · · · · · · · · · · · · · · · · · ·	
Submit the following	items with the co	mpleted forn	า:			
Continuation SI	neets					
	nap (7.5 minu ans of the ligl		indicating the	property's locat	ion.	
Photographs:	Represer	ntative <b>bla</b>	ck and white	photographs	of the property.	
Property Owner	•					
(Complete this item a	it the request of t	he SHPO or	FPO.)			
name	U.S. Coast	Guard				
street & number	2100 Secon	d Street S	SW		telephone	202-267-1587
city or town	Washington				state DC	zip code <u>20593</u>

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Project (1024-0018), Washington, DC 20503.

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# National Register of Historic Places Continuation Sheet

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Robbins Reef Light Station
Hudson County, NJ
(Light Stations of the United States
Multiple Property Listing)

### **Narrative Description**

Robbins Reef Light Station is a cast iron conical lighthouse built in 1883. It is located offshore in about six feet of water approximately two miles west of Bayonne, New Jersey. This light marks a hazardous shoal near the west side of Upper New York Bay's main shipping channel. The lighthouse includes a 48-foot tall superstructure that sits atop a masonry pier. Its pier is about 45 feet in diameter and built of granite blocks. This pier was originally constructed in 1839 as the foundation of an earlier light tower at the site. A riprap breakwater abuts the pier's northeast side and curves to the west. This provides a modestly protected mooring area for boats. The pier was formerly painted white, though most of the paint has weathered away. The existing light tower is four stories tall and supports a cylindrical watch room and decagonal lantern. The tower's first and second stories are painted brown. The third and fourth stories and watch room are painted white. The lantern is painted black. Robbins Reef Light Station is owned by the U.S. Coast Guard and under jurisdiction of the Third Coast Guard District. It is operated as an automated aid to navigation. The only access to this lighthouse is by boat.

### Exterior

Access to the lighthouse from the boat mooring area is by way of a metal ladder attached to the pier's southwestern side. This ladder extends from below the waterline to the lighthouse's main gallery atop the pier. The gallery is open to the air. Most of its deck is concrete except for an area along the tower's southeast side where a flooring of red square tiles is located. This tiled area was formerly enclosed and housed the light station's fog signal. The fog signal enclosure is no longer extant. The main gallery's perimeter is surrounded by stanchions supporting a three-tiered metal pipe railing. One section of pipe railing is missing. A length of steel chain is slung between the stanchions there.

The light tower is constructed of cast iron plates. Its principal entrance faces the main gallery to the left of the access ladder. Three wide stone steps rise from the gallery to the threshold. This doorway is flush with the tower's exterior and has a full arch. It holds a modern replacement door with a vent in the bottom center. The doorway's transom is covered with a piece of metal nailed to its original wood frame. A second doorway located on the tower's opposite side is recessed several inches into the wall. It is presently covered with a vented metal sheet nailed to the wood frame.

The tower's fenestration includes two rectangular window openings on the first story and three on both the second and third stories. All are presently covered with plywood or metal. These windows have segmental arches and are decorated with Iṭalianate-style pedimented hoods. The tower's fourth story is pierced with eight port-light windows.

The lighthouse's cylindrical watch room and circular watch room gallery sit atop the tower's fourth story. Like the tower, the watch room is constructed of metal plates. The watch room's only exterior opening is a doorway holding a wooden door providing access to the gallery. The watch room gallery's deck extends beyond the tower and is supported by Italianate-style brackets. The gallery railing is composed of ornate iron stanchions with a ball final at the top and pendant at the bottom. Horizontal rows of pipe railing extend between the stanchions. A modern pedestal is attached to the gallery floor on the south side. It supports a two-panel solar array used to recharge the lighthouse's power supply batteries. The watch room's exterior wall, gallery floor, and gallery railing are painted white.

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Robbins Reef Light Station Hudson County, NJ (Light Stations of the United States Multiple Property Listing)

The lighthouse's decagonal lantern sits atop the watch room. The lantern's lower section (parapet) is composed of ten metal plates painted black on the exterior. One holds a small doorway for access to the lantern gallery. Above the parapet, the lantern's ten sides are made with individual glass panes held in place by glass stops. There is a soffit above the glass from which triangular iron roof plates rise to form the lantern's roof. A ventilator ball topped with a lightning rod is attached at the roof's apex. The lantern is surrounded by a gallery enclosed with a railing identical to that of the watch room gallery except it is painted gray. A solar panel is attached to the side of the lantern gallery's floor directly above the solar array on the watch room gallery.

### Interior

The lighthouse's first story room is immediately inside the doorway. There is no transition space or foyer for either of the tower's two entrances. This is unlike later lighthouses of similar design type that have an enclosure on the inside the principal entrance that is separate from the main room.

The first story's principal entrance is the doorway closest to the boat landing. The foot of the tower's interior staircase is inside this entrance on the right. The stairway winds counterclockwise along the perimeter wall up to the fourth story. There is no handrail. The stairs are cast iron and painted gray. The stairway is lit by a single window at each floor landing. Above the fourth story, the watch room and lantem are accessed by metal ship's ladders. The basement is accessed from the first story by a staircase located directly behind and under the staircase leading up to the second story. The tower's interior is lined with brick from the first to the third story. This brick lining is exposed throughout. The rooms on each story become smaller in diameter as the tower tapers toward the top.

#### Basement

There is a four-paneled door on the first story at the top of the short flight of wooden stairs leading down to the basement. At the base of this stairway there is a wooden door in the basement wall. This doorway leads to a second short flight of stairs that provides direct access to the lighthouse's main gallery via metal storm doors.

