

Fast Sailors & Quick Sands: Underwater Archaeological Investigations from the 2015 Field Season



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SOCIETY**

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Note:

At the time of publication *S.C. Baldwin*, *Grape Shot*, *Lookout*, *Alaska*, and *La Salle* sites are pending listing on the State and National Registers of Historic Places. Nomination packets for each have been prepared and submitted to the Wisconsin State Historic Preservation Office.

Cover photo: Archaeologist Caitlin Zant documents the canaller *La Salle* off of Rawley Point, north of Two Rivers, Manitowoc County, Wisconsin.

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CHAPTER ONE

INTRODUCTION

Underwater archaeological surveys conducted by the Wisconsin Historical Society are a joint effort of several organizations and many individuals. The surveys conducted in this report are the result of a cooperative effort between the Wisconsin Historical Society, and the University of Wisconsin Sea Grant Institute. Project funding was provided by grants from the University of Wisconsin Sea Grant Institute and the Wisconsin Coastal Management Program. The surveys were organized and staffed by the Society's Maritime Preservation and Archaeology program staff and volunteers, and were conducted over the 2015 field season.

The Wisconsin Historical Society is the State of Wisconsin's principle historic preservation agency and charged under state statutes (44.02 and 44.30-44.31) with the research, protection, restoration, and rehabilitation of historic properties within Wisconsin. Under Wisconsin statute 44.47, the Society is also charged with the identification, evaluation, and preservation of Wisconsin's underwater archaeological resources, including submerged prehistoric sites, historic shipwrecks, and aircraft on state-owned bottomlands. Recognizing the multiple-use value of underwater archaeological sites to scientists, historians, and recreationalists, these underwater remnants of our past are broadly termed "submerged cultural resources". Submerged cultural resource management goes beyond the scope of traditional historic preservation programs, encountering diverse multiple-use concerns such as recreation and commercial salvage.

The State of Wisconsin has additional management responsibilities for submerged cultural resources under federal law, including the National Historic Preservation Act of 1966 and the Abandoned Shipwreck Act of 1987 (Public Law 100-298). State legislation (1991 Wisconsin Act 269) and modifications to state law in adherence with federal guidelines issued under the Abandoned Shipwreck Act has provided Wisconsin with a more formalized and rational framework for underwater archaeological resource management. This legislation also authorizes the Society and the Wisconsin Department of Natural Resources to designate underwater preserves for the preservation and recreational development of underwater archaeological sites.

Created in 1988, the Society's Maritime Preservation and Archaeology program works to survey, inventory, and evaluate Wisconsin's underwater archaeological resources, develop preservation strategies, administer field management practices, and enhance public appreciation and stewardship for Wisconsin's precious and fragile maritime heritage (Cooper 1992; 1993). The program is within the Society's Division of Historic Preservation, Office of State Archaeology and Maritime Preservation. To encourage preservation and visitation of these unique resources while fostering wider public appreciation for Wisconsin's maritime cultural heritage, the Society began the Wisconsin's Maritime Trails initiative in July 2001. Winding above and below the waves, the Maritime Trails encompass five stretches of Wisconsin's coastline and inland waterways and links shipwrecks, lighthouses, historic waterfronts, historic vessels, museums, shore-side historical markers, and attractions. When viewed as a metaphorical "trail", these resources illustrate the state's diverse maritime heritage and connect them within the overall

context of Wisconsin's, as well as the greater Great Lakes region's, maritime heritage (Green and Green 2004).

The Maritime Trails initiative has become the Society's strategic plan for managing the state's diverse submerged cultural heritage while encouraging preservation and promoting public awareness and visitation. Initiatives aimed at identifying, managing, and interpreting Wisconsin's coastal cultural resources must consider these resources at both a local and regional level. The sheer length (approximately 860 miles), as well as the geographical, social, and cultural diversity of Wisconsin's Great Lakes coastline makes this essential. The Maritime Trails initiative encourages both divers and non-divers to consider each unique maritime property within the broader context of Wisconsin's maritime history. Through websites, interpretive materials, and public presentations, the Maritime Trails initiative integrates archaeological research and public education to encourage visitors to responsibly visit maritime cultural heritage sites. Wisconsin's Maritime Trails' major elements include:

Archaeological Research. The documentation of Wisconsin's submerged cultural resources, primarily historic shipwrecks, is the foundation of the Maritime Trails initiative. Beyond academic and resource management applications, archaeological research results form the basis of interpretation and outreach projects.

Shipwreck Moorings. With volunteer assistance, the Society maintains permanent moorings on 30 historic shipwrecks statewide. These moorings facilitate recreational access, provide a means of interpreting the wreck sites to visitors, provide a safe point of ascent and descent for divers, and eliminate anchor damage from recreational boaters anchoring into the site.

Dive Guides. Designed with divers, boaters, and kayakers in mind, these rugged, waterproof guides place each vessel within its historical context and highlights unique site features that might otherwise go unnoticed. In partnership with the University of Wisconsin Sea Grant Institute, the Society has produced guides to 25 Wisconsin shipwreck sites.

Public Presentations. Given at a variety of venues throughout the state, public presentations provide a direct, personal connection between the Society and the general public. The Society's underwater archaeologists and volunteers have reached thousands of people via public presentations since the Maritime Trails' inception.

Interpretive Signage and Kiosks. As of January 2016, the Society has installed shore-side informational markers for 41 historic shipwrecks and waterfronts. Utilizing an identical template that unifies the signs as attractions and information points within the statewide Maritime Trails program, the markers emphasize the broader connection between Wisconsin's many coastal historic resources. Six interactive touch-screen kiosks that highlight Wisconsin's historic shipwrecks are installed at the Wisconsin Maritime Museum in Manitowoc, the Wisconsin Historical Museum in Madison, the Wisconsin Historical Society's Madeline Island Museum in La Pointe, the Door County Maritime Museum in Sturgeon Bay, Door County Maritime Museum in Gills Rock and the History Museum at the Castle in Appleton. The kiosks reach an estimated

368,000 museum visitors annually and make archaeological research results available in a fun, interactive format while educating visitors on the importance of Wisconsin's coastal cultural resources.

Maritime History Geocaches. Taking participants on self-guided tours of local maritime heritage sites, or modern commercial use of the Great Lakes and their tributaries, thirty-three Maritime History Geocaches have been placed around the state in the communities of Superior, Two Rivers, Manitowoc, Milwaukee, and throughout Door County. A full listing of available geocaches under the name "WiscMaritime" can be found at <http://www.geocaching.com/seek/nearest.aspx?u=WiscMaritime&submit4=Go>

Websites. Two websites dedicated to Wisconsin's historic shipwrecks, underwater archaeology, and maritime history ensure the general public has access to timely and useful information. The Wisconsin's Maritime Trails website (www.maritimetrails.org), which serves as a unified "maritime resource" information point for Wisconsin's residents and visitors. Unveiled in 2003, and updated in 2011, this website features a statewide database of shore-side maritime-related resources. A searchable database includes contact information, Web links, and maps for historical maritime venues, as well as location and historical data for shipwrecks. Wisconsin's Great Lakes Shipwrecks (www.wisconsinshipwrecks.org) is a collaborative effort between the Society and the University of Wisconsin Sea Grant Institute that began in 1996. Making underwater archaeological research results accessible to the public, this site features detailed information on the over 700 historic Wisconsin shipwrecks in all of Wisconsin's waters. Each shipwreck profile includes information about the ship's archaeology, history, final voyage, sinking, and current condition. This website was updated in 2014.

Partnerships. The Maritime Trails program partners with federal, state, and local agencies, chambers of commerce, non-profit organizations, and individuals. With several core partners, dozens of volunteers, and a growing list of project-specific partners, this aspect of the initiative ensures that everyone with a stake in Wisconsin's maritime heritage shares in its management and interpretation.

Research Design and Methodology

Nineteenth-century Great Lakes wooden ship construction and operation is poorly understood. Little is known about how vessels were built and operated during the nineteenth century. As a result, much of what we know about Great Lakes merchant vessels has come from the archaeological record of vessels that now lay on the Great Lakes bottomlands. The archaeological surveys within this report were designed to provide a better understanding of nineteenth-century Great Lakes merchant vessel construction and use.

Field survey methods included traditional baseline surveys aided by digital photo and video documentation. Archaeological documentation was conducted along guidelines established by the National Park Service for submerged cultural resource survey and evaluation in determining site eligibility for the National Register of Historic Places. Research designs were directed toward

formulating site descriptions and archaeological assessments with a package of management questions, some specific to the site itself (i.e. location, environment, parameters, integrity, extant features, and artifacts), as well as more general questions that place the site within its broader historical context (i.e. historical significance, archaeological potential, recreational potential, and management requirements). Research objectives and methods included:

1. Determine the site location, environment, and parameters through visual survey of extant elements, features, artifacts and documentation and mapping of exposed remains using trilaterated survey points and an onsite (submerged) datum. Additionally, document the site using photographs, video, and measured sketches of those architectural and archaeological elements that are diagnostic of a) vessel type, b) vessel age, c) vessel construction style and method, d) vessel propulsion, e) vessel use, f) vessel identification, g) vessel cargo, and h) shipboard human activity broadly indicative of occupation, status, ethnicity, subsistence or other questions allied with the study of maritime anthropology and Great Lakes social and economic history.
2. Provide assessment of a site's environmental and cultural context for determining its historic significance and archaeological potential according to the National Register of Historic Places criteria, recreational potential, and management requirements.

Site evaluation and documentation was conducted using closed-circuit scuba technology. Documentation included digital photo mosaics, measured sketches, construction schematics, digital still and video imagery, and scaled site plans for National Register-level documentation. Analysis was conducted using comparative evidence obtained from archaeological surveys of similar sites, and augmented by historical documentation relating to individual sites and general Great Lakes maritime history. Where artifacts were encountered, material culture was interpreted in the context of its relevance to shipboard activities, shipboard hierarchy, shipboard activity/use areas, and other aspects of maritime anthropology.

This submerged cultural resource survey report serves as a source document for site description, analysis, interpretation, and management recommendations used in cultural resource management planning, recreational development, and public education. It also serves as the source document for eligibility determination and nomination for listing on the National Register of Historic Places. Inclusion of these sites on the National Register and state resources management plans is an important step in achieving long-term site preservation. Suggested plans for management include mooring buoys to facilitate recreational access (where appropriate) and alleviate damage caused by on-site boat anchoring. Other possibilities include site interpretation for visitors through self-guided site maps and Web-based pages. Site preservation ensures availability both as a future recreational resource and as an important and nonrenewable source of scientific data relating to Great Lakes underwater archaeology, maritime history, marine architecture, and maritime anthropology.

CHAPTER TWO CONVERTED STONE BARGE *S.C. BALDWIN*

The steamer *S.C. Baldwin* was designed in 1871 by Master shipwright Frank E. Kirby and built under the supervision of Captain Ira H. Owen, one of the vessel's owners at the Campbell, Owen & Company shipyard in Detroit, Michigan. One of the earliest shipyards in Detroit, from 1857 to 1861 it ran under the name G. Campbell & Co., from 1861 to 1867 as Campbell & Owen, and from 1867 to 1873 as Campbell, Owen & Co., Thereafter, the company operated as the Detroit Dry Dock Company, the more well-known and prolific iteration of the yard. Campbell, Owen & Co. was owned by Captain Gordon Campbell, Honorable John Owen, Elbridge G. Merrick, John N. Fowler, and Henry Esselstyn. Due to a medical condition, in May of 1870 Frank Kirby succeeded Gordon Campbell as firm's president. Located at the foot of Orleans Street on 600 feet of Detroit River frontage, they operated two floating dry docks, a large sawmill, and two steam shears for hoisting boilers, machinery, and masts (Bureau of Navigation 1871a; Framer 1884; Lenard 1887; Ross and Catlin 1898).

S.C. Baldwin's designer, Master shipwright Frank E. Kirby was a graduate of New York's prestigious Cooper Union Institute. Henry Ford, who held an apprenticeship at Detroit Dry Dock Company in the early 1880's, held Kirby in such high esteem that he had the name "KIRBY" engraved above the doors at Ford Motor Company's engineering lab for inspiration alongside the names of great scientists such as Galileo, Copernicus, Newton, and Edison (Leake 1912; Olson 1963). Many catalogues of vessels constructed at the Campbell, Owen & Co. yard suggest that *S.C. Baldwin* was the first bulk carrier built by the company.

S.C. Baldwin was launched in late March 1871, and enrolled at Port Huron, Michigan on 26 April 1871. Her official number was U.S. 23957. The ship received an A1 insurance rating and was valued at \$40,000. At her launch, *S.C. Baldwin* measured 160 feet in length, 30 feet in beam, with an 11.6 foot depth of hold, a gross tonnage of 418 tons, and was described as having one deck, one mast, a plain head and a round stern (Bureau of Navigation 1871). The steamer was outfitted with an engine of 287 nominal horsepower, built by the Detroit Dry Dock Engine Works, which featured a cylinder with a 26-inch bore, a stroke measuring 32-inches and had a "double crank". Her boiler was 18 feet long, built of iron at another of Frank Kirby's companies, the Wyandotte Shipbuilding Company (*Buffalo Commercial Advertiser* 1871a, 1871b; Warren, Johnson & Co. 1871; U.S. Merchant Vessel List 1871).

Constructed for the Escanaba & Lake Michigan Transportation Co., *S.C. Baldwin* was purposely built to carry cargoes of iron ore from Escanaba, Michigan to Milwaukee, Wisconsin and Chicago, Illinois. She was surmised to be the strongest boat built to date in a Detroit shipyard. In her construction it was reported that 4-inch thick outer hull planking, and 6-inch thick ceiling plank was chosen, but it is believed that this was incorrectly reported. The hull was through bolted, with keyed scarfs; a construction technique that had never previously been used in Detroit. In addition to through bolting, the vessel was planked to the rail, inside and out, and a two-foot raised floor was built above the bottom of her hold on heavy timbers, to strengthen her for the ore trade. With her load higher, this created a higher center of gravity, with the intention of a steadier

sail. She was named *S.C. Baldwin*, after one of the officers of the Chicago & Northwestern Railroad. Captain Hugh McGaw of Detroit was assigned as her first Master, with James Howard as Chief Engineer. Her homeport was St. Clair, Michigan (*Buffalo Commercial Advertiser* 1871a; Bureau of Navigation 1871).



Figure 1. *S.C. Baldwin* sitting high in the water at dock (C. Patrick Labadie Collection).

The Escanaba & Lake Michigan Transportation Company's leaders, Parks Foster, William R. Owen, and Ira H. Owen received a 5-year charter for "all the iron ore they could carry". The company put *S.C. Baldwin* straight into service along with the other vessels in the fleet, the steamer *St. Clair*, and the tow barge *Agnes L. Potter*. It was anticipated that their ships would haul upwards of 75,000 tons during the 1871-season (Beers 1894; *Buffalo Commercial Advertiser* 1871a).

At the Port of Chicago on 25 May 1871, Captain McGaw was replaced by Captain J. Owen as Master. It is not known how long Owen maintained his position at the helm. Captain McGaw's return as the vessel's captain is not noted in the ship's enrollment documents, but is mentioned in newsprint by mid-season (Bureau of Navigation 1871, *Buffalo Commercial Advertiser* 1871c; *Escanaba Tribune* 1871).

Despite the 5-year charter for ore held by the Escanaba & Lake Michigan Transportation Company, no records could be located for *S.C. Baldwin*'s 1872-shipping season. On 24 March 1873, Thomas E. Walker took command of the vessel from Captain McGaw at Chicago (Bureau of Navigation 1871). Immediately following the change in command, *S.C. Baldwin* was taken in

for major repairs at Miller Brothers Dry Dock Company located on the Chicago River just above the Chicago Avenue Bridge. There, the two-year-old vessel received an additional upper deck, calking, and other repairs estimated at \$2,500. The additions increased the ship's carrying capacity, requiring the vessel to be re-admeasured. On 5 April 1873, inspectors calculated 406.56 tons capacity under tonnage deck, 224.43 tons capacity of enclosures on the upper deck, for a total of 633.99 tons. A new temporary enrollment was entered at the Port of Chicago. Captain Thomas E. Walker remained her Master, and St. Clair, Michigan, her homeport. With the addition of a second deck, *S.C. Baldwin* is reputed to be the first double-decked steamer on the Great Lakes (Bureau of Navigation 1871, 1873; *Chicago Tribune* 1873a; Polk 1891).

S.C. Baldwin continued to pick up shipments of between 550 tons and 647 tons of iron ore from Escanaba throughout the 1873-navigation season. She would arrive light (without cargo), load ore, and deliver to the ports of Milwaukee, Chicago, and Evanston, Illinois (*Chicago Tribune* 1873b, 1873c, 1873d, 1873e; *Escanaba Tribune* 1873).

Before the opening of the 1874-navigation season, on 21 April, Captain Thomas E. Walker entered the Chicago Customs House and paid the ship's hospital taxes. This \$34.84 tax covered three officers and ten men for a year and provided researchers insight into staffing levels required of a typical ship of *S.C. Baldwin*'s size working in the mid-1870's (Bureau of Navigation 1873).

S.C. Baldwin served the Escanaba-Chicago iron ore trade May through July 1874. The vessel would arrive light at Escanaba then deliver combined cargoes of iron ore and pig iron to the North Chicago Rolling Mill Company. Quantities varied for iron ore from 304 to 848 tons, and for pig iron between 300 and 350 tons. On occasion *S.C. Baldwin* would take in tow the 279.16 gross ton schooner barge *Agnes L. Potter*. *Agnes L. Potter* was built at St. Clare, Michigan in 1870 and measured 133.0 feet in length, 27.0 feet in width with a 9.0 feet depth of hold. Together they could carry 1,113 tons of iron-ore (*Chicago Daily Tribune* 1874a, 1874b, 1874c, 1874d; *Inter Ocean* 1874a, 1874b, 1874c; *Escanaba Tribune* 1874a, 1874b; U.S. Merchant Vessel List 1901). In August *S.C. Baldwin* was chartered to haul 430 tons of old railroad iron from Chicago to Sandusky, Ohio. During this trip, she sprang a leak while transiting Lake Michigan, requiring \$400 in repairs to the vessel (*Inter Ocean* 1874d, 1874f). By the end of August, the vessel was placed on the Escanaba-Milwaukee iron ore route to supply the Wisconsin Iron Company. She continued on this route through the end of October. On 26 September *S.C. Baldwin* was forced to pass up Milwaukee and head for dry dock at Chicago for repairs. A storm caught her out on the lake and tore her mast free. During the storm, she also parted the line with her tow barge. The barge was picked up a few hours later and towed into Milwaukee's iron ore dock (*Chicago Daily Tribune* 1874e, 1874f; *Daily Milwaukee News* 1874; *Inter Ocean* 1874e).

In the month of April 1875 alone, *S.C. Baldwin* was noted to have completed seven round trips between Escanaba and Milwaukee in the course of twenty-eight days. The propeller *I.H. Owen* another steamer of the same line make six round trips to Chicago in the same time period (*Escanaba Tribune* 1875a). *S.C. Baldwin* was placed on the Chicago-Escanaba route in May (*Chicago Tribune* 1875a). While ore laden and passing Milwaukee southbound in a dense fog on the evening of 2 June 1875 with the *Agnes L. Potter* in tow, *S.C. Baldwin* collided with the side-

wheel steamer *Flora*. *Flora* was bound from Milwaukee to Ludington. Both vessels were signaling each other with their steam whistles in the fog for nearly three-quarters of an hour before the collision. As the two vessels neared, *Flora*'s Captain Cochrane blew a long blast, cautioning *S.C. Baldwin* to keep on the course she was steering. This signal was answered and repeated several times. When finally they were near enough to make out the other, *S.C. Baldwin* was crossing the *Flora*'s bow. *Flora*'s Captain ordered her engine stopped, and reversed. *Flora* began to move slowly astern when she received a glancing blow from *S.C. Baldwin*. *Flora* suffered damage to her stem iron and outer hull planking. Damage to *S.C. Baldwin* is unknown; though likely small as she continued carrying pig iron and iron ore from Escanaba to Chicago, with an occasion trip to Milwaukee, without delay through November 1875 (*Escanaba Tribune* 1875b, 1875c, 1875d, 1875e, 1875f; *Inter Ocean* 1875a, 1875b, 1875c, 1875d, 1875e, 1875f, 1875g). By 4 December 1875, *S.C. Baldwin* put up in Chicago for winter quarters (*Chicago Daily Tribune* 1875b).

The 1876-navigation season on Lake Michigan kicked off later than normal due in part to ice that still lingered in the Straits of Mackinac and in both Little and Big Bays de Noc. The propellers *S.C. Baldwin* and *Ira H. Owen* and their barges were chartered to transport 100,000 tons of ore from Escanaba to the Milwaukee Iron Company and North Chicago Rolling Mill Company. *S.C. Baldwin* and the propeller *Ira H. Owen* with their consorts, the schooners *Agnes L. Potter* and *C. Mears* first arrived into Escanaba on 20 April 1876. They loaded at the ore dock and departed for Chicago (*Escanaba Tribune* 1876a, 1876b). *S.C. Baldwin* continued on this route throughout the season. On 15 October 1876, *S.C. Baldwin* was forced back to Chicago harbor due to severe weather and reported a failure in her machinery (*Inter Ocean* 1876).

In the early morning hours of 28 April 1877, during a blinding snowstorm, *S.C. Baldwin* was loaded down with iron ore and went ashore at North Reef near Thunder Bay Light on Lake Huron. She filled with water and sank. The crew was rescued by the Lifesaving Station at Thunder Bay and with the help of the tug *Farrar*. A wrecking crew was sent from Detroit on the tug *Winslow* with pumps to release the steamer. After a week's work, *S.C. Baldwin* was freed and towed to Detroit for repairs. Captain Walker telegraphed to the owners that the boat had lost her forefoot, sprung many of her outer hull planks, and that the ship was generally strained amidships, however none of her cargo was lost. Back at Detroit Dry Dock Company, seventy-five men were put to work on the vessel at the cost of \$7,500 in repairs (*Cleveland Herald* 1877a, 1877b, 1877c; *Port Huron Daily Times* 1877; *Daily Milwaukee News* 1877; *Inter Ocean* 1877a).

