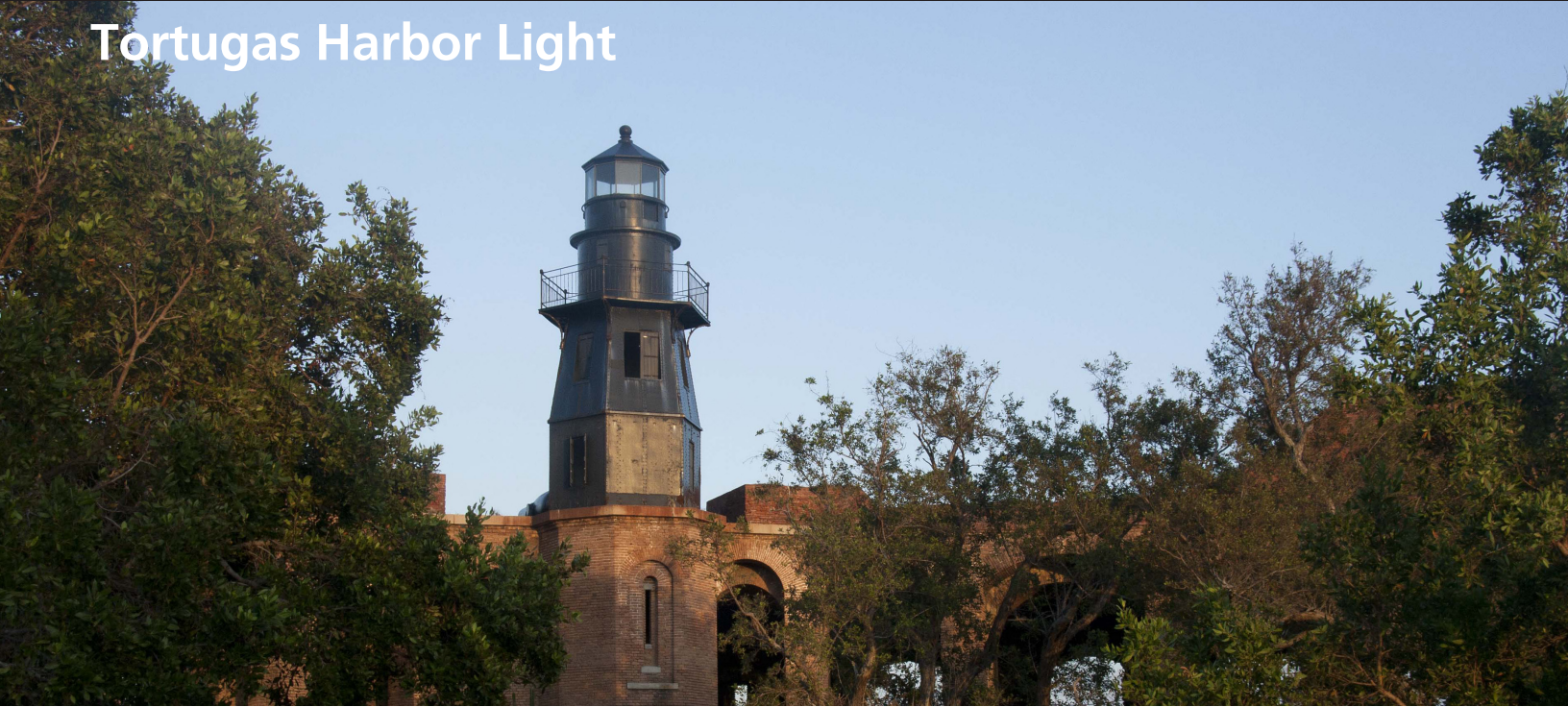




Tortugas Harbor Light



In 1876 the Tortugas harbor Light structure replaced the original 1825 lighthouse located on the parade ground of Fort Jefferson. The light was mainly used as a beacon, since the much stronger light on nearby Loggerhead Key more adequately guided ships around the treacherous reefs. The lighthouse stands 37 feet above the terreplein, or 82 feet from ground level. The iron sides form a hexagon built over the stairway of the southeastern bastion. An observation deck with railing circumvents the lighthouse about halfway up the tower. On the top, a windowed room gives an unhindered view of the fort and surrounding waters. Plans are underway to rehabilitate the deteriorating lighthouse.

History



The first lighthouse on Garden Key, the second largest of several small sand islands that make up the Dry Tortugas, was lit on July 4, 1826. Though planning for a massive third system fortification to be built on Garden key had begun in 1827, the 65-foot tall, brick lighthouse's only company for two decades was small light keeper's house located adjacent to the tower. Appropriations for the fort were finally approved in 1844 and construction began two years later. The nearly half-mile perimeter walls rose slowly due to the logistical, technical, and financial challenges associated with the fort's size and location. By 1861, what would later be called Fort Jefferson, encompassed most of Garden Key, and enclosed the existing lighthouse and keeper's quarters within the parade ground. In 1857, construction of a new lighthouse began on Loggerhead Key, the largest island in the Dry Tortugas, located approximately two and half nautical miles west of Garden Key. The Loggerhead Key lighthouse was meant to resolve complaints against the Garden Key lighthouse's navigational insufficiencies; the Garden Key lighthouse was difficult to see in the haze that was common in the Gulf of Mexico and the building was not tall enough to warn far-off ships of the dangers of the reefs in the area. In September of 1875, a hurricane severely damaged the lighthouses on Garden Key and Loggerhead Key. Considering the Garden key Lighthouse's navigational failings and the cost to repair the hurricane damage, plans were made to construct a new iron lighthouse on top of the fort, on what was then called Bastion C, rather than repair the existing brick lighthouse in the parade grounds.



