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I. Description of Site

A. Wood Island

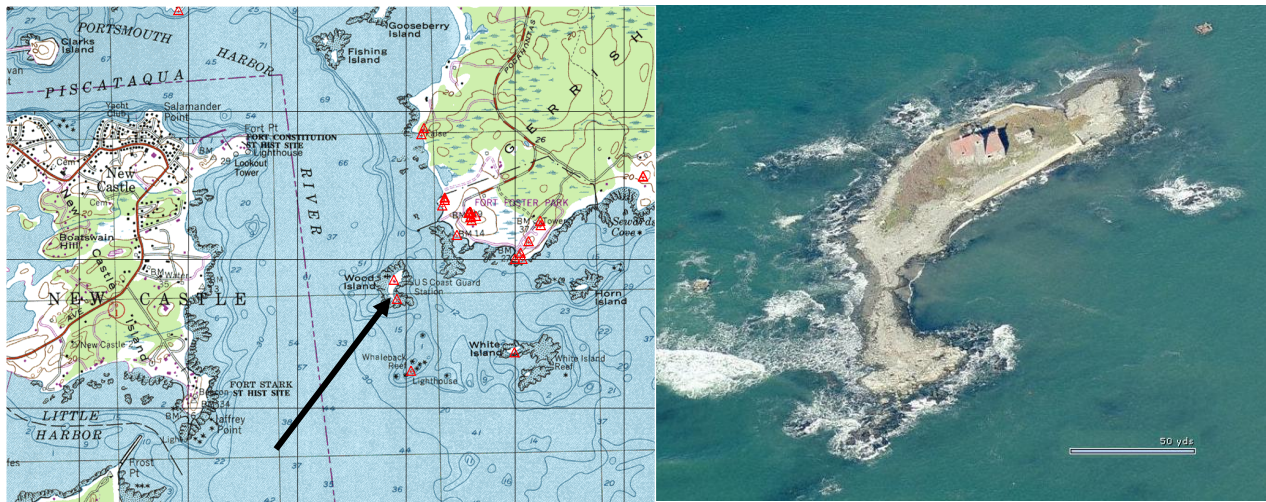


Figure 1: Wood Island (Courtesy of Terrain Navigator & Virtual Earth)

Names

Known as U-Me-449A, Wood Island, Wood Island Coast Guard Station, Wood Island Lifesaving Station and Old Portsmouth Harbor Lifeboat Station.

Location

The Island is near the New Hampshire-Maine line in Portsmouth Harbor. It is approximately thirteen hundred feet southwest of Fort Foster, on Gerrish Island, in Kittery, Maine. Located at 43°03'49.39" N 70°41'54.18" W.

Geology

Small sandy crescent beaches with rock ledge outcrops and rocky beach sections cover 1.24 acres of island. There are scattered deposits of small stones and sand.

Vegetation

Small trees and bushes cover the area around the main building. Poison ivy covers 50% of the island. Weeds and grass three to five feet tall surround the main structures.

Current Use

According to the 2001 Kittery Comprehensive Plan, 750 to 1,000 people visit the island yearly for recreational purposes. The buildings are empty and have no use.

B. Existing Structures and Infrastructure

1. Wood Island Station



Figure 2 Wood Island Station

The station is a multi-room, multi-level, wood frame and masonry construction with approximately 7,596 square feet of living and utility space. The building has a basement, living room, mess hall, officer's and crew's quarters, bathrooms, a boathouse, a four-level observation tower, an exterior observation deck on the fourth level. The building is a combined Colonial Revival and Shingle Style design. It features a Colonial Revival gambrel roof and siding iconic of American Queen Anne Shingle architecture. (1)