S.C. Baldwin arrived back into Escanaba on 18 June 1877 following repairs. A large party of ladies and gentlemen was taken on a Sunday afternoon excursion aboard the vessel in Little Bay de Noc off Escanaba in late July. The ship was put back on the Chicago-Escanaba route through mid-September (*Escanaba Tribune* 1877a, 1877b, 1877c; *Inter Ocean* 1877b, 1877c). By mid-September 1877, it became evident that the *S.C. Baldwin* needed additional repairs and she was taken to Miller Brothers Dry Dock in Chicago. On 24 September, with repairs completed, *S.C. Baldwin* was chartered to carry grain with the barge *Agnes L. Porter* as her tow. On 26 September, *S.C. Baldwin* and *Agnes L. Potter* were being towed up the North Branch of the Chicago River when another tug created confusion by running alongside. The *Agnes L. Potter*

was driven into the dock with a heavy glancing blow. Evidently little or no damage was done (*Inter Ocean* 1877d, 1877e, 1877f). In October, *S. C. Baldwin* and her consort *Agnes L. Potter* completed multiple trips to Chicago with iron ore from Escanaba (*Chicago Tribune* 1877; *Inter Ocean* 1877g, 1877h, 1877i, 1877j).

On 8 April 1878, Captain William Spencer took over as Master. The next day *S.C. Baldwin* cleared Chicago for Escanaba on her first trip of the year (Bureau of Navigation 1873; *Chicago Tribune* 1878a; *Inter Ocean* 1878a). *S.C. Baldwin* ran cargoes of iron ore into Milwaukee through June 1878 (*Daily Milwaukee News* 1878a, 1878b, 1878c, 1878d; *Inter Ocean* 1878b, 1878c). From July through the end of November the ship delivered iron ore to the North Chicago Rolling Mill Company (*Inter Ocean* 1878d, 1878e; *Chicago Tribune* 1878b).

In December 1878 investors in the North Chicago Rolling Mill Company and the Milwaukee Iron Company organized as the Inter Ocean Transportation Company of Milwaukee. Their charter gave them a monopoly on the ore and coal carrying trade of the rolling mills at both Chicago and Milwaukee. The new company bought the *S.C. Baldwin* for \$22,000, as well as arranged for the purchase of the propeller *Ira H. Owen* and the consort barges *Agnes L. Potter* and *Jessie Linn* (*Chicago Tribune* 1878c, 1879a). A new enrollment was entered at the Port of Milwaukee on 10 February 1879 by S.P. Burt, Secretary of the Inter Ocean Transportation Company expressing sole ownership of the *S.C. Baldwin* by the company. S.P. Burt was listed as the vessel's new Master and Milwaukee her new homeport. On 22 April 1879, Captain James E. Lax took over command (Bureau of Navigation 1879). Throughout the season *S.C. Baldwin* ran multiple trips each month on the Chicago-Escanaba route bringing ore and pig iron to the North Branch Rolling Mill (*Chicago Tribune* 1879b, 1879c, 1879d, 1879e, 1879f, 1879g, 1879h, 1879i, 1879j, 1879k, 1879l, 1879m, 1879n, 1879o, 1879p, 1879q, 1879r; *Inter Ocean* 1879a, 1879b, 1879c, 1879d, 1879e, 1879f, 1879g, 1879h, 1879i, 1879j, 1879k). On 2 November 1879, *S.C. Baldwin* collided with cannalier *Sunshine* that was lying near the Kinzie Street Bridge in Chicago. *Sunshine*'s side was crushed in and her deck heaved more than three feet.

Worsening the damage, *S.C. Baldwin* was fully loaded with iron ore; fortunately *Sunshine* had already unloaded her grain when the accident occurred. A tug towed *Sunshine* to the Miller Brothers Dry Dock fearing she would sink (*Inter Ocean* 1879l). A cold snap over the week of 16 November caused the berths at the ore dock in Escanaba to ice closed with *S.C. Baldwin* and *Agnes L. Potter* in the process of loading. The two vessels were freed and arrived at the Port of Chicago on 29 November (*Chicago Tribune* 1879s, 1879t).

The iron ore fleet of the Inter Ocean Transportation Company was put up at Chicago for the winter quarters, and each ship received general repairs and overhauls during the 1879-80 winter months (*Chicago Tribune* 1879s, 1879t). *S.C. Baldwin* received a new sternpost, new floor, and calking totaling \$600 (*Chicago Tribune* 1880a). On 6 April 1880 a new enrollment was entered at the Port of Milwaukee by company president, S. Clement, indicating a change in location of the company offices. Captain R. Allison became the vessel's new Master (Bureau of Navigation 1880).

S.C. Baldwin and her consort, *Agnes L. Potter* were placed back on the Chicago-Escanaba route for the 1880-season. *S.C. Baldwin* took on average 650 tons of ore per trip (*Chicago Tribune* 1880b, 1880c, 1880d, 1880e, 1880f, 1880g, 1880i, 1880j, 1880k, 1880l, 1880m, 1880n, 1880o, 1880p, 1880q, 1880r, 1880s, 1880t, 1880u, 1880v, 1880w, 1880x, 1880y, 1880z, 1880aa, 1880bb, 1880cc, 1880dd, 1880ee, 1880ff, 1880gg, 1880hh, 1880ii, 1880jj, 1880kk 1880ll; *Inter Ocean* 1880a, 1880b, 1880c, 1880d, 1880e, 1880f, 1880g, 1880h, 1880i, 1880j, 1880k, 1880l). While steaming southbound with a cargo of ore offshore of Waukegan, Illinois, on 12 May 1880, sailor John Joyce was brutally assaulted by the ship's Mate, Thomas Gaffrey. Joyce filed a complaint upon arrival at Chicago. Police Commissioner Hoyne investigated the incident. Gaffrey was subsequently taken into custody and held on \$500 bond awaiting trial. The cause of the dispute is unknown as is the results of the trial. *S.C. Baldwin's* cargo was unloaded and she cleared for Escanaba on 14 May (*Chicago Daily Tribune* 1880h, 1880i).

While leaving South Chicago harbor at 9 PM on 23 October 1880, *S.C. Baldwin* struck what was thought to be a submerged obstruction in the deep-water channel near the red channel marker. She hit it twice and with such force that by the time she reached Chicago harbor, water covered her fire hold and the crew needed to put the pumps to work. The ship was taken directly to the Miller Brothers Dry Dock. It was discovered at the shipyard that the vessel actually came in contact with the bottom, not an obstruction, and hit so hard as to cause her outer hull planking to spring at several locations resulting in the leak (*Chicago Tribune* 1880mm, 1880nn).

On the evening of 26 October 1880, *S.C. Baldwin* departed Milwaukee for Escanaba with the barge *Golden West* in consort. Shortly out in the lake, they encountered a northeast gale and snowstorm. Captain Allison was forced to turn back at 8 AM the following morning. In running back for the safety of the harbor, *Golden West* needed to be dropped outside to ride out the gale at anchor. The pair finally made Escanaba on 29 October (*Daily Milwaukee News* 1880a; *Chicago Tribune* 1880oo). *S.C. Baldwin* was able to make three trips in November before going into winter quarters at Chicago sometime during the first week in December (*Chicago Daily Tribune* 1880pp, 1880qq, 1880rr, 1880ss, 1880tt; *Daily Milwaukee News* 1880b).

S.C. Baldwin was returned to the Chicago-Escanaba route for the 1881-season making frequent deliveries of upwards of 675 tons of ore to the North Chicago Rolling Mill Company (*Chicago Tribune* 1881a, 1881b, 1881c, 1881d, 1881e, 1881f; *Inter Ocean* 1881a, 1881b, 1881c, 1881d, 1881e, 1881f, 1881g, 1881h, 1881i, 1881j, 1881k). On 13 August a gale from the northeast forced *S.C. Baldwin* and her tow, the schooner *C.G. Trumppff*, to seek shelter in Milwaukee harbor. The pair was able to clear the harbor later that same evening (*Chicago Daily Tribune* 1881g). *S.C. Baldwin* continued to carry cargoes of iron ore from Escanaba to Milwaukee and Chicago through November (*Chicago Tribune* 1881h, 1881i, 1881j, 1881k, 1881l; *Inter Ocean* 1881l, 1881m, 1881n, 1881o, 1881p, 1881q, 1881r, 1881s, 1881t).

Before the opening of the navigation season for 1882, Inter Ocean Transportation Company sold *S.C. Baldwin* to lumber baron David Whitney, Jr. of Detroit, Michigan (Bureau of Navigation 1882a). David Whitney, Jr. earned his wealth in the lumber industry in Massachusetts. He moved to Detroit in 1857 and started two firms, C. & D. Whitney, Jr., and Skillings, and Whitney

Brothers & Barnes; both companies acquired large tracts of timber, particularly pine. Whitney's operations became the most extensive lumber operators of the Midwest. Additionally, Whitney owned an extensive fleet of steam barges and consortships utilized principally in the lumber trade, but also used in the iron ore trade on Lake Superior. Whitney's amassed wealth was invested in large amounts of real estate in Detroit, in stocks of many banking institution, and in manufacturing plants in connection with the lumber industry (Clarke 1922).

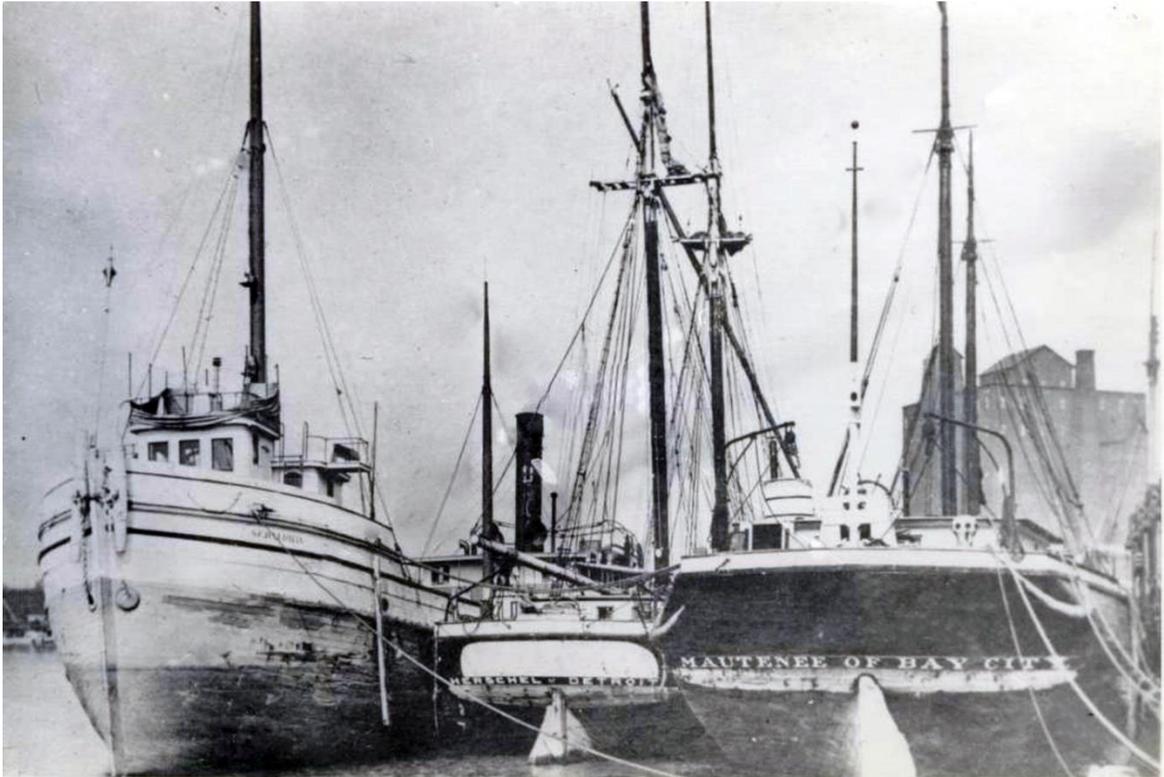


Figure 2. *S.C. Baldwin* at port along with the vessels *Herschel* of Detroit and *Mautenee* of Bay City, Michigan (C. Patrick Labadie Collection)

Due to the sale of the vessel, a new enrollment was entered at the Port of Detroit on 6 April 1882. Her homeport was changed to Detroit, and R. Cason was listed as Master (Bureau of Navigation 1882a). After acquiring *S.C. Baldwin*, David Whitney, Jr., had her upper deck removed to outfit her for use in the lumber trade (*Inter Ocean* 1882a). Following the refit, the vessel was re-admeasured at Detroit on 24 April 1882 and a new enrollment was entered for the vessel. With removal of the upper deck, her tonnage changed to 412.54 tons of which 406.56 tons was capacity under tonnage deck and 5.98 tonnage of deck enclosures. Her new Master was listed as Captain W.H. Williams (Bureau of Navigation 1882b). On 2 August at Tonawanda, New York, Captain W.H. Williams was replaced by Captain James Connors. Sometime after the passing of the Act of Congress of 5 August 1882, tonnage deductions were penciled onto *S.C. Baldwin*'s enrollment though not dated, of 56.28 tons, adjusting her net tonnage to 356.26 tons (Bureau of Navigation 1882b). On 21 August 1882 while off Grosse Point, Michigan, *S.C. Baldwin*'s engine failed leaving her stranded. Her consortships proceeded on to Cheboygan, Michigan under sail. The

S.C. Baldwin was towed to the Miller Brothers Dry Dock in Chicago for repairs (*Chicago Tribune* 1882; *Inter Ocean* 1882b).

Little more is known of *S.C. Baldwin*'s 1883-shipping season than several notices of the ship with her consort barges passing Detroit upbound or downbound throughout the season (*Inter Ocean* 1883a, 1883b, 1883c, 1883d).

During the first week of May 1884, *S.C. Baldwin* experienced engine problems in the storm on Lake Erie shortly after she cleared Buffalo. The vessel was forced into Port Colborne, Ontario. The vessel's original engine was replaced with a 450-horsepower steeple compound engine (Boyd 2015; *Buffalo Morning Express* 1884). On 13 June *S.C. Baldwin* and three barges with lumber passed Detroit downbound, and two days later they passed Port Colborne downbound in the Welland Canal carrying lumber from Pequaming, Michigan to Ogdensburg, New York (*Chicago Tribune* 1884a; *Inter Ocean* 1884a). In July and August, *S.C. Baldwin* and consort barges frequented Lake Superior making several trips from the ports of Duluth, Minnesota and Hancock, Michigan to Ogdensburg, New York with lumber (*Chicago Tribune* 1884b, 1884c, 1884d, 1884e; *Inter Ocean* 1884b). The vessel's shipping season extended into November. On 24 November, she was hauling coal from Ogdensburg to Toledo, Ohio when the ship and her consort were forced to take shelter at Port Colborne. They remained in port for two days awaiting favorable weather (*Chicago Tribune* 1884f, 1884g; *Inter Ocean* 1884c, 1884d, 1884e)

In 1885 *S.C. Baldwin* was employed hauling lumber to Ogdensburg and taking coal westward, from Arthur G. Yates' coal docks at Charlotte, New York. Her consorts were commonly the schooners *Grace Whitney*, *Eureka*, and *Albany* (*Chicago Tribune* 1885a, 1885b; *Inter Ocean* 1885a; Saward 1891). In July and October coal was delivered to Milwaukee; in August coal was delivered to Houghton, Michigan (*Chicago Tribune* 1885b, 1885c, 1885d, 1885e; 1885f). In November, *S.C. Baldwin* made several trips carrying lumber from Pequaming, Michigan to Ogdensburg, New York; she sailed light on her westbound trips (*Chicago Tribune* 1885g, 1885h, 1885i; *Inter Ocean* 1885b, 1885c). On 16 November 1885, *S.C. Baldwin*, with the barges *R.L. Fryer*, *S.E. Marvin*, *Grace Whitney*, *Eureka*, and *Albany*, were chartered to take lumber from Buffalo to Toledo for their last run of the season (*Chicago Tribune* 1885j).

During the first week of May 1886, *S.C. Baldwin* along with her consort barges *Albany*, *India*, *Grace Whitney*, and *Dashing Wave* loaded lumber at Bay City, Michigan and cleared for Chicago. As they were off Cheboygan, Michigan, upbound on Lake Huron on 10 May, it was discovered that *India* was leaking. She had three feet of water in her hold and began to list. The *S.C. Baldwin* dropped the lines to the other barges and came alongside *India*. The crew secured ropes from the top of her masts to keep her upright as they side towed her into the Straits of Mackinac. In calmer water, a portion of *India*'s deck load was lightered onto *S.C. Baldwin* and *India* was pumped out. The leak was due to overloading, causing water to wash over the ship and through her deck. *S.C. Baldwin* went back for the other barges and they reunited with the *India* in Mackinaw City, Michigan. A few thousand pounds of lumber was distributed to the other barges in order to complete the trip (*Chicago Daily Tribune* 1886a, 1886b). In June, July, and August coal was hauled from Charlotte, New York over two trips to Milwaukee, and one to Hancock,

Michigan, with return trips east loaded with lumber for Tonawanda, New York (*Chicago Tribune* 1886c, 1886d, 1886e, 1886f, 1886g, 1886h, 1886i, 1886j 1886k; *Inter Ocean* 1886a, 1886b).

On 30 August 1886, a thick fog settled over the St. Mary's River between the Straits of Mackinac and the Soo. *S.C. Baldwin* and her consorts ran aground inside of Churchill Point, twelve miles below Sault Ste. Marie in Lake George. The steambarge *R.J. Hackett* and her consort stranded in the bottom clay on the same point. The tug *Mystic* was called to release all of the vessels (*Detroit Tribune* 1886a 1886b). For the remainder of the season, *S.C. Baldwin* and consorts carried coal from Charlotte, New York to Chicago, returning east with lumber from Chicago to Ogdensburg, New York. The ship and consorts were windbound at Port Colburne for two days in mid-November (*Chicago Tribune* 1886l; *Inter Ocean* 1886c).

What is known of *S.C. Baldwin*'s 1887-early shipping season is through notices of the ship's movements with consort barges past Detroit, or passages through the Welland Canal and Soo Locks. In March, May, June, and July *S.C. Baldwin* hauled lumber shipments from Marquette, Michigan, to Ogdensburg, New York (*Chicago Tribune* 1887a, 1887b, 1887c, 1887d, 1887e, 1887f; *Inter Ocean* 1887a, 1887b). On 30 September *S.C. Baldwin* was chartered to pick up coal at Ashtabula, Ohio. She arrived at Escanaba on 6 October. The vessel was returned to haul lumber into Ogdensburg for the remainder of the season, making several trips. *S.C. Baldwin* and consorts were forced to shelter in Chicago on 11 November (*Chicago Tribune* 1887g; *Iron Port* 1877; *Inter Ocean* 1887c, 1887d, 1887e)

S.C. Baldwin continued in the lumber trade for the 1888-shipping season. In May the ship brought lumber to Chicago from Point au Sable, Michigan and loaded consorts *India*, *Dashing Wave*, and *Grace Whitney* at Frankfort, Michigan, with more than 2,500,000 feet of lumber for Buffalo. For her return trip east, she and her consorts brought coal from Buffalo to Milwaukee at 86 cents per ton (*Chicago Tribune* 1888a; *Inter Ocean* 1888a, 1888b). From August through October *S.C. Baldwin* and consorts brought coal to Lake Linden, Portage, and Houghton, Michigan from Buffalo and returned east with lumber (*Chicago Tribune* 1888b, 1888c, 1888d, 1888e; *Inter Ocean* 1888c, 1888d, 1888e, 1888f). The vessel mostly remained out of newsprint for her 1889-shipping season. Only one record was located documenting the ship and barges passing upbound at Detroit on 26 September 1889 at 9:30 AM (*Inter Ocean* 1889).

The schooner barges *Whitney* and *India* were towed by *S.C. Baldwin* during her 1890-shipping season. The steamer made one trip each month, May through October, between Cleveland, Ohio and Washburn or Ashland, Wisconsin on Lake Superior. She steamed upbound either light or with coal, and return downbound with lumber (*Chicago Tribune* 1890a; *Inter Ocean* 1890a, 1890b, 1890c, 1890d, 1890e, 1890f, 1890g, 1890h). By 14 December 1890 she was put in winter quarters at Detroit (*Chicago Tribune* 1890b).

On 13 April 1891, a new enrollment was entered at the Port of Detroit for *S.C. Baldwin*. Ownership of the vessel was taken out of David Whitney, Jr.'s name and moved to his business, Whitney Transportation Company. Captain J.C. Myers became the vessel's new Master. All else remained unchanged (Beeson 1892; Bureau of Navigation 1891). In May and June 1891, trips

were made between Chicago and Cheboygan, Michigan. By September *S.C. Baldwin* was frequenting the ports of West Superior and Ashland on Lake Superior to load lumber for Chicago (*Chicago Tribune* 1891a, 1891b, 1891c; *Inter Ocean* 1891)

In mid-February 1892, David Whitney, Jr. put the steamer *S.C. Baldwin*, and the barges *India*, *Grace Whitney*, *Dashing Wave* up for sale. *India* sold to William Brake and others of Marine City, Michigan, and *Grace Whitney* sold to Captain William Webb and others of Detroit; each vessel sold for \$4,000. It is unknown who purchased the schooner barge *Dashing Wave*. *S.C. Baldwin* sold for \$16,500. Captain John Kelly and Edward R. McCarthy both of Saginaw, Michigan, each owned 1/3, and Captain S.R. Maclaren, lumber dealer of Toledo, Ohio, owned the remaining 1/3 of the vessel. A new enrollment was entered at the Port of Toledo on 16 April 1892. *S.C. Baldwin*'s homeport was changed to Toledo and Captain S.R. Maclaren became her new Master (Bureau of Navigation 1892; *Marine Review* 1892a, 1892b). During the 1892-season, the steamer carried lumber and coal and called on the ports of Buffalo, Chicago and Green Bay. On the night of 24 May 1892, *S.C. Baldwin* stranded on Grassy Island while upbound in the Detroit River. The tug *International* pulled her free (*Buffalo Enquirer* 1892; *Inter Ocean* 1892a, 1892b, 1892c, 1892d, 1892e).

