

1484

**United States Department of Interior
National Park Service**

**National Register of Historic Places
Registration Form**

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900A). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Grassy Island Range Lights
other names/site number N/A

2. Location

street & number 100 Bay Beach Road N/A not for publication
city or town Green Bay N/A vicinity
state Wisconsin code WI county Brown code 009 zip code 54302

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property meets _ does not meet the National Register criteria. I recommend that this property be considered significant _ nationally statewide locally. (_ See continuation sheet for additional comments.)

[Signature] SHPO 11/19/67
Signature of certifying official/Title Date
State Historic Preservation Officer-WI

State or Federal agency and bureau

In my opinion, the property _ meets _ does not meet the National Register criteria.
(_ See continuation sheet for additional comments.)

Signature of commenting official/Title Date

State or Federal agency and bureau

Grassy Island Range Lights
Name of Property

Brown
County and State

Wisconsin

4. National Park Service Certification

I hereby certify that the property is:
 entered in the National Register.
 See continuation sheet.
 determined eligible for the National Register.
 See continuation sheet.
 determined not eligible for the National Register.
 See continuation sheet.
 removed from the National Register.
 other, (explain:)

Edson H. Bratt

1.12.05

[Signature]
Signature of the Keeper

Date of Action

5. Classification

Ownership of Property (check as many boxes as as apply)	Category of Property (Check only one box)	Number of Resources within Property (Do not include previously listed resources in the count)	
<input checked="" type="checkbox"/> private	<input type="checkbox"/> building(s)	<input type="checkbox"/> contributing	<input type="checkbox"/> noncontributing
<input type="checkbox"/> public-local	<input type="checkbox"/> district		<input type="checkbox"/> buildings
<input type="checkbox"/> public-State	<input checked="" type="checkbox"/> structure		<input type="checkbox"/> sites
<input type="checkbox"/> public-Federal	<input type="checkbox"/> site	2	<input type="checkbox"/> structures
	<input type="checkbox"/> object	2	<input type="checkbox"/> objects
			0 total

Name of related multiple property listing:
(Enter "N/A" if property not part of a multiple property listing.)
N/A

Number of contributing resources
is previously listed in the National Register
0

6. Function or Use

Historic Functions
(Enter categories from instructions)

Current Functions
(Enter categories from instructions)

TRANSPORTATION/water-related

VACANT/NOT IN USE

7. Description

Architectural Classification
(Enter categories from instructions)

Materials
(Enter categories from instructions)

Late 19th & Early 20th Century American Movements

Foundation CONCRETE

walls SHINGLE

roof METAL

other WOOD

Narrative Description

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

Grassy Island Range Lights
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Brown
County and State

Wisconsin

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for the National Register listing.)

- A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B Property is associated with the lives of persons significant in our past.
- C 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.
- D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)

Property is:

- A owned by a religious institution or used for religious purposes.
- B removed from its original location.
- C a birthplace or grave.
- D a cemetery.
- E a reconstructed building, object, or structure.
- F a commemorative property.
- G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)

Architecture

Period of Significance

1872

Significant Dates

N/A

Significant Person
(Complete if Criterion B is marked)

N/A

Cultural Affiliation

N/A

Architect/Builder

Unknown

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

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Grassy Island Range Lights
Brown County, Wisconsin

The Grassy Island Upper and Lower Range Lights consist of two tapered, square plan, wood shingle-clad, two-story wood frame structures built in 1872 as navigational aids for ships entering the port city of Green Bay, which is located at the southern end of Green Bay at the place where the Fox River enters the bay.¹ These pyramidal-shaped Lights are now located on the east bank of the Fox River on a revetment that protects the entrance to the Green Bay Yacht Club's boat harbor. This location places the Lights within eyesight of their original location on Grassy Island, which is located in the bay approximately one-and-one-half miles north of the river's mouth. When major changes were made to this island in 1966, the Lights were declared surplus by the U.S. Coast Guard and would have been demolished but for the determined efforts of members of the Yacht Club, who succeeded in having them moved by barge from their original location to the east end of the Yacht Club's grounds. In 1999 the Lights were moved again to their present permanent location along the river's edge at the west end of the Club grounds after a new site had been prepared for them. A major restoration effort was then undertaken which will be completed in the summer of 2004. When finished, this effort will have preserved and restored two of the oldest remaining wooden navigational aids on Lake Michigan, these being one of only two remaining pairs of wood construction nineteenth century range lights remaining on the lake.²

The Green Bay Yacht Club's boat harbor is located on the east bank of the Fox River two-tenths of a mile southwest of the river's mouth and it is surrounded by flat land, most of which is manmade and consists of dredged fill that has now transformed most of the marshland that originally bordered the mouth of the river. Much of the land that borders the east bank of the river and the adjacent shore of the bay is now given over to park and recreational use while land further inland supports commercial and industrial use. Similar land on the west bank of the river is given over largely to the massive electric power generating plant operated by the Wisconsin Public Service Corp. The Club's boat harbor is rectilinear in plan and measures approximately 200-foot-wide x 665-foot-long. A 166-foot-long by 30-foot-wide stone and gravel-filled revetment having sides lined with concrete and stone riprap separates the harbor from the river. This revetment also acts as a breakwater that protects the Club's boats from the wave action generated by the ocean-going commercial shipping that uses the port facilities located further upriver. The north end of this revetment is further protected on all three sides by steel sheet piling and the upper range light is placed on top of these pilings on a specially

¹ The 1990 population of the city of Green Bay was 96,466. Green Bay sits at the southern end of Green Bay, for which the city is named, and which opens onto Lake Michigan.

² The other pair, the Bailey's Harbor Range Lights, were built in 1869 and are located in Bailey's Harbor, Door County, Wisconsin. They were listed in the NRHP on 9/21/89. The only other remaining pair of nineteenth century range lights on Lake Michigan is located on Plum Island off Door County, but these were built out of metal in the 1890s and only one now survives.

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engineered foot-thick reinforced concrete slab. The lower range light is positioned on the south end of the revetment approximately 140-feet south of the upper light and it rests on a specially engineered foot-thick reinforced concrete slab of its own.

The design of the Grassy Island Range Lights can be better understood by studying range lights as a type. Range lights consist of:

a system involving two lights, one normally taller than the other, with one aligned in front of the other, that allows the mariner to arrange them vertically one over the other and is known as getting "on range." While on the water, the sailor can safely follow a straight-line course into a harbor or dangerous channel.³

Range lights were therefore always constructed in pairs, the one closest to an approaching mariner being known as the lower (a.k.a. front) light and the one furthest away being known as the upper (a.k.a. rear) light. Historic examples were usually built out of either wood or metal, but most of the earliest range lights built for use on the Great Lakes in the last half of the nineteenth century were apparently made of wood, which was cheap, abundant, easily transported to the site, and easily fabricated by locally available craftsmen. Depending on the situation, the upper and lower examples of a given pair of lights might have been either of similar design, such as the Grassy Island Range Lights, or of different design, such as the Bailey's Harbor Range Lights. Many range lights were also built as pierhead lights, so called because they were positioned at the opposite ends of the long piers that were typically constructed out into the lakes on either side of harbor mouths during this period. Other examples were land-based and resembled small lighthouses and the Grassy Island Lights fall into the latter category. Whatever the situation, the upper range light of any pair of lights was invariably either physically taller than the shorter lower light or else was positioned in such a way as to achieve the same relative position. The approaching mariner would maneuver so as to line up the two lights thus displayed, one above the other, thereby producing a single superimposed light that was the guarantee of a correct course into the harbor.

Not surprisingly, the U.S. Light-House Board, a division of the U.S. Treasury Department that had been created by Congress in 1852 to oversee the creation and administration of all American lighthouses, including those on the Great Lakes, favored the construction of standardized designs when feasible. It is believed that the Grassy Island Range Lights are early examples of one of these standardized designs. It is known, for instance, that the construction of the Lights was supervised by

³ Wardius, Ken and Barb. *Wisconsin Lighthouses: A Photographic and Historical Guide*. Madison: Prairie Oak Press, 2000, p. xiii.

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the engineers of the Light House Board's 11th District, the District responsible for this portion of the Great Lakes at that time. It can therefore be presumed that the design of the Lights was the responsibility of the Board's staff as well.

