

LOG

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Bodie Island Light Station

THE LIGHT NO CAPTAIN COULD AFFORD TO MISS

By Cheryl Shelton-Roberts

The 1872 Bodie Island Lighthouse joined a valued network of navigational aids that guided mariners along an otherwise featureless and tricky coastline of North Carolina. The site was significant as witnessed in efforts by the U.S. Lighthouse Service that built three towers to mark the immediate area between 1848 and 1872. The first tower was completed in 1848 but rendered useless due to an inadequate foundation; the second tower was built in 1859 but fell victim to the War Between the States in 1861. The existing tower was completed in 1872 and the design was the pride of the Lighthouse Service and used for several other east and west coast lighthouses. The light served to warn south-bound ships to bear due east away from the barrier islands laced with shoals, the equivalent to mountains of liquid sand hiding just under the water. Where captains expected deep and safe waters, conditions were decidedly differently due to

geography, weather, and currents that created treachery south of Bodie Island in the form of Diamond Shoals. Without a warning to turn east at Bodie Island, the list of lost ships and lives in this area aptly called the “Graveyard of the Atlantic” would be even longer.

Why Is This Lighthouse So Important?

Close to the coastline at Bodie Island is a southerly flowing river of cold water originating far to the north beyond New England. Captains navigating south steered their ships closer to shore to hitchhike on this southerly flowing current and gain an extra 1.5 knots for their wind-dependent sailing vessels. However, if a ship headed south didn't swing east out to sea at Bodie Island and away from the barrier islands, it was destined to slam

into notorious Diamond Shoals 35 miles south at Cape Hatteras. The Bodie Island Lighthouse marked the point where ships headed south were to resist hugging the coast and veer away—or else. The trick was to get out to sea but “thread the needle” between Outer Diamond Shoals to the south that jutted out into the ocean about 15 miles and the northerly flowing Gulf Stream—a mere five miles between the two. A south-bound ship that hit the opposite flow of the Gulf Stream could be brought to a halt without strong prevailing winds. Benjamin Franklin named the Gulf Stream and was the first to publish a map of it in 1769. As if fate were afoot, Franklin's great-grandson A.D. Bache would carry out the first official studies of the current. Unfortunately, Franklin also would lose a great-grandson to Coast Survey work. During an 1846 hurricane, George Mifflin Bache and his 10 fellow seamen drowned while studying the best sites on which to locate new lighthouses on the North Carolina coast.

Mud and Slips of Mind Destroyed the First Bodie Island Lighthouse

In 1837 Congress sent Napoleon Coste, commander of the Revenue Cutter *Campbell*, to inspect the dark coast south of the Chesapeake and find needed locations for lighthouses. After rounding Cape Henry and losing sight of its sandstone lighthouse tower, Coste found no other navigational markers until he reached Cape Hatteras, more than 150 miles to the south. The commander reported that a lighthouse was urgently needed to



View of the Bodie Island Lighthouse from the newly installed boardwalk. Photo by Bruce Roberts.



Ben Franklin's and Timothy Folger's (1769-70) map of the Gulf Stream. Courtesy of NOAA photo library: http://oceanexplorer.noaa.gov/library/readings/gulf/media/gulf_bf.html

fill in this huge blind spot. He recommended that a lighthouse be located on Bodie Island, approximately a mid-point on the Outer Banks, where "more vessels are lost...than on any other part of our coast." Congress appropriated \$5,000 to build a lighthouse, not on Bodie, but on adjacent Pea Island. Congress changed its mind and re-appropriated the same amount in July 1838 for a site on "Pea Island or Bodie Island."

Nearly 10 years had passed before the first tower was completed in September 1847. Winning the contract was Francis A. Gibbons of Baltimore. It is not known if this was his first lighthouse contract, but it certainly would not be his last because he went on to build eight strong towers, the first ones on the West Coast. Gibbons erected the 54-foot Bodie Island tower (17-foot diameter at the base and 12.5 feet at the top) that housed 14 Argand lamps, each backed by a 21-inch silver reflector and were fueled by whale oil. It was lighted sometime between January 22, 1848, and March 13, 1848, due to a delay in obtaining chimneys and wicks for the lamp. Gibbons' protested that the foundation was not sound after he had struck mud only a few feet down. At this time, Congress began taking construction responsibility away from Fifth Auditor Stephen Pleasonton and reassigned this duty to the highly regarded Topographical Engineers which later merged with the esteemed Army Corps of Engineers.