During the 1893-season, *S.C. Baldwin* towed the barges *A.A. Carpenter* and *Myron Butnam*. She was chartered to carry coal from Buffalo to Chicago in May and coal at 55 cents per ton to Racine, Wisconsin in July. On the morning of 11 August, *S.C. Baldwin* and her consorts were towed through the Sturgeon Bay Canal bound for Menominee, Michigan to load lumber; they arrived at Buffalo on 29 August (*Chicago Tribune* 1893; *Door County Advocate* 1893; *Inter Ocean* 1893a, 1893b). No other records for the season were located.

S.C. Baldwin and her consorts *A.A. Carpenter* and *Myron Butnam* delivered coal to Chicago and departed on 23 April 1894. Shortly after leaving the port, the towline parted between *S.C. Baldwin* and her barges, and Captain Maclaren lost sight of them. The barges were picked up and brought back to Chicago by another vessel. *S.C. Baldwin* returned to Chicago on 28 April to pick up the lost vessels (*Democrat* 1894a). Throughout the season, *S.C. Baldwin* was charter to haul coal from Buffalo to Chicago in June, Sandusky to Kenosha, Wisconsin in August, and from Cleveland to Green Bay in September (*Chicago Tribune* 1894a, 1894b; *Inter Ocean* 1894a, 1894b, 1894c).

At 3:30 PM on the afternoon of 5 November 1894, *S.C. Baldwin* had three barges in tow was loaded with lumber, and was upbound at the turn in the St. Clair River at Marine City, Michigan. The steamer *Iron King* with the schooner *Queen* in tow, loaded with ore was downbound. According to the Mate of the *Iron King*:

As the *King* had but one schooner in tow, while the *Baldwin* had three, we were going much the faster. As we both neared Marine City, a tow was sighted abreast of Fawn Island, bound up. The *Baldwin* blew two whistles to the tow, as I supposed, and I, of course, did not answer. Then I blew one whistle, indicating to the *Baldwin* that I wanted to pass between her and the American shore, and she answered with one. I had gotten abreast of her second barge when

she headed in toward Marine City. I was in a pocket. The *Queen* cast off her two lines and anchored. I thought I could get out of the scrape by going ahead and porting my wheel and I gave orders accordingly. The *Baldwin* continued in, however, and as we came abreast, she struck the *King* on the port side, 20 feet from the bow, but such was our momentum that we damaged her sufficiently to cause her to sink. At the time of actual contact Captain Millen had taken command, and we were backing full power, but the sheer we took went us aground (*Marine Record* 1894b).

S.C. Baldwin's crew escaped and was rescued by people in small boat from shore, but the *S.C. Baldwin* sank immediate in the middle of the river. *Iron King* was taken to dry dock in Detroit, and after examination was declared seaworthy, escaping the collision nearly unscathed. After the accident was reviewed, it was determined that Captain Maclaren of *S.C. Baldwin* was at fault (*Chicago Daily Tribune* 1894c; *Decatur Daily Republican* 1894; *Democrat* 1894b; *Marine Record* 1894a, 1894b). By the morning of 9 November, *S.C. Baldwin* had been raised and the steamer *Salina* and the tug *Boynton* towed the sunken steamer from Marine City to Port Huron for repair (*Door County Democrat* 1894).

S.C. Baldwin was back in service by August 1895. Record of only one trip was located for the vessel for the season documenting a trip clearing Chicago light on 1 August bound to Ontonagon, Michigan and her arrival back at Chicago on 17 August with lumber (*Chicago Tribune* 1895; *Inter Ocean* 1895). Documentation of other trips during the season was not located.

On the morning of 10 July 1896, *S.C. Baldwin* and her consort barges *A.A. Carpenter* and *Myron Butman* came into Sturgeon Bay light and were met by the tugs *Harrison Ludington* and *Golden* which towed them to Menominee to load with lumber. Another arrival at Sturgeon Bay with pick up by escort tugs from Menominee was recorded on 3 August. Capt. J. Maddigan was at the helm of *S.C. Baldwin* as Master, which was not expressed in her enrollment documents (*Door County Advocate* 1896a, 1896b). On 19 November 1896, while attempting to make a landing at Menominee's coal dock, a log jammed in the steamer's propeller making it impossible to back the engine. *S.C. Baldwin* crashed into the dock's iron loading bridge, carrying away her foremast, pilothouse, and forward cabin (*Chicago Tribune* 1896; *Door County Advocate* 1896c).

At the Port of Buffalo on 22 April 1897, Captain James Maddigan officially amended the vessel's enrollment and took over as Master of *S.C. Baldwin* from Captain Maclaren (Bureau of Navigation 1892). On 12 May 1897, *S.C. Baldwin* and consort barges *A.A. Carpenter* and *Myron Butnam* cleared the Sturgeon Bay Canal downbound to an unreported destination. On 26 June the trio met the tug *Harrison Ludington* for an escort into Menominee. During the last week of July, *S.C. Baldwin* dropped the *A.A. Carpenter* and *Myron Butnam* at the foot of Green Bay. The schooner barges proceeded into the city of Green Bay under canvas to deliver coal from the lower lakes. *S.C. Baldwin* steamed to Milwaukee. On 30 July, *S.C. Baldwin* took on a cargo of 140,000 feet of basswood lumber at Sturgeon Bay, and then proceeded to Green Bay to pick up the barges. She towed them to Menominee to load lumber onto each, and *S.C. Baldwin*'s load was finished out before departing for the lower lakes. Other trips were recorded in October including an arrival

at Chicago with lumber (*Advocate* 1897a, 1897b; 1897c; *Inter Ocean* 1897a, 1897b). *S.C. Baldwin* wintered over at Buffalo (*Marine Review* 1898).

Record of only one trip was located for the vessel for the 1898-season as *S.C. Baldwin* and consorts passed Detroit upbound at 10:30 PM on 20 June. Her destination is not known (*Chicago Tribune* 1898). Documentation of other trips during the season was not located. Similarly, little is known of her 1889-season. On 3 October 1889, *S.C. Baldwin* with two barges in tow was noted passing Sturgeon Bay light and downbound, having delivered a cargo of coal at Milwaukee. At the dock at North Tonawanda, New York on 21 October 1889, a lamp exploded causing \$500 in fire damage to *S.C. Baldwin* (*Advocate* 1889a, 1889b).

On 20 April 1900, *S.C. Baldwin*'s enrollment document was surrendered at the Port of Toledo for a change in owners. Captain James Maddigan of Buffalo, New York bought out the 1/3 share in the vessel owned by Captain John Kelly. Captain S.R. Maclaren returned as Master. All other information remained the same (Bureau of Navigation 1900). At the Port of Buffalo Captain James Maddigan relieved Captain Maclaren on 28 April 1900 (Bureau of Navigation 1900). No other information was found for the 1900-shipping season. *S.C. Baldwin* disappeared from the historic record for 1901-shipping season and for most of the 1902-season. On 4 November 1902 *S.C. Baldwin* with the *A.A. Carpenter* and *Myron Butnam* in tow passed through Sturgeon Bay light to load lumber at Menominee. They had previously dropped off coal cargoes from the lower lakes consigned to Milwaukee and Racine (*Advocate* 1902). The condition of the steamer was of some concern to the editors at *The Advocate* (1902) stating, "The *Baldwin* is not the looking boat that she was years ago, since her afterbody has settled to such an extent, the constant heavy towing being a great strain on that portion of the hull; but nevertheless, she's a horse to pull and she snakes her consorts along as fast as ever."

At 9:30 PM on the evening of 20 November 1903, while working through ice in Green Bay, 10 miles north of the entrance to the Fox River, near Long Tail Point, *S.C. Baldwin* pierced her hull, rapidly filled and sank in 24 feet of water. *S.C. Baldwin* had been loaded with 500,000 board feet of lumber and been bound from Green Bay to Buffalo with the barges *A.A. Carpenter* and *Myron Butnam* in tow. The Goodrich steamer *Georgia* responded to distress signals. She came alongside the sinking steamer to rescue the crew and assist in transferring them to the barges that had anchored nearby. Captain Maddigan was taken to Marinette where he sent word for a tug. The tug *Nelson* arrived on the scene on 21 November and finding it impossible to raise the steamer sent for another tug. The tug *A.J. Wright* arrived on 23 November. The two tugs were successful in dragging *S.C. Baldwin* about twenty-five feet into deeper water where she settled at the stern. In this action, her deck load of lumber slid off and carried away her cabin and upper works. Captain Maddigan made the decided to abandon the ship after what had been done. Captain Maddigan had paid off his one-third share in the craft just the trip before the disaster, and the vessel and cargo were partially covered by insurance. Captain Maddigan vowed to return in the spring to at least save the machinery, which was of the most value. The two barges were towed to Menominee by the tug *A.J. Wright*, and taken to Buffalo in tow of the steamer *Pridgeon* (*Advocate* 1903a; *Buffalo Evening News* 1903; *Door County Advocate* 1923; *Door County Democrat* 1903; *Janesville Daily Gazette* 1903).

A renowned underwater salvager known as “Diver Isabell” was hired to examine *S.C. Baldwin*’s hull by Leathem & Smith Company, who was in charge of the wrecking operations. He offered his opinion that the hull was not broken and could be raised as soon as the ice hardened enough for recovery operations. Diver Isabell suggested a cofferdam be erected around the wreck, to have openings in the vessel boarded up, and the water pumped out (*Advocate* 1903).

In February 1904, Adolf Green, owner of Green Stone Company of Sturgeon Bay purchased the sunken steamer from Captain Maddigan and the other vessel owners. Green’s son, Otto assisted in the operation and arranged a boiler and steam pump to be taken from their stone quarry to begin the process of raising the wreck. Piles were driven along each side of the ship and chains passed underneath. She was gradually raised, resting on the chain cradle. After lifting the vessel, water was pumped out. A channel was cut through the ice to take the boat into Green Bay harbor. Several sleigh loads of *S.C. Baldwin*’s pine and hardwood lumber cargo were recovered from the water-filled hull during the salvage. The lumber remained the property of the insurance companies (*Buffalo Evening News* 1904; *Door County Democrat* 1904a, 1904b, 1904c).

S.C. Baldwin was in bad condition following her salvage; most of her hull was worn away. After temporary repairs were made, she was moved to Sturgeon Bay on 7 June 1904 and placed in dry dock where the vessel began conversion for use in the stone trade. Her boiler and engine were removed. Nine months after salvage *S.C. Baldwin*’s boiler was put in steambarge *George C. Burnham* (*Advocate* 1904a, 1904b; *Door County Democrat* 1904d).

More than a year after the vessel was refloated, a new enrollment was entered at the Port of Milwaukee. Adolph Green of Green Bay became *S.C. Baldwin*’s sole owner and Master. The vessel was changed to a tow barge. Her tonnage was recalculated as 406.56 tons capacity under tonnage deck, 5.98 tonnage of enclosures on the upper deck for a gross tonnage (calculated by the Act of 5 August 1882) of 412.00 tons with deduction under Section 4153 of 5.98 tons, for a net tonnage of 406 tons. Her homeport was changed to Sturgeon Bay (*Advocate* 1905a; Bureau of Navigation 1905). On 3 June 1905, Otto A. Green registered as the vessel’s new Master (Bureau of Navigation 1905).

By mid-June 1905, the vessel began operating as a stone barge for the Green Stone Company, hauling limestone from Sturgeon Bay to Milwaukee and ports up and down Lake Michigan’s coast. *S.C. Baldwin* was put in consort with the steamer *Nettie Dennesen* and carried her first load of stone from Sturgeon Bay to Green Bay on 19 June 1905. On 14 July, the tug *Leathem* towed *S.C. Baldwin* with a load of stone from Sturgeon Bay to Milwaukee. Gus Shilling took command of the vessel on 12 August, and by 11 October Otto Green return as Master. During the night of a big blow over 19 October 1905, *S.C. Baldwin* was thrown up on the beach at the west approach to the bridge in Sturgeon Bay. After unsuccessful attempts to free the vessel, a 300-foot long channel was dredged to reach the stranded boat on 22 November (*Advocate* 1905b, 1905c; Bureau of Navigation 1905; *Buffalo Evening News* 1905).

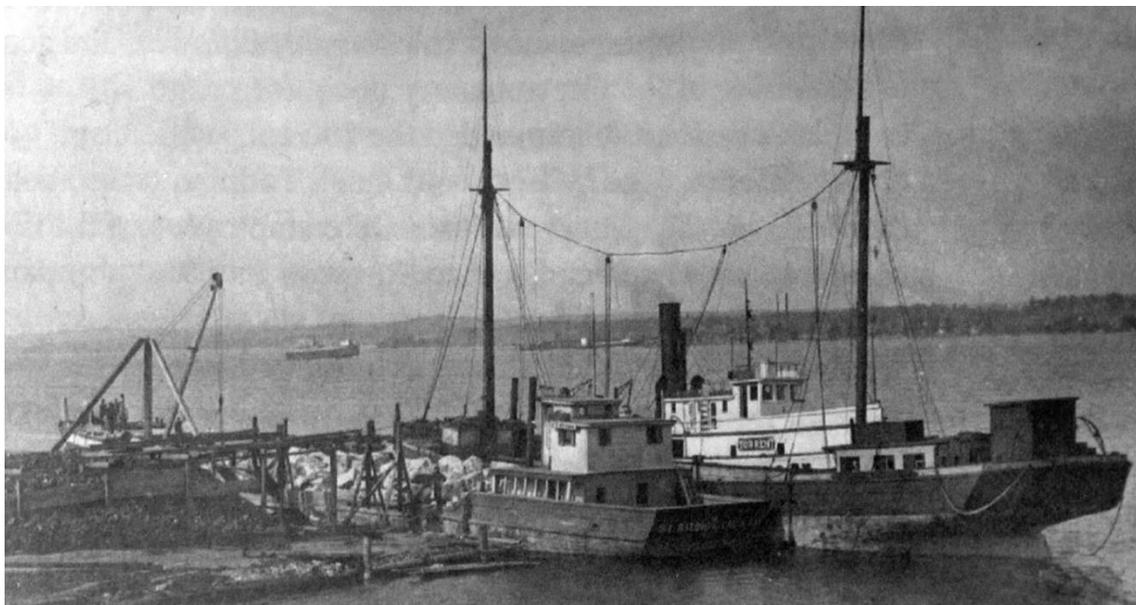


Figure 3. *S.C. Baldwin* in the foreground loading stone next to the tug *Torrent* and another barge at the Green Stone Company Dock in Sturgeon Bay (C. Patrick Labadie Collection).

On 10 May 1906, Captain Frank Morris took command of *S.C. Baldwin* from Gus Schilling at Sturgeon Bay (Bureau of Navigation 1905). That afternoon, the tug *Lorena* with Captain Jimmy Tufts in command, towed the stone laden *S.C. Baldwin* from the Green Stone Quarry to Green Bay and return the following evening. During the trip a leak was discovered requiring *S.C. Baldwin* to be brought to the shipyard on 15 May to be recaulked and have repairs made below her waterline (*Advocate* 1906a). A change in Masters occurred on 8 June 1906 when Frank Schilling took command of the vessel from Frank Morris at Sturgeon Bay (Bureau of Navigation 1905). Another trip to Green Bay with a load of stone was completed on 31 July under the tow of the tug *Mae Martel* (*Advocate* 1906b). On 13 August 1906, Otto Green took command of the vessel from Frank Schilling at Sturgeon Bay, and on 15 August, Frank Defaut took over as Master (Bureau of Navigation 1905).

At 3 AM on the morning of 18 August 1906, the tug *J.W. Bennett* with *S.C. Baldwin* in tow was steaming up Green Bay off Red River when the tug collided with the steamer *Saugatuck* of the Green Bay Transportation Company. The tug hit her head-on at the port side of the bow. It had been a hazy night and smoke hung low over the water. Neither vessel saw the other until it was too late. *Saugatuck* was bound to Green Bay from Sturgeon Bay on her regular route when the collision occurred. The *J.W. Bennett* sank in less than ten minutes giving the crew barely enough time to gather their belonging and scramble aboard *S.C. Baldwin*. *Saugatuck* towed the barge with both crews back to Green Bay (*Advocate* 1906c). It is not known when *S.C. Baldwin* was returned to Sturgeon Bay. The barge cleared Sturgeon Bay with another load of stone for Green Bay in tow of the tug *Mae Martell* on 22 August (*Door County Democrat* 1906).

On 1 December *S.C. Baldwin* experienced another change in Masters. Albert Wendorf took command of the vessel from Frank Defaut (Bureau of Navigation 1905). On the night of 14

December the tug *Burnham* towed the *S.C. Baldwin* to the Green Stone Company's dock where she went into winter quarters (*Advocate* 1906d).

S.C. Baldwin's early 1907-season was marked with multiple changes in command for the vessel. On 7 April 1907 Otto Green relieved Albert Wendorf as Master. James Antonson took over from Otto Green on 23 April 1907, and on 11 May George Cofrin replaced James Antonson. Then, on 18 June Fred Schilling succeeded George Cofrin as Master (*Advocate* 1907a; Bureau of Navigation 1905). On the evening of 18 June 1907 the tug *N. Boutin* with *S.C. Baldwin* in tow departed Sturgeon Bay for Two Rivers, Wisconsin. *S.C. Baldwin* carried a full load of stone for a harbor improvement project. The tug *N. Boutin* again took *S.C. Baldwin* with a load of stone from Sturgeon Bay to Manitowoc on 28 June and returned to Sturgeon Bay on 30 June (*Advocate* 1907b). During a trip to Manitowoc with stone in September, *S.C. Baldwin* developed a leak. It was decided that the ship required a thorough examination of the hull below the waterline, and she was returned to the shipyard at Sturgeon Bay on 26 September for additional repair work to her hull (*Door County Democrat* 1907). *S.C. Baldwin*'s repairs were accomplished that fall and the vessel wintered over at Sturgeon Bay (*Advocate* 1908a)

On 26 August 1908, while in tow of the tug *Torrent*, *S.C. Baldwin* and the scow #37 were headed southbound from Sturgeon Bay with cargoes of stone bound to Manitowoc. As the vessels were passing Kewaunee, a storm began to blow from the southeast, and increased in force as they got near Twin Rivers Point (Rawley Point). *S.C. Baldwin* began to take on water around midnight. The water came in forward and pushed the ship down by the head making it impossible to relieve the vessel of water. She was caught by a strong gust of wind and listed, causing some of the cargo to be dumped, which caused her roll to the other side. Around 3 AM on 27 August, the vessel capsized, dumping all of her stone cargo. The boat was held up by the forward and aft tows between the tug and the scow. As the vessel overturned, two of the three men aboard jumped clear of the ship, but one crew member Jacob Tildman, remained clinging to the overturned hull. *S.C. Baldwin*'s condition remained unnoticed by the crew aboard *Torrent* until sunrise at 4:30 AM when they were 3 miles south, southeast of the point. Once the crewmen aboard *Torrent* realized the situation, they cut the lines to the vessel, and *S.C. Baldwin* righted and quickly went to the bottom. Jacob Tildman scrambled on wreckage that was floating in the water. A line was thrown to him from the tug and he tied it around his waist, jumped into the water and was dragged aboard the tug.

The tug searched until 7 AM for the two missing crewmen who had jumped from *S.C. Baldwin*. Having no luck, *Torrent* notified the Lifesaving Stations at Kewaunee and Two Rivers (incorrectly reported as Manitowoc). *Torrent* returned to the wreck site to retrieve scow #37 and continue to search for the missing men. It was not until 3 PM on 28 August, nearly 13 hours after *S.C. Baldwin* sank, that Captain George Heim was located. He managed to don a lifejacket and clung to bits of wreckage until he was spotted six miles off Kewaunee by crewmembers aboard the Goodrich steamer *Carolina*. A boat was lowered to him from the steamer amidst cheers from the steamer's passengers. He was taken aboard the *Carolina* and given a hot alcohol bath and other stimulants. The other missing man, Jacob Wiltgen was not located until fisherman George LaFond discovered his body while he was lifting his nets five miles off the Sturgeon Bay Canal

on 29 August. Wiltgen had been wearing a life preserver and likely died from exposure. On 31 August, Wiltgen's remains were shipped to his widow in Manitowoc for burial (*Advocate* 1908b, 1908c; *Buffalo Evening News* 1908a, 1908b; Boyd 2015; *Door County Democrat* 1908; *Milwaukee Sentinel* 1908).

S.C. Baldwin was a total loss and was valued at \$3,000. She had aboard 693 tons of stone, valued at \$725 (*Milwaukee Sentinel* 1908). Attorneys Burke & Graite filed charges on behalf of Jacob Wiltgen's widow and his estate against Great Lakes Dredge and Dock Co., owners of the *Torrent*, claiming that the watchman of the tug should have noted the condition of the barge and was liable for neglect, and that Captain W.O. Jones of the *Torrent* was negligent in not having made enough effort to rescue the two men in the water. \$10,000 was demanded in the suit. Additionally, papers were served to Adolph Green of the Green Stone Company claiming negligence in Wiltgen's death since *S.C. Baldwin* was not provided with a lifeboat as required by law. They demanded \$5,000. It was discovered, however, that Wiltgen was not an employee of the Green Stone Company. No money was exchanged for his passage on *S.C. Baldwin* so it was determined that he was riding at his own risk and Green Stone Company was under no obligation to provide him with safe passage where the individual losing his life was a non-paying passenger and not a member of the crew (*Advocate* 1908d, 1908f).

In mid-September 1908, a diver from the Great Lakes Company offered to dive to *S.C. Baldwin* to recover everything of value, including the boiler, bilge pump, anchors, and cables (*Advocate* 1908e). It is unlikely salvage attempts were made as many of these items remain on the wreck site today. As a result of the foundering of *S.C. Baldwin*, an effort was made to establish a telephone line between the Lifesaving Station at Two Rivers and the lighthouse at Twin River Point. It is not known if the impetus of this disaster moved the connection forward or the fact that Twin Rivers Point was considered one of the most dangerous points on Lake Michigan with more sinkings and strandings than any other place on the lake (*Advocate* 1909).