Upper Range Light

Exterior

The Upper Grassy Island Range Light was built in 1872 and it now rests, as previously stated, on a one-foot-thick reinforced concrete pad foundation constructed in 1999. This two-story structure is square in plan, measures 12.5-feet on a side, and is approximately 35-feet-tall overall. The four exterior walls slope inward equally as they rise from ground level, creating a structure that has a tapered, pyramidal overall appearance. The structure is crowned by a wrought iron parapet deck that encircles the uppermost part of the wooden portion of the structure, which portion is itself surmounted by an octagonal plan, glass-sided lantern that contains the beacon's light. The exterior walls of the structure are placed over a massive timber frame and consisted of three layers of wood siding. The innermost layer consists of vertical tongue and groove wooden boards that act both as the interior wall cladding of the structure and as the sheathing to which the outer layers are nailed. The middle layer of horizontally laid weatherboards are placed between the structure's slanting corner posts and nailed to the inner sheathing. The outer layer consisted of staggered course wood shingles that completely covered the exterior which were always been painted white. The shingles are currently being replaced. It is not known if these wood shingles are the original outer sheathing of the structure or if they are a later addition that was intended to make it more waterproof. It is known, however, that these shingles were in place as early as 1905, according to historic photographs, and the presence of wood shingle siding on other Great Lakes lights of similar design suggests that the shingles are either this structure's original outer sheathing or else were part of a routine siding upgrade that was applied to similar structures throughout the Great Lakes.⁴

The only opening in the first story of this structure is an entrance door that is centered on what is now its east-facing side. This opening contains a four-panel wooden entrance door and the opening is simply enframed with boards. The only opening in the second story is a small square window opening that is centered high above the door opening not far below the parapet deck and which admits light to the structure's second story. At the very top of the wooden portion of the structure a transition is made from the square plan of the base to the octagonal plan of the narrower glass-walled lantern room that

⁴ Sapulski, Wayne. *Lighthouses of Lake Michigan, Past and Present*. Manchester, Michigan: Wilderness Adventure Books, 2001, p. 207 (illustrated).

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Grassy Island Range Lights
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crowns it. The transition is managed by chamfering the four corners at their point of termination so as to produce an eight-sided base for the lantern room, which consists of eight single panes of glass that are separated from each other by thin wooden mullions. Encircling the lantern room is a simple, square plan, wrought iron parapet that has a wrought iron handrail and which is supported by wrought iron angle braces. Sheltering the lantern room is an octagonal metal roof that is crowned with a sheet metal ventilator ball that once permitted the exhaust from what was originally an oil-fired lamp to escape.⁵

Interior

This structure's primary purpose is to house and physically support the lantern room and its lantern and the interior spaces that are located below this room exist partly to provide sheltered access to this room and partly to house storage space related to the functioning of the lantern. The interior space of the Upper Range Light is strictly utilitarian in appearance and its massive supporting timber framework is its most notable feature. The floor of the first story is the concrete pad that the structure rests on. Encircling its square base are four 12"x12" squared wood sill plates that are bolted directly to the concrete pad.⁶ Slanting 8"x8" squared wood posts form the frame's four corners and these posts extend the full height of the wooden portion of the structure and have chamfered edges. The floor of the second story is supported on four 8"x8" squared wood wall plates that encircle the structure and attach to the corner posts, as do the four 8"x8" squared wood top plates above that also encircle the structure and support the floor of the lantern room. Additional support is added between the stories by placing X-shaped cross bracing made out of 8"x8" wood timbers with chamfered edges between the corner posts and the sill and wall plates and between the corner posts and the wall plates and the top plates. Thus, each of the structure's four wall surfaces is supported by two superimposed X-shaped braces, the members of which are bolted and jointed at the point where they cross.

The Light's first story consists of a single room and some rudimentary storage and shelving units are arrayed around its base. Placed to the left of the entrance is the open well plank stairway that leads to the second story. Composed of two steep flights of wood treads (there are no risers) with a landing between them, the six-tread upper flight has a simple handrail that begins at a newel post at the landing level and which continues up to the second story level.⁷ This stairway leads up to the second story,

⁵ The parapet is accessed from within the lantern room through a small side-hinged half-door located in one of the eight sides of the lantern room base.

⁶ These sill plates are new members that exactly reproduce the dimensions of these severely deteriorated original ones that were replaced as part of the restoration.

⁷ The lower flight has seven treads.

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which, because of the Light's tapered sides, is smaller in dimension than the first story below. The floor of this story is made of tongue and groove boards and a simple plank seat/shelf is arranged around two sides of the lowest portion of this story as well. In addition, a storage locker having walls made of vertical boards is placed against one wall of this story.

A very steep plank stairway having twelve treads and no risers or handrails leads from the second story up to the still smaller lantern room above. The lantern room is reached through a side-hinged trapdoor in its floor, both door and floor being made of tongue and groove boards. The lower portion of the lantern room is circular in plan (the exterior of this portion has an octagonal plan) and its curved surface is made out of tongue and groove vertical boards. The lantern itself is octagonal in plan and consists of eight large single-light panes of glass that are held in place by thin wood mullions. Centered in the room is the cast iron lamp stand that once held the Light's original oil-lit lamp but which today is electrified and supports a halogen bulb housed in a clear glass shade. The ceiling of this room is made out of metal and it is octagonal in plan and conical in design. Exhaust from this light was originally expelled through a ventilator located in the ceiling's apex.

Lower Range Light

The Lower Grassy Island Range Light also was built in 1872 and it also now rests on a one-foot-thick reinforced concrete pad foundation constructed in 1999. This foundation pad is much larger than the one beneath the Upper Range Light, however; it extends some five to ten feet out from the Light on all four sides and it is edged by a balustrade composed of metal posts linked by chains.

This two-story structure is also square in plan and also measures 12.5-feet on a side, but it is approximately 25-feet-tall overall, nearly ten feet shorter than the Upper Range Light. Otherwise, it is essentially identical to its taller partner, both its design and the materials used in its construction being the same. Indeed, the principal difference between the two is one of height, both stories of the Upper Light being taller than those in the Lower Light and both stories having staircases that are correspondingly longer as well. The structures are not completely identical, however, since the Lower Range Light has two small window openings centered on its north-facing side elevation.⁸ These openings are square like the one on the Upper Range Light, they are centered on the elevation and arranged one above the other, there being one per story, and they each contain a single glass light. Otherwise, the design of this structure is identical to its taller partner.

⁸ The entrance door of the Lower Range Light faces east, as does the one on the Upper Range Light.

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Integrity

When one considers the exposed position of the Grassy Island Upper and Lower Range Lights during the 84-year period that they served as active navigational aids, the degree of integrity that is still present in them is surprising. To be sure, both Lights were in somewhat deteriorated condition when they were removed to the Green Bay Yacht Club grounds in 1966, but they were still in an almost completely intact state at that time and remain so today.

The only significant change that occurred to the Lights during the 33 year period (1966-1999) that they sat at the east end of the Club grounds was when their original exterior wood shingle siding was covered over with aluminum/vinyl siding. Fortunately, this modern siding has now been removed as part of the current restoration effort. This effort, which has been financed by several members of the Club at a cost that is now nearing \$100,000, has been undertaken both by some of the members, acting on a volunteer basis, and by professional contractors that have been utilized on an "as needed" basis. Most of the work, however, has been done by Club members, several of whom are themselves important area building trades contractors. This effort has also been overseen by the Neville Public Museum and the Brown County Historical Society, both located in Green Bay.

The primary intent of the restoration program has been to return the Lights to their original condition and modern materials that are identical to the originals have been used only when replacement was absolutely necessary. Mostly, this has involved replacing the few portions of partially deteriorated original wooden structural members that have been discovered as the work has progressed. In addition, it was also determined at the onset of the work that the original cedar shingles that covered the exterior and, especially, the metal nails that fastened them to the underlying wood siding, had deteriorated to the point where replacement was necessary. The subsequent removal of this outer skin also revealed other deteriorated structural members that needed partial replacement as well.