The basement is within the lighthouse's foundation pier. Its perimeter wall is made of the granite blocks that form the pier. The interior partition walls are brick. Some of these brick walls are plastered and painted. A partition wall on one side is covered with white square tiles from floor to ceiling. The doorway piercing this wall is closed with large pieces of wood nailed to the wall. The basement floor is concrete, and there is a cistem below. A metal plate covers the opening to the cistem. Mechanical equipment present in the basement includes a furnace and pipes.

It appears that the ceiling was originally supported by a center column that since has been removed. The ceiling is now supported by two horizontal I-beams extending across the tower's diameter. These horizontal beams and ceiling provide support for the floor of the first story above them.

### First Story

The first story contains a single room. To the right of the entrance there are two cabinet alcoves, followed by two windows, the closed-off back door, the basement doorway, a partition wall, the stairway leading up to the second story, and a third alcove.

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Robbins Reef Light Station Hudson County, NJ (Light Stations of the United States Multiple Property Listing)

The first story's brick lining is painted white. Some of the paint is worn away. There is a wooden baseboard at the base of the brick wall. It is painted gray-green. The stairs leading to the basement and to the second story are hidden behind floor-to-ceiling wall partitions made of metal. The partitions are also painted white with a section at the bottom painted gray-green to mimic the baseboard. The floor of this room is tiled. Wooden floor boards are visible beneath this at places where the tiles have been removed. A hollow metal column extends from the floor to the ceiling in the center of the room. There is a circular hole at the top of the column. The ceiling is made of triangular metal plates. These meet at a simple metal medallion where the supporting column touches the ceiling. Both the column and the ceiling are painted white.

The first story has two full-arched doorway openings onto the exterior main gallery. These still have their original four-paneled doors. The doors retain their hardware and are painted gray-green. The doorway opening closest to the boat landing is functional. It is recessed into the first story interior brick wall while being flush with the metal plates of the tower's exterior. The wooden door that opens into the room is presently tied back to the wall. As noted previously, this entrance holds a modern metal door on its exterior side facing the gallery. There is a second doorway across the first-story room that is directly opposite the functioning entrance. It is flush with the interior brick wall. This opening has simple wood trim with missing sections at the top and side. Its wooden door opens into the room and is tied to the basement door knob with a piece of rope. This second doorway opening is closed off on its exterior side with a piece of vented sheet metal nailed to the frame.

The first story's two window openings are recessed into the room's brick lining perimeter and are flush with the tower wall on the exterior. These window openings have brick segmental arches at the top and retain their wooden-frame, double-hung windows with wooden sashes and two-over-two lights. However, the glass panes are missing. The windows are exposed on the tower's interior. The window trim, sill, sashes and muntins are painted gray-green. These window openings are covered on the outside by vented metal sheets that prevent natural light from entering.

The first-story room contains three tall, round-arched alcoves recessed into its perimeter brick wall. Two of these extend from several inches below the ceiling to several inches above the floor. The interiors of these two alcoves are paneled with wood, contain shelves, and are framed with flat wood trim. Wooden double doors are attached to the trim by hinges. The doors, trim and shelves are painted gray-green while the wood paneling is painted white. The upper half of one alcove door has been cut off. The first story's third alcove extends from several inches below the ceiling to the floor. Unlike the other alcoves, it is not paneled nor does it contain shelves or doors. The first story's perimeter wall baseboard continues along the three walls of the third alcove.

There are hinges and a door frame at the entrance to the staircase leading to the second story. This indicates that a door was formerly present. The stairs and lower portion of the stairway walls are painted graygreen. The stairway walls' upper portion is painted white.

### Second Story

The stair flight to the second-story landing has ten steps. A window opening with trim and sashes identical to those of the first-story windows is recessed into the brick perimeter wall at this landing. The upper sash retains its glass, but the bottom sash is missing both glass and muntins. This window is covered on the outside with a piece of plywood fitted with a square piece of Plexiglas at the bottom.

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Robbins Reef Light Station Hudson County, NJ (Light Stations of the United States Multiple Property Listing)

The second story is similar to the one below. The staircases on both sides of the landing are sealed off from this story's single room by metal partitions extending from floor to ceiling. The doorway between the landing and the second-story room formerly held a door. It is now missing though the hinges remain.

The second-story room's brick perimeter wall and partitions are painted white. The wall baseboard and an equivalent area at the bottom of the staircase partitions are painted gray-green. The floor inside the room is wood. A hollow metal column extends from the floor to the ceiling in the center and supports the triangular ceiling panels. These panels meet at a simple metal medallion where the column touches the ceiling. The column and ceiling are painted white. The room has two window openings identical to those on the first story. Both are covered with plywood on the interior. Whether or not they retain their original sashes is not readily apparent.

This room has two closets. The first is located above the stairway that rises from the first story. Its door is made of beaded board. The closet's interior contains five shelves and is panelled with beaded board as well. The second closet is under the stairway that leads to the third story. It has a wood four-panel door. Both of the closet doors are painted gray. The interiors of these closets do not have a baseboard, but the lower portion of each closet wall is painted gray-green in order to provide the illusion of a baseboard.

# Third Story

A flight of ten steps leads up to the third-story landing. The staircases on both sides of the landing are separated from the third story's single room by a metal floor-to-ceiling wall partition. A doorway in the partition provides access to the room from the landing. There is a window opening in the tower's exterior wall at this landing. It contains double-hung windows and sashes that are identical to those on the first and second stories. Both sashes are in good condition and retain their glass. This window is covered on the outside with a piece of plywood.