Site Description

Today, *S.C. Baldwin*'s wooden hull and ship lines remain as in her original 1871-appearance. Everything from the waterline down, including deck features involved in the bulk cargo handling, such as the cargo hatches are extant on the wreck site. Most of the components of *S.C. Baldwin*'s addition of a second deck in 1873 were removed in 1882 when the vessel was converted back into a single decked vessel for use in the lumber trade, and do not remain extant on the site. With *S.C. Baldwin*'s 1904-conversion to a stone barge, much of the original upper deck structures were removed or remodeled, but the original weather deck, hull, and ships lines maintain their integrity from when she was built in 1871. Most of the changes to the upper deck structure are not extant on the wreck site, however, the updated stern section, from a rounded to a square stern, does remain extant and intact on the site.

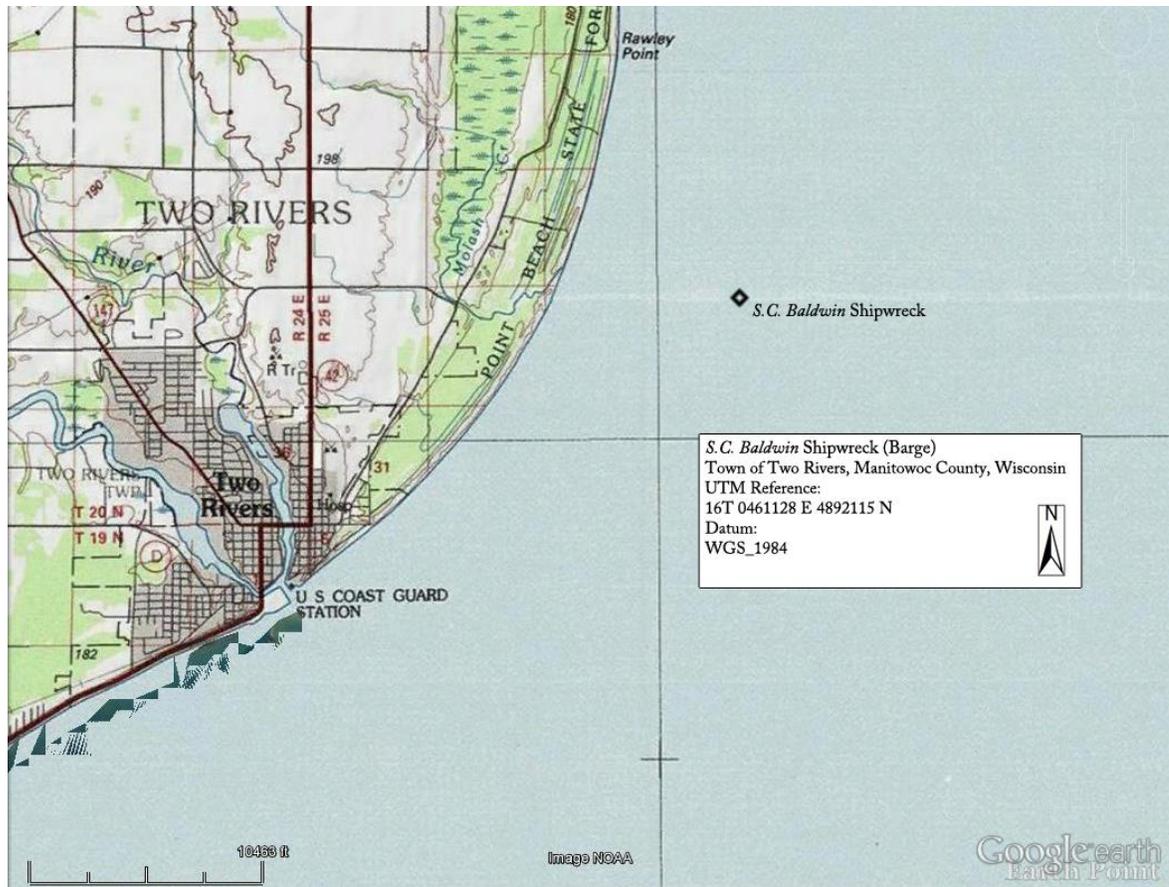


Figure 4. Location of the *S.C. Baldwin* site

S.C. Baldwin represents multiple eras of ship construction and use on the Great Lakes. She began as a single-decked wooden steamer in 1871, and was converted to a double-decked wooden steamer in 1873. She was converted once again into a single-decked wooden steamer in 1882 for use in the lumber trade, and finally was converted to wooden stone barge in 1904.

At the time of *S.C. Baldwin*'s sinking, her appearance was as a converted stone barge. The specifics of this final configuration, as it appears as a wreck site, are described in detail in the following text. *S.C. Baldwin* is a great example of early wooden steamer construction and converted barge construction. Much of our understanding of this vessel type has come from archaeological data recovered from wreck sites like *S.C. Baldwin*.

The broken remains of *S.C. Baldwin* lie on a 19-degree list to port 70 to 75 feet below the surface of Lake Michigan, on a 150-degree heading, 2.3 miles south southeast of Rawley Point Lighthouse near the town of Two Rivers, Wisconsin (44° 10.872' N, 087° 29.179' W). Although frequented by beginner to intermediate divers, her remains are well-preserved, and until the summer of 2015, remained undocumented. Though much of her upper deck works, rigging, and anchors were salvaged after her sinking, major structural components of the vessel remain extant, including her stempost, keelson structure, stern and stern decking. The remains of her cargo were

located 5.6 miles north northeast of the wreck site by Randy Wallander, indicating where *S.C. Baldwin* capsized while being towed south.



Figure 5. An archaeologist investigates *S.C. Baldwin*'s stempost and windlass

A Phase II archaeological survey was conducted on *S.C. Baldwin* in August of 2015 by maritime archaeologists and volunteers from Wisconsin Historical Society. A temporary baseline was attached to the stempost and stretched 185.4 feet along the centerline of the vessel to the remains of the vessel's transom. All measurements for the survey were taken from this baseline. The overall length of the *S.C. Baldwin* wreck site is 185.4 feet while the overall width of the site is 55.2 feet. Given the wreck dimensions, construction details, location, and a comparison of vessel losses in the vicinity based on historic newspaper accounts, the vessel remains were determined to belong to the converted barge *S.C. Baldwin*. As the site lies in a dynamic area, with sand moving in and out from year to year much more of the vessel likely remains buried beneath a layer of sand in the vicinity.

S.C. Baldwin's stempost measures 1.5 feet molded and 1.1 feet sided with 22.0 feet exposed above the sand. It extends to the point where it connects to the vessel's keel, and leans at a 9-degree angle forward. *S.C. Baldwin*'s cutwater also remains extant, measuring 1.5 feet molded and 1.1 feet sided, tapering to 0.45 feet sided at its forward most point. A metal strap covers the leading edge of the cutwater. This strap measures 0.4 feet wide and is 0.05 feet thick, running the entire height of the cutwater.

Two bow knees remain extant fastened to the stempost. One is located 7.0 feet above the sand and measures 3.3 feet wide at the aft end, tapering to 1.1 feet wide where it is fastened to the

stempost, and measures 0.7 feet thick. It measures 2.5 feet long from stempost to its aft edge. The other bow knee is located 17.0 feet above the sand, and measures 4.4 feet wide at the aft end, 1.1 feet wide where it attaches to the stempost, and 0.7 feet thick. This bow knee measures 1.8 feet thick from the stempost to its aft edge. These correspond to *S.C. Baldwin*'s main deck and raised forecastle deck. From historic images, it is possible to discern that the entire stempost remains extant on the site, and has not been broken at any point since the vessel's sinking.

A 62.1 foot long section of the port side hull remains intact and upright, starting 13.5 feet along the baseline. The outer hull planks measure 0.5 feet wide and 0.4 feet thick, while the ceiling planking measures 0.6 feet wide and 0.3 feet thick. The vessel is double framed with futtocks measuring 0.4 feet sided, and 0.8 feet molded. Overall the frame sets measure 0.85 feet in width and have a room of 1.1 feet between each frame set. The hull structure measures 1.5 feet in overall thickness and is through bolted and peened on the outside of the ship. Both the outer hull and ceiling planks are joined with a series of plain scarves. An additional 8.2 foot long section of ceiling planking is visible above the sand on the port side of the vessel, located 48.2 feet along the baseline and 6.5 feet from the keelson.

A section of the vessel's wooden hogging truss is visible on the upright hull section, measuring 0.9 feet wide overall, and 0.25 feet thick. The truss is made up of three timbers, each measuring 0.3 feet wide. It is unknown if each timber of the hogging truss was made of a single piece or multiple pieces of wood due to the amount of quagga muscle buildup on the hull. An additional piece of the port side hull remains extant, lying flat inside the remains of the vessel, located at 80.1 feet along the baseline. The section lies with the outer hull planking facing upwards and measures 34.7 feet long and 6.6 feet wide.



Figure 6. The upright section of *S.C. Baldwin*'s port side hull



Figure 7. *S.C. Baldwin*'s wooden hogging arch, comprised of three individual timbers

The vessel's keelson remains visible above the sand from 25.1 feet to 72.2 feet along the baseline. For a vessel of only 160 feet long, the keelson is remarkably large, measuring 2.4 feet in width and 0.9 feet in thickness. A sister keelson is visible on both sides of the keelson at 45.9 feet along the baseline, and extending 14.7 feet in length before disappearing beneath the sand. The sister keelsons measure 0.5 feet wide and are visible 0.2 feet above the sand. Although *S.C. Baldwin*'s main deck is no longer in place, evidence of its support structure can still be seen. A total of ten of the vessel's deck stanchions remain extant and upright along the centerline of the ship, notched into the keelson. These stanchions measure 0.9 feet sided and 1.1 feet molded, and measure 2.5 feet apart. Although many of these remain broken, on average, the intact stanchions extend 9.0 feet from the sand and now rest at an 8-degree list to starboard.

The forward-most three stanchions are connected by a timber measuring 1.1 feet wide, 1.1 feet thick, and 8.0 feet long, resting across the top of them. The eighth and ninth stanchions are also connected by a timber resting across the top of them, measuring 1.1 feet wide, 1.1 feet thick, and 4.1 feet long. These timbers were likely added to give the ship's centerline additional support. When the vessel was outfit as a barge for the stone trade, it carried cargoes of stone on the deck as well as in the hold. Because of this heavy cargo, the centerline of the ship likely needed additional support. There is also a rectangular hole in the center of this topping timber though, measuring 0.5 feet wide and 2.5 feet long. This corresponds to the exact distance between the two stanchions. As of the date of the survey, it is unknown as to why the aft timber has this thin, rectangular opening while the forward timber does not.

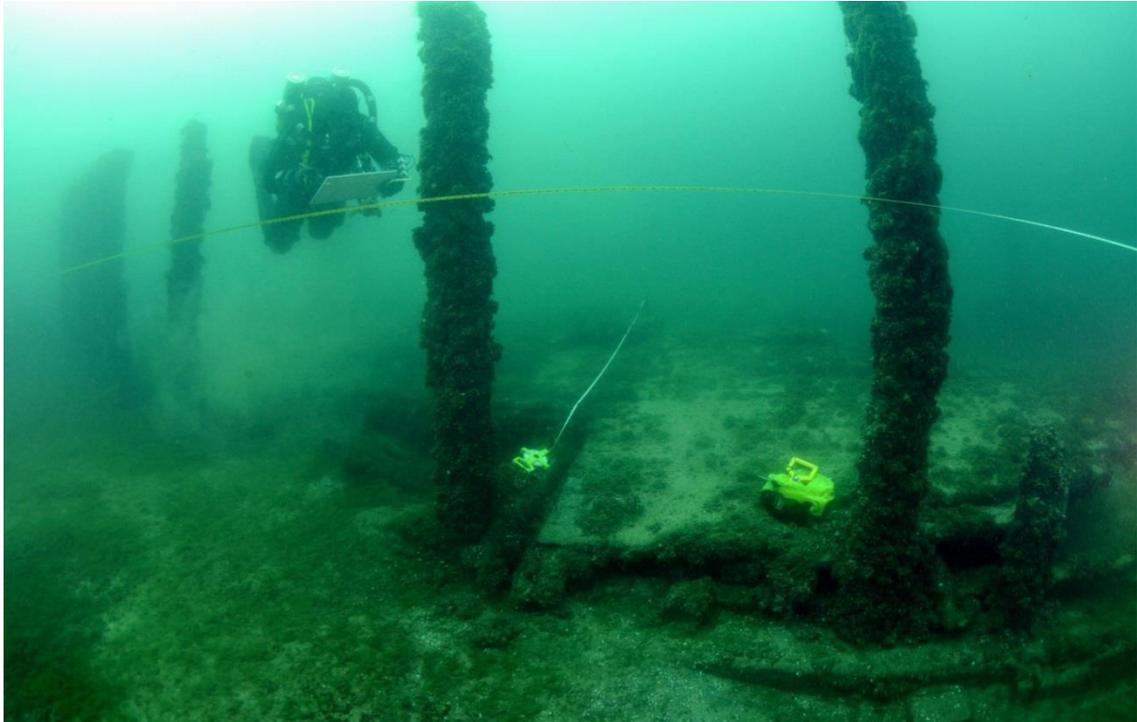


Figure 8. An archaeologist investigates the standing stanchions along *S.C. Baldwin*'s centerline

The vessel's stern section is located 57.0 feet aft of where the keelson extends into the sand, beginning at 129.9 feet along the baseline. A large bank of sand covers much of the ship in between these two sections. The stern is broken into two pieces. The starboard side cant frames, outer hull planking, and sternpost remain attached in one piece along the line of the rest of the ship, extending 34.2 feet in overall length, and 29.9 feet in overall width. The stern deck and transom remain remarkably intact, pivoted slightly from its original position above the stern deadwood.

The cant frames measure 0.4 feet sided, and 0.8 feet molded, and measure 1.1 feet apart. The ceiling planking is no longer extant in this section so the outer hull planking remains clearly visible. The curvature of the cant frames remains extant where they would have originally formed the wine glass shape of the vessel's stern, tapering to the deadwood and sternpost. This section remains largely covered by sand, and the port side cant frames and hull sections remain buried beneath the sand. The vessel's sternpost rises 4.1 feet out of the sand and measures 2.5 feet molded, 2.0 feet sided on its forward edge, and tapers to 1.0 feet sided at its aft edge. A few deadwood timbers remain extant extending 2.2 feet forward of the sternpost. The vessel's rudder no longer remains visible above the sand.

Located 2.0 feet aft of the sternpost are the intact remains of the square stern, up to the weather deck, including railings, bits, the vessel's transom, a capstan, and deck planking. Though the original hull design of *S.C. Baldwin* included a rounded, fantail style stern, historic photographs of the vessel reveal that during the 1904-rebuild for work in the stone industry, the vessel was outfit with a square stern. This rebuild was likely necessitated by the great damage incurred by

the vessel's stern during her year on the bottom of Green Bay. This section measures 21.9 feet long and 26.5 feet wide overall and now lies on a 38-degree list aft. This section has broken from the rest of the ship and lies on a heading of 109-degrees looking forward. The extant railing measures 1.3 feet wide and 0.35 feet thick. Two triangular stern knees connect the transom and the side of the hull. These measure 1.3 feet in width, and extend 1.2 feet out from the transom. These would have been used as additional support for the transom.



Figure 9. *S.C. Baldwin*'s stern section and transom with its stern capstan in the foreground

Much of the stern deck planking remains visible, extending from the sand that has accumulated against the transom. The stern deck planking measures 0.55 feet wide and 0.2 feet thick. The top of the vessel's rudder post, rudder head, and tiller remain extant, extending out of the sand 4.3 feet in height. The tiller measures 3.7 feet in length and 0.5 feet in diameter. Though unproven, it is possible the vessel's rudder remains beneath the stern section, buried in the sand. On the deck, two sets of bits remain, on both the port and starboard sides. These bits measure 0.7 feet in diameter at the top, and 1.0 feet in diameter at the base, extend 1.4 feet in height, and measure 2.5 feet apart on center. The bits sit on an iron base measuring 1.8 feet wide, 5.0 feet long, and 0.2 feet thick. Additionally, a capstan, which would have been used for warping along a pier, remains extant at 171.2 feet along the baseline. The capstan is 2.6 feet tall, and measures 1.2 feet in diameter at its top and 2.0 feet in diameter at the base.

S.C. Baldwin Shipwreck (Converted Stone Barge)
 Town of Two Rivers, Manitowoc County, Wisconsin

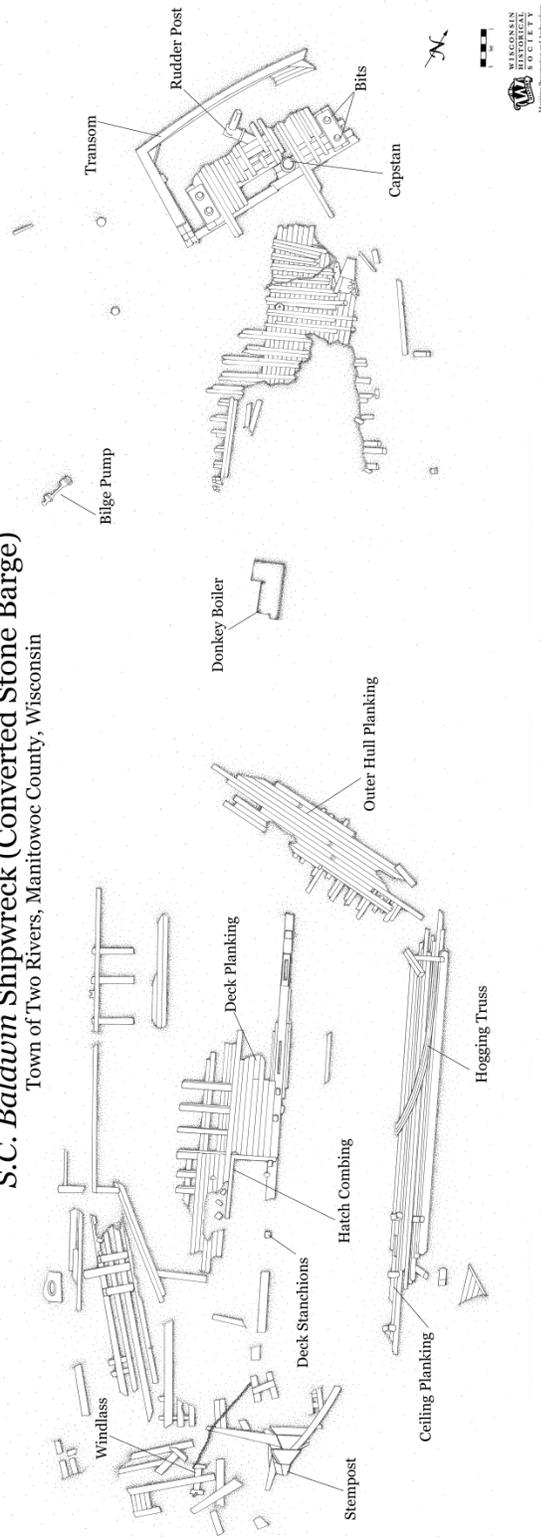


Figure 10. Site plan of the S.C. *Baldwin* wreck site

The starboard side of *S.C. Baldwin* is largely broken, with an extensive debris field scattered off the starboard side of the wreck. Many of the larger pieces of debris are easily identifiable. The vessel's windlass was identified located in the starboard forward debris field, forward of the stempost. Its location this far forward likely means that *S.C. Baldwin*'s forecastle deck was still intact when the vessel sank to the bottom of Lake Michigan. Due to its depth, wave action would not have caused this extent of breakup, so it is likely that the vessel hit starboard side bow first, damaging her upper decks and throwing debris forward. Reports of salvaging just after the wrecking mention the attempted recovery of *S.C. Baldwin*'s anchors. It is also likely, that the windlass was pulled to its current location during the salvage attempt. Neither the port nor the starboard anchor remains visible on the site today.

The windlass now lies on end, with one of its gypsy's buried completely in sand. Covered in a thick layer of quagga mussels, the windlass was originally identified by the length of anchor chain still connected to it. The chain extends 13.9 feet toward the interior of the hull before extending beneath the sand. Three hanging knees also remain extant in the starboard side debris field attached to a section of ceiling planking. These knees measure 0.8 feet wide, 4.2 feet tall and extend 2.9 feet out from the ceiling planking on average. The knees measure 1.8 feet apart. Further aft, located at 30.8 feet along the baseline, a large section of the vessel's weather deck, and a single hatch combing remain extant. The hatch combing appears to be the stern edge of the hatch's starboard side, and measures 0.5 feet wide and 0.5 feet thick, 8.0 feet in length and extends 5.4 feet wide where the section is broken near the keelson and deck stanchions. The weather deck planking measures 0.5 feet wide and 0.2 feet thick. Deck beams and half beams also remain extant fastened to the deck planks. These deck beams measure 0.8 feet wide and 0.6 feet thick.

Various other large pieces of debris and artifacts are scattered across the site. At 110.7 feet along the baseline, the vessel's donkey boiler remains, lying on its side. The boiler measures 7.4 feet long and 2.9 feet in diameter. Although the vessel operated as a barge and was solely towed, this donkey boiler would have been used to run the vessel's pumps, capstans, and windlass. Additionally, one of the vessel's pumps remains at 129.3 feet along the baseline, 23.8 feet from the remains of the hull on the starboard side. The pump measures 4.2 feet in length and 0.7 feet in diameter at either end. At its center, the pump measures 0.3 feet in diameter. A circular iron cover was also noted at the time of the survey, located wedged between two of the *S.C. Baldwin*'s cant frames near the stern. Though this disarticulated artifact was not conclusively identified, it is likely that it is a scupper cover from the stern upper deck section. Other disarticulated timbers remain scattered throughout the site and are likely the remains of the missing hull pieces. Due to the amount of sand movement in the area, the other hull sections are likely buried beneath a layer of sand.