Before relocating the Lights to their current and permanent riverside site, great attention was paid to ensuring that the new foundation on which they were to sit would be a permanent one. New riprap was placed on the sides of the revetment and its north end was substantially rebuilt and lined on three sides with steel sheet piling. New concrete pads were then poured at opposite ends of the revetment and the Lights were lifted on to them and secured to the pads with galvanized bolts. These bolts pass through new 12x12" wooden sill plates that were crafted to replace the sometimes seriously deteriorated original 12x12" wooden sill plates that formed the bases of both structures. Other structural items that needed replacement were small portions of several of the original corner posts. Some of these original posts were composed of solid 8"x8" wooden pieces but others had portions that

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were built up of smaller pieces that were bolted together as well as being nailed. Rotted portions of both types were removed and new pieces of identical materials and dimension were substituted.

The other principal item that needed replacement were several of the glass panes that make up the lantern itself and the cast iron parapet that encircles the Lower Range Light's lantern room. Unlike the less deteriorated parapet associated with the Upper Range Light, which was restored, the original elements of the Lower Light had become too deteriorated to safely support persons maintaining the light so they were replaced with identical modern elements and the originals were placed in storage.

The resulting restoration and the extremely high quality of the work will go a long way towards ensuring that the Lights will continue to be a part of Green Bay's maritime heritage for many years to come. It is also intended to endow the Lights with sufficient funds to ensure their long-term maintenance.

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Grassy Island Range Lights
Green Bay, Brown County, Wisconsin

Significance

The Grassy Island Range Lights are nominated to the National Register of Historic Places (NRHP) for their local significance under National Register (NR) criterion C. More specifically, the Lights are nominated because of their association with the area of Architecture. Research was undertaken to assess the NRHP potential of the Lights utilizing the Great Lakes Navigation subsection of the Transportation study unit of the State of Wisconsin's Cultural Resource Management Plan (CRMP).⁹ The results of this research are detailed below and confirm that the Grassy Island Range Lights are locally significant under NR criterion C as fine, highly intact, and very rare and highly endangered early examples of the federally sponsored aids to navigation that have historically been associated with Green Bay and Lake Michigan.

The Grassy Island Range Lights were both completed in 1872 under the sponsorship of the U.S. Light-House Board as part of a larger harbor development scheme for the city of Green Bay. In 1867, when work on this scheme began, the city of Green Bay was well on its way to becoming one of the principal ports on Lake Michigan and on the western Great Lakes, but ships entering the harbor at that time had to make a several-mile-long detour around Grassy Island in order to enter and leave the port. The island is located approximately one-and-one-half miles north of the mouth of the Fox River and the entrance to the port of Green Bay. Consequently, it was proposed to dredge a straight shipping channel across the middle of the island to simplify and improve the passage of arriving and departing ships. Upon completion, two range lights would then be built at opposite ends of this several hundred-foot-long channel to guide ships safely through. By 1872, the construction of this channel was far enough along to justify the construction of a house for the light keeper and also the two lights themselves. All three of these elements were completed by October of 1872 and the lights were first lit on November 15, 1872.¹⁰

The Grassy Island Range Lights remained in continuous service until 1966. By that time plans were already in place to widen and deepen the Grassy Island shipping channel, which meant that the setting of the Lights would be destroyed. Fortunately, just when demolition seemed certain, members of the Green Bay Yacht Club persuaded the U.S. Coast Guard to allow them to move the Lights to a spot on the east end of the Yacht Club's grounds, which are located near the mouth of the Fox River.¹¹ This move happened later in the summer of that year and the Club then assumed ownership of the Lights.

⁹ Wyatt, Barbara (Ed.) *Cultural Resource Management in Wisconsin*. Madison: State Historical Society of Wisconsin, 1986, Vol. 2, 4-1 – 4-11 (Transportation).

¹⁰ *Report of the Light House Board of the United States*. Washington: Government Printing Office, 1873, p. 80.

¹¹ The Coast Guard was given responsibility for the nations' navigational aids when it was created in 1939.

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Grassy Island Range Lights
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In 1999, the Lights were moved once again to the west end of the Club grounds and to a location on the shore of the Fox River, and the current restoration effort began. This work, which will be completed in the summer of 2004, has now preserved what research shows to be both the second oldest surviving wooden navigational aids on Lake Michigan and among the oldest survivors to be found on any of the other Great Lakes.

History

A good historic overview of the city of Green Bay and its built resources is contained within the *Green Bay Intensive Resource Survey Final Report*.¹² In addition, large numbers of books detailing the lighthouses and other navigational aids built on the Great Lakes have appeared in recent years. Two of the most valuable for this nomination's purposes are Wayne S. Sapulski's *Lighthouses of Lake Michigan: Past and Present*, and Ken & Barb Wardius' *Wisconsin Lighthouses: A Photographic and Historical Guide*.¹³ These books contain excellent historical overviews of the development of lighthouses in general and of Wisconsin's numerous and historically important lighthouses in particular, overviews that also provide an overall contextual understanding within which to evaluate these structures. In addition, these books treat all of the state's lighthouses, including its range lights, in considerable detail. Consequently, this portion of the nomination will not attempt to repeat what has already been covered so well by others but will, instead, relate the history of the navigational aids in the southern portion of Green Bay and of those on Grassy Island in particular.

In the days before land travel transportation systems utilizing roads and railroads were developed and became the preferred method of transporting people and goods from place to place in Wisconsin and elsewhere, travel by water routes that utilized rivers, canals and lakes was both the fastest and sometimes the only means available. The importance of having access to such water routes in the first half of the nineteenth century in particular cannot be overemphasized and this was particularly true for the states like Wisconsin that bordered the Great Lakes, all of which enjoyed access to what soon developed into one of the nation's earliest and most important transportation systems.

¹² Howard Needles Tammen & Bergendorff with Timothy F. Heggland. *Green Bay Intensive Resources Final Survey*. Green Bay: City of Green Bay Redevelopment Authority, 1988.

¹³ Sapulski, Wayne S. *Lighthouses of Lake Michigan: Past and Present*. Manchester, MI: Wilderness Adventure Books, 2001; and Wardius, Ken and Barb: *Wisconsin Lighthouses: A Photographic & Historical Guide*. Madison: Prairie Oak Press, 2000.

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Grassy Island Range Lights
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Indeed, it was access to both the Fox River and to Green Bay and, by extension, Lake Michigan and places beyond, that was responsible for the establishment of what was to become the future city of Green Bay at the place where the Fox empties into the Bay.

The city of Green Bay is located on one of the most historically important water routes in North America. The Fox River, which empties into Green Bay, enabled smaller boats to pass from the Great Lakes and the early river settlements of Canada to the Mississippi River with one short portage between the Fox and Wisconsin rivers. It was an important fishing and hunting region for several woodland Indian tribes including the Menomonie, Winnebago [Ho-Chunk] and Fox. Later, it was a highway of exploration for French voyageurs and fur trappers. After the American occupation following the War of 1812, this was also a military route between Forts Howard, Winnebago, and Crawford at present day Green Bay, Portage, and Prairie Du Chien, respectively. The present city of Green Bay occupies a site of great geographic advantage at the point where the Fox River enters Green Bay. As such, it was the logical site for the state's first settlement.¹⁴

European settlement at the Green Bay location began as early as 1671, when Father Claude Allouez founded a Jesuit mission several miles up the Fox River at the site of the present day city of De Pere. By 1680, a fur trading outpost had been established near the site of present day Green Bay and the trading post and nearby mission would continue in existence until French influence in the area came to an end at the close of the French and Indian War. In 1761, the British founded the short-lived Fort Edward Augustus at a site on the west bank of the Fox River that, after the War of 1812, was rebuilt by U.S. troops in 1816 as Fort Howard.

Soon after the arrival of U.S. soldiers came representatives of John Jacob Astor's American Fur Co. and others. Gradually, communities developed on both sides of the river's mouth that would eventually merge and become the present city of Green Bay. In 1829, local businessman Daniel Whitney platted the Village of Navarino on the east bank of the river, this being the oldest part of what is today Green Bay. In 1835, the Village of Astor, located just to the south of Navarino, was platted by James Duane Doty and in 1838, the two were joined as the Borough of Green Bay. Even as the community evolved and grew, however, the economic importance of the fur trade to Green Bay was dwindling and by the 1830s, had been replaced by the products of the newly cleared surrounding farms and of the area's first industries. Fortunately for the producers of both, Green Bay's growth was also coupled to its

¹⁴ Howard Needles Tammen & Bergendorff with Timothy F. Heggland. Op. Cit., p. 10.