The Origins of Lifesaving in the Region

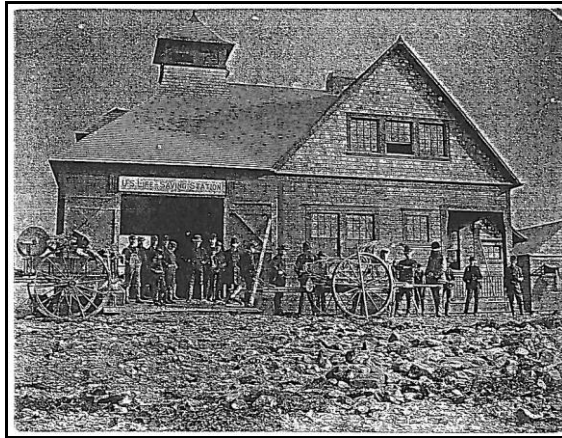


Figure 3 Jerry's Point Lifeboat Station circa 1890 (Courtesy of The Portsmouth Athenaeum)

In the mid 18th Century, the people of the Piscataqua River region recognized the need for a rescue service to mitigate loss of life in nautical disasters near Gerrish Island. The Federal Government responded by constructing and commissioning a United States Lifesaving Service (USLSS) station on Jerry's Point in 1887. It was positioned near Fort Stark and the current United States Coast Guard (USCG) Station in Newcastle, New Hampshire. (5)

Jerry's Point Lifeboat Station was recognized as the "No. 1 Station" in the USLSS for its impressive service record. In 1893, just five years after officially being commissioned, it had forty-four recorded instances where assistance was rendered to distressed vessels. During that time, sixteen people were rescued by Captain Silas H. Harding and seven lifeboat men. Captain Harding said of his men: "Every man of the crew is a typical sailor; he is agile, courageous and courteous, with a strong love for humanity in his big heart." (5)

The famous rescue mission of the *Oliver Dyer* occurred on November 26, 1888. The schooner was wrecked on rocks near the station and four crew members were saved from the ship. The lifeboat men received gold medals as official recognition of their brave rescue. (5)

In 1908, the Jerry's Point Station crew and equipment was transferred to its successor, the Wood Island Station. The Jerry's Point site was required for military purposes. (5)

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Structure's History

Prior to use by the USLSS, the U.S. Navy constructed a military barrack on Wood Island in the early 19th Century. Towards the end of the century it was used as quarantine for naval patients suffering from Yellow Fever. (6)

The main station building, registered in the USLSS as Station #12, was built in 1907 on Wood Island, Kittery, Maine. The building is a Duluth-style station designed by architect George R. Tolman. The style originated in the Great Lakes region of Minnesota. The Wood Island Station is one of an original twenty-eight Duluth-style stations in the United States. It was constructed by builder Sugden Brothers of Portsmouth, NH. (1, 7)

In 1908, the building began functioning as an air-sea rescue station until 1941. During the World War II period of 1941 to 1945, the U.S. Navy used the site as an observation station. A submarine net anchor was installed on the island to protect Portsmouth Harbor from German U-boat attack. (6)

Since 1972, the Wood Island Station has been neglected. The site has served as an intended recreational facility for the general public under the stewardship of the Town of Kittery.