The third story contains a single room similar to the first and second stories. A brick wall surrounds its perimeter, except for where the metal partition wall separates it from the staircase. Both the brick wall and partition wall are painted white. The brick wall has a baseboard that is painted gray-green. An equivalent area at the base of the staircase partition wall is also painted gray-green. Like the second story, the third story has exposed wooden floors. A hollow metal column extends from the floor to the ceiling in the center of the room and supports the triangular ceiling panels. At the place where the column meets the ceiling there is a simple metal medallion from which the ceiling panels radiate. The column and ceiling are painted white.

The two window openings in the room are identical to those previously discussed for the first and second stories. Both windows are covered with plywood on the interior. It is unknown whether or not they contain their original sashes.

The third story room has two closets. The first is located over the stairs leading down to the second story. It has a beaded board door. The wall above this door is also paneled with beaded board. The closet's interior contains five shelves and a rear wall that is paneled with beaded board. The second closet is under the stairs leading up to the fourth story. It has a four-panel wooden door. Both closet doors are painted gray. While they do not have a baseboard, both closets' interior walls are painted gray-green near the bottom to resemble the third-story room's baseboard.

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Robbins Reef Light Station Hudson County, NJ (Light Stations of the United States Multiple Property Listing)

# Fourth Story

The last ten steps of the staircase end at a doorway leading to the tower's fourth story. At the present time there is no door, though a latch on the doorframe indicates that one existed in the past. The walls on the fourth story are paneled with beaded board, the floor is wood, and the ceiling is composed of wood panels that converge at the room's center column.

The fourth story room has eight port-light windows, each surrounded by interior trim. This trim includes four octagonal examples and four that are circular. Two windows with octagonal trim contain round glass lights held in hinged circular frames secured with a latch. The other two have had the lights removed, although the hinges and latch for the circular frames remain. These openings are closed off with wooden panels. The windows with circular-shaped trim have fixed glass lights that have been painted.

The fourth story is divided into three areas: a foyer occupying approximately 45 degrees, a room occupying 135 degrees, and another room occupying 180 degrees. The foyer is the smallest. It is entered through the doorway at the head of the staircase leading up from the third story. The foyer contains a ship's ladder, providing access to the watch room above. There are two doors leading to the fourth story's two rooms. The foyer's walls are painted gray-green from the baseboard to approximately half-way up the walls. The walls above this and the ceiling are painted white. The foyer has two port-light windows.

The two fourth-story rooms are separated from the foyer and each other by walls radiating from the center column. Both rooms are entered from the foyer through four-panel wooden doors identical to those found on the tower's lower stories. The larger of the two rooms occupies the area nearest the staircase and thus contains a closet over the staircase. This closet has a beaded board door. The wall above the door and the wall at the back of the closet are also beaded board. This closet contains two shelves. Decorative elements in this room include a modest chair rail along the partition walls and a comice along the wall lining the tower. The entire room is painted white with the exception of the entrance and closet doors, window frames, and approximately six inches along the bottom of the walls. A band along the base of the walls is painted graygreen, which is similar to the baseboards on lower stories. The smaller room is almost identical to the other room except it does not contain a closet. In place of a closet there are two wooden shelves set on brackets that are attached to the upper portion of its walls.

#### Watch Room

The watch room is above the tower's fourth story. It is accessed from the fourth story by way of a ship's ladder and a trap door in the watch room floor. The watch room's surrounding wall, floor, and most of the ceiling at this level are paneled with beaded board. The other decorative features include a comice and baseboard. The ceiling is made with eight metal plates that converge at the center. Each of these plates is pierced with a glass deck light in the center, providing light from the lantem room. A wooden door in the watch room's perimeter wall provides access to the gallery that surrounds it. A cabinet with shelves projects from the watch room's inside wall next to the gallery door. Modern environmental data recording equipment owned by the National Oceanographic and Atmospheric Administration (NOAA) is mounted on the inside wall.

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Robbins Reef Light Station Hudson County, NJ (Light Stations of the United States Multiple Property Listing)

#### Lantern

The lantern sits atop the watch room. It has ten sides and is surrounded by a narrow gallery. The lantern is accessed from the watch room by way of a ship's ladder and a trapdoor opening in the floor. The lantern's floor is wood except for the deck light openings that contain thick green glass. The lantern's perimeter wall includes a lower parapet section constructed of ten iron plates lined with wooden slats. One wall segment contains a small doorway, providing access to the lantern gallery. A rectangular vent box is attached to every other wall segment of the parapet. Each vent box has a round hole in its upper center. Historically, these holes were fitted with louvered covers, all of which are presently missing. A modern pedestal stands at the center of the floor. It supports a modern 300 mm optic. The optic signals a green light that flashes once every six seconds and is visible for seven miles in clear weather.

The lantern above the parapet includes ten glass panes held in place by glass stops. There is a soffit above the glass from which ten triangular metal panels rise to form the lantem's roof. These triangular panels converge at the ceiling's apex where a vent missing its cover is located.

### **Changes Over Time**

The most noticeable change from the lighthouse's original appearance is the character of its main gallery. This gallery was formerly roofed with a circular metal awning attached to a metal ledge affixed to the light tower just below the second story windows. The ledge is still present. The awning's outer edge was supported by columns positioned around the gallery's perimeter and tied to the gallery railing. The original main gallery was also partly enclosed with walls. The enclosed area included the gallery floor section that is covered with red tiles. This is referred to in architectural drawings of the lighthouse as its fog signal house. The main gallery also formerly included an oil storage tank, hoist, and boat davits. The gallery's awning, walls enclosing the fog signal house, tank, hoist, and davits were removed sometime following the lighthouse's automation in 1965.