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emergence as an important Great Lakes port, a fact that gave area producers of all types an inherent advantage over producers in newer land-locked communities.

Also contributing to the growth of the port of Green Bay was the dream of building a canal through Wisconsin that would utilize the course of the Fox River and the Wisconsin River to connect Lake Michigan to the Mississippi River and eventually to the Gulf of Mexico. This dream first surfaced in the late 1820s as a result of interest created by the completion of the Erie Canal in New York state.

The modern era of water transportation on the Great Lakes began with the opening of the Erie Canal in 1825. For the first time, the Upper Lakes had a waterborne link with the eastern seaboard. The 363-mile long canal employed 83 locks as it extended its reach from the Hudson River across the Mohawk Valley to Lake Erie. Four years later in 1829, the Welland Canal bypassed Niagara Falls, making navigation possible between Lake Ontario and Lake Erie and opening the lower St. Lawrence River to shipping from the Upper Lakes. The 333-mile long Ohio and Erie Canal, connecting Cleveland to the Ohio River at Portsmouth [Ohio], opened the lakes to river traffic from the continental interior in 1832. The 97-mile long Illinois and Michigan Canal opened in 1848. It connected Chicago with the Illinois River at the town of La Salle, forming a link with the Mississippi River System. Other canals were built, all of which contributed to the expansion of shipping traffic on the Great Lakes.¹⁵

The first plan for the Fox, proposed in 1829, was to create a canal and locks at Portage, thereby connecting the Fox and Wisconsin river systems. Work on this 2½-mile long canal continued in fits and starts until June of 1856, when a small steamship, the *Aquila*, steamed into Green Bay after traveling from Pittsburgh via the Ohio and Mississippi rivers to Prairie Du Chien, then up the Fox-Wisconsin to Green Bay.¹⁶ Unfortunately, 1856 was also just one year before the first trans-Wisconsin railroad was completed from Milwaukee to Prairie Du Chien, an event that presaged the eventual dominance of the railroads as freight haulers, both in Wisconsin and elsewhere.

While the full scope of the Fox-Wisconsin improvement plans were never realized, Green Bay still benefited enormously from the efforts to improve navigation on the lower portion of the Fox River located between it and Lake Winnebago, which is the state's largest inland lake and on whose shores are located the important manufacturing cities of Oshkosh, Fond du Lac, and Neenah-Menasha.

¹⁵ Sapulski, Wayne S. Op. Cit., p. 12.

¹⁶ Wyatt, Barbara (Ed.) Op. Cit. Vol. 2, p. 2-2 (Transportation).

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To accomplish this end, dredging operations and the construction of locks to carry vessels around a series of rapids in the 170 foot drop between Lake Winnebago and Green Bay and to maintain adequate water levels between Oshkosh and Portage were begun. The improvement of the Fox River for navigation was completed in 1856. During the following decades further river improvements and water power projects along the lower Fox were carried out supported by congressional appropriations. ... Although river navigation between Portage and Green Bay was improved, the Wisconsin-Fox transportation route soon faced stiff competition from the railroads which by 1857 had reached Prairie Du Chien and by 1862 extended through the lower Fox River Valley to Green Bay. As the rails expanded across the southern third of the state during the 1850s, 1860s, and 1870s, much of the freight and passenger service was diverted from the Wisconsin-Fox waterway. River traffic and shipping activities along the lower Fox persisted into the early twentieth century, however, as the region's industrial base expanded and water resources were harnessed by grain and woolen mills and wood-related industries.¹⁷

Obviously, all plans to utilize the Fox River for this canal project also intended that the Great Lakes would be utilized as a highway to transport both people and produce and they also intended that the growing port city of Green Bay would be the canal's Great Lakes terminus. Such a course was dictated by geography, but it also recognized that Green Bay had been steadily growing in importance as a Great Lakes port throughout the first half of the nineteenth century, just as the Great Lakes themselves were becoming an ever more important part of the nation's economic life.

From about 1840 to 1870 larger schooners and steamers were built to bring settlers and immigrants west to Wisconsin and other developing states and to haul grain via the Great Lakes and the Erie Canal to eastern marketplaces. During this period the state's first deep harbor facilities, such as those at Milwaukee, lighthouses, beacons, and other navigational aids were built to guide shipping and commercial activity on the lakes. Construction was often supported by Congressional appropriations.

The primary commodity carried by lake vessels during the late nineteenth and early twentieth centuries was lumber cut from the vast stands of pine in northern Wisconsin. Millions of board feet of cut timber was hauled by schooners and tow barges from port cities such as Oconto, Marinette, and Green Bay.¹⁸

¹⁷ Ibid.

¹⁸ Ibid. Vol. 2, p. 4-1 (Transportation).

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As Green Bay grew as a port so too did its need for navigational aids. The earliest of these was the first Long Tail Point Light, an 85-foot-tall conical-shaped stone tower built at the southern end of Long Tail Point, which is a slender sand and gravel ridge that angles down from the west shore of Green Bay just below the mouth of the Suamico River almost to the center of the Bay, at which point its tip is some 3¼-miles north of the mouth of the Fox River. This massive lighthouse was built in 1847 of stone brought to the site from the mainland and it was first lit in 1847. Although now in ruins, Long Tail Point Light is the oldest extant lighthouse on Lake Michigan.

Even with this light in place, entering the port of Green Bay was still a chancy enterprise because the natural entrance to the port was a tortuous one.

The lower three miles of the Fox River running through the city of Green Bay is naturally deep and required little improvement. Additional dredging was necessary to deepen the river bed upstream to a turning basin at De Pere. Direct access to the mouth of the Fox River, however, was blocked by areas of shoal water and low-lying islands at the south end of the bay. The natural channel around these obstacles was convoluted and prone to shifting. A straighter channel to the mouth of the river was the goal of harbor improvements begun in 1867.¹⁹

The intent of the 1867 Green Bay harbor improvement project was to dredge a shipping channel, part of which would cut across the low lying Grassy Island that blocked a straight approach to the Fox River. A later account of this work printed in one of the Green Bay newspapers in 1871 made it clear why such a channel, called a "straight cut" at the time, was needed.

Formerly the passage leading from the River to the Bay was a tortuous one and vessels threading it were compelled to describe the letter W. This was occasioned by an island [Grassy Island] being situated directly north of the river's mouth, and a small stream emptying in from the west, and deflecting the current of the Fox River around the island.²⁰

To simplify this passage it was proposed to dredge a channel 200-feet-wide, 15-feet-deep, and two-miles long, a portion of which would include a channel cut across Grassy Island itself that would be lined by revetments and lit by beacons. This shipping channel would then continue all the way to the mouth of the river, some two miles to the south. Work began in 1867, using money appropriated by Congressional action, and was carried out during that part of the year when the bay was not iced over

¹⁹ Sapulski, Wayne S. Op. Cit., p. 203.

²⁰ *Green Bay State Gazette*, February 4, 1871, p. 3.

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by winter weather. Beginning with the 1869 season, Green Bay newspaper recorded the history of this project in some detail.

Harbor Improvements.—A private letter from Congressman Sawyer to a gentleman of this city states that there is \$40,000 ready for the government work on our harbor this spring. Capt. Richardson, the contractor, has the *Dredge* and the tug *Belle Chase* at the dock, being fitted out for the season's work. Operations of the cut will be commenced next week. The dredging will probably begin at stake No. 16, near the mouth of the river, as there appears to be a foot and a half less water at that point than there is in the cut.

Straight Cut.—On Wednesday Captain Gaylord, of the propeller *Rocket*, in company with other gentlemen, went down to the "Cut" at Grass Island, to examine the depth of the water, etc., and see in what condition Spring found the work. The Captain informs us that the result of their investigation was of the most satisfactory nature. By frequent sounding, they found that there was nowhere less than 11 ½ feet of water, and in most places the lead showed 12 feet. It was feared that during last fall, the channel current would more or less obstruct the cut, but it appears to have been deepened if anything. This result is cheering, and shows that when the cut is completed it will not require constant tinkering to keep it available. Steamboat men, especially lake mariners, will be glad to learn that they can use the new channel immediately upon the opening of navigation. The principal work needed now to make the passage is to have the old channel dredged near the first stake; when that is accomplished lake propellers with a full load can run through with ease.²¹

Another mention a few weeks later added that:

This season the channel through Grass Island will be cut to the width of 200 feet, and properly protected on either banks. Capt. Richardson is the contractor. Mr. John J. Williams, of this city, a practical engineer, has had the general supervision of the work entrusted to him by Maj. Wheeler.²²

A longer article written at the start of the 1871 season began with the paragraph quoted on a previous page (see footnote No. 20) regarding the original course of the natural channel before reconstruction began. The article then went on to describe the more recent work:

²¹ Ibid. April 24, 1869, p. 3.