Historical & Cultural Significance

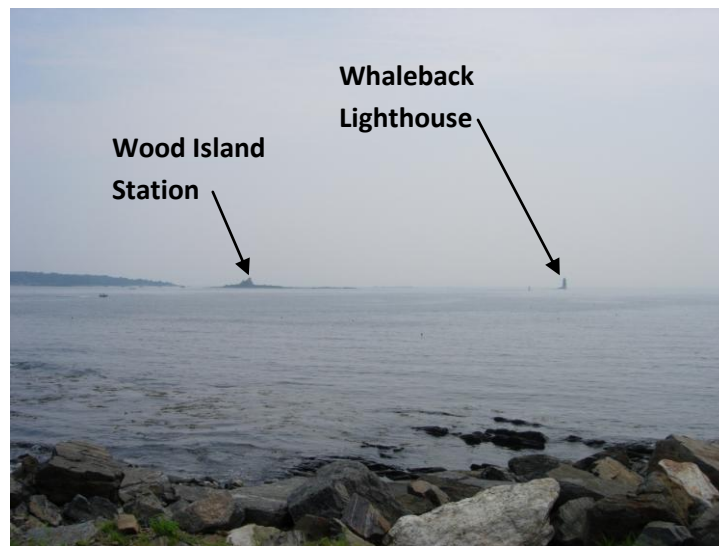


**Figure 4 Lifeboat Men at Jenness Beach, Rye, NH, circa 1900
(Courtesy of The Portsmouth Athenaeum)**

For thirty-two years the Wood Island Station provided a vital service to the maritime and shipping industry of southern Maine and New Hampshire. The USLSS consisted of teams of eight men residing in

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stations positioned at strategic locations along the oceanic coasts and the Great Lakes of America. During good weather they would train lifesaving techniques and maintain their equipment while keeping watch. If a ship was in distress, the men would launch their boat into the violent sea and row through rough surf to attempt a rescue. Lifeboat men were known for their motto “You have to go out, but you don’t have to come back.” Today, the USLSS is often romanticized as a courageous service that was the forerunner of the USCG. (8)



(Photo: K. Kozlowski)

Figure 5 View of Whaleback Lighthouse (right) and Wood Island Station (left) from Newcastle Commons, NH

Wood Island Station lies 1,500 feet from Whaleback Light and complements an iconic seascape depicting the maritime history of Maine and New Hampshire. Although the building has deteriorated significantly, from a distance it portrays an enduring symbol of its former duty to the Piscataqua River region.

Conditions Assessment

The following descriptions are based on the initial Wood Island site investigation on August 15, 2008. All photographs of the site were taken by K. Kozlowski. Approximate reproductions of the original building's elevations and plans, as well as current damage summaries, are located in Appendix B of this report.

Exterior

Generally the roof appears to be in good condition; however, a section over the boathouse has partially collapsed. The roof on the southern elevation has approximately fifty-percent of roofing shingles missing. This damage contributes to further deterioration of interior timber frame elements by rainwater.



Figure 6 Collapsed station roof

The siding on the building has aged well and continues to protect the building. Siding shingles are missing in some small areas on the exterior walls.

The porch decks appear in good condition; there is no noticeable deterioration.

No original windows remain in the building. Many of the window frames are unblocked and continue to allow seagulls to enter and inhabit the building. Some windows and exterior door frames remain blocked by previous attempts to seal the building. Evidence of damage and break-in attempts by vandals exists along the perimeter of the building.

The observation deck on the fourth level was not closely inspected due to lack of access. The deck appears in good condition. The deck is not believed to be part of the original 1907 structure; it was probably constructed during the 1940s by the U.S. Navy.



Figure 7 Wood Island Station

Interior

The conditions inside the structure vary depending on the condition of the roof above. Rooms below shingled roof sections are dry and without damage from moisture. The spaces in the boat house section below the roof failure have extensive damage from rotting structural elements. Parts of the floor in the boathouse on the first and second levels have damage and voids. There are dangerous soft spots in these floors. Floor damage is also present near open windows throughout the building.

The joists near the wall in part of the second level of the boathouse have collapsed as seen in Figure 9; however, all other beams and columns supporting the level appear structurally sound as seen in Figure 10.

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Figure 8 Interior damage of boathouse

Extensive damage to non-structural elements exists throughout the interior. Wall plaster and gypsum are damaged or missing in most rooms. Entire wall sections, including framing, are also missing in many rooms.



Figure 9 Non-structural interior damage

Large piles of seagull droppings exist in all spaces in the building. These piles are many inches deep in some areas on the upper levels. The putrid odor of the droppings is strong and present everywhere within the building. There is evidence that seagulls continue to inhabit the building.

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Figure 10 Seagull droppings

The foundations of the building are in good condition. There are no obvious signs of Alkali-Silica Reaction (ASR) on the structural columns or perimeter foundation in the basement. The smallest columns measure eighteen inches by eighteen inches.