Historic photographs of this lighthouse show fog signal horns projecting from the tower's wall. These were removed when the light station's original fog signal equipment was replaced with a modern fog signal device.

The appearance of the lighthouse's lantern gallery has also changed. A metal smokestack formerly protruded through the lantern gallery floor. It appears likely to have vented the furnace, providing heating for the structure. In addition, a fog signal bell was formerly mounted on the lantern room gallery floor. This has been removed as well.

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# National Register of Historic Places Continuation Sheet

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Robbins Reef Light Station Hudson County, NJ (Light Stations of the United States Multiple Property Listing)

### **Narrative Statement of Significance**

Robbins Reef Light Station is historically significant in the Hudson County, New Jersey, locality and is eligible for the National Register under Criteria A and C. It is significant under Criterion A for its association with the efforts of the Federal government to provide for an integrated system of navigational aids throughout the United States and in promoting maritime transport safety in and around the ports in northern New Jersey and New York City. It is also significant under Criterion C as a well-preserved early example of pier foundation design for offshore lighthouses and as an example of late nineteenth-century light tower design. The property's period of historical significant begins in 1839 when its foundation pier was built. The period of historical significance ends in 1955, the most recent year of the light's operation, fifty years before the present.

### Significance Under Criterion A

The lighthouse on Robbins Reef is eligible for the National Register under Criterion A for its association with events that have made a significant contribution to the broad patterns of American history. It is representative of the Federal government's role in promoting maritime commerce and safety through a nationwide system of aids to navigation. Robbins Reef Light Station is a well-preserved example of an offshore lighthouse aid to navigation in the Hudson County locality of northern New Jersey and the port of New York vicinity.

Robbins Reef is a dangerous, offshore, submerged ledge located near the intersection of two important shipping channels. It lies near the western side of Upper New York Bay's main north-south channel a short distance northeast of the mouth of the Kill Van Kull, the waterway separating Bayonne, New Jersey, from Staten Island. This locality has been the scene of substantial maritime traffic since the eighteenth century. Several shipwrecks occurred at Robbins Reef before 1839 when a lighthouse was first erected there. Others occurred later in the nineteenth century even after the ledge was marked. The existing light tower was built in 1883 during the nineteenth century's post-Civil War period of tremendous economic development. During this period, maritime commerce in the United States, especially in and around the Port of New York, underwent greater expansion than during any previous time in the nation's history.

# Significance Under Criterion C

This light is significant under Criterion C in two respects. One relates to its foundation and the other to its tower. This light station is built upon a granite pier that is the oldest existing example of this foundation design in the United States. The first one of its type constructed in the United States. The pier at Robbins Reef proved the suitability of its design and materials. This led to the construction of several other offshore lights with similar pier foundations. These include Stepping Stones Light Station and Race Rock Light Station, both in New York. The distinguishing characteristic of the Robbins Reef Light Station's foundation is its assembly from interlocking stone blocks that fit tightly together to form a pier that sits atop a submerged rocky ledge. This pier was originally constructed in 1839 and was designed to support a four-story octagonal masonry tower. The masonry tower was removed in the late nineteenth century and replaced by the existing cast iron tower.

The light station's existing cast iron tower is historically significant in its own right. It was built in 1883 after the octagonal masonry tower originally erected atop the foundation pier had become decrepit and was tom down. The existing conical tower is a well-preserved example of what is termed a "sparkplug" lighthouse because of its resemblance to an automobile sparkplug when seen from afar.

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Robbins Reef Light Station Hudson County, NJ (Light Stations of the United States Multiple Property Listing)

The "sparkplug" light tower was an important advance in United States lighthouse design that was especially suited for offshore locations. It was based on a standardized plan that included a kit of prefabricated parts that was easily transported to an offshore site and quickly assembled by workmen. This design type facilitated expanding the Federal government's nationwide system of navigation aids during the period of rapid growth in United States maritime commerce that occurred during the late nineteenth century following the Civil War.

Robbins Reef Light Station meets the registration requirements outlined in the multiple property documentation form "Light Stations of the United States." The light station remains in its original location. Although the daymark has changed and the light station has lost some of its exterior features such as the smokestack, lower gallery awning, fog signal bell, and boat davits, its character and appearance reflect the property's period of historical significance. Robbins Reef continues to operate as a Federal aid to navigation today and is a well-preserved example of both wave-swept lighthouse foundation design and the technology used for constructing prefabricated "sparkplug" light towers.