²² Ibid. May 22, 1869, p. 3.

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The government took hold of the matter a few years since and through this island [Grassy Island] cut a channel which is constantly used by steamers and vessels of the largest class. The necessity of this "cut" arose from the fact that it materially lessened the distance, time, and care required to enter the harbor. It is especially of value to sailing vessels as they are enabled to make a "straight cut." The work on the "cut" has been well and satisfactorily performed, and is now nearly completed—a portion of the piling and the filling in on the east bank yet remains to be finished. \$155,000 has already been expended in this direction. The present session the bill reported by the congressional committee on rivers and harbors, of which Hon. P. Sawyer is chairman, contains an appropriation for \$50,000 for this harbor. The depth of the water which mariners calculate on, allowing for the fall of the tide, is 11 feet. When one or two localities shall have been dredged it will be safe to put it at 14 feet. The Green Bay harbor has always been the most commodious and safe on the great lakes, and is now as easy of entrance as any other. Green Bay people take a great pride in their harbor. It is beautiful and deep and wide and will float the whole navy of the lakes.²³

The following year began with an urgent request from the U.S. Light-House Board to the City of Green Bay regarding the ownership of the island.

Grass Island Light.—This morning Mayor Kimball received from Brig. Gen'l. O. M. Poe, Major of Engineers, for 11th Light House Dist., at Detroit, an official communication relative to the cessation of Grass Island by the city of Green Bay to the U.S. Government. It is necessary that action in this matter be taken at once in order to secure the appropriation of \$11,000 heretofore made by the Government for the erection of a Signal Light at this point; the condition of the appropriation being that work should be commenced prior to June 11th, 1872. The Mayor called a special meeting of the council this afternoon at which time it is probable the necessary action will prevail.²⁴

Not surprisingly, city action on the matter was swift and by February 17 an addendum to the City Council Proceedings published in the *Green Bay Gazette* stated that a deed for the island transferring ownership to the U.S. Government had been executed and filed in the Brown County Register of Deeds in pursuance with an action by the City Council taken January 25.²⁵ By mid-June the

²³ *Green Bay State Gazette*, February 4, 1871, p. 3.

²⁴ *Daily State Gazette*. January 25, 1872, p. 3. Green Bay officially became a city in 1854.

²⁵ *Daily State Gazette*. February 17, 1872, p. 4.

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newspaper could further report that "Work has been commenced on the range lights at the straight cut."²⁶ A week later another item noted that:

Range Lights.—Work in connection with the erection of the range lights at the straight cut is progressing. The house for the keeper is now well under way. It is located on Grass Point, immediately east of the east pier, and stands on a foundation of piles. Mr. A. Hart took charge of the pile driving. The house is to be 22x27, with a kitchen 12x27. Work on the structures for the lights will commence next week.²⁷

Not long thereafter another notice stated: "The dwelling for the light keeper, on Grass Island, is nearly finished and presents a fine appearance."²⁸ By mid-September, another notice stated that "One of the range lights at the straight cut has been placed in position."²⁹ By Mid-October nearly everything was in readiness.

Appointment.—Mr. J. B. Wing, of this city, today received the appointment of keeper of the range lights at the cut. He will enter upon his duties at once, and expects to exhibit the first light next Tuesday evening. The appointment is a first-rate one.³⁰

Two days later, Wing transferred his supplies to the new keeper's house and began his first season as keeper. It was to be an abbreviated season, however, because by the end of November the bay was icing up. The end of the month saw the completion of the Grassy Island range light's first season.

Light Keepers Mitchell and Wing now find their "occupations gone," and are ready to take their winter's rest. They lighted their lamps on the evening of the 28th for the last time.³¹

The Grassy Island Range Lights were the responsibility of the U.S. Light-House Board's 11th District, which was headquartered in Detroit, and which at that time oversaw all the light houses and other navigational aids on Lakes Saint Clair, Huron, Michigan and Superior. The *Annual Reports of the Light-House Board* are a basic source of information about the various entities that they were

²⁶ Ibid. June 13, 1872, p. 4.

²⁷ Ibid. June 19, 1872, p. 4.

²⁸ Ibid. July 9, 1872, p. 4.

²⁹ Ibid. September 19, 1872, p. 4.

³⁰ Ibid. October 19, 1872, p. 4.

³¹ Ibid. November 30, 1872, p. 4.

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responsible for and its *Annual Report* for 1873 is the first to mention what they called the Grassy Island lights.

1873. 614 and 615. *Grassy Island, Green Bay, Wisconsin*.—Both beacons, as well as the walk connecting them, were completed in October, 1872, and lighted for the first time November 15.³²

Despite the completion and staffing of the lights, though, work on the channel itself was still incomplete and would continue on into 1873.

Harbor Work. The work to be performed on the Green Bay harbor the present season commenced today (Wednesday) and will be diligently prosecuted. The improvement contemplated under the last appropriation of \$25,000, will be confined to straightening and deepening the channel within and at either end of the straight cut. At the east side of the inner end of the cut the channel will be straightened by removing dirt to the width of 150 feet and 300 feet in length. The entire channel will be deepened so as to allow 14 feet low water stage. Altogether the excavation will comprise about 50,000 cubic yards. The work is under the general direction of Major Houston, of the U.S. Engineer Corp., and Mr. Samuel Whitney, an engineer of experience, is stationed here and assumes the immediate direction. He superintended the harbor work at Menominee last season.³³

Even as work on the cut continued so too did J. B. Wing's first complete season of lighthouse duty. This position was no sinecure although one might be excused for thinking that manning a lighthouse station located in a very large, relatively well-protected bay just one-and-one-half-miles from the mainland and the city of Green Bay would be one of the easier postings on Lake Michigan. And probably it was most of the time, but there were exceptions and one of these occurred later in 1873 at the very end of October, when a sudden severe gale swept over Green Bay and northern Lake Michigan.

The incidents and accidents resulting from the unusual high water on Monday night continue to come to hand. The latest we obtain is from Mr. Jos. B. Wing, keeper of the light at Grass Island. The storm arose so suddenly that he had no time to prepare for it, and the first he knew

³² *Report of the Light House Board of the United States*. Washington: Government Printing Office, 1873, p. 80. 614 and 615 were the numbers assigned to the front and rear lights in that year. These numbers changed over the years as more lights were added to the District.

³³ *Daily State Gazette*. July 19, 1873, p. 3.

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the waves were rolling over the island and knocking loudly for entrance at his back kitchen door. They did stand long upon the order of going in, however, but burst in the door and rushed in with a plunge and a roar. A little more and the moveables were all adrift and sailing out of the opposite entrance. Of his loss here his memory dwells most fondly on two pair of boots. The situation was getting altogether too damp for the family and they were not long in taking the hint, and forming in single file for a march to the tower. The water had washed away the steps leading to the break-water, and it was with some difficulty that they reached this.—One of the little girls fell through but succeeded in saving herself. The waves continued to roll over the island and took off such property as a thrifty lighthouse keeper is apt to gather about himself.—Chicken-house, chickens, ten cords of wood, two boats, wheelbarrow, etc., etc., went floating off and are probably now bleaching on the Bay Settlement shore. Joseph is beginning to think that the breakwater isn't high enough, and we heard him this noon incidentally inquiring about a house to rent in the city.³⁴

Possibly it was damage from this storm and from subsequent storms that was responsible for the repairs of an unknown nature that were made to the range lights during the years 1875, 1876 and 1877, these lights being shown on the repairs lists for the 11th District that are included in the *Annual Reports of the Light-House Board* for these years.³⁵

The importance of these lights and the other navigational aids that aided shipping in Green Bay can hardly be overestimated. In the 1880s, for example, more flour was shipped from Green Bay than from any other port on the Great Lakes and it has been estimated that more than 7000 sailing ships and steamships visited this port during the nineteenth century alone.³⁶

By the late 1870s, the 220-foot-wide by 700-foot-long by 12½-foot-deep channel or "straight cut" across Grassy Island and all its essential supporting elements had been completed. These elements included: the channel itself; the 705-foot-long east revetment and the 602-foot-long west revetment, both of which were made of driven wood piles; the two-and-one-half-story-tall clapboard-clad, jerkinhead roof keeper's dwelling, which also had a one-story kitchen ell attached to its north side and

³⁴ *The State Gazette*. November 1, 1873, p. 3.