Alkali-Silica Reaction (ASR) occurs when reactive aggregates form a gel-like substance within concrete exposed to water. These gels grow within the concrete and can create high expansive stresses that lead to cracking and eventual failure. According to Duncan Mellor, P.E., these stresses usually range between 250 psi and 300 psi and normally little can be done to prevent expansion. Depending on aggregate reactivity, cement type, moisture exposure and other factors, ASR may take decades to undermine the concrete's structural integrity.



Figure 11 Station foundations

Piping in the basement appears to be covered with asbestos insulation. Only large diameter pipes like those pictured in Figure 16 are insulated.



Figure 12 Fibrous pipe insulation

The paint used on the interior walls and moldings appears to be lead based due to its flaky appearance and the time period the building was constructed and maintained.



Figure 13 Stairs and peeling paint

The stairs throughout the interior are damaged or missing. On many levels, make-shift boards with footings were installed previously. The stairs to the basement from the first floor and from the outside are in good condition.

2. Tool House Building

The tool house building is a twenty foot long by ten foot wide structure formerly used to store equipment. The building is timber framed with wooden shingle siding.



Figure 14 Tool House Building

Conditions Assessment

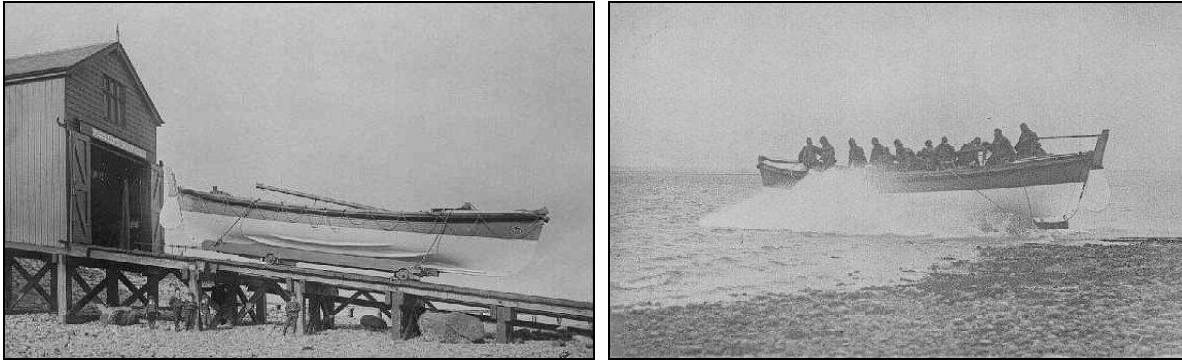
A section of rafters failed resulting in a partial collapse of the roof. Much of the roof structure is heavily deteriorated and at risk of collapse. A section of the rear wall has been destroyed.

Most of the siding shingles remain and are in good condition; they appear to match the shingles on the station.

3. Marine Railway

The marine railway consists of two sets of tracks that originate inside the boathouse. The tracks are sloped down from the boat house doors to the water. The rails from one of the boathouse bays converge with the rails from the other bay, which runs directly to the water. The rails are made of iron. A timber structure atop a concrete foundation supports the railway. The rails run through the existing sea wall.

Structure's History



(Photo: Bob Muncaster)

Figure 15 Launching the Thomas Fielden, an English Lifeboat from the early 20th Century that used a gravity launching system similar to the one at Wood Island

The marine railway was used as a rapid launch system for outgoing USLSS boats. Double-ended lifesaving boats would sit on special dollies on the rails until they were needed. When a distress call was received, the men would open the boathouse doors, climb on board the lifeboat and fly down the rails into the water. The apparatus allowed the team to access the water quickly regardless of the tide level.