### Lighthouse Architecture

While the use of cast iron in architecture for decorative and structural purposes had been employed in Europe from the early eighteenth century, it was not used extensively in the United States until after 1840. Prior to then, the nation's production of iron was limited, and transportation routes for moving the output from many scattered rural production facilities were poorly developed. From the 1840's onward, production increased following the expansion of anthracite (hard) coal mining. Anthracite made high-quality fuel for iron furnaces readily available. In addition, railroad and water transportation routes were expanded, and pig iron was more easily transported to urban centers to foundries where it could be cast. These developments provided opportunities for founders, businessmen, and architects to devise new uses to which cast iron could be applied.<sup>1</sup>

Though lighthouse lanterns were being constructed of iron prior to the Civil War, it was not until the 1860's that the material was used extensively in the design and construction of entire light towers. The first cast iron towers designed and constructed by the engineers and architects employed by the Lighthouse Board resembled early stone and brick towers. These iron towers were often lined in brick for added stability and increased insulation. Later, skeletal towers, generally consisting of a central vertical stairway cylinder and four to eight angular, structural, and peripheral columns, were designed for areas with sandy or loamy soil. With the introduction of the iron cylinder foundation for offshore sites, a standard design developed for the superstructures. This standard design came to be utilized extensively throughout the Northeast and Mid-Atlantic regions. The *Annual Report of the Lighthouse Board* for 1898 contains a plate showing a cross-section plan of the newly constructed New Haven Outer Breakwater Lighthouse in Connecticut. Its design is similar to that used in the construction of Latimer Reef more than a decade earlier in 1884. An identical plan would be used as late as 1901 for the construction of the West Bank Light Station in Lower New York Bay, and others.

<sup>&</sup>lt;sup>1</sup> Antoinette J. Lee, "Cast Iron in American Architecture: A Synoptic View," in *The Technology of Historic American Buildings: Studies of the Materials, Craft Processes, and the Mechanization of Building Construction*, H. Ward Jandl, Ed. (Washington, D.C.: Foundation for Preservation Technology, 1983), 100-101.

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Robbins Reef Light Station Hudson County, NJ (Light Stations of the United States Multiple Property Listing)

The specifications and plans for these lighthouses were printed in large quantities and distributed to companies interested in competing for Federal construction jobs. The cylinder, tower and floor plates as well as architectural details such as hoods, brackets and posts, were cast by companies such as Variety Iron Works of Cleveland, Ohio, and West Side Foundry of Troy, New York. The parts were fitted together onshore for preliminary approval by lighthouse engineers. The components would then be numbered before being dismantled and shipped to the job site or to the lighthouse district that contracted the work. Once an offshore lighthouse's foundation was in place, a light tower could be erected in just a few days. This was followed by additional time for the installation of windows, doors, floorboards, and the tower's brick lining.

### The Port of New York and Aids to Navigation

The early part of the nineteenth century marked the rise of the Port of New York and, to a lesser degree, those of northeastern New Jersey. Virtually landlocked, Upper New York Bay provided a safe harbor for vessels. Due to its geographic location, the port was ideally situated to take advantage of transatlantic, coastal and inland trade. New Jersey ports adjacent to Upper and Lower New York Bay, such as those at Newark and Perth Amboy, were also well-situated for maritime trade development. Perth Amboy was in an especially good location. It was located three miles closer to the open sea than New York City, and New Jersey ports initially offered incentives to shipping such as the avoidance of New York's customs, quarantine and immigration regulations.

Ports in the vicinity of New York City could be reached by way of several approaches. These included channels from the Atlantic Ocean, Long Island Sound, Hudson River, and the Raritan River. Prior to the completion of the Ambrose Channel circa 1909, maritime traffic from the Atlantic would generally enter via Lower New York Bay's Gedney Channel, located near Sandy Hook, New Jersey. Once inside the shoals between Lower New York Bay and the ocean, vessels would either continue westward through Raritan Bay to Perth Amboy or turn north and pass through the Narrows between Staten Island and the western end of Long Island. Though the Narrows was only two miles long and at one place only 0.75 of a mile wide, by the late nineteenth century more than a third of the world's maritime commerce passed through it.<sup>2</sup>

The East River, a tidal strait between Manhattan and Brooklyn, was the principal vessel berthing area in the New York City area from the late eighteenth century until the early 1900s. During the early twentieth century the Hudson River shorelines of Manhattan and Jersey City came to be more important for maritime traffic in the area. The broader and less turbulent waters provided a better berthing place for ocean-going steamers.

Although the port of New York was endowed with an abundance of natural features and characteristics, it was further improved by means of human ingenuity. In the early 1760's, New York conducted a lottery to raise funds for a light station at Sandy Hook. A tall masonry lighthouse was completed there in 1764. It remains the oldest extant lighthouse in the United States. Following the American Revolution, more lights were added after the establishment of a lighthouse service within the newly-created Federal government. For the most part, these lights were masonry towers built on land. With advances in engineering, lighthouses began to be built offshore directly on or nearby such hazards to navigation as shoals and rocks. The first offshore lighthouse in Port of New York waters was built at Robbins Reef in 1839. Its foundation was a granite block pier set on top of a rocky ledge in the Upper Bay.

<sup>&</sup>lt;sup>2</sup> Robert Greenhalgh Albion, *The Rise of New York Port [1815-1860]* (New York: Charles Scribner's Sons, 1939), 16-19.

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By the middle 1870s, the Lighthouse Board had developed an effective construction method for erecting offshore light stations on cylindrical iron foundations sitting on the seabed. An example of this near Robbins Reef Light Station is the Great Beds Light Station in New Jersey's Raritan Bay.

In 1922, the Lighthouse Service<sup>3</sup> reported that the port of New York and its immediate waters were marked by 387 aids to navigation. These were located in an area with about 200 nautical miles of shoreline and about 170 square miles of water area. The navigational aids included lighthouses, lighted beacons, lightships, and unlighted beacons and buoys. This was an increase of nearly eighty percent from 1905 when nautical charts of the area showed only 217 aids.<sup>4</sup>

## History of Robbins Reef Light Station

Robbins Reef Light Station was established in 1839. It was authorized by Congress and funded with a \$50,000 appropriation for the construction of a lighthouse there in 1837. The site selected for the light was a hazardous offshore ledge that was submerged.