³⁵ *Annual Report of the Light-House Board to the Secretary of the Treasury for the Year 1875*. Washington: Government Printing Office, 1875, p. 70. *Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year ending June 30, 1876*. Washington: Government Printing Office, 1876, p. 54. *Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year ending June 30, 1877*. Washington: Government Printing Office, 1877, p. 47.

³⁶ Wardius, Ken and Barb. Op. Cit., pp. 39 and 49..

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which was located on the east side of the channel; and the two range lights, which were placed at opposite ends of the east revetment with the keeper's dwelling being placed in between them. The Grassy Island Lights station would receive additional repairs and a number of improvements during its eighty-four year history. Some of these were simply periodic repairs, while others were carried out as need and occasional storm damage dictated. Others changes represented the technological evolution of navigational aids themselves. Among the known changes are the following:

1884. 766. *Grassy Island (upper light), near the mouth of the Fox River, Green Bay, Wisconsin.*—A well 139 feet deep was drilled near the dwelling, lined with 4-inch iron pipe, and provided with a pump. It furnishes an abundant supply of good water.³⁷

In 1887, jurisdiction of the lights was transferred to the Light-House Board's newly constituted Ninth Light-House District, which had jurisdiction over the navigational aids on Lake Michigan.

1889. 902. *Grassy Island lower light, Green Bay, Wisconsin.*—A breakwater 86 feet long by 8 feet wide, was constructed to protect the east shore of the island; a landing dock 10 feet by 16 feet was built on the west side, and general repairs were made to the dwelling, boat-house, and boat-ways.³⁸

1890. 1018, 1019. *Grassy Island, upper and lower, Green Bay, Wisconsin.*—The paint was removed from the two opaque panels of the lanterns facing each other, so that the light will show in all directions.³⁹

1899. 504,505. *Grassy Island range, Green Bay, Wisconsin.*—A flag pole was furnished and erected.⁴⁰

³⁷ *Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year ending June 30, 1884.* Washington: Government Printing Office, 1884, pp. 75-76.

³⁸ *Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year ending June 30, 1889.* Washington: Government Printing Office, 1889, p. 131.

³⁹ *Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year ending June 30, 1890.* Washington: Government Printing Office, 1890, p. 138. 1890 also saw the beginning of a systematic program to provide every light station with an independent and fire-proof oil house within which to store the oil used to fuel the lamps.

⁴⁰ *Annual Report of the Light-House Board for the Fiscal Year ending June 30, 1899.* Washington: Government Printing Office, 1899, p. 148.

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1901. 537, 538. *Grassy Island (lower and upper) Green Bay, Wisconsin.*—Both towers at this station were thoroughly repaired. Some 40 cord of stone were placed as a guard against damage from high water. A brick oil house was built. Various repairs were made.⁴¹

1902. 565-566. *Grassy Island, Lower and Upper, Green Bay, Wisconsin.*—New improved fifth-order [Fresnel] lamps were installed. The boathouse was raised and placed on 17 posts, the posts were braced, and the sills of the house drift were bolted to the posts. A trestle walk some 44 feet long was laid from the boathouse to the landing crib, and a walk 65 feet long extending from the revetment work at the south side of the dwelling to the boathouse was raised upon posts.⁴²

By 1907 the Light-House Board was under the jurisdiction of the Secretary of Commerce and Labor.

1907. 595-596. *Grassy Island, Lower and Upper, Green Bay, Wisconsin.*—Materials for repairing the keeper's dwelling and protecting the grounds were obtained and on May 15, 1907, work was begun. A pile driver and engine were erected and fitted up for the work. All the round piles and sheet piling were driven for protection on two sides consisting of about 250 running feet.⁴³

Grassy Island does not reappear in the Annual Reports until 1929, by which time the lights were part of the Light-House Board's 12th District. In that year the lights were one of a number of lighthouse stations on Lake Michigan that were damaged by a savage storm that raked the lake on October 22, 1929, almost 56 years to the day after a similar storm in 1873 almost washed Grassy Island light's first keeper and his family off the island.

1929. *Storm Damage, twelfth district.*—Repairs of the damage to the lighthouse structures on Lake Michigan, caused by the storm of October, 1929, have been carried out at a number of stations, the more important of which are as follows: Michigan City; Calumet Harbor;

⁴¹ *Annual Report of the Light-House Board for the Fiscal Year ending June 30, 1901.* Washington: Government Printing Office, 1901, p. 157.

⁴² *Annual Report of the Light-House Board for the Fiscal Year ending June 30, 1902.* Washington: Government Printing Office, 1902, p. 179.

⁴³ *Annual Report of the Light-House Board to the Secretary of Commerce and Labor for the Fiscal Year. June 30, 1907.* Washington: Government Printing Office, 1907, p. 111.

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Sheboygan; Waukegan; Wind Point; Tail Point; Grassy Island; and Kenosha. Expended to June 30, 1930, \$20,871.⁴⁴

Repair work on these light stations continued into the following year as well.

1930. Hurricane Damages, twelfth district.—See report, 1930, page 30. Repairs to lighthouse structures on Lake Michigan and Green Bay caused by the storm of October, 22, 1929, which were begun in the previous fiscal year, were completed for major items at Calumet Harbor, Grassy Island, Kenosha, Michigan City, North Manitou, Sheboygan, Tail Point, Waukegan, and Wind Point. Total cost, \$14,968.⁴⁵

Subsequent Annual Reports do not give details about individual light stations. However, a brief history of the navigational aids in Green Bay written for the *Green Bay Press-Gazette's* Tercentennial Edition in 1934, contained one last item detailing changes being made to the lights in order to ensure that they could continue to meet the needs of the times.

Two lights, known as the Grassy island light or the First Light, were erected at the ends of the east revetment of the Grassy island cut, with the keeper's house between. By lining up these lights, the mariner could tell when he was headed properly for the cut.

For many years, these were fixed white lights, but mariners complained that it was difficult to distinguish them from the lights of the city directly behind. Therefore, this spring, they were changed to green flashing lights, operated by acetylene. Gregory Navarre is keeper.⁴⁶

The lights remained in active use until 1966. By that time, the completion of the St. Lawrence River Seaway project in the 1950s had resulted in ever larger oceangoing ships arriving at Great Lakes ports, including that of Green Bay. As a result, plans were made in 1966 to dredge the existing Green Bay shipping channel to make it deep enough and wide enough to receive the much larger ships that were now visiting the port. This resulted in the destruction of much of the remaining portion of Grassy Island itself and in the demolition of all the elements of the Grassy Island light station (with the sole exception of the two light towers) that had been so laboriously maintained up to that time.

⁴⁴ *Annual Report of the Commissioner on Lighthouses to the Secretary of Commerce for the Fiscal Year ended June 30, 1930.* Washington: United States Government Printing Office, 1930, p. 30.

⁴⁵ *Annual Report of the Commissioner on Lighthouses to the Secretary of Commerce for the Fiscal Year ended June 30, 1931.* Washington: United States Government Printing Office, 1931, p. 24.

⁴⁶ *Green Bay Press-Gazette.* Tercentennial Edition, Transportation Section, July 18, 1934, p. 18.