Five thousand dollars was allocated for the new lighthouse on March 3, 1875. The primary purpose of the new lighthouse was to serve as an aid to navigation for the island's harbor traffic because the much taller First Order lighthouse on Loggerhead Key provided adequate navigational aid to ships traveling to and from the Gulf of Mexico. Drawings for the new lighthouse were sent to the Light House Board on January 10, 1876 and construction began the following month. It was completed on April 4 of the same year. The hexagonal tower of plate iron, with gallery and cylindrical parapet, was finished on the interior with wood. The light from the old lighthouse was moved to the new one on April 5, 1876 and the following year the old lighthouse on the parade grounds was demolished. According to Coast Guard records, the Tortugas Harbor Light was deactivated in 1921. The Dry Tortugas Light Station on Loggerhead Key became the primary navigational aid in the Dry Tortugas.

In 1935, management of the Dry Tortugas was handed over to the National Park Service when Franklin D. Roosevelt declared the area a National Monument. Under NPS management the first repairs to the iron lighthouse began in 1939, consisting of cleaning, welding, and re-coating corroded sections of steel and the replacement of rotten wood elements on the interior. Over the next three decades various repairs were made to the lighthouse with the intent of stabilizing or strengthening the structure and maintaining the coatings. Since then, the structural integrity and the coating system of the lighthouse continues to

History continued...

be affected from prolonged exposure to the sun and the salts present in the harsh marine environment of the Dry Tortugas. These issues have been accelerated by the installation of incompatible metals from previous

repairs. The NPS has continued to monitor the lighthouse, assess conditions, and carry out minor treatments but it is now time for a complete Rehabilitation of the Tortugas Harbor Light.



Condition Assessments

In 2013-2014, Dry Tortugas National Park worked with a metals conservation partner, Tuckerbrook Conservation Inc. (Lincolnton, ME) with help from Resurgence Engineering (Portland, ME), to reproduce a Preliminary Structural Assessment of the Tortugas Harbor Light. The goal of the assessment was to determine the overall stability of the Harbor Light and to develop a scope of work needed to achieve long-term preservation of the structure. This assessment was triggered by observed accelerated corrosion around the base of the light tower and other features such as the balcony support brackets and failed rivets holding the cast iron plates together. The overall summary of the Preliminary Assessment was that the harbor light is unstable. Loose areas of corroded metal at the lantern roof, catwalk railings, catwalk support brackets, and terreplein level are capable of dislodging from the

structure during sub-hurricane force winds and through any contact caused by inspection, repair, inappropriate visitor contact or park staff maintenance. The report recommended installing temporary protection to mitigate the immediate risk of failing components, implementing a monitoring program to evaluate movement of the structure, and performing metallurgical testing to establish appropriate repair materials and details. Following up on these recommendations the NPS brought in structural engineers from Robert Silman Associates and Plan B Engineering of New York City to perform a more in-depth structural assessment, evaluate movement, and assist the Park Service with the design of a temporary scaffolding and shoring system that will increase stability of the structure through the tropical hurricane season and of which will later be used for treatment.

Current Status and Treatment Recommendations



The condition and stability of the Harbor Lighthouse structure is likely to decline rapidly without immediate treatment. General maintenance and intermittent repairs performed in the 1930s, 1970s, 1990s, and 2000s have performed reasonably well and have allowed preservation of the structure for 140 years. However, continuing deterioration and shortening maintenance cycles indicate that the structure is on a downward course.

The Harbor Lighthouse has been temporarily shored to remove load from the most critical and heavily deteriorated components. Exterior scaffolding has been installed up to the third floor and balcony to provide protection from falling debris and sufficient closure. The scaffolding and shoring have been designed to facilitate future disassembly and removal of the Harbor Lighthouse and rehabilitation.

Currently, the NPS is working with Lord Aeck Sargent Architecture (Ann Arbor, MI) on the full design package for a complete rehabilitation of the Tortugas Harbor Light. The proposed, and recommended treatment, involves dismantling the structure and moving it to an

off-site facility for repair and rehabilitation. The level of work currently warranted cannot be adequately performed in-situ. While previous in-situ work has helped sustain the structure to date, those past repairs were completed with potentially incompatible materials and are now deteriorating faster than the original components. Dismantling the structure will allow a thorough evaluation of the material conditions and compatibility issues, and will result in a more durable and long-lasting repairs.

The tentative schedule is to have the structure dismantled and relocated to an off-site facility in 2018. Treatments will be carried out in 2018 with a proposed re-installation in late 2019-early 2020. Additionally, the Heritage Documentation Program of the National Park Service will be on-site in late August of 2017 to complete a documentation package for this structure that consists of photographs, architectural drawings, and laser scanned data as part of the Historic American Building Survey. This package will then be submitted to the Library of Congress for official archiving.