(9)

Conditions Assessment

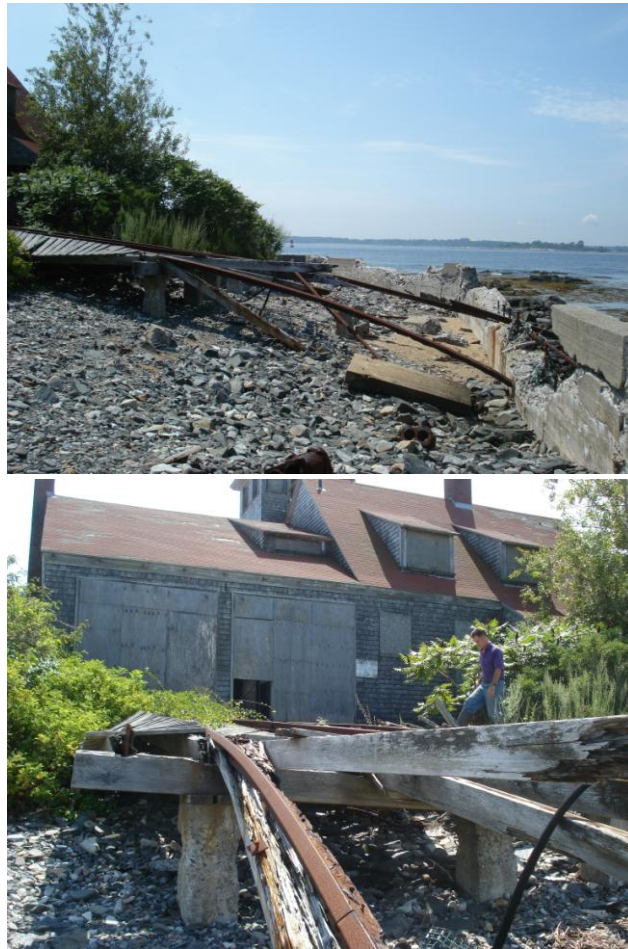


Figure 16 Marine Railway

The railway is badly damaged and unsafe. The railway originally extended several yards beyond the sea wall. The concrete foundation is intact but has degraded and appears damaged. The primary wood beams supporting the rails are partially intact; some secondary beams have collapsed. The rails and wooden decking have also collapsed. Most of the original rails have bent out of shape due to the missing substructure. Sections of the rail are missing.

4. Seawall

The existing seawall is comprised of two sections located at the south and north of the building.

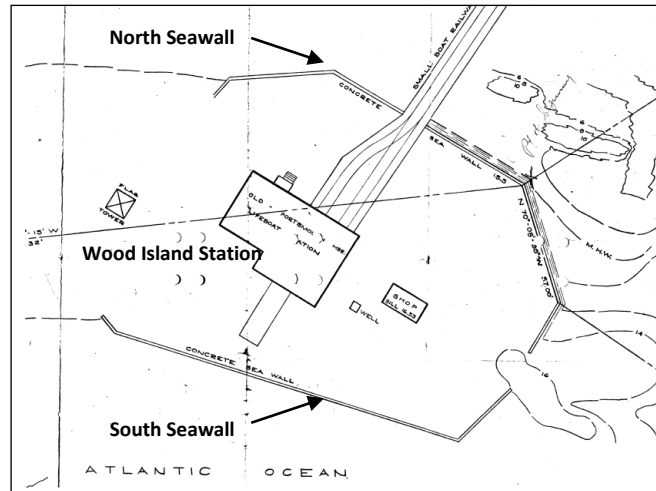


Figure 17 Seawall (Taken from a topographic map dated 1955)

The south wall measures approximately two hundred and fifteen feet in length. It stands six feet tall at the highest point. The front seawall has been damaged repeatedly by tidal surge and wave action. A town document reported that in 1993, a one hundred foot by two foot by six foot section of the wall was repaired by Shotcrete Systems International, Inc. at the cost of approximately \$40,000.00 using FEMA Federal and State disaster assistance. The photos in Figures 24 and 25 are of the front concrete wall that was repaired by Shotcrete Systems. The contractor installed a steel wire mesh over the damaged wall and shot pressurized concrete over the mesh.