In spite of efforts to keep the tower straight, it continued to sink into the soft sand and mud. The revolving chandelier of Argand lamps was thrown out of synch and rendered useless; moreover, erosion took what tentative footing

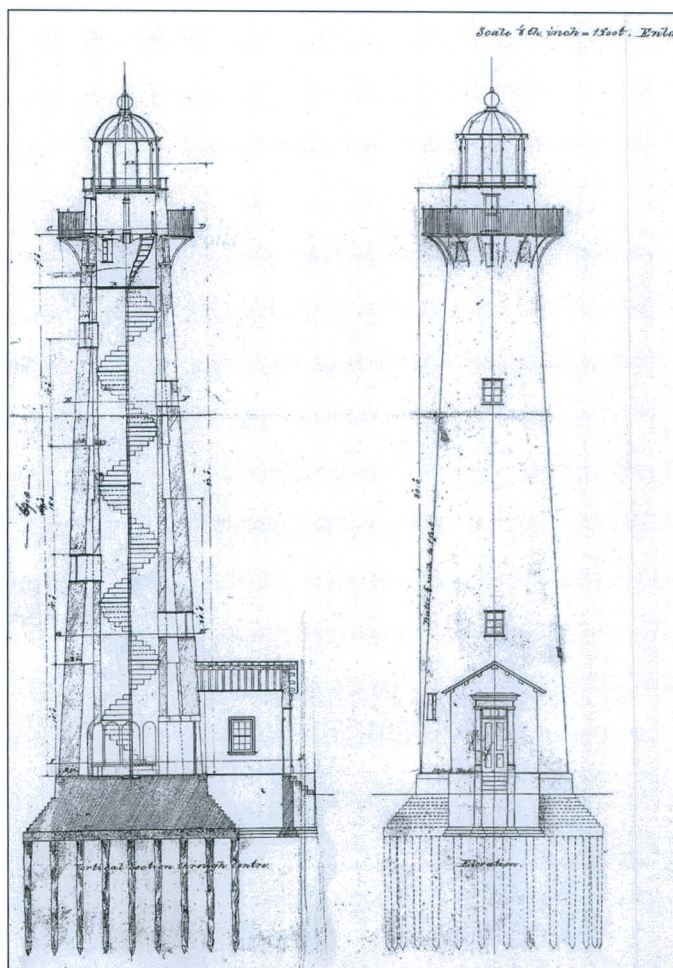
the tower had ever managed. At mid-19th century, little regard had been given to mapping patterns of erosion (this first Bodie Island Lighthouse site is now underwater in Oregon Inlet). Not until the U.S. Coast Survey took over responsibility for locating lighthouse construction sites, old ship captains were traditionally called together to suggest new lighthouse sites. This often was done without regard to relative locations of one lighthouse with another. With this incident of Pleasonton's leaning tower of Bodie, arguably his Swan Song, Congress moved forward to make changes of historic proportions for the United States Lighthouse Service beginning in 1852 with the creation of a talent-heavy body of men called the Light-House Board. But, before giving up on this little light, the new Board installed a fourth-order Fresnel lens, the largest that the lantern room could accommodate, added a red sector as extra warning, and made further attempts to straighten the leaning tower. Repairs went on until 1858; however, efforts were for naught; the tower and lighting system had to be replaced according to the Light-House Board.

With the loss of the first Bodie Island Lighthouse, over 100 miles of undistinguished coast between Cape Henry and Cape Hatteras lay in total darkness once again. Mariners plying these waters were at the mercy of a compass and inaccurate charts. It was difficult to keep charts up-to-date due to the dynamic nature of ever-changing shoals along the Outer Banks.

1859 Tower: A Fallen Soldier

In 1859, a 90-foot brick lighthouse, painted white, was completed from the finest materials available and housed a third-order Fresnel lens. This lighthouse represented three milestones for the U.S. Lighthouse Service: first, the two-

decade-old struggle for Congress to employ experienced engineers in lighthouse construction came to fruition in topographer Captain Lorenzo Sitgreaves who assisted in site selection and supervised construction; second, the tower was built of the finest materials available with a sound foundation; finally, the tower was crowned by a third-order Fresnel lens instead of the antiquated chandelier arrangement of smoky lamps. At last there was light for south-bound mariners to warn them of a mandatory swing east as well as a guiding light for north-bound ships headed for Norfolk and beyond. However, there developed an uncompromising caveat in this seemingly perfect situation: the start of hostilities between the North and the South. The beautiful lighthouse was struck down before its time like a young Civil War soldier. After General Ambrose Burnside's Union troops had landed and taken control of the Outer Banks in 1862, retreating Confederates, who had earlier removed the prized Fresnel lens, then destroyed the lighthouse, thus depriving the Union of a light to aid its naval



1859 Bodie Island Plans purchased for The Outer Banks History Center by the Outer Banks Lighthouse Society.

patrols or a lookout tower from which to watch military action on Roanoke Island. Again, this stretch of perilous coast became embraced by nighttime darkness.