This lighthouse pier's foundation was built according to nineteenth-century engineering methods developed in England for light towers at wave-swept, off-shore locations. The lighthouse's pier foundation was tightly fitted to the submerged ledge. It was constructed of granite blocks cut and laid to interlock for maximum strength. This foundation pier was 48 feet in diameter and octagonal in plan. Its overall height was 18 feet. The project included erecting a four-story octagonal tower atop the foundation. It was also built of cut granite blocks and contained living quarters for the lighthouse keeper.<sup>5</sup>

When Robbins Reef Light Station was first built, the Federal government's Lighthouse Establishment did not possess a grant from the state of New Jersey for the land undemeath. Even so, this did not become problematic until 1880 when business interests sought a grant covering a portion of the reef to be used for manufacturing purposes. The potential for this taking place led the Lighthouse Board to apply for and obtain a grant to the submerged land at the site. The ceded land covered a circular area 700 feet in diameter with the lighthouse at its center.<sup>6</sup>

The lighthouse on Robbins Reef lies about one mile northeast of Tompkinsville on Staten Island. During the second half of the nineteenth century the U.S. Lighthouse Board established its central depot for the Port of New York there. One mission of the Tompkinsville Lighthouse Depot was research and development work to advance the technology of aids to navigation. In 1875, Robbins Reef Light Station was selected as one location at which to conduct lighting experiments. Its lanter included nine Argand lamps with 21-inch reflectors that were installed when the light was initially established. A 360-degree fourth order Fresnel lens with valve and lamp were installed in 1855 as well.

<sup>&</sup>lt;sup>3</sup> The Lighthouse Board was disbanded in 1910. The Bureau of Lighthouses, often referred to as the Lighthouse Service, assumed responsibility for aids to navigation.

<sup>&</sup>lt;sup>4</sup> U.S. Department of Commerce, Bureau of Lighthouses, *Lighthouse Service Bulletin*, Vol. II, No. 61, 2 January 1923 (Washington, D.C.: GPO, 1923), 261-262. At the beginning of 1923, the *Lighthouse Service Bulletin* printed an article entitled "New York Harbor and its Lights and Buoys." An editor's note states that the material was taken from an address given by George Putnam, Commissioner of Lighthouses, at the November 1922 Marine Show in New York at which the Lighthouse Service exhibited lenses, fog signals, lanterns and charts of New York Harbor.

<sup>&</sup>lt;sup>5</sup> National Archives, Cartographic Branch, College Park Maryland. RG 26. Entry 69 "Lighthouse Plans and Specifications, 1790-1939." [Robbins Reef.]

<sup>&</sup>lt;sup>6</sup> National Archives. RG 26. Entry 66 "Lighthouse Site Files, 1790-1939." File 25 [Robbins Reef.]

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The experiments conducted at the light included testing mineral oil and kerosene in the lamps rather than the colza oil and lard oil being used as standard fuel. The successful outcome of these tests convinced the Lighthouse Board in 1878 to begin converting lamps over to mineral oil beginning with fourth order and lower lenses. This change to mineral oil was slow being implemented as the lens lamps had to be changed slightly in order to use the new fuel.<sup>7</sup>

By the late nineteenth century the octagonal granite tower at Robbins Reef had deteriorated and was not suited to advances in navigational aids being adopted by the Lighthouse Board. The Lighthouse Board decided to replace it with a new structure. The granite tower was demolished in 1883, and a temporary light was established in its place. The local "Notice to Mariner's" dated 8 March 1883 stated that Lightship No. 25 would mark the reef until such time as another tower could be erected. The replacement tower was to be a cast iron structure of the new design type developed in the late 1870's for offshore lights in the northeastern United States. It was to be a prefabricated lighthouse of what has come to be called the "sparkplug" type.

When the new tower was completed, Mr. C. A. Blydenburg was appointed keeper at the salary of \$600 a year. No assistant keeper was assigned to the station. The light was first exhibited in the new cast iron tower on 10 July 1883. Its signal shone from a new fourth order Fresnel lens that displayed a white light that flashed every 6 seconds and was visible for 13.25 miles. The light station's daymark in the 1886 *Light List* was described as a brown tower atop a white pier.

Blydenburg resigned as keeper at the end of 1885. He was replaced by John Walker, a native of Sweden. Walker was accompanied at the station by his wife Katherine, more commonly referred to as Kate. A German immigrant with a child, Kate had met John Walker when he was assistant keeper at the Sandy Hook Light Station, located at a point extending from the New Jersey shore into Lower New York Bay. While Lighthouse Board regulations prohibited women and children at offshore light stations, the proximity of Robbins Reef to land allowed the Board to make an exception.

In 1890, John Walker died of pneumonia and was removed from the roster of the Lighthouse Board. Though several men were offered his post at Robbins Reef, none accepted the position. Walker's widow, Kate, who was then the mother of two children, applied for the job. Despite objections from various parties, she was appointed acting keeper in June of 1894 and formally became the lighthouse's keeper a year later. In 1896, Kate's son, Jacob Walker, was appointed assistant keeper at a salary of \$450.

Robbins Reef Light Station derives its secondary name, Kate's Light, from Katherine Walker, its most famous keeper. She held the position from her initial appointment in 1894 until 1919. While women like Katherine were occasionally appointed keepers by the Lighthouse Service, the practice was rare. This was especially the case at isolated offshore lights such as Robbins Reef. More commonly, women served as unofficial lighthouse keepers while their appointed husbands were engaged in other paid work.