The location of *S.C. Baldwin*'s cargo was located 5.6 miles to the north northeast of the vessel's wreck site. This marks the location where *S.C. Baldwin* "turned turtle", capsizing and dumping her cargo before being dragged for another few hours in this manner. The overall measurement of the cargo debris field is 131.1 feet in length and 61.8 feet wide, well within the capacity for *S.C. Baldwin* to have been carrying. The cargo was all cut limestone from Sturgeon Bay. The bottom

in this area is fine sand, with no rock outcroppings or reefs. Therefore, it was determined that this anomaly was likely the missing cargo of *S.C. Baldwin*.



Figure 11. *S.C. Baldwin*'s cargo of cut limestone, located over 5.5 miles northeast of the wreck site

CHAPTER THREE SCHOONER *GRAPE SHOT*

In the spring of 1855, George W. Holt, key partner in the firm Holt, Palmer & Co., forwarding agents of Buffalo, New York, along with Charles Ensign, Buffalo agent for the People's Steamboat Line, commissioned the construction of two identical schooners from renown shipbuilder Benjamin Buehl (B.B.) Jones from his yard at Buffalo (*Buffalo Daily Republic* 1855; *Detroit Free Press* 1855; Jewett, Thomas & Co.).

B.B. Jones was the second son of Great Lakes' pioneer shipwright Augustus Jones. Born on 21 December 1809 at Essex, Connecticut, he learned the shipbuilding trade at his father's side after the family relocated to Black Rock, Ohio in 1820 following the loss of the family's shipyard at Essex by attack of British forces on 8 April 1814. At various times, in adulthood B.B. Jones owned or was a partner in shipyards at Milwaukee, Cleveland, and Buffalo. At Buffalo, B.B. Jones built ships independently at his yard located "on the creek just above the Ohio basin" from 1854 through 1858 (Jones, Shorf, and Weisman).

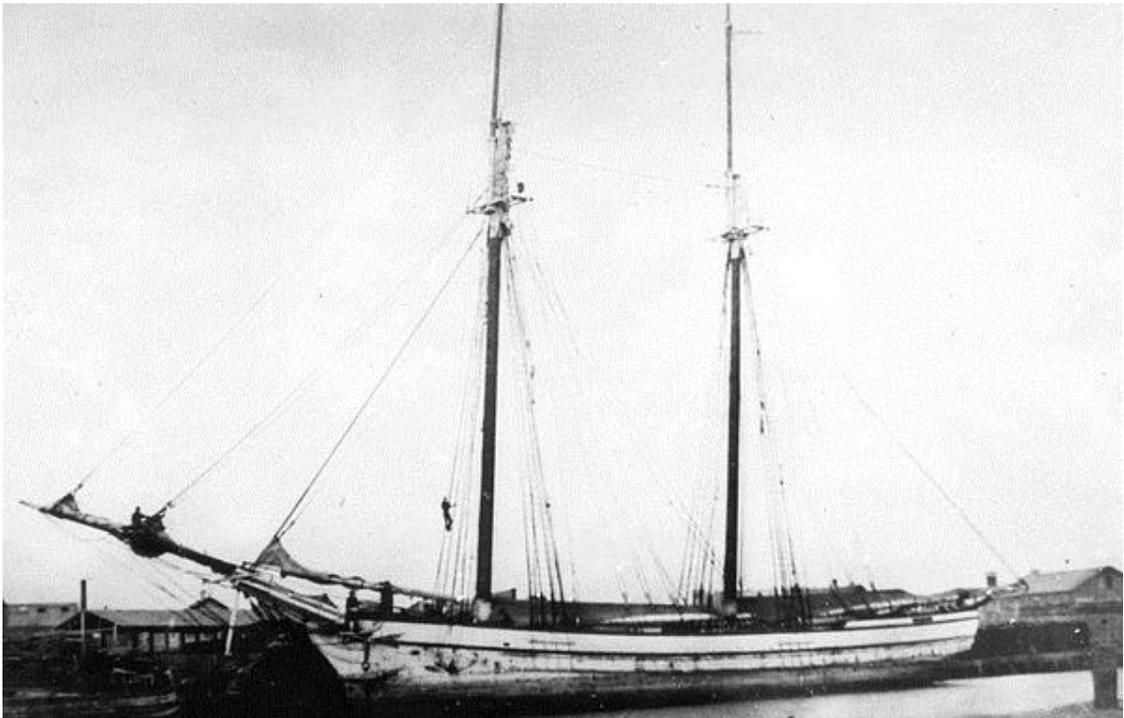


Figure 12. *Eliza Logan*, a schooner built by B.B. Jones, with the same specifications as *Grape Shot* and launched only 26 days after *Grape Shot* (Bowling Green State University, Historical Collections of the Great Lakes)

The vessels constructed for equal owners Holt and Ensign, were named *Yankee Blade* and *Grape Shot*. *Yankee Blade* launched on 11 September 1855. She measured 131 feet in length, 26 feet 3 inches in breadth, with an 11-foot depth of hold, and registered at 350 tons. *Yankee Blade* was described as a well-fastened, fine-looking and staunch craft, a description that similarly could be applied to her nearly identical sister. *Grape Shot* launched about 10 days later and was described

as having one deck, two masts, and measured 131 feet 6 inches in length, 28 feet 7 inches in breadth, with a 10-foot 10 inches depth of hold. Her wider beam made her too large for the Welland Canal locks. *Grape Shot* was described as having a square stern and eagle figurehead. She registered at 369 68/95 tons, and Captain M. Caldwell was assigned to her helm as Master to trade between Lake Erie ports and Chicago. The vessel was surveyed by F.G. Pattison, and enrolled at the Port of Buffalo on 24 September 1855; her official number 10205 (*Buffalo Daily Republic* 1855; *Detroit Free Press* 1855; Bureau of Navigation 1855).

Before the opening of the 1856-shipping season, Charles Ensign sold a portion of his share in the vessel to Captain Squire Alexander of Buffalo. In addition to employment as a licensed merchant mariner, Alexander dabbled in shipbuilding, and vessel ownership. After his time with *Grape Shot*, in 1861 Alexander became a bonafide Civil War hero as Master of the high-speed dispatch boat *Governor* at the bombardment of Fort Sumter (Bureau of Navigation 1856a; Watrous 1909). The new ownership arrangement for *Grape Shot* was George Holt 4/8 shares, Charles Ensign 3/8 shares, and Captain Squire Alexander 1/8 share. Captain Caldwell remained as Master. A new enrollment was entered at the Port of Buffalo on 29 April 1856 (Bureau of Navigation 1856a).

In late May 1856, *Grape Shot* loaded 16,000 bushels of wheat at Chicago consigned to Flint & Co. for Buffalo. During the first week of June, *Grape Shot* along with the bark *Young America*, and schooner *Ocean Wave* delivered more than 1,000 tons of railroad iron to Racine, Wisconsin for fulfillment of a contract of the Racine & Mississippi River Railroad to complete the connection between Freeport, Illinois, and Savanna.

In mid-June, *Grape Shot* grounded in the Niagara River, requiring her load to be lightered in order to be freed. Damage to the vessel was estimated at \$250 with an addition loss of \$250 for the cargo (*Buffalo Commercial Advertiser* 1857). The ship went back on the grain route and made regular round trips between Milwaukee or Chicago and Buffalo in June, July, August, and September 1856. While in port at Chicago at the end of September, drunken sailors from *Grape Shot* and schooner *Shepard* got into a tussle in a “house of ill fame” resulting in the stabbing death of a sailor named Sullivan of the *Shepard* by David McDonald, a crewmember of *Grape Shot*. McDonald was arrested and thrown in jail (*Buffalo Daily Courier* 1856a, 1856b, 1856c, 1856d, 1856e, 1856f, 1856g; *Chicago Daily Tribune* 1856; *Weekly Wisconsin* 1856a, 1856b).

On 9 October 1856, a new vessel enrollment was entered at the Port of Buffalo for change in owners. The new division of ownership was into equal third shares between Charles Ensign, George Holt, and Abe (surname illegible). Captain Caldwell remained Master (Bureau of Navigation 1856b). Despite the change in owners, *Grape Shot* continued running grain from Milwaukee and Chicago to Buffalo making trips in November and December. On her early December upbound trip carrying general merchandise from Buffalo to Milwaukee, *Grape Shot* was dismasted in a gale, losing her main boom, canvas, yawl boat, and her anchors. Damage to the vessel was estimated at \$1,500. The storm also claimed her deck load of sugar, molasses, and oils owned by Milwaukee wholesale dealers, a portion of the total \$250,000 cargo aboard. Unable to make Milwaukee in contrary winds, the vessel floated helpless at the mercy of the waves, and was picked up off Chicago. *Grape Shot*'s owners refused to risk the loss of the vessel by sailing

any later into the season in order to bring the remaining merchandise in her hold to Milwaukee. They intended to let the goods remain aboard until spring. By 10 December 1856, it was reported that the chartering company, American Transportation Co., had contacted lawyers to force their products to be delivered, but the resulting actions are unknown (*Buffalo Commercial Advertiser* 1857; *Buffalo Daily Courier* 1856h; *Buffalo Daily Republic* 1856a, 1856b; *Chicago Press* 1856; *Milwaukee Sentinel* 1856; *Weekly Wisconsin* 1856c).

It is assumed that repairs were made to the vessel over winter lay-up. On 19 May 1857, *Grape Shot* arrived at Buffalo from her winter quarters in Chicago. She took aboard a cargo of general merchandise and departed the following day for Cleveland, Ohio (*Buffalo Daily Courier* 1857a, 1857b). By mid-June Charles Ensign negotiated a buyout of his partners to become sole owner and a new enrollment was entered at the Port of Buffalo on 25 June 1857 (Bureau of Navigation 1857). For the remainder of the season, a search of the historic record revealed only one departure from Buffalo on 29 August for Chicago, and one arrival from Chicago with wheat at Buffalo on 6 November. Although other trips may have occurred which went undocumented, the low demand for cargo shipments was likely tied to the onset of the Panic of 1857 (*Buffalo Daily Courier* 1857c, 1857d).

With hard economic times continuing into 1858, and no demand for shipping services, Charles Ensign defaulted and the Clinton Bank of Buffalo took possession of the two-year-old, A1-rated schooner. The vessel sold for \$12,000, a fraction of her value, to Captain John F. Stafford, partner in the ship chandlery, Stafford & Colburn at 134 and 136 South Water Street, Chicago (*Buffalo Daily Courier* 1858; *Chicago Daily Tribune* 1858; Hawes 1858). A new, temporary enrollment was issued on 24 June 1858 to express the change in ownership, and to allow the vessel to proceed to her new homeport. Captain Daniel Chandler was assigned as *Grape Shot*'s new Master (Bureau of Navigation 1858). *Grape Shot*, however, was likely not moved to Chicago following the sale and remained tied up in Buffalo for the remainder of the season.

By 1859 the economy began to stabilize and the Lake Michigan lumber industry was starting a slow upturn. *Grape Shot* arrived at the Port of Chicago from Grand Haven, Michigan on 6 April 1859 with 225,000 board feet of lumber. The ship was unloaded and cleared light for Grand Haven the same day. *Grape Shot* took on 218,000 board feet of lumber and 22,000 shingles at Grand Haven. She arrived at Chicago on 15 April, unloaded and departed immediately for Buffalo, picking up a cargo at Amsterdam, Wisconsin en route. Records show the arrival of *Grape Shot* at Buffalo on 3 May, however her return to western ports went undocumented. On 13 July *Grape Shot* cleared Chicago for Buffalo, stopping at Kenosha, Wisconsin to load en route (*Chicago Tribune* 1859a; *Daily Press Tribune* 1859a, 1859b, 1859c; *Buffalo Daily Courier* 1859a). On 19 July 1859, John F. Stafford finally registered his vessel at the Port of Chicago. Captain Chandler remained *Grape Shot*'s Master, and the vessel's homeport was changed to Chicago (Bureau of Navigation 1859).

Trips to Buffalo from Chicago carrying shipments of wheat, rye or seed were recorded in September and October where *Grape Shot* arrived, unloaded and cleared for return to Lake Michigan on the same day (*Buffalo Daily Courier* 1859b, 1859c). While en route on her October

trip, on 26 October, Captain Chandler spotted what later was determined to be the propeller *Milwaukee* of the American Transportation Co. flying distress signals while disabled mid-way across Saginaw Bay. *Grape Shot* passed within four miles of the stranded vessel. Believing that another vessel to windward was on the way to lend assistance, Captain Chandler lost sight of the *Milwaukee* amidst the blowing snow of the gale and reported the ship's predicament upon his arrival at Chicago (*Chicago Tribune* 1859b; *Daily Press Tribune* 1859d).

Grape Shot continued sailing late into the year. With 137-tons of coal loaded at Buffalo, 173,000 board feet of lumber was taken aboard at ports on Lake Huron for Hannah, Lay & Co. of Chicago in early December. En route to Chicago she was forced into Grand Traverse Bay by a storm bringing fourteen inches of snow and causing the Straits of Mackinac to freeze over. On 12 December 1859, Captain Chandler sent a letter to vessel owner, John Stafford, from Northport, Michigan to express his concern for the safety of the vessel working in the ice fields, and to indicate he had made the decision put the ship into winter quarters there (*Buffalo Daily Courier* 1859d).

On 2 February 1860, Captain Chandler penned another letter to Stafford reading, "that for a few days in January they had very pleasant weather; but with that exception, it has been extremely cold, and at the present time ice is making nearly one inch per hour; the bay is entirely frozen over, the snow about three feet deep, and the ice in the Straits about three feet thick." Chandler reported although the number of men needed for seasonal cutting of lumber was down, the prospects for getting the wood out of the forest was favorable owing to the great depth of snow and Stafford should consider trading there next season (*Daily Press Tribune* 1860a). According to a letter written on 24 February 1860, the cold weather and snow continued with their lowest temperatures reaching seventeen degrees below zero. Provisions were running low and potatoes were scarce. *Grape Shot* remained laid up with her load of lumber and coal awaiting the opening of the navigation (*Chicago Tribune* 1860a).

By 15 March 1860, *Grape Shot* was being readied for departure as soon as the ice would allow it. While attempting to cross the ice from shore to *Grape Shot* on 21 March, Stephen Doyle, a twenty-five year-old sailor from Chicago went through, and drowned despite every effort made to save him. *Grape Shot* finally departed Grand Traverse Bay on 27 March but ice forced them back to Beaver Island, Michigan. They left here late on 29 March arriving into Chicago on 2 April 1860 (*Daily Press Tribune* 1860b; *Chicago Tribune* 1860b).

Grape Shot took on 16,011 bushels of corn bound for Port Colborne, Canada, and departed Chicago on 19 April 1860. *Grape Shot* along with a large fleet of Chicago vessels passed Detroit on 2 May (*Buffalo Daily Courier* 1860a; *Chicago Tribune* 1860c). It is unknown if charters for cargoes were difficult to obtain during early season 1860. Reports indicated the ship passed Detroit upbound on 17 July, and the next clearing located was 4 September with wheat from Milwaukee bound to Buffalo. Five round trips were accomplished in September, October and November with wheat carried from Chicago or Milwaukee to Buffalo with a return cargo of coal (*Buffalo Daily Courier* 1860b, 1860c, 1860d, 1860e, 1860f, 1860g, 1860h, 1860i; *Daily Milwaukee* 1860). The schooner likely overwintered at Chicago.

Grape Shot began the 1861-shipping season with a trip from Chicago to Buffalo with a cargo of corn consigned to J.G. Deshler arriving on 12 May. In June she was chartered to carry wheat from Milwaukee to Buffalo. In July and twice in August, *Grape Shot* hauled cargoes of upwards of 17,500 bushels of corn from Chicago to Buffalo with return cargoes of coal and lumber (*Buffalo Daily Courier* 1861a, 1861b, 1861c, 1861d, 1861e; *Chicago Tribune* 1861a, 1861b; *Commercial Times* 1861a, 1861b, 1861c, 1861d). *Grape Shot* made her first August trip from Chicago to Buffalo in the record time of 4 days and 16 hours receiving accolades in local newsprint (*Chicago Tribune* 1862a).

In late September, *Grape Shot* departed Chicago with grain bound for Buffalo. On the night of 28 September Captain Chandler, fearing an entrance to a crowded Buffalo harbor after dark, anchored off Long Point until midnight, arranging his arrival after daylight. The strong current in the creek was hazardous to inbound vessels tending to carry them against the breakwater. Various newspapers printed a notice to Masters of vessels suggesting to follow the example of Captain Chandler when approaching after dark. *Grape Shot* departed for Chicago on 1 October (*Chicago Tribune* 1861c; *Buffalo Daily Courier* 1861f, 1861d). The schooner made one more trip with corn from Chicago to Buffalo in late October. In November, she carried wheat to Sarnia, Canada. *Grape Shot* made one trip in December from Port Huron, Michigan to Chicago with 150,000 board feet of lumber before winter lay-up (*Buffalo Daily Courier* 1861g; *Chicago Tribune* 1861e, 1861f; *Commercial Times* 1861e).

Grape Shot came out of winter quarters early in 1862. Her first arrival was recorded at Chicago on 8 April 1862 with a cargo of 1,000 railroad ties and 100 cords of wood from Grand River, Michigan. She cleared on 21 April with 20,000 bushels of oats for Buffalo (*Buffalo Daily Courier* 1862a, 1862b; *Chicago Tribune* 1862). No trips were recorded for May. On 4 June, *Grape Shot* arrived at Buffalo from Chicago with 20,000 bushels of rye, 1 cask of glassware, 26 boxes of butter, and 650,000 board feet of lumber (*Buffalo Daily Courier* 1862c).

Grape Shot made one trip each month with corn from Chicago to Buffalo in June, July, August and September (*Buffalo Daily Courier* 1862d, 1862e, 1862f, 1862g, 1862h, 1862i, 1862j, 1862k; *Commercial Times* 1862a, 1862b, 1862c). While passing upbound of Detroit en route on her return to Chicago from Buffalo on 29 October 1862, *Grape Shot* had her jibboom carried away during a collision with an unknown vessel that was proceeding downbound. The latter vessel had her mainmast ripped free (*Buffalo Daily Courier* 1862l; *Commercial Times* 1862d). *Grape Shot* made one more trip for the season with 16,000 bushels of wheat clearing Chicago for Buffalo on 8 November. She returned to Chicago to lay-up for the winter (*Buffalo Daily Courier* 1859m, 1862n)

Grape Shot was chartered for wheat at 10 cents per bushel from Chicago to Buffalo on 11 April 1863 (*Chicago Tribune* 1863a; *Commercial Times* 1863). In May, *Grape Shot* carried lumber. Lumber cargoes were said to be in good demand and *Grape Shot* frequented Farr Mills in the Oconto River (*Chicago Tribune* 1863b, 1863c). Only one other trip was reported in November 1863 with an arrival at Chicago on 3 November (*Buffalo Daily Courier* 1863).

Few records could be located for *Grape Shot*'s 1864-shipping season. On 8 April, *Grape Shot* was chartered to take wheat from Chicago to Buffalo at 10 cents per bushel. Downbound passages past Detroit were recorded in June and July, but her destination or cargoes remain unknown (*Commercial Times* 1864a, 1864b; *Daily Palladium* 1864).

Records of *Grape Shot*'s trips between Lake Michigan and ports on Lake Erie were located for May and June 1865 by way of "note of passage" by Detroit, although cargoes and destinations remain unknown (*Chicago Tribune* 1865a; *Commercial Times* 1865). *Grape Shot* arrived at Chicago on 24 July from Buffalo with an unknown cargo. Five days later, she cleared Chicago for Buffalo with 17,164 bushels of wheat. At her helm was a new Master, Captain Foster. The change at the helm went unrecorded in *Grape Shot*'s enrollment documents (*Buffalo Courier & Republic* 1865a; *Buffalo Daily Courier* 1865a, 1865b; *Chicago Tribune* 1865b). An arrival at Buffalo was recorded on 11 September 1865 from Chicago with 17,000 bushels of corn. Another arrival at Buffalo was recorded on 18 October from Chicago with 17,430 bushels of corn. In both cases, Captain Foster was reported at the helm (*Buffalo Courier & Republic* 1865b; *Buffalo Daily Courier* 1865c, 1865d).

It is not known where *Grape Shot* wintered over that season. The vessel cleared Buffalo on 17 May 1866 for Chicago. Captain Foster remained at her helm. While upbound, *Grape Shot* was forced into Detroit on 20 June 1866, having survived a storm on Lake Huron that resulted in the loss of several of her sails and her outfit. Many other vessels were disabled in the gale including the bark *D. Morris* that lost both anchors, the schooner *Goble* that lost her jibboom, the brig *Orkney Lass* that lost her topsail, and total loss of *Philena Mills* with her cargo and crew (*Buffalo Courier & Republic* 1866a; *Buffalo Daily Courier* 1866a; *Detroit Free Press* 1866).

Near the end of June 1866, *Grape Shot* came ashore at Poverty Island, Wisconsin resulting in damage to the vessel totaling \$1,800. The circumstances surrounding the grounding are unknown. By 7 July *Grape Shot* was reported to have been freed, sustaining only minor damage (*Buffalo Commercial Advertiser* 1867; *Buffalo Daily Courier* 1866b). On 9 July *Grape Shot* was chartered at Chicago to carry corn to Buffalo at 11.5 cents per bushel. She arrived at Buffalo on 18 July with 17,465 bushels of corn, unloaded and cleared the same morning for a return to Chicago (*Buffalo Courier & Republic* 1866b, 1866c, 1866d).

In early August, *Grape Shot* again grounded near Death's Door Passage. She struck a rock near Plum Island, Wisconsin and was held fast for four days before being towed off. She sustained \$1,500 in damage (*Buffalo Commercial Advertiser* 1867; *Door County Advocate* 1866). A trip to the lower lakes was recorded as *Grape Shot* passed Detroit downbound on 17 September. Her destination and cargoes are unknown. On 1 October, *Grape Shot* collided with the schooner *Milan* that was loading at a dock in Buffalo. The accident carried away *Milan*'s jibboom (*Buffalo Courier & Republic* 1866e; *Buffalo Daily Courier* 1866c). *Grape Shot* cleared Chicago on 11 October with 18,400 bushels of barley bound for Buffalo (*Chicago Tribune* 1866; *Buffalo Courier & Republic* 1866f). No records of her arrival or other trips were located.