The Third Time Is a Charm

The tower that we know well today, the third lighthouse to grace this site, is one-and-one-half miles north of the first two sites. Both former sites are underwater in Oregon Inlet. This 1872 tower is a prime example of the classic “tall coastal lighthouse” that utilized a timber and granite foundation, dressed granite accents, marble floors, brick walls, and ornate ironwork. It remains one of the few lights in America with its original first-order Fresnel lens. Its lambent, amber light greets us each evening when crossing the Bonner Bridge from Hatteras Island, and its soaring beauty continues to charm us.

Some of the key people involved in its design and construction were Major George Elliot, Light-House Board Engineering Secretary and architect; Captain Peter C. Hains, Fifth District Lighthouse Engineer as well as director during erection; and Dexter Stetson, superintendent of construction who had recently finished the successful building of the Cape Hatteras Lighthouse.

As we look at the lighthouse today, its quiet beauty belies the tremendous efforts that were expended in its creation. Getting the materials to the remote site alone was a struggle. Superintendent of construction, Dexter Stetson, had broken down the workhouses at Cape Hatteras in June 1871 and moved these and left-over brick to an area that became known as “Stetson’s Channel” on the sound side of the island near the lighthouse. The ocean route was too rough and caused a high risk of losing precious materials and time. A good portion of the deliveries were made by the U.S. Lighthouse Service tender *Tulip*. A small railway, called a “tram,” was built, horses pulled the cars, and laborers finished the job by hauling materials to the building site. Despite his best efforts, Stetson was delayed for three months because of difficulties in delivering construction materials, and there was a constant threat of mosquito-borne illnesses that dogged the construction crew.

The light was finally exhibited October 1, 1872. The tower was painted with black-and-white bands in 1873 to serve as a clear day-mark for mariners. It was designed by West Pointer Peter C. Hains of the Army Corps of Engineers. Built of brilliance and brawn, North Carolina had added another pearl to its string of classic lighthouses.

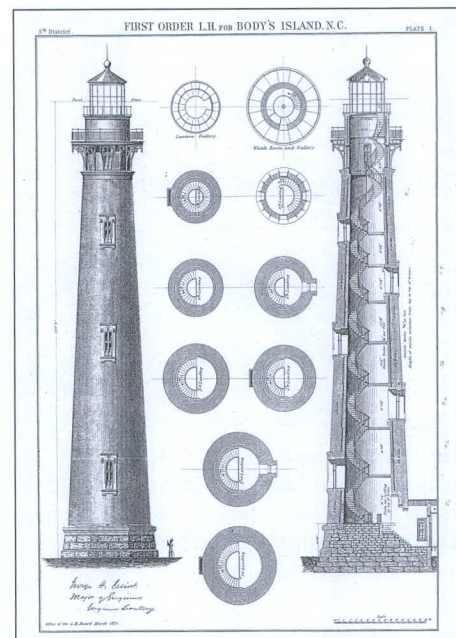


Plate I, plans and elevations, Bodie Island 1872 tower. Courtesy of the National Park Service.

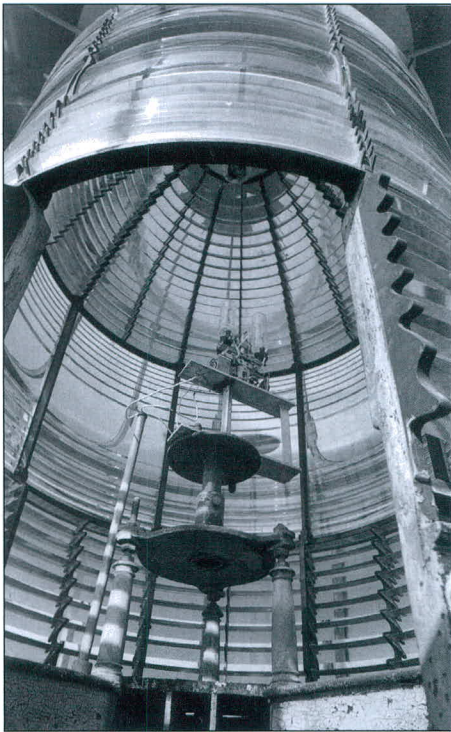
A new location for the 1872 Bodie Island Lighthouse had been considered at Paul Gamiel’s Hill near Kitty Hawk about 15 miles to the north. However, since a light had been planned for Currituck Beach by then, the Lighthouse Service employed its new concept to build lighthouses 40 miles apart so a mariner picked up the next light on his bow before losing the one on his stern; thus, Bodie Island was situated in its location that we see today. This area claimed many lives as witnessed by keepers’ children who remember their fathers telling them that several ships wrecked while the lighthouse was being built over a 15-month period. Three congressional appropriations totaling \$140,000 were made to complete the lighthouse, far over budget. Possibly in an attempt to validate the overage in cost, a report was made in the 1872 U.S. Lighthouse Service Annual Report about six unfortunate ships that wrecked while the lighthouse was being built: the *Muscavado*, *Marion*, *Sarah Peters*, *Baltic*, *Willie*, and a sixth unidentified ship. The Lighthouse Service wanted to emphasize the point that for the value of cargo lost alone, estimated at \$133,000, that the expense of the lighthouse construction would “pay for itself.”