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Fortunately, the towers avoided demolition and were acquired by the Green Bay Yacht Club located on the east side of the Fox River just inside its mouth. For over 30 years, the towers sat neglected in the club's parking lot. Finally the first steps were taken toward restoration of these historical structures. In 1999, the towers were moved to their present positions near the entrance to the club's marina basin. Situated as they are, they form a pseudo-range marking the basin entrance. At night, the Grassy Island Range Lights once again display fixed white lights now produced by modern halogen bulbs.⁴⁷

Architecture

The upper and lower Grassy Island Range Lights are nominated for listing in the NRHP for their local architectural significance as largely intact examples of wood construction, mid-nineteenth century navigational aids, surviving United States examples of which have been found to be extremely rare and highly endangered, both on Lake Michigan and, indeed, on all of the Great Lakes. Specifically, the Lights are fine very early examples of the range light type, examples of which were always built in pairs, some pairs of which, like the Grassy Island Lights, were nearly identical in design, while other pairs differed considerably. Today, only three pairs of nineteenth century range lights survive on the Wisconsin coast of Lake Michigan (there are none on the Wisconsin coast of Lake Superior). The oldest of these, the Bailey's Harbor Range Lights located on the Lake Michigan side of Door County, were built in 1869 and are already listed in the NRHP (9/21/89). Next oldest are the Grassy Island Range Lights, both of which were built in 1872.⁴⁸

Lighthouses built on the coasts of the evolving United States first came under federal supervision in 1789, when Congress passed the National Lighthouse Act, which was administered by the Secretary of the Treasury's office. By 1852, the lamentable state of the nation's lighthouses and the nation's rapidly expanding maritime trade resulted in the creation of the U.S. Light-House Board, which was also at first placed under the supervision of the Secretary of the Treasury. The Board had responsibility for creating and administering all the nation's navigational aids, which included not only those found on the nation's seacoasts but also on the nations rivers and on the Great Lakes.

⁴⁷ Sapulski, Wayne S. Op. Cit., p. 207.

⁴⁸ The only other remaining pair of nineteenth century range lights on Lake Michigan are located on Plum Island off Door County. The still extant upper light was built out of metal in 1897, while the original wooden lower light was replaced by a metal one in 1964.

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The Lighthouse Board prepared extensive and detailed drawings of lighthouses it built, leaving little to the imagination of builders. Later, personnel from the U.S. Army Corp. of Engineers designed lighthouses. The Bureau of Lighthouses, established in 1910, apparently had its own group of designers, as does the Coast Guard, the administrator of U.S. lighthouses since 1939. Over the years some lighthouse plans became standardized.⁴⁹

The lighthouses that attract the most attention today are the tall, conical or round-shaped freestanding masonry construction towers such as the celebrated Cape Hatteras Light Station in North Carolina, built out of brick in 1870 and recently moved to a site further inland. Many of these lights were essentially one-off designs that applied one of the Lighthouse Board's general design types to a unique geographical location. Many other early light towers, however, were incorporated into the building that housed the keeper's quarters, creating what was quite literally a "lighthouse." Such an expediency recognized the fact that all of the earliest lights needed to be continuously manned during the shipping season because their source of illumination was some type of flammable material such as whale oil or kerosene. Many of Wisconsin's Lake Superior lighthouses, for instance, including most of those within the Apostle Islands Lighthouses Thematic Group (NRHP 3-8-77), are examples of this type of light station, as is the upper light of the Bailey's Harbor Range Light station. Such buildings were built of wood, brick, or stone and a number of the oldest surviving wooden light stations on the Great Lakes are examples of this type.⁵⁰ Not surprisingly, many others have not survived, due to deterioration, obsolescence, or the too potent combination of oil storage and an open flame in the same wooden building having sometimes resulted in their destruction.

Other early types of lights were range lights and pierhead lights, both of which were especially prevalent on the Great Lakes. These types were generally more modest structures and were usually found in association with a harbor entrance. The development of safe harbors along the coasts of the Great Lakes was a matter of the greatest importance in the nineteenth century because good natural harbors were exceedingly rare and this was especially true on Lake Michigan.

Most of the towns on Lake Michigan were established where small streams empty into the lake. The lower reaches and mouths of the rivers served as unimproved harbors. Unfortunately, the rivers were usually obstructed at their mouths by bars of sand and clay. ... On the western shore of Lake Michigan, the river channels also had a tendency to be deflected in a southerly

⁴⁹ Holland, Jr., F. Ross. *Great American Lighthouses*. Washington D.C: The Preservation Press, 1989, p. 29.

⁵⁰ The Old Mission Point Light (1870) on Grand Traverse Bay in Michigan is now the only really intact wooden example of this type on Lake Michigan. An identical one built in the same year was once located at Muskegon Harbor in the same state.

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direction from a straight course into the lake by shore currents driven before the prevailing northerly winds. The shore currents bent the natural channel off at a right angle and carried it parallel to the shoreline to form a long spit of sand between the river and the lake. Thus deflected, the river quickly became more shallow and would often run one-half mile or more before rejoining the lake.⁵¹

Lake Michigan harbor improvement projects designed to improve these naturally occurring conditions took many forms but "in all cases, harbors were improved by constructing parallel piers from just upstream of a river's mouth or the start of a dredged channel into the deeper water of the lake. The piers were constructed two hundred feet apart or less, as close to one another as was practical, so that the river freshets would wash away any sand that tended to settle in the channel between the piers."⁵² Such piers had to be lit for incoming ships to identify what was actually a quite narrow passageway, and this led to the development of specialized light types designed specifically for this purpose.

Lake Michigan ports, more than any others on the Great Lakes, are known for their lighthouses on piers and breakwaters. Structures built to house lights on the outer end of a pier are referred to as "pierhead" lights. Early pierhead lights were built of wood as that material was readily available and easily worked. Wood was also light in weight and would not overstress a timber crib foundation. Pierhead lights had to be strong in order to withstand the impact of waves and vibrations, yet compact in size because of the limited space available on the piers. As piers were extended out into deeper and deeper water, the lights at their ends were repeatedly picked up and moved out to the new end. At many ports, a system of range lights was established on one of the piers as an aid to navigators in lining up their approach to the harbor entrance. Usually, a rear range light structure was erected on the pier closer to shore with the pierhead light serving as the front light of the range. The keeper assigned to maintain the lights lived in a dwelling on shore near the base of the pier.⁵³

Pierhead lights and early range lights took many forms and examples were built of metal as well as of wood. One of the most frequently encountered and probably one of the earliest, was the type employed for the Grassy Island Range Lights, which is believed to have been an early standardized design created by the Light-House Board. This type consists of a wood frame structure, square at the base with sides that taper inwards equally towards the crowning lantern room, which gave the whole

⁵¹ Sapulski, Wayne S. Op. Cit., pp. 12-13. This was essentially the condition that prevailed at Green Bay before harbor improvement began in 1867.

⁵² Ibid, p. 15.

⁵³ Ibid, p. 17.

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structure an elongated pyramidal shape. Siding frequently consisted of wood shingles, which could be overlapped so as to give a nearly weatherproof skin, but wood clapboard also appears to have been common, and a typical feature was a wood or metal parapet that surrounded the usually polygonal lantern room. In the Grassy Island Lights, its cedar shingle over weatherboard siding served to enclose both stories of the light, which permitted the keeper to ascend to the lantern room in relative comfort. When this same light design was used as a pierhead light, however, the bottom story was frequently left open so that storm waves could pass under the structure with minimal impact.

Not surprisingly, most of the original wooden examples of this type of light, whether used as a range light, a pierhead light, or both, have now been demolished, either because of deterioration, obsolescence, or changing circumstances. In fact, the only Wisconsin examples that are still extant are the Grassy Island Range Lights and the Two Rivers North Pierhead Light, which has now been moved onto shore but which was originally built in 1886 as a two-story light having an open first story and a clapboard clad upper story.⁵⁴ How common lights on Lake Michigan that used this basic design once were can be seen by referencing Wayne S. Sapulski's recently published history of Lake Michigan lighthouses entitled *Lighthouses of Lake Michigan, Past and Present*. Sapulski's book covers all the extant lights on Lake Michigan and contains historic photos that show earlier now non-extant lights at these sites as well. Wisconsin pierhead examples of the general Grassy Island type, for example, were built at Port Washington (1889), Manitowoc (1850, rebuilt and enlarged in 1892), and Algoma (1893), the latter example was a range light as well.⁵⁵ Even more numerous were now non-extant examples of this type that were positioned along the Michigan coast. These lights included: North Manitou Island Light (1898); Frankfort South Pierhead Light (1873); Portage Lake North Pier Light (1891, rebuilt in 1901); Pentwater South Pierhead Light (1873); South Haven South Pierhead Light (1872); and St. Joseph North Pierhead Light (rebuilt 1890).⁵⁶

Of special note in this Michigan group are the now demolished Frankfort South Pierhead Light and Pentwater South Pierhead Light, both built in 1873, one year after the Grassy Island Range Lights. These lights are notable because they are almost exact contemporaries of the Grassy Island Lights and because they are the only other identified lights that share one of the most distinctive features of the Grassy Island Lights, which is the way the wooden portion of these square plan structures terminates in an octagonal shape just below the lantern, which was done by the expedient of chamfering the corners

⁵⁴ Sapulski, Wayne S. Op. Cit., pp. 170-171 (illustrated). This light was replaced by a modern steel light in 1969 and it has since been moved to the Rogers Street Fishing Village Museum in Two Rivers, WI, has been restored, and now has a modern wood base.