Grape Shot wintered over at Milwaukee, and took the time during lay-up for repairs at a local shipyard. A portion of her ceiling planking was removed in February 1867 in order to replace a broken hull frame. The repair cost \$5,000 (*Semi-Weekly Wisconsin* 1867). The extensive repairs dropped her insurance rating to B1 (Hall 1867).

No records could be located for *Grape Shot*'s 1867-early season trips. A trip to the lower lakes was marked as the vessel passed Detroit downbound on 19 September 1867. During this trip, Owen Johnson, a sailor from the schooner *Grape Shot* drowned while hooking on the yawl boat (*Chicago Tribune* 1867a; *Detroit Free Press* 1867). On 8 October, *Grape Shot* cleared Chicago for Buffalo carrying 16,147 bushels of corn. The vessel arrived at Buffalo on 16 October, unloaded and cleared for an unreported destination (*Chicago Tribune* 1867b, 1867c, 1867d).

In the midst of a gale during the first few days of November 1867, *Grape Shot* grounded on the north side of Plum Island not far from the site of her stranding in August 1866. She ran so far up on the rocks that her bow was lifted four feet into the air. Fortunately, no lives were lost. Initially it was thought the schooner could be easily removed. Newspapers published reports indicating the vessel had sustained no damage. The tug *Leviathan* was sent from Chicago to pull the vessel free, but the salvage attempts failed and *Grape Shot* was declared a total loss. The propeller *George Dunbar* arrived from Chicago to recover *Grape Shot*'s cargo of 50,000 board feet of lumber and salt. Additionally, her rigging was removed and placed aboard the *George Dunbar*. Cargo and rigging was taken to Chicago on 12 November (*Chicago Tribune* 1867e; *Detroit Free Press* 1867; *Door County Advocate* 1867a, 1867b; *Erie Daily Dispatch* 1867a, 1867b; *Green Bay Advocate* 1867).

Grape Shot was valued at \$10,000 at the time of her loss. Her hull was insured for \$7,500 and she had a \$7,000 insurance policy on her \$9,000 cargo of lumber (Hall 1867). *Grape Shot*'s hull began to break up over the winter months and the vessel was stripped of all deck equipment by mid-July 1868 (*Door County Advocate* 1868).

Site Description

Grape Shot is representative of the class of sailing vessels which transported bulk cargo and general merchandise within its hull. As an integral part of the maritime transportation system, many features of this vessel type were common to all schooners on the Great Lakes. As mentioned in the Multiple Property Documentation Great Lakes Shipwrecks of Wisconsin (Cooper and Kriesa 1992), schooners were fore-and-aft rigged, and had two or more masts, carrying square-rigged topsails on their foremasts augmented with a triangular sail. Most Great Lakes schooners were single-decked and had only a small cabin structure above the deck. At the time of her registration, *Grape Shot* was described as a wooden schooner with one deck and two masts, a gross tonnage of 369 tons, a length of 131 feet 6 inches, breadth of 28 feet 7 inches, and a depth of hold measuring 10-foot 10 inches (Bureau of Navigation 1855).

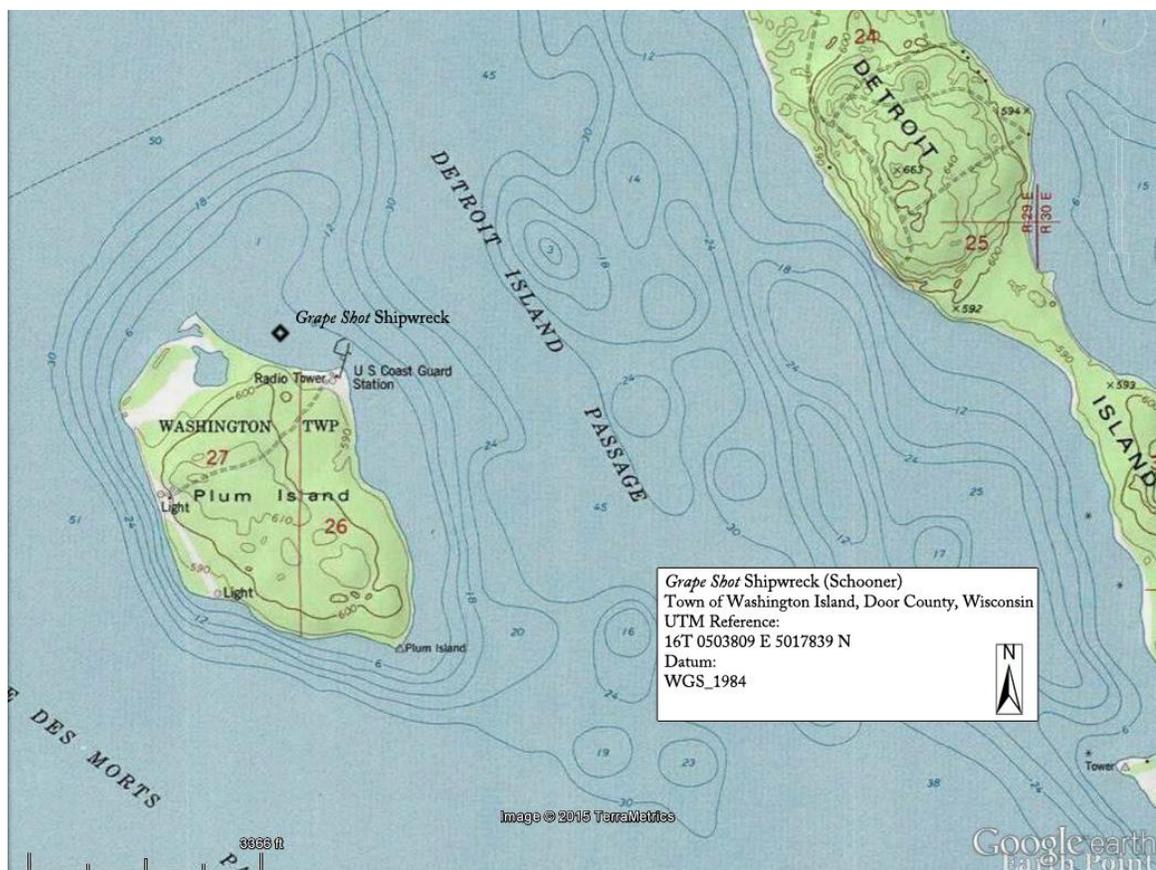


Figure 13. Location of the *Grape Shot* site

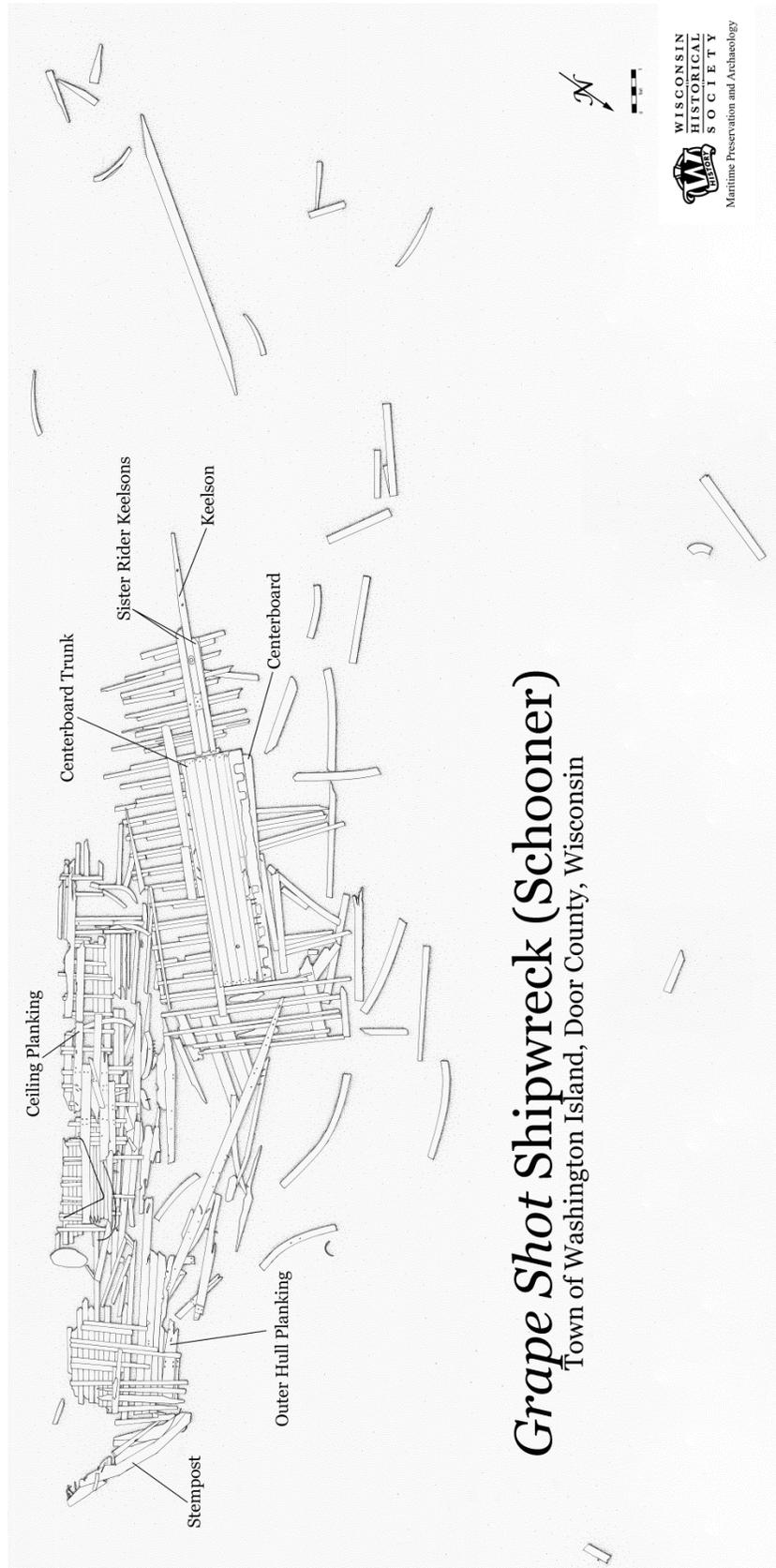
The remains of the schooner *Grape Shot* lie 0.18 miles northwest of the former U.S. Coast Guard Station on Plum Island, in Door County, Wisconsin, in 8 feet of water in Lake Michigan ($45^{\circ} 18.843' N$, $086^{\circ} 57.084' W$). The vessel sits on a heading of 60 degrees, 1.75 miles southwest of the Washington Island harbor lying perpendicular to the shore, on a bed of rocks and sand. The vessel rests in 8 feet of water, with her fallen centerboard trunk raising 3.0 feet from the bottom of the lakebed. The starboard side of the hull, from 0.0 feet to 51.5 feet along the baseline, has broken at the turn of the bilge and lies on its side. Aft of this, the keelson structure and floors remain on an even keel, extant up to the turn of the bilge. The port side of the hull is not extant. Her remains are well-preserved, featuring little zebra and quagga mussel colonization due to wave and ice action. Though much of her upper deck works, rigging and anchors were salvaged shortly after her grounding, major structural components of the vessel remain on the site, including her centerboard trunk, keelson structure, stempost and starboard hull.

A Phase II archaeological survey was conducted on *Grape Shot* in August of 2015 by maritime archaeologists at the Wisconsin Historical Society and volunteer members and students from Wisconsin Underwater Archaeology Association (WUAA) and the Great Lakes Shipwreck Preservation Society (GLSPS) as part of an underwater archaeology field school. A temporary baseline was attached to the stempost and stretched 168 feet along the centerline of the wreckage to the inshore extent of the wreckage. Aft of 112.5 feet along the baseline, the vessel is broken and pieces remain scattered between the main wreckage and the shore. All measurements for the

survey were taken from this baseline. The overall length of *Grape Shot* wreck site is 167.1 feet, while the wreck site's width, measured from the eastern most extent of the wreckage to the western most extent is 47.3 feet. Given the wreck dimensions, location and a comparison of vessel losses in the vicinity based on historic newspaper accounts, the vessel remains were determined to belong to the schooner *Grape Shot*. As the site lies in a dynamic area, with heavy wind and ice action, invasive zebra and quagga mussels have not colonized the wreck allowing for detailed observations.



Figure 14. An archaeologist records the starboard side hull of the schooner *Grape Shot*



Grape Shot Shipwreck (Schooner)

Town of Washington Island, Door County, Wisconsin

Figure 15. Site plan of the schooner *Grape Shot*

Grape Shot's starboard side now lies flattened on the bottom of the bay, with its outer hull facing downward. The stempost measures 1.0 feet molded, 0.9 feet sided, and is comprised of two timbers extending 16.7 feet in overall length; the upper stem piece measures 5.2 feet in length, while the main timber of the stem measures 15.6 feet in length, extending to the point where it would have connected to the vessel's keel. The upper stem piece is joined to the main stem piece via a scarf joint that used a metal strap measuring 0.3 feet in width, 0.05 feet thick, and 2.0 feet in length, in order to add resistance to the scarf and prevent slippage. Just aft of the stempost are the remains of the vessel's apron and deadwood, each measuring 0.9 feet sided, with the apron measuring 1.0 feet molded at its upper extent tapering to 0.05 feet, and the deadwood timber measuring 0.8 feet molded at its lowest extent, tapering to 0.05 feet. Aft of these timbers are the remains of *Grape Shot*'s stemson. The stemson measures 1.5 feet at its widest point, tapering to 0.4 feet at either end.

In the bow, six of the vessel's cant frames are extant, evenly spaced to 11.1 feet along the baseline. These are single frames, measuring 0.45 feet sided and 0.6 feet molded, with 0.65 feet spacing between each frame. Attached to these frames are large sections of intact outer hull planking. Only the starboard side outer hull planking remains extant attached to the vessel's frames. The outer hull planking has two distinct sizes. The planks that would have existed below the waterline when the vessel was afloat measure, 0.8 feet wide and 0.15 feet thick, while the planks that located above the waterline measure only 0.6 feet wide and 0.15 feet thick. Located further aft, sections of the vessel's ceiling planking remain extant on the starboard side. These planks measure 0.9 feet wide and 0.15 feet thick. The vessel's outer hull and ceiling planks are fastened using a series of plain and butt scarves.

Aft of 11.1 feet along the baseline and the extant cant frames, *Grape Shot* is double framed with the frames measuring 0.9 feet wide. The individual futtocks measure 0.4 feet sided and 0.7 feet molded with 1.2 foot spacing between frame sets. Ceiling planking, futtocks, and outer hull planking are fastened together with iron drift pins, 0.1 feet in diameter, roved atop the ceiling planking and peened on the outside of the vessel, spaced on 0.9 foot centers.

A break in the ship is evident in the vessel 53.4 feet along the baseline. Forward of this break, it is evident that the starboard side of the hull has broken at the turn of the bilge and fallen outward. Aft of the break, the lower section of the hull, including the floors and keelson structure remains on an even keel, though flattened due to wave and ice action. In this section, *Grape Shot*'s keelson is partially obscured by the fallen starboard side of the vessel. Additional sections of the keelson structure and floors now lie scattered on the port side of the wreckage, aft of the stempost.

The keelson measures 1.0 feet sided and .09 feet molded, and the sister and rider keelsons are no longer extant above the sand. Aft of the break, however, the keelson structure is made up of multiple timbers and measures 3.0 feet in overall width. On either side of the keelson are sister rider keelsons that measure 0.5 feet sided and 0.8 feet molded and are located atop sister keelsons of the same measurements. Both the sister and the sister rider keelsons are rounded at the stern end, and vary in length. The port side sister rider keelson extends from 84.8 feet along the

baseline where it is broken to 98.2 feet along the baseline, while the starboard side sister rider keelson extends from 84.8 feet to 99.5 feet along the baseline. Located beneath the sister keelsons are two limber boards, measuring 0.25 feet thick. These are notched to fit over the floors of the vessel. The intact keelson structure as a whole is only visible from 84.7 feet along the baseline, or just aft of the fallen centerboard trunk. From investigations it is clear that the keelson structure remains intact forward of this, but it could not be accurately measured due to the current placement of the fallen centerboard trunk.



Figure 16. A diver records the starboard side hull of the schooner *Grape Shot*

The centerboard trunk itself now lies on its starboard side across the keelson structure, located 59.2 feet along the baseline and measures 25.4 feet in length. The trunk is made up of 5 visible planks measuring 1.0 feet wide and 0.4 feet thick. The centerboard trunk measures 1.5 feet in overall width. It is evident that the entire centerboard trunk has become detached from the keelson structure, as the centerboard trunk's bed log is clearly visible. The bed log is a notched timber located at the bottom of the centerboard trunk, in lieu of the keelson, to allow for the centerboard to pass through the keelson structure. These notches on *Grape Shot's* bed log measure 0.9 feet in height and 1.2 feet wide and would have sat on top of the vessel's floors. Above this log is another timber measuring 0.45 feet molded and 0.35 feet sided that would have been used to fasten the centerboard trunk to the keelson structure. This was fastened using 0.15 foot diameter threaded rods that extended 1.5 feet in length. These rods remain extant on the site.



Figure 17. *Grape Shot*'s centerboard and centerboard trunk



Figure 18. The bilge of *Grape Shot* and the fallen centerboard trunk

Though the centerboard pivot pin no longer remains on the site, the pivot pin hole measures 0.4 feet in width and 0.35 feet in height. This hole is located in the second plank from the bottom of

the centerboard trunk, 0.2 feet from the top of the board, measured to the top of the hole. The entire centerboard remains extant inside the centerboard trunk, and measures 0.4 feet in thickness. Because of the centerboard trunk's toppled position, it is difficult to determine if the centerboard was extended or retracted at the time of *Grape Shot's* grounding.

Although her rigging was salvaged, evidence of one of *Grape Shot's* two masts is evident. The mainmast step can be seen in the keelson, just aft of the centerboard trunk, located at 90.1 feet along the baseline. The mainmast step measures 2.0 foot in length by 1.0 feet wide. At the forward and aft ends of the mast step, the keelson seems to be worn away, indicating that the original measurement of the mainmast step was slightly shorter than 2.0 feet in length. Five fasteners are located within the step, the central of which measures 0.1 feet in diameter, with the other four measuring only 0.05 feet in diameter.

Additionally, two pieces of iron strapping are extant between 29.5 and 41.5 feet along the baseline, lying on the ceiling planking on the fallen starboard side. These iron straps are each 0.35 feet wide and 0.05 feet thick, and measure 12.1 feet and 13.4 feet in length. Both are bent at nearly 90-degree angles.

It is likely that many other components of *Grape Shot's* hull structure remain on the site but buried in sand. During the time of the survey, it was clear that sand and rocks do move throughout the bay due to wave action. Ice also builds up in the bay and moves sand each winter, possibly uncovering more of the wreckage as time goes on. Because of the dynamic nature of this area, the potential for exposure of more hull structure remains very high. The 2015 investigations indicated that significant portions of the stern and port side sections of the hull remain scattered across the bay and buried beneath the sand and additional investigations may provide more data about the construction of early Great Lakes centerboard schooners. Data already gathered on the site has significantly increased our understanding of small centerboard schooner construction, and the site holds potential to yield additional significant information essential to understanding nineteenth century maritime commerce. The site has been visited lightly by kayakers, and only recently by boaters due to years of low water levels.

CHAPTER FOUR SCHOONER *LOOKOUT*

The schooner *Lookout* was built at the shipyard of George Hardison, “located on Buffalo Creek near the toll bridge” in Buffalo, New York (*Buffalo Courier* 1856d; Bureau of Navigation 1855). George Hardison was one of the more prolific early Master shipwrights on the Great Lakes. Immigrating from England, he initially found work as a shipbuilder in New York. He built ships and owned yards at many locations on the Great Lakes throughout his career including Buffalo, Irondequoit, and Charlotte, New York; Detroit and Port Huron, Michigan; and Port Colburne and Stromness, Canada (Richens and Wayne 2006).

Lookout was a clipper-modeled ship that measured 126 feet 6 inches in length, 27 feet, 2 inches in beam with a 9 foot 11 inches depth of hold and a capacity of 312 46/95 tons. She was enrolled at the Customs House in the Port of Buffalo on 1 September 1855; her official number was assigned as 14675, and Buffalo was her homeport. The schooner was considered to be a beautiful ship, and second to none on the Lakes in design. She was described as having two masts, a square stern, eagle figurehead, and constructed in a “symmetrical appearance” (*Buffalo Daily Republic* 1855c; Bureau of Navigation 1855).

The schooner was built for Henry A. Frink of Buffalo, who owned $\frac{3}{4}$ share in the vessel. Frink was a commercial barrel stave and lumber dealer whose warehouse was located at 22 Central Wharf in Buffalo. *Lookout*'s Master, Charles Morey of Ashtabula, Ohio owned the remaining $\frac{1}{4}$ share. Captain Morey was a career mariner on the Great Lakes. The first ship he owned and sailed was the schooner *America*, which he purchased $\frac{1}{4}$ share of in April 1854 with his brother-in-law and others. Morey sold his share in *America* to buy the schooner *Lookout* (*Buffalo Daily Republic* 1855c; Bureau of Navigation 1855; *Chicago Tribune* 1881b; *Detroit Free Press* 1855; Jewett 1859; *New York Times* 1881).

On 18 September 1855, while *Lookout* was tied up in the Chicago River, Captain Morey and several members of *Lookout*'s crew as well as crewmembers of other ships, were recruited by Captain J.A. Napier, the Chicago Harbormaster, and Captain Warner, the Marine Inspector for the Chicago Mutual Insurance Company, to assist with a rescue of the crew of the brig *Tuscarora* which became dismasted and stranded outside the harbor in a gale. While spectators lined the shore and cheered them on, at 4 PM, the courageous men rowed two government lifeboats out of the river and into mountainous seas to rescue of all eleven aboard before the *Tuscarora* ultimately sank (*Buffalo Daily Republic* 1855a, 1855b).