The wall north of the building is approximately two hundred and fifty feet long with sections of wall over eight feet tall. By visual inspection, the wall has not been modified or repaired since it was originally constructed. The wall is un-reinforced concrete with small and large stone aggregate. The wall was presumably built of natural materials found on the premises. Large iron pins are located in the rock face near the base of the wall. Duncan Mellor, P.E. suggests the pins may provide a shear brace to prevent the wall from sliding toward the water.

Conditions Assessment

South Seawall



Figure 18 Outer south seawall

By visual inspection, the entire two hundred and fifteen foot wall appeared to have been covered with new concrete. Many sections along the top of the wall have broken away from the steel mesh as seen in Figure 26.



Figure 19 Damaged top section of south seawall

North Seawall

Signs of Alkali-Silica Reaction (ASR) are present along the seawall. ASR will need to be confirmed by laboratory testing. Large wall sections have been destroyed and are missing. Presumably the combination of wave action, ASR expansion and freeze/thaw cycles has reduced the wall to its present state.



Figure 20 Inner north seawall damage

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Figure 21 Outer north seawall damage

5. Flag Tower

The flag tower was originally a wooden frame that stood near the station building.

Conditions Assessment

The structure was not found during the inspection and is presumed to have been destroyed or removed from the island.

6. Drill Pole

Structure's History



Figure 22 Beach apparatus drill reenactment in Cape Cod (Photo: John Galluzzo)

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The beach apparatus drill was considered one of the most important rescue maneuvers of the time. The USLSS required the drill to be practiced at least twice each week at each lifeboat station. The maneuver was specifically designed to rescue sailors from ship wrecks or vessels that had run aground within six hundred yards of shore. The apparatus was used when the conditions were too dangerous for a lifeboat rescue attempt. (9)

The equipment involved included many lines, wooden frames, a Lyle gun, a drill pole, block pulleys and other equipment. The Lyle line throwing gun was set up on the beach and used to fire a lead line to the stranded ship. Heavy lines were then attached between the beach apparatus and the ship's mast. Tension created a zip line apparatus that used a breeches buoy to rescue one sailor at a time from the wrecked ship. This was an effective rescue maneuver that saved countless lives during the active period of the USLSS. (9)

The drill pole located on Wood Island was meant to mimic a ship's mast during the regular training of the maneuver. The drill pole was made of steel.

Conditions Assessment

The structure was not found during the inspection and is presumed to have been destroyed or removed from the Island.

7. Well

The well was not found during the inspection.

8. Miscellaneous Facilities

As seen in Figure 33, any existing pathways on the Island are completely overgrown.

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Figure 23 Overgrowth

A total of three tanks were found outside near the station and tool house building. A large reservoir (assumed to be for drinking water) was found inside the basement of the station building.



Figure 24 Abandoned tanks

A manhole structure was found to the north of the station building. The interior was not inspected.

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Figure 25 Manhole

Many large diameter pipes lay scattered on the island. They appear to be damaged and corroded through. There are also several dozen abandoned lobster traps scattered across the island as seen in Figure 38.



Figure 26 Piping

The following items were considered to be on the island at one time but were not found during the inspection: picnic tables, benches, grills and the bulwarks supporting the old submarine net.

9. Cribs



Figure 27 Cribs

A crib is a marine structure built of heavy wood members with large stones placed inside the frame to provide strength. The cribs near Wood Island are pinned together using steel elements. Cribs are normally used for supporting bridges or piers and can be coated with conservatives that protect against wood degradation. There are seven cribs near Wood Island. These cribs were used to support a submarine net as part of a harbor defense system during World War II.

Conditions Assessment

Five of the seven cribs appear to be stable. Two of the cribs appear to have collapsed. The structural integrity of each crib may be comprised by wood degradation by marine-borers. A full dive inspection would be required to determine the extent of possible degradation.



Figure 28 Cribs near Wood Island (Courtesy of Google Earth)