Henry Bamber 1893 photo of Bodie Island Light Station. Courtesy of The Outer Banks History Center.

Restoration Begins

The Bodie Island Lighthouse has withstood 138 years of punishment from storms, wind-driven rain, and the wind



The first-order Fresnel lens prior to being removed from the lantern. Photo by Bruce Roberts.

for which the Outer Banks of North Carolina are famous. Thanks to stimulus monies out of Washington, D.C., this classic first-order lighthouse is getting deserved attention. Since approximately 70 percent of the lantern room will be removed, the irreplaceable 1871 first-order Fresnel lens manufactured by Barbier and Fenestre had to be removed, crated, and brought to ground level for its own restoration.

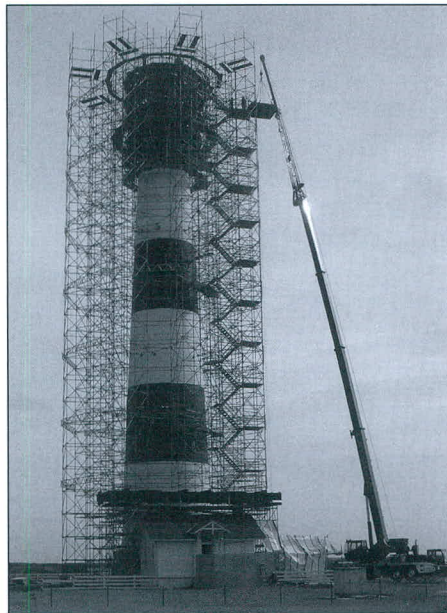
Lighthouse Lamp Shop crew first removed the central dioptric (refracting) panels followed by the upper catadioptric panels ("cats" refract and reflect) and finally the lower cats. Each panel was protectively



Outer Banks Lighthouse Society volunteers work on the lens from the Bodie Island Lighthouse. Photo by Diana Chappell.

wrapped, boxed in specially designed crates, lowered by a pulley system to ground level, and transported to a National Park Service warehouse facility. The panels were then removed and carefully cleaned by Outer Banks Lighthouse Society volunteers under the supervision of lens conservators.

Restoration contractors working in partnership include Progressive Contracting Company, LLC from Edenton, N.C., and United Builders Group, LLC from New Bern, N.C. Metal restoration work is being done by Enberg Mold and Tool from Jacksonville, Fla. The project managing company hires various contractors with specialties in glass, brickwork, ironwork, painting, doors, and windows.



The scaffolding around the Bodie Island Lighthouse contains over 2,000 pieces. Photo by Courtney Whisler.

The elaborate, 12-story, over 2000-piece scaffolding presented the first challenge. Next, high winds or storms can pop up quickly and jeopardize the crew's safety. At more than 160 feet in the air, it's rough. To help with these issues, the last four stories of the scaffolding were covered by a "shroud" made of weatherproofed material to offer some protection while crew members work on the lantern room iron and glass. It also provides an environment in which sand-blasted material is contained and not released into the environment.

The process will take approximately 20 months, and NPS staff report that opening

the tower to the public will occur approximately mid-2011.

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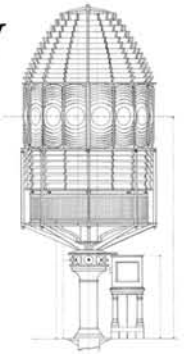
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Restoration & Preservation



Thomas Point Shoal Lighthouse, MD

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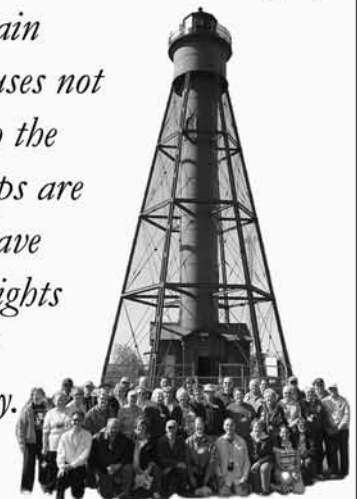
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