On 20 October 1855, *Lookout* ground near Presque Isle Lighthouse. She had onboard a load of coal bound for Chicago. The crew jettisoned an estimated 20 to 30 tons of the anthracite coal and was able to free the vessel. The value of the lost cargo was estimated at \$785 (*Buffalo Daily Republic* 1855c; *Buffalo Morning Express* 1856). *Lookout* arrived at Chicago on 22 October, unloaded her remaining coal, and took aboard 14,000 bushels of wheat for Buffalo. She cleared the same day. The vessel arrived at Buffalo on 30 October and delivered the wheat, which was

consigned to J.G. Deshler, for what was likely her last run of the 1855-season (*Buffalo Courier*1855a, 1855b).

A clearing of Chicago harbor was recorded on 23 May 1856 as *Lookout* departed for Buffalo with 14,000 bushels of wheat (erroneously reported as corn). As she passed Bar Point on Lake Erie just below the mouth of the Detroit River on the night of 30 May 1856, the schooner *Fulton* of Oswego collided with *Lookout*. Both vessels were downbound at the time of the collision. *Lookout's* cutwater was broken, her bowsprit and some of her forward rigging was carried away. *Fulton* had a portion had her railing broken forward of her rigging, and received other slight damage, but was able to keep on her course. The accident caused *Lookout* to leak badly, and upon arrival at Buffalo she went into dry dock for repair. Repair costs were reported at \$1,000 (*Buffalo Commercial Advertiser* 1857; *Buffalo Courier*1856a, 1856b, 1856c).

It is unknown how long the ship was laid up with repairs or when she cleared Buffalo. On 13 June 1856 *Lookout* arrive at Buffalo from Chicago with 14,000 bushels of wheat consigned to Niles & Kinne. She was unloaded and cleared the next day for Chicago (*Buffalo Courier*1856e, 1856f). No records of her arrivals or clearings could be located for July or August 1856.

On 3 September 1856, *Lookout* arrived at Buffalo with 100,000 feet of lumber and 25,000 shingles from Saginaw, Michigan for her owner, Henry Frink. The ship cleared on 6 September for Chicago (*Buffalo Courier*1856g, 1856h). *Lookout* arrived at Buffalo on 6 October with 14,000 bushels of corn from Chicago, and cleared the same day for a return to Chicago (*Buffalo Courier*1856i, 1856j). On 27 November *Lookout* loaded 13,500 bushels of corn at Chicago and departed for Buffalo. She sailed into Buffalo harbor at noon on 8 December 1856. After unloading, the ship laid up for the winter at Buffalo (*Buffalo Courier*1856k; *Detroit Free Press* 1856; *Milwaukee Daily Sentinel* 1856).

It was not until 28 July 1857 that an arrival at Buffalo from Milwaukee was recorded for *Lookout*. Onboard she carried 170,000 feet of lumber and 15,000 staves for her owner, Henry Frink. For the remainder of the season, a search of the historic record reviled only one other arrival at Buffalo from Saginaw with 200,000 feet of lumber, 20,000 shingles, 12,000 feet of lath, and 5,000 barrel staves for her owner. She cleared the same day for Chicago. Although other trips may have occurred which went undocumented, the low demand for cargo shipments was likely tied to the onset of the Panic of 1857 (*Buffalo Courier* 1857a, 1857b).

On 5 April 1858, as the schooner *Lookout* was towed by the tug *D.P. Rhodes* through the Center Street Bridge in Cleveland, Ohio, the steering chain on the tug broke causing *Lookout* to collide with the tug. *Lookout's* mainmast shrouds, chainplates, and deadeyes on her starboard side were carried away, and her yawl was damaged. Additionally, eight feet of side railing on the eastern end of the bridge was torn away (Cleveland W.P.A. 1937). A clearing record for Buffalo harbor was entered on 24 May 1858. The ship was loaded with 200 barrels of salt bound for Saginaw. *Lookout* arrived at Buffalo from Chicago on 21 June with 14,128 bushels of corn consigned to the Farmers & Merchants Bank. It is unknown how long she remained in the harbor as her clearing

went unrecorded. On 9 July *Lookout* departed Chicago bound for Buffalo with 12,708 bushels corn onboard (*Buffalo Courier* 1858a, 1858b, 1858c).

On 25 July 1858, Charles Gilbert, a sailor on the schooner *Lookout* was discharged from custody following an investigation by Aurelian Conkling, Esq., Clerk of Court for the Northern District of New York in Buffalo. Gilbert had been charged with revolt and mutiny on board *Lookout*. It was determined that although his actions were “outrageous, violent and dangerous in a high degree”, they could not be considered mutinous or felonious under the Acts of 1825 and 1835. A *Buffalo Morning Express* editor opined, “further legislation is necessary in order that there may be provision for the safety of officers and sailors upon the Great Lakes” (*Buffalo Morning Express* 1858; *Cleveland Morning Leader* 1858). No other information on the case or events leading up to Gilbert’s detainment could be located.

On 19 August 1858, *Lookout* cleared Buffalo bound for Saginaw with 100 barrels of salt. En route, the schooner went ashore on Long Point in Lake Erie resulting in \$1,600 in damages (*Buffalo Commercial Advertiser* 1859; *Buffalo Courier* 1858d). *Lookout* arrived at Buffalo on 10 September from Saginaw with 200,000 feet of lumber and 100,000 shingles for her owner. The vessel cleared for Chicago on 13 September (*Buffalo Courier* 1858e, 1858f). Another trip was recorded in October. In mid-November she was chartered to take wheat to Buffalo from Chicago at 5 ½ cents per bushel (*Detroit Free Press* 1858a, 1858b; *Buffalo Courier* 1858g).

Few records could be located for *Lookout*’s 1859-shipping season. The ship was noted passing Detroit upbound on 28 April 1859, but her destination and cargo remain unknown. The ship disappeared from the historic record until mid-September when she was reported taking a load of stone up the St. Mary’s River for a project at the canal and locks at the Soo. On 24 November an arrival was recorded at the Port of Buffalo with 13,000 bushels of wheat from Chicago for S.H. Fish (*Buffalo Courier* 1859; *Cleveland Morning Leader* 1859; *Detroit Free Press* 1859).

Lookout came out of winter quarters early in 1860. She cleared Chicago on 13 April 1860 for Buffalo, and arrived there on 27 April with 14,054 bushels of corn for Miles Jones (*Buffalo Courier* 1860a, 1860b). On 8 May the schooner cleared Buffalo for Saginaw; there, she loaded 80,000 barrel staves and 90,000 feet of lumber for her owner and arrived back at Buffalo on 21 May (*Buffalo Courier* 1860c, 1860d). She cleared Buffalo for Saginaw on 23 May (*Buffalo Courier* 1860e). On 4 June 1860 *Lookout* returned to Buffalo with 40,000 oak pipe staves, 80,000 feet of lumber and 50,000 shingles for her owner from Bay City, Michigan. She cleared the same day for Saginaw. The vessel arrived in Buffalo on 21 June from Bay City with 40,000 staves and 100,000 feet of lumber for Mr. Frink (*Buffalo Courier* 1860f, 1860g, 1860h; *Daily Milwaukee News* 1860a).

In July 1860, *Lookout* made two trips to Bay City arriving at Buffalo on 9 July with 40,000 staves and 100,000 feet of lumber, and on 24 July with 110,000 staves and 100,000 feet of lumber for Mr. Frink. On 25 July she cleared Buffalo for Chicago (*Buffalo Courier* 1860h, 1860i, 1860j). On 27 August the schooner arrived at Buffalo with 220,000 feet of lumber and 3,000 staves from Bay City for her owner and cleared two days later for Chicago. By mid-September *Lookout*

arrived back in Buffalo harbor (*Buffalo Courier* 1860k, 1860l; *Daily Milwaukee News* 1860b, 1860c; *Detroit Free Press* 1860a, 1860b). On 4 October the vessel was chartered by J.R. Bentley & Co. to carry wheat from Milwaukee to Buffalo at 12 ½ cents per bushel; she arrived at Buffalo with 14,000 bushels of wheat on the morning of 10 October (*Buffalo Courier* 1860m; *Daily Milwaukee News* 1860d).

When *Lookout* arrived at Buffalo on 10 October, she also had on board survivors of the explosion and wreck of the propeller *Mount Vernon*. The steamer sought shelter from a gale near Pigeon Bay under Point au Pelee the previous night, and was preparing to take up their anchor and get underway when the ship exploded at 1 AM on 9 October. *Mount Vernon* had on board a crew of seventeen plus two men working for passage; the bodies of the fireman and the second engineer could not be located. The survivors clung to pieces of wreckage for nearly 6 hours until rescued from the water by *Lookout* and the steamer *Ocean* (*Buffalo Daily Republic* 1860; *Cleveland Morning Leader* 1860). *Lookout* cleared Buffalo on 11 October for Chicago (*Buffalo Courier* 1860n; *Detroit Free Press* 1860c).

Lookout arrived at Chicago on 17 October and received a charter the next day to carry wheat from Milwaukee to Buffalo at 12 cents per bushel. She made the round trip in only twelve days, and was back to pick up another load at Milwaukee on 27 October. The vessel arrived at Buffalo again on 1 November, unloaded and cleared on 3 November (*Daily Milwaukee News* 1860e, 1860f, 1860g; *Detroit Free Press* 1860d; *Buffalo Courier* 1860o, 1860p; *Daily British Whig* 1860; *Manitowoc Herald* 1860).

On 22 November the vessel carried 300 tons of iron from Detroit for the Flint and Pere Marquette Railway (*Detroit Free Press* 1860e). On 1 December *Lookout* cleared Buffalo bound for Saginaw where she planned to laid up for the winter, but on 4 December she put into Detroit and spent her winter at that port (*Buffalo Courier* 1860q; *Daily Milwaukee News* 1860h; *Detroit Free Press* 1860f, 1860g).

The 1861-shipping season opened on 11 April 1861 for Detroit-wintering vessels marked by the departure of the schooner *Lookout* and bark *Sardinia*. The tug *John Martin* brought them up river as far as Port Huron so they could continue on to destinations on Lake Huron (*Detroit Free Press* 1861a). She returned to the Detroit area shortly thereafter. On 14 April 1861, while upbound through the St. Clair Flats under tow of the tug *Magnet* along with the schooner *Nicaragua* (erroneously reported in the *Detroit Free Press* as the bark *Ocean Wave*), the *Nicaragua* grounded causing *Lookout*, which was the third vessel in the chain, to hit her. Only \$50 in damage occurred to *Nicaragua* and she continued on her route to Newport. *Lookout* received damages to her quarter down to the waterline. She was brought into Detroit for repair with damages totaling \$450 (*Buffalo Commercial Advertiser* 1862; *Detroit Free Press* 1861b). With repairs made, *Lookout* departed Detroit on the morning of 23 April for Saginaw, Michigan (*Detroit Free Press* 1861c).

On 24 May the schooner arrived at Buffalo with 14,000 bushels of wheat from Milwaukee for A. Sherwood & Co., and cleared the same day for Milwaukee (*Buffalo Courier* 1861a). She loaded

14,000 bushels of wheat for her owner, Henry Frink. The ship arrived at Buffalo on 15 June and cleared same day for another run to Milwaukee. For her next return to the lower lakes, she was chartered for wheat from Kenosha to Buffalo. She carried 9,080 bushels of wheat for P.L. Sternberg, and 5,000 bushels for H. Daw & Son. The ship arrived at Buffalo on 2 July and cleared the same day for Chicago. *Lookout*'s arrival at Chicago was recorded on 13 July. She loaded 14,151 bushels of wheat for Griffin & McDonald, and arrived at Buffalo on 23 July. *Lookout* cleared the same day for Saginaw (*Buffalo Courier* 1861b, 1861c, 1861d, 1861e; *Detroit Free Press* 1861d).

On 6 August 1861, *Lookout* arrived at the Port of Buffalo with 100,000 feet of lumber and 40,000 staves for her owner. The vessel unloaded and cleared the same day for Chicago. An arrival for the ship was recorded at the Port of Milwaukee on 13 August. When *Lookout* returned to Buffalo on 25 August, she carried 14,221 bushels of wheat from Kenosha consigned to C.H. Morse. She cleared the same day for Chicago (*Buffalo Courier* 1861f, 1861g, 1861h; *Detroit Free Press* 1861e).

Lookout cleared Buffalo harbor on 30 September 1861 bound for Milwaukee. Weather delayed her progress and she didn't pass Detroit until 18 October. At Milwaukee 18,600 bushels of wheat were taken on for Bentley & Co. The ship arrived at Buffalo on 15 October and cleared the same day for another trip to Milwaukee (*Buffalo Courier* 1861i, 1861j; *Detroit Free Press* 1861f). Her next arrival at Buffalo was recorded on 4 November from Milwaukee with 18,600 bushels of wheat for M.S. Hawley & Co. She cleared the following day for Chicago (*Buffalo Courier* 1861k, 1861l; *Detroit Free Press* 1861g).

On 23 November 1861, as Captain Morey sailed *Lookout* downbound past Point aux Barque on Lake Huron en route from Chicago to Buffalo, he encountered ship fragments, including cabins and a pilot house floating in the water fifteen miles from shore. The steamer *Keystone State* foundered in that vicinity and was lost with all on board. Captain Morey reported his discovery when they passed Detroit. *Lookout* arrived at Buffalo on 26 November with 14,500 bushels of corn for A.W. Cutter (*Buffalo Courier* 1861m; *Grand Haven News* 1861).

Lookout cleared Buffalo for her first run of the 1862-season on 12 April, bound for Milwaukee. She arrived at that port on 21 April, loaded 14,000 bushels of wheat and departed the next day. The vessel arrived at Buffalo on 2 May 1862 (*Buffalo Courier* 1862a, 1862b, 1862c; *Daily Milwaukee News* 1862). Her departure from Buffalo harbor went unrecorded. During her trip back to Lake Michigan, *Lookout* became caught in a squall which unstepped her foremast. Her main boom and other rigging were lost forcing the vessel to limp into Milwaukee harbor. On 14 May 1862, *Lookout* cleared Milwaukee with 14,068 bushels of wheat bound for Buffalo. Making good time, she arrived at Buffalo on 23 May (*Buffalo Commercial Advertiser* 1863; *Buffalo Courier* 1862d, 1862e).

On 27 May 1862, *Lookout* sailed clear of Buffalo harbor with 560 barrels of salt bound for Cleveland. She entered Cleveland on 31 May (*Buffalo Courier* 1862f; *Cleveland Morning Leader* 1862; *Detroit Free Press* 1862a). The vessel arrived at Chicago on 20 June, loaded 15,000

bushels of corn and cleared the same day for Saginaw. Once the corn was offloaded at Bay City, *Lookout* took onboard 35,000 barrel staves and 110,000 feet of lumber for Buffalo. She arrived at Buffalo on 5 July, off loaded her cargo and cleared the same day for Saginaw (*Buffalo Courier* 1862g, 1862h).

On 23 July 1862, *Lookout* cleared Buffalo for Chicago with 1,000 barrels of salt. It is unknown if *Lookout* remained in Chicago or completed other trips in early August. At some point during her time in Chicago harbor during the month of August 1862, the schooner *Leader* struck her. The extent of damages to either vessel is unknown. *Lookout* was chartered to take corn from Chicago to the lower lakes at 4 ½ cents on 24 August (*Buffalo Courier* 1862i; *Buffalo Commercial Advertiser* 1863; *Detroit Free Press* 1862b).

Lookout returned to Chicago in early September 1862 to pick up 14,000 bushels of wheat. She arrived at Buffalo on 29 September (*Buffalo Courier* 1862j; *Detroit Free Press* 1862c). On 3 October the schooner cleared Milwaukee with 14,000 bushels of wheat bound for Buffalo (*Buffalo Courier* 1862k). Two trips were made in November with grain shipments east from Chicago to Buffalo, and 800 barrels of salt shipped twice west to Toledo (*Buffalo Courier* 1862l, 1862m, 1862n, 1862o). Before winter lay-up, while lying at the pier at Buffalo, the schooner *Cortland* struck *Lookout* causing minor damage (*Buffalo Commercial Advertiser* 1863).

On 30 December 1862, Seth Clark of Buffalo and Franklin P. Sears of East Saginaw, Michigan purchased *Lookout* for \$6,500. Captain Morey stepped aside to take command of what was at that time the largest sailing vessel on the Great Lakes, the bark *Western Metropolis* and Captain John Cotton of Buffalo became *Lookout*'s new Master (*Buffalo Courier* 1863a; Bureau of Navigation 1855, 1862; *Detroit Free Press* 1863a).

Little is known about *Lookout*'s 1863-shipping season. Arrivals and clearings for the vessel went unreported in regional newsprint. Several listings were reported of passage by the city of Detroit, upbound and downbound en route to various ports on the Lakes during May, June and July (*Detroit Free Press* 1863b, 1863c, 1863d; *Daily Milwaukee News* 1863). A trip to Chicago occurred in early August with an arrival in Buffalo on 12 August with 15,000 bushels of corn. She cleared the same day with 1,000 barrels of salt for Chicago. An additional trip to Chicago with 1,000 barrels of salt was recorded in October (*Buffalo Courier* 1863b, 1863c). *Lookout* passed Detroit downbound again on 28 November to take up winter quarters in Buffalo (*Detroit Free Press* 1863e, 1863f). Similarly little is known of the vessel's activities in 1864. Only two notices of passage downbound at Detroit on 14 August and 18 November were located. No information on ports or cargoes was found (*Detroit Free Press* 1864a, 1864b).

At the kickoff of the 1865-navigation season, *Lookout* was readmeasured at the Port of Buffalo following the new rules of the Act of Congress of 6 May 1864. A new enrollment was issued on 28 April expressing her net tonnage as 226 22/100 tons. Captain Carlton Graves took over command (Bureau of Navigation 1862, 1865). An upbound passage was recorded at Detroit in May. On 25 July 1865, the wind increased to a gale from the southwest throughout the day but not enough to stall ship movements past Detroit. *Lookout* was in a line of three schooners towed

by the tug *Emerald* downbound at the height of the storm. *Emerald* parted her towline, forcing the schooners to anchor. In attempting to do so, *Lookout* and the schooner *E. Kanter* drifted into one another causing approximately \$300 in damages to the headgear of each. The steamer *Clara* came to their aid and separated the vessels (*Detroit Free Press* 1865a, 1865b, 1865e; *Oswego Commercial Advertiser & Times* 1866). Two notices of passage at Detroit were recorded on 13 August and 2 September 1865 with no information as to destinations or cargoes (*Detroit Free Press* 1865c, 1865d). *Lookout* wintered over in Sandusky, Ohio (*Daily Milwaukee News* 1866).

For her first run of the season, *Lookout* departed Sandusky on 18 April 1866 bound for Kelly's Island, Ohio to take on a load of stone for Saginaw, Michigan. It was a misty night as the vessel approached the mouth of the Detroit River at 1 AM on 22 April. Captain Graves was unable to use land reckoning for navigation. He set their course in the northwest by west direction to enter the river. Due to a misalignment of *Lookout's* compasses, the ship grounded on the lower side of Bar Point Shoal in Lake Erie. While she was stranded, southwest gale sprang up on the lake during the afternoon of 22 April causing \$200 in damage to her hull. The tug *T.F. Park* was able to pull *Lookout* free. She continued on her way upbound on 23 April (*Buffalo Commercial Advertiser* 1867; *Cleveland Daily Leader* 1866; *Detroit Free Press* 1866a, 1866p; *Toledo Blade* 1866a, 1866b).

An upbound passage of Detroit was recorded 14 May 1866. Her trip from Saginaw to Buffalo with a cargo of lumber was speedy, completed in two days and sixteen hours, which included a seven hour delay caused by anchoring to wait for a tug to take the vessel through the St. Clair and Detroit Rivers. Several other trips between Buffalo and Saginaw were noted as she passed Detroit in late May, June and July (*Detroit Free Press* 1866b, 1866c, 1866d, 1866e, 1866f, 1866g, 1866h). Mid-season, the *Detroit Free Press* noted a change in command for *Lookout*, Captain Charles Graves replaced his father, Captain Carlton Graves, as Master. It is unknown when this change occurred, as the change in Masters was not entered in the vessel's documents (*Detroit Free Press* 1866i). *Lookout* continued on multiple trips from Saginaw to Buffalo with cargoes of lumber in August, September, October and November, all in near-record time (*Detroit Free Press* 1866j, 1866k, 1866l, 1866m, 1866n, 1866o). Her quickest trip was recorded arriving at Buffalo on 20 December in only two days and fifteen hours (*Detroit Free Press* 1866q).

On 22 April 1867, *Lookout's* enrollment document was surrendered at the Port of Buffalo and temporary papers were issued for change in owners and districts. Robert Robertson, James Stanley, and Charles Gillespie of Chicago purchased the vessel for \$13,000, each owning one third. *Lookout's* homeport was changed to Chicago and Robert Robertson became her new Master (Bureau of Navigation 1865, 1867a). The vessel arrived at her new home on 15 May 1867 and a permanent enrollment was issued. Captain James Kent took over the helm, but all else remained the same (Bureau of Navigation 1867a, 1867b; *Chicago Tribune* 1867). No records of her cargoes or ports of call were located for the remainder of the season.

At the onset of the 1869-shipping season James Stanley sold his share in the vessel. A new enrollment was entered at the Port of Chicago on 3 March indicating that Robert Robertson retained his 1/3 share, Charles Gillespie added to his share to now hold 5/12 share, and Elon

Rutherford acquired 3/12 share in the schooner (Bureau of Navigation 1867b, 1868). Much of *Lookout's* routes and cargoes are unknown. On 19 September 1869, *Lookout* struck one of the bridges over the Chicago River while in tow, and as a result, lost her jibboom (*Buffalo Courier & Republic* 1868; *Buffalo Telegraph News* 1868; *Detroit Free Press* 1868).

Little is known about *Lookout's* movements during the 1869-season. On 6 July 1869, *Lookout* was in tow of the tug *Clifford* near the White Street Bridge in Chicago when she struck the 715-gross ton steam propeller *B.F. Wade*. The six-year-old steamer, *B.F. Wade* was solidly built at Newport, Michigan, in 1862. *Lookout's* jibboom pierced *B.F. Wade's* stateroom and bulkheads, and was ultimately ripped from the schooner and carried away by the falling on the steamer's arch (*Buffalo Courier & Republic* 1869; Hall 1869; Holdcamper, et al 1975).