⁵⁵ Sapulski, Wayne S. Op. Cit., pp. 162, 168, and 178.

⁵⁶ Ibid, pp. 67, 75-76, 78, 89, 107-108, 111.

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of the structures at this point. This same feature is commented on by Sapulski: "In contrast to later designs, the lantern room [of the Pentwater Light, in this case] was supported by the sharply tapering upper walls of the structure, not by a lantern deck."⁵⁷ Of these three Lake Michigan light stations, only the Grassy Island Lights now survive to bear witness to what was probably a transitional phase of lighthouse design. In addition, another new book, *Great Lakes Lighthouses: American and Canadian*, which is an illustrated directory to all of the extant lights on the Great Lakes, suggests that the Grassy Island Lights are the only surviving examples of this design on all of the other Great Lakes as well. This same book also shows that the Grassy Island Lights – along with the very different Bailey's Harbor Range Lights and their almost identical twins, the Presque Isle Harbor Range Lights in Presque Isle, Michigan, built in 1870 on Lake Huron, – are now the only surviving wood construction nineteenth century pairs of range lights that survive on the U.S. coasts of the Great Lakes.⁵⁸

Thus, the Grassy Island Range Lights are now one of only three surviving pairs of nineteenth century range lights in Wisconsin, they are one of only two surviving Wisconsin and Lake Michigan examples of this particular type and method of light design and construction, and they also appear to be the sole surviving representatives of a possibly significant transition in the evolution of what was once an important and widespread early type of lighthouse design on the U.S. coasts of the Great Lakes. Consequently, the Grassy Island Range Lights are eligible for listing in the NRHP as fine representative examples of mid-nineteenth century wood construction range lights, range lights being one of the seven types of historic navigational aids that are specifically mentioned in the National Park Service's *Bulletin 34: Guidelines for Evaluating and Documenting Historic Aids to Navigation*.⁵⁹ Research has shown that range lights were once widespread on the Great Lakes but extant historic examples are now exceedingly rare. Consequently, the Grassy Island Range Lights are now among the only extant survivors of this now very rare and highly threatened resource type.

Criteria Consideration B

As noted elsewhere in this nomination, the Grassy Island Range Lights have now been moved from their original off-shore location in Green Bay onto a new site located on the banks of the Fox River

⁵⁷ Ibid, p. 89.

⁵⁸ Oleszewski, Wes. *Great Lakes Lighthouses: American and Canadian*. Gwinn, MI: Avery Color Studios, Inc., 1998. Interestingly, there are more extant wooden examples of the general Grassy Island type of range lights located on the Canadian coasts of the Great Lakes than are extant in the U.S. All three of these pairs, however, are late nineteenth or early twentieth century examples

⁵⁹ Delgado, James P. and Kevin J. Foster. *National Register Bulletin No. 34, Guidelines for Evaluating and Documenting Historic Aids to Navigation*. U.S. Department of the Interior, National Park Service, Interagency Resources Division; n.d., p. 2.

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that is within sight of their original location. The Lights therefore fall within the scope of Criteria Consideration B, which addresses resources that have been moved from their original location. The removal of a resource that is as site-specific as a lighthouse from its original location is a serious matter but, as *Bulletin 34* points out: "Aids to navigation relocated to serve new purposes after being decommissioned suffer a serious loss of integrity, but are not precluded from listing."⁶⁰ This statement recognizes the fact that many lighthouses were moved, sometimes more than once, during their active career, and it also recognizes that the serious nature of the threats to the nation's remaining historic lighthouses makes a flexible approach to listing valuable.

The serious nature of this threat has been well stated by the authors of *Bulletin No. 34*:

Lighthouses and sound signals are now passing from the American scene. Technological changes in the 20th century doomed manned lighthouses; the last keeper left his station in 1989, the Bicentennial year of America's lighthouses. Some lighthouses now stand dark, while others now automated still function. Many lights are in nonfederal hands. The Coast Guard has control over some 500 active lights. Other federal agencies are responsible for approximately 150 inactive light stations.

The ravages of time and weather strongly affect aids to navigation which were intentionally built in exposed locations. The harsh marine environment washes away foundations, dissolves mortar, crumbles stone and brick, and corrodes metal. Lighthouses are a finite resource in danger of being lost. The issue of lighthouse preservation is critical.⁶¹

The same *Bulletin* also states that an aid to navigation, in order to be listed in the National Register under Criterion C (Architecture) is usually found to be eligible for listing under Architecture if it is:

- 1) a good representative of a specific style of architecture, such as a Cape Cod style light;
- 2) a good representative of a special type, such as a screw pile, caisson, or octagonal stone tower; or

⁶⁰ Delgado, James P. and Kevin J. Foster. Op. Cit., p. 8.

⁶¹ Ibid, p. 3

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3)a good example of the work of a master.⁶²

It is believed that the Grassy Island Range Lights meet the conditions of Criteria Consideration B because they are good representative examples and almost the only remaining Great Lakes examples of a once common U.S. Light-House Board design that was used primarily for range lights and pierhead lights, which are light types that are especially associated with the history of navigation on the Great Lakes. It is therefore believed that the impressive effort made by the members of the Green Bay Yacht Club to preserve and restore the Grassy Island Range Lights is worthy of being recognized by having the Lights listed in the National Register of Historic Places for being among the earliest and among the last wooden, free-standing navigational aids that survive on the U.S. coasts of the Great Lakes and on the coasts of Wisconsin.

⁶² Delgado, James P. and Kevin J. Foster. Op. Cit., p. 7.

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VERBAL BOUNDARY DESCRIPTION

The Grassy Island Range Lights sit on the west edge of land known as: Part of Parcel 45, east side of the Fox River, described in 967-R-56-A, Brown County Registrar of Deeds. This land is owned by the Green Bay Metropolitan Sewage District but is leased to the Green Bay Yacht Club.

The Lights sit on the north and south ends of an approximately 250-foot-long by 30-foot-wide rectilinear sand and gravel revetment that forms a part of the east bank of the Fox River and comprises the west side of the boat basin operated by the Green Bay Yacht Club. The boundaries of this revetment are considered to be the boundaries of the site of the Grassy Island Range Lights.

Note: this site is located on the east bank of the Fox River approximately 1250-feet NNE of the north right-of-way of the highway bridge that carries Interstate Highway 43 across the Fox River.

BOUNDARY JUSTIFICATION

The original site occupied by the Grassy Island Range Lights has now been destroyed. The revetment that the Grassy Island Lights were moved on to in 1999 serves to protect the Green Bay Yacht Club's boat harbor from wave action caused by shipping on the Fox River. This revetment is both visually distinct and is also clearly distinguishable from the land and water that surround it and the only structures on it are the two range lights themselves.

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Items a-d are the same for photos 1 – 6.

Photo 1

- a) Grassy Island Range Lights
- b) Green Bay, Brown County, WI
- c) Timothy F. Heggland, August 30, 2003
- d) Wisconsin Historical Society
- e) General View, View looking NNW
- f) Photo 1 of 6

Photo 2

- e) Upper Range Light, View looking NW
- f) Photo 2 of 6

Photo 3

- e) Lower Range Light, View looking NW
- f) Photo 3 of 6

Photo 4

- e) Lower Range Light entrance, View looking NW
- f) Photo 4 of 6

Photo 5

- e) Lower Range Light interior, View looking SE
- f) Photo 5 of 6

Photo 6

- e) General View, View looking SW
- f) Photo 6 of 6