<sup>&</sup>lt;sup>7</sup> Francis Ross Holland, Jr., America's Lighthouses, An Illustrated History (New York: Dover Publications, 1988), 23.

<sup>&</sup>lt;sup>8</sup> National Archives, RG 26, Entries 17-24 "Letters Received by the Lighthouse Board, 1852-1900," Letter Book 562, p. 356.

<sup>&</sup>lt;sup>9</sup> "Registers of Lighthouse Keepers, 1845-1912," M1373, RG 26, National Archives.

<sup>&</sup>lt;sup>10</sup> Mary Louise Clifford and J. Candace Clifford, *Women Who Kept the Lights, An Illustrated History of Female Lighthouse Keepers*, Second Edition (Alexandria, VA: Cypress Communications, 2000), 166-175.

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In 1909, three reporters from *Harper's Weekly* newspaper visited the light station to interview Mrs. Walker. The feature article contained photos of Kate and her home in the light tower. This was neither the first nor last article written about this remarkable woman. Kate, modest about her life and work, stated in the *Harper's Weekly* article that, "It isn't much of a story. Just keep the light burning and the fog bell wound up and the siren ready all the time. That's all." Kate retired in 1919 at the age of 73 and lived out her remaining years at Tompkinsville on Staten Island. During her time at Robbins Reef Light, she rescued more than 50 persons from vessels in distress.<sup>11</sup>

In honor of Mrs. Walker's service to the lighthouse establishment, the U.S. Coast Guard named a 175-foot coastal buoy tender in her honor in 1996. In addition, Robbins Reef Light Station is often referred to as "Kate's Light."

Several changes were made to Robbins Reef Light Station over the term of its existence. These changes are recorded in the annual reports and correspondence of the Lighthouse Service and the agency's predecessor, the Lighthouse Board. For example, the annual report for 1888 states that a new pattern fourth-order lamp was tested at the station with "eminent success." Sometime prior to 1890, the tower's daymark changed slightly. The upper half of the tower was painted white and the lantern black. This pattern would be maintained until the station was automated and unmanned. The annual report for 1893 stated that an oil house of the capacity of fifty boxes was built - presumably in the basement or on the lower gallery. 12

The 1920's saw the biggest change in the look and design of the light station. The awning that covered the lower gallery was widened so that it extended to the edge of the granite pier. Previously, the awning covered just half of the gallery's width. In addition, a section was enclosed on the south side and became the station's fog signal house. Later, a breakwater of riprap stone was designed and installed on the northeast of the tower. The breakwater curved to the west of the tower and provided a level of protection to the boat landing area. One of the last major changes was the installation of a new heating system consisting of radiators on each of the levels, with a furnace in the basement.

A number of different fog signals have been employed at the light station since its initial establishment in 1839. The first was a fog bell rung by hand when heavy weather set in. In 1893, a blower siren was installed and powered by a Priestman engine. Three years later it was removed in favor of a Hornsby-Akroyd oil engine. In 1898, a larger siren trumpet was furnished and fitted at the station. The next fog signal was an air siren installed in 1929. It sounded a three-second blast followed by three seconds of silence. This fog signal was replaced in 1933 with a Nautophone emitting a three-second blast followed by seven seconds of silence. Through all these changes, the bell remained as a back-up in the event that the newer equipment broke down. <sup>13</sup>

<sup>12</sup> U.S. Department of the Treasury, Lighthouse Board, *Annual Report of the Lighthouse Board for the fiscal year ending June 30, 1888* (Washington, D.C.: GPO, 1888), 56; and *Annual Report ... 1893*, 63.

<sup>13</sup> Annual Report ... 1893, 63; Annual Report ... 1896, 59; Annual Report ... 1898, 75; Annual Report ... 1896, 59; Light List 1929; and Light List 1933.

<sup>&</sup>lt;sup>11</sup> William Hemmingway, "The Woman of the Light," *Harper's Weekly*08/14 (1909); Holland, *America's Lighthouses*, 51; "Kept House Nineteen Years on Robbin's Reef, *New York Times*, 5 March 1905.

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In 1939, the Lighthouse Service was abolished as a separate Federal agency, and its duties were subsumed by the U.S. Coast Guard. In November of 1964, a brief article in the New York Times stated that Robbins Reef and Romer Shoal stations were to be automated using armored submarine cables by 1 July of the following year. The article was followed by another in March of 1965, which focused on the lighthouse keeper's way of life that was soon to end. At this time the station was still manned by four men - three men on duty at the station and one on shore leave. The men stood daily watches of eight hours with sixteen hours off. They served for a few weeks to a month before receiving four to five days of shore leave. By 1968 the *Light List* indicated that the station was unmanned.

A log book kept on a shelf in one of the first floor alcoves states that the lighthouse's fourth order Fresnel lens was removed from the lantem on 30 April 1986. It was replaced by a 300mm optic powered by a 35-watt solar panel. At the same time the Coast Guard also removed the FA232 and CG 300 sound signal and discontinued the fog signal at the station. Today, the light remains an active aid to navigation, flashing green every six seconds and visible for seven nautical miles.

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**LOCATION MAP** 

Robbins Reef Light Station Hudson County, NJ (Light Stations of the United States Multiple Property Listing)

This is a portion of the "Jersey City, N.J.-N.Y." 7.5 minute quadrangle topographic map, scale 1:24,000 (United States Geological Survey 1967, photorevised 1981).

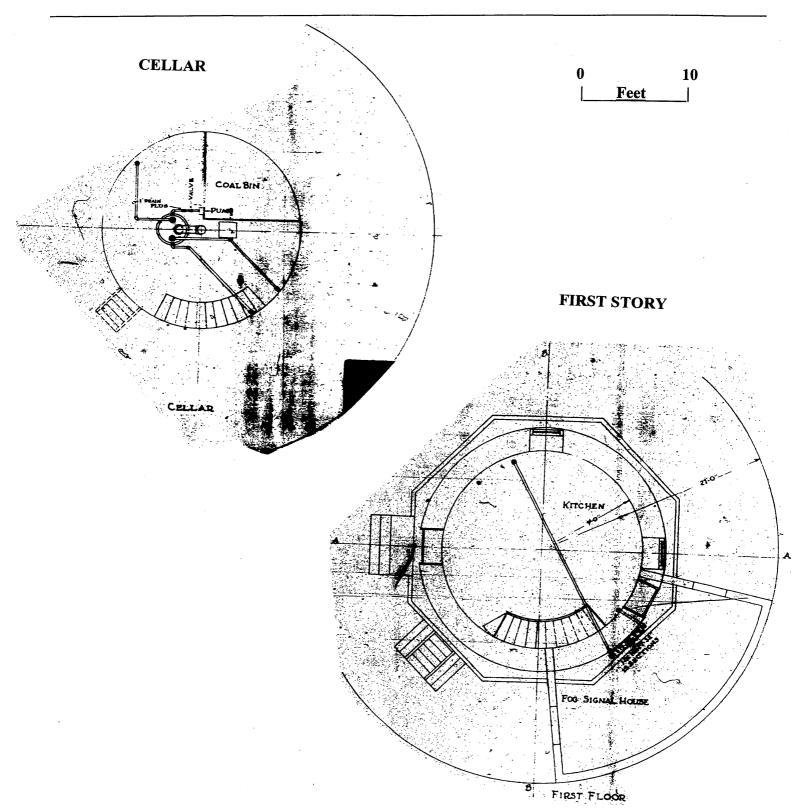


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FLOOR PLANS - CELLAR AND FIRST STORY

Robbins Reef Light Station Hudson County, NJ (Light Stations of the United States Multiple Property Listing)

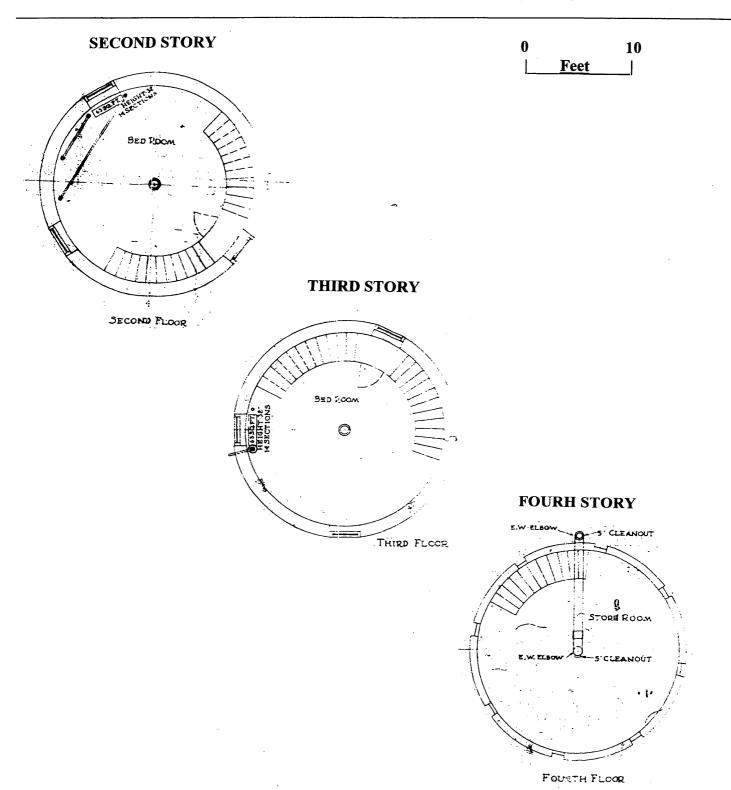


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FLOOR PLANS - SECOND, THIRD AND FOURTH STORY

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**PHOTOGRAPHS** 

Robbins Reef Light Station Hudson County, NJ (Light Stations of the United States Multiple Property Listing)

# List of Photographs

### Contemporary Photographs (# 1 to # 4)

Name of property: Robbins Reef Light Station County and state: Hudson County, New Jersey Name of photographer: Jennifer Perunko Date of photographs: September 2003

Location of original negatives: Maritime Heritage Program, National Park Service, Washington, D.C.

- 1. Overall view, looking east.
- 2. Overall view, looking south.
- 3. Interior, first level, showing back door and basement door.
- 4. Exterior, third and fourth levels, and underside of watch room gallery.

# Historical Photographs (# 5 to # 7)

Name of property: Robbins Reef Light Station County and state: Hudson County, New Jersey

Name of photographer: Unknown

Date of photographs: Circa 1951, 1957, 1968

Location of original negatives: U.S. Coast Guard Historian's Office, U.S. Coast Guard Headquarters,

Washington, D.C.

- 5. Circa 1951. View looking north, note enclosed first story gallery and foghorns.
- 6. Circa 1957. View looking north.
- 7. October 1968. View looking north.