Lookout was chartered to carry lumber from Oconto, Wisconsin to Chicago for much of the 1870-season. In June and July market prices for 200,000 board feet of mill-run circular sawed lumber varied from \$14 to \$15 for boards and one-inch strips, \$10.50 for two-inch strip, and \$2 for lath (*Door County Advocate* 1870a, 1870b; *Daily Milwaukee News* 1870a, 1870b).

On 6 April 1871, a new enrollment was entered at the Port of Chicago for a change in owners indicating Robert Robertson owned ½ of the vessel, F. Leonard owned ¼, and Elon Rutherford owned the remaining ¼ share. All owners were from Chicago and Chicago remained *Lookout's* homeport. Captain Robert Robertson returned as her Master (Bureau of Navigation 1868, 1871). The schooner continued to haul lumber from Oconto to Chicago. Mid-season rates for 180,000 feet of strips and boards were \$14, and \$2 for lath (*Door County Advocate* 1871).

In 1872, *Lookout* was engaged in carrying lumber for lumber merchant and dealer Bradner, Charnley & Co., which was dissolved and seceded during the year, by the firm Charnley Bros. & Co. Both iterations of the firm operated a yard and timber mill at Quarry and Cologne Streets in Chicago, and were known to stock large quantities of heavier varieties of square timber and large joists. Trips were recorded from Suamico, Wisconsin to Chicago with 200,000 feet of lumber and 30,000 feet of lath in June, and repeated in July and August (*Chicago Daily Tribune* 1872a; *Door County Advocate* 1872; Hotchkiss 1894). On 20 November 1872, while in the Grand River near Grand Haven, Michigan, *Lookout* struck the pier and sank. At the time of the accident, the vessel was valued at \$8,000 and insured for \$5,000, and there was some concern expressed that she would be a total loss (*Chicago Tribune* 1872b; *Detroit Free Press* 1872).

With the ice off the Grand River, on 29 April 1873 the wrecking tug *Leviathan* succeeded in raising *Lookout* from the bottom. She was taken to the shipyard at Grand Haven for repair (*Chicago Tribune* 1873a; *Buffalo Courier* 1873; *Buffalo Commercial Advertiser* 1873). *Lookout* arrived into Chicago on 8 May 1873, took on lumber for Charnley Bros. & Co., and departed on 10 May (*Door County Advocate* 1873).

By the end of September a deal was made to transfer ownership. *Lookout's* enrollment document was surrendered at the Port of Grand Haven on 29 September 1873. A new enrollment was issued listing Henry Brower and Klaus Brower of Grand Haven, Michigan, as equal owners of the

schooner. Her homeport was changed to Grand Haven, and Captain Paul J. Vandenberg became her new Master (Bureau of Navigation 1871, 1873).

November 1873 proved to be a difficult month for the schooner. *Lookout* collided with the schooner *Addie* of Benton Harbor, Michigan causing *Lookout* to lose stanchions and part of her railing; *Addie* lost her fore and main rigging. On 12 November 1873, while carrying lumber for Smith & Davis of Chicago, she went ashore at Grand Haven, but the vessel was easily freed. Then, on the afternoon of 19 November she ran into the Wells Street Bridge in Chicago. The railings of the bridge were slightly damaged, as was part of the rigging of schooner (*Buffalo Express* 1873; *Chicago Daily Tribune* 1873b; *Detroit Free Press* 1873).

Little is known of *Lookout*'s 1874-early season trips or cargoes. In June 1874, the schooner was chartered to bring coal from Cleveland to Kenosha at 60 cents per ton (*Buffalo Courier* 1874; *Buffalo Courier & Republic* 1874). By November she was back to hauling lumber from Grand Haven to Chicago. She hauled cedar posts out of Grand River, arriving at Chicago harbor on 9 November. Reports indicated that *Lookout* was again ashore at Grand Haven, but these proved to be in error. The vessel wintered over at Grand Haven (*Inter Ocean* 1874a, 1874b, 1874c).

In February 1875 before the opening of the 1875-shipping season, it was announced that *Lookout* would be laid up for the balance of the season. It is uncertain if the lingering effects of economic downturn associated with the Panic of 1873 was finally sufficiently affecting Chicago's lumber industry with lagging cargoes that caused the decision, or if another matter contributed (Mansfield 1899; *Oswego Daily Times* 1875). By the end of September 1875, *Lookout* was readied for operation. On 30 September 1875, she cleared Chicago with 60 cords of stone for a harbor improvement project in Grand Haven. On 16 November, she arrived back at Chicago with lumber (*Chicago Tribune* 1875; *Inter Ocean* 1875).

Lookout's enrollment document was surrendered on 3 April 1876 at the Port of Milwaukee for change of owners and districts. Klaus Brower retained his ½ share, but his brother's share was split between Alfred Miller of Kenosha, Wisconsin and Benjamin F. Aldrich of Providence, Rhode Island, each owned ¼ share. *Lookout*'s homeport was changed to Kenosha and Alfred Miller became her new Master. On 1 June Captain Frank Mood took command from Captain Miller. On 13 June Miller returned to the helm (Bureau of Navigation 1873, 1876). Little is known about *Lookout*'s trips or cargoes for the season. Reports indicate she may have been rebuilt during this time, but vary. During the third week of October 1876, *Lookout* loaded at Baileys Harbor, Wisconsin but her cargo and destination are unknown (*Door County Advocate* 1876).

On 26 June 1877, a sailor of *Lookout*'s crew named A. Berton was taken to the U.S. Marine Hospital in Chicago. The nature of his injuries is unknown (*Inter Ocean* 1877a). *Lookout* disappeared from the historic record until 15 September 1877 when she arrived at Cheboygan, Michigan to pick up a cargo of lumber from the firm Bullen & Nelson. She cleared the harbor on 20 September for Chicago and arrived in the city on 26 September (*Inter Ocean* 1877b; *Northern*

Tribune 1877). *Lookout* was put in winter quarters in Kenosha by the end of November 1877 (*Inter Ocean* 1877c).

Warm conditions prevailed into March 1878. *Lookout* came out of lay-up early and headed for Chicago. Her arrival with cargo in Grand Haven on 8 March was the earliest on record for the port (*Detroit Free Press* 1878). On 18 April 1878, *Lookout* grounded in the Root River in Racine. She needed to be lightered before she could reach the dock. A notice to mariners was issued for vessels bringing coal to Racine to assure their draw was less than 11 ½ feet (*Inter Ocean* 1878a). On 10 May another accident occurred. While the schooner *Lookout* was towed in Chicago harbor by the tug *Harrison*, the tug broke her prop shaft, temporarily stranding the two vessels (*Inter Ocean* 1878b). Yet another accident in the Chicago River occurred on 12 October causing *Lookout* to lose her jibboom in a collision (United States Army Signal Corps 1880). Sailing late into the season, on 21 November the ship took a final trip from Chicago with supplies for Bullen & Nelson of Cheboygan. She cleared the port on 29 November with lumber for Michigan City, Indiana (*Inter Ocean* 1878c; *Northern Tribune* 1878).

On 12 April 1879 a temporary enrollment was issued for *Lookout* at the Port of Grand Haven as the vessel's license had expired while away from her homeport. All other information remained the same (Bureau of Navigation 1876, 1879a). On the evening of 15 June while bound from Chicago to Escanaba, Michigan, *Lookout* ran aground on the Sand Island Reef, just below Ford River. The schooner was running light and came two feet up on the reef. The tug *Winslow* was sent to her assistance but did not succeed in pulling the ship free until the morning of 17 June. She sustained no damage. *Lookout* made Escanaba on 17 June, loaded ore and cleared on 18 June for Chicago (*Buffalo Courier* 1879; *Iron Port* 1879; United States Army Signal Corps 1880).

On 5 July 1879, the schooner returned to Milwaukee. Her temporary enrollment was surrendered and a new permanent enrollment was entered (Bureau of Navigation 1879b). At the end of July *Lookout* was chartered to take corn from Chicago to Buffalo at 4 cents per bushel. The rate was considered high due to a scarcity of vessels and the need to move old grain to make room for the new crop. The vessel was noted passing downbound at Detroit on 7 August, but her arrival at Buffalo went unreported (*Chicago Tribune* 1879; *Detroit Free Press* 1879a, 1879b). *Lookout* took on coal on the lower lakes, and returned to Kenosha with her load on 26 August (*Inter Ocean* 1879a). On 26 September, *Lookout* sailed from Chicago to Muskegon, Michigan. Another clearing of Chicago harbor was noted on 14 October as she departed for Milwaukee (*Inter Ocean* 1879b, 1879c). From Milwaukee *Lookout* headed for Alpena, Michigan where she took on 260,000 feet of lumber, shipped by E.O. Avery. The ship cleared Alpena on 31 October for Chicago (*Alpena Weekly Argus* 1879a, 1879b). As *Lookout* was being towed in the Chicago River on 14 November, the upper railroad bridge across the Chicago River jammed. The propeller *Juniata* with her consorts, the schooners *W.S. Crosthwaite*, *S.J. Tilden*, and *Bessie Boalt* were lying on one side of the river. As a result of the jammed turn bridge, *W.S. Crosthwaite* grounded twelve feet from the dock, the schooner *Knight Templar* lost her jibboom, and the schooner *Lookout* grounded on the other side of the river, damaging her bobstays (*Inter Ocean* 1879d).

On 30 April 1880 the schooner *Lookout* was chartered to take cedar ties from Little Sturgeon Bay, Wisconsin to Chicago at 6 ½ cents each (*Chicago Tribune* 1880a). On 26 May 1880, *Lookout* was chartered to carry pig iron from Elk Rapids, Michigan on Grand Traverse Bay to Buffalo at \$2.25 per ton. As the schooner departing Chicago harbor on 28 May 1880, a sailor named W.H. Vent was injured severely when he fell from the rigging onto the deck. He was taken to the U.S. Marine Hospital but was refused, and sent to the county hospital. The reason for the refusal was not examined in newsprint (*Buffalo Evening Republic* 1880; *Inter Ocean* 1880a). On 9 June, *Lookout* cleared Buffalo for Kenosha with 430 tons of coal (*Detroit Free Press* 1880a).

Lookout was chartered to carry shingles from Manistee, Michigan to Chicago at 19 cents per 1,000 on 20 June 1880. The shingles were delivered to the Illinois Central C Slip in Chicago for transfer to rail (*Chicago Daily Tribune* 1880b). The next clearing of Chicago for *Lookout* was on 2 August. She was chartered to haul iron ore from Escanaba to DePere, Wisconsin at 75 cents and for a cargo of lumber from Green Bay, Wisconsin to Chicago at \$2.75 (*Inter Ocean* 1880b; *Door County Advocate* 1880).

A passing of Detroit downbound on 13 September marked a trip to the lower lakes; however, *Lookout's* cargoes and ports are unknown. By mid-October *Lookout* had returned to Chicago and the vessel became windbound in Chicago harbor on 26 October (*Chicago Tribune* 1880c, 1880d). On 15 November *Lookout* arrived at Cheboygan, Michigan from Chicago with supplies for Bullen & Nelson consisting of 8,000 bushels oats, 1,500 of corn, 15 tons feed, 350 barrels of port and beef, 500 barrels of flour, and 15 tierces of lard. She took on a cargo of lumber at the Cheboygan Lumber Company and cleared on the morning of 19 November for Chicago. On her return trip, *Lookout* ran ashore on Beaver Island and pounded heavily. The crew succeeded in getting the vessel off, but she was leaking badly. Instead of continuing to Chicago, they made for Escanaba. The schooner arrived there on 20 November to receive repairs (*Cheboygan Democrat* 1880; *Chicago Daily Tribune* 1880e, 1880f; *Detroit Free Press* 1880b; *Northern Tribune* 1880). *Lookout* remained lumber laden and weatherbound in Escanaba through 1 December, only making Chicago harbor on 4 December (*Chicago Tribune* 1880g; *Detroit Free Press* 1880c).

On 19 February 1881, *Chicago Tribune* reported a change in ownership for *Lookout* indicating that Alfred Miller became sole owner. This was not true. No portion of ownership changed for the vessel (*Chicago Tribune* 1881a). On 2 April, however, Captain John Maloney took over as Master from Alfred Miller at the Port of Kenosha (Bureau of Navigation 1879b).

Lookout departed Grand Haven on 28 April 1881 bound for Chicago. She arrived at the port and loaded 17,000 bushels of grain on 30 April. By 2 May she was back at the port of Grand Haven. The tug *Lizzie Frank* had *Lookout* in tow and was attempting to dock the vessel when the tug backed her against the dock and broke her gudgeon, and sprung the iron strapping on her rudder (*Detroit Free Press* 1881a; *Inter Ocean* 1881a, 1881b).

On 19 May 1881, *Lookout* arrived at Cheboygan with a cargo of grain and cargo for Bullen & Nelson. She departed on 21 May with cedar ties from the Cheboygan Lumber Co. for Chicago. The charter agreement paid 11 cents cash per unit (*Cheboygan Democrat* 1881; *Detroit Free*

Press 1881b; *Inter Ocean* 1881c; *Northern Tribune* 1881a). *Lookout* returned to Cheboygan harbor on 5 July with oats for Bullen & Nelson. She loaded lumber at the Cheboygan Lumber Co. wharf and cleared 7 July for Chicago (*Northern Tribune* 1881b). Another arrival at Cheboygan was recorded on 2 August. The ship took on a cargo of lumber from the Cheboygan Lumber Co. and departed 4 August for Chicago (*Northern Tribune* 1881c). *Lookout* arrived at Cheboygan again on 12 August and loaded lumber at Cheboygan Lumber Co. She arrived at Chicago on 17 August (*Inter Ocean* 1881d; *Northern Tribune* 1881d). The ship didn't return to Cheboygan again until the night of 8 November. She anchored outside the harbor awaiting daybreak. Her cargo of supplies for Bullen & Nelson was discharged and she took aboard lumber before departing on 11 November for Chicago (*Northern Tribune* 1881e).

Lookout's final trip of season was to Menominee, Michigan for lumber. On her trip north, she was forced to run for shelter in Milwaukee harbor. She departed Menominee on 20 November, making the passage through Death's Door to Chicago in four days and seventeen hours. The schooner laid up for the winter in Chicago on 26 November 1881 (*Chicago Tribune* 1881c; *Inter Ocean* 1881e).

Two trips were made to Bay de Noc to take on cargoes of lumber for Chicago on 7 May and 27 May 1882 (*Chicago Tribune* 1882a, 1882b). The schooner arrived at Cheboygan, Michigan on 1 July to load lumber for Chicago (*Cheboygan Democrat* 1882). On a trip from Cheboygan on 13 September 1882, while off Petoskey, Michigan, *Lookout* was driven ashore during a storm. The ship was able to get off with only slight damage (*Inter Ocean* 1882a). *Lookout* arrived at Cheboygan on 27 November with grain and supplies for Bullen & Nelson. She loaded lumber from Cheboygan Lumber Co and cleared on 29 November under terrible conditions – brisk northwest wind with occasional snow squalls and freezing hail (*Chicago Tribune* 1882c; *Northern Tribune* 1882). On 8 December *Lookout* along with the schooner *Narragansett* were towed from Chicago to Kenosha for winter quarters (*Inter Ocean* 1882b, 1882c).

Sometime during the 1882-season, a deduction in tonnage of 11.30 tons for the vessel was made under the Act of Congress 5 August 1882. Her net tonnage was adjusted by inspectors at the Port of Chicago to 214.92 tons, which was handwritten in pencil onto *Lookout's* enrollment document (Bureau of Navigation 1879b).

At 10 PM on the night of 2 May 1883, Capt. John Maloney ran aground on the reef at the southeast corner of Rock Island. *Lookout* had taken on a load of cedar ties from Thomas Farrell, for Goodenow & Hinds of Chicago at Summer Island when she ran ashore during a squall. The crew threw over her deck load and was successful in heaving off. They set her anchor in order to access damages. At 7 AM the following morning the anchor was slipped. The *Lookout* lost not only her anchor, but also her hawser, and her keel and stern port quarter were severely damaged making her rudder unmanageable. She ran for Maritime Bay off Manitowoc, Wisconsin hoping to make repairs. As she entered the bay on the morning of 4 May, she drifted into the barge *Windsor* which was already at anchor and carried away *Windsor's* jibboom and bobstays, and damage *Lookout's* mizzen sail. *Lookout* then sprung a bad leak that very nearly sank her. Quite shaken by the near loss of his ship, her owner Captain Alfred Miller, initially reported that the accident

occurred on Summer Island, twenty miles north of Rock Island (*Chicago Tribune* 1883a.; *Daily Palladium* 1883; *Detroit Free Press* 1883a; *Door County Advocate* 1883; *Iron Port* 1883; *Manitowoc Pilot* 1883; *Marine Record* 1883; *Weekly Expositor Independent* 1883; United States Army Signal Corps 1884).

The tug *G.W. Gardner* was telegraphed to tow the ship to Chicago for repairs. The incident left her in quite a state of disrepair. When *Lookout* was towed into Chicago Dry Dock Company on 6 May 1883, she was described as having a “somewhat dilapidated appearance”. A thorough survey of the schooner was conducted and damaged estimated at \$2,000. She required stern planking, an entire new keel, calking inside and out, a new sternpost, rudder, and various repairs to her steering gear and rigging (*Chicago Tribune* 1883b, *Detroit Free Press* 1883b, 1883c; *Marine Record* 1883). The *Lookout*’s hull was insured in the Mechanics and Traders for \$3000, and British American for \$2,000; her cargo was insured in the State of Pennsylvania for \$1,000 (Hall 1883). It remains uncertain when *Lookout*’s repairs were completed. On 27 November 1883, she received a tow in from Chicago’s outer breakwater (*Inter Ocean* 1883).

On 25 May 1884, the schooner *Lookout* sailed from Chicago harbor with a new mainsail (*Inter Ocean* 1884a). On 31 July she cleared Chicago light for Little Traverse, Michigan (*Inter Ocean* 1884b). On 20 October *Lookout* departed Cheboygan harbor after taking on lumber from the Cheboygan Lumber Co. bound for Chicago. *Lookout* went into winter quarters in Kenosha on 7 November (*Inter Ocean* 1884c; *Northern Tribune* 1884).

Only one record was located for her 1885-season. *Lookout* cleared Alpena on 9 October 1885 with 10,000 cedar posts for Chicago (*Alpena Weekly Argus* 1885). On 3 March 1886 *Lookout*’s enrollment document was surrendered at the Port of Chicago for a change in owners and districts. Captain Oscar E. Larsen of Chicago purchased a ½ share in the vessel from Alfred Miller. Klaus Brower retained his ½ share. *Lookout*’s homeport was changed to Chicago and Captain Larsen became her new Master. The new enrollment indicated that the schooner had a rig change from two to three masts (Bureau of Navigation 1879b, 1886). It is likely this alteration occurred during her 1883-repair work. Typical of this time period, two-masted schooners were often converted to three masts which required fewer men on deck to operate the vessel and a reduction in salary costs to the vessel owners, but also allowed an equal or greater area of canvas for greater performance in the wind. On 19 May *Lookout* entered the Port of Chicago with lumber from Green Bay. She unloaded and cleared the same day for Green Bay without a cargo (*Chicago Tribune* 1886a). On 14 September 1888, *Lookout* loaded 406 tons of pig iron at Fayette, Michigan. The ship was listed amongst the winter fleet at Chicago by 4 December 1886 (*Chicago Tribune* 1886b; *Iron Port* 1886).

On 14 April 1887, the schooner *Lookout* loaded cedar posts at Reynolds’ Pier in Jacksonport, Wisconsin. She was among the first vessels to load that spring. The ship arrived at Chicago on 16 April (*Independent* 1887). A clearing of the Port of Chicago was noted on 26 May. The schooner departed light, but her destination was not indicated (*Inter Ocean* 1887a, 1887b). No other records were located for the 1887-season.

Lookout was the first vessel again to load at Jacksonport at the opening of the 1888-shipping season. On 24 April 1888, she brought in supplies from Chicago for Charles Reynolds' store. She loaded cordwood and cleared the same day for Chicago (*Independent* 1888).

While en route from Sand Bay, Wisconsin (vicinity of Little Sturgeon Bay, Door County, Wisconsin) to Chicago at 1 AM on a clear night with no haze or fog, the schooner *Myrtle*, bound from Chicago to Green Bay, and *Lookout* collided while six to eight miles off Sheboygan, Wisconsin. *Myrtle* struck *Lookout* just forward of her foremast rigging (U.S. District Court of Northern Illinois 1890). Receiving only minor damages, *Lookout* carried on and arrived at Chicago with her load of lumber (*Inter Ocean* 1888a, 1888b).

Several days later, Schuyler & Kremer, attorneys for the owners of *Lookout*, entered a complaint against the owners of *Myrtle* for damages. Additionally, a countersuit was filed by the owners of *Myrtle* against the owners of *Lookout* (U.S. District Court of Northern Illinois 1890). After reviewing the facts presented, it was determined that Captain Larsen of *Lookout* was at fault. He allowed the wheelsman to go below after *Myrtle* was sighted, and he sent her lookout to the wheel, leaving the Captain as the only other man on deck to perform the duties of both officer of the deck and lookout. *Lookout* was determined at fault for the accident and therefore responsible for all damages (U.S. District Court of Northern Illinois 1890). On 2 July Schuyler & Kremer filed another suit on behalf of the owners of *Lookout* against propeller *H.L. Worthington* for \$340 damages resulting from a collision (*Inter Ocean* 1888c). The details of the accident and results of the lawsuit are unknown. *Lookout* arrived at Chicago from Charlevoix, Michigan on 16 August. She cleared light on 1 September, bound for Manistique, Michigan. Another clearing of Chicago was recorded on 12 September, bound light for Flat Rock, Michigan below Detroit (*Inter Ocean* 1888d, 1888e, 1888f).

The series of misfortunate accidents and ill-results from lawsuits caused Klaus Brower to default on his payments on the vessel, and the First National Bank of Grand Haven took control of his ½ share. A new enrollment was entered at the Port of Chicago on 26 March 1889 expressing this change (Bureau of Navigation 1886, 1889). It is not known if the vessel sailed during the 1889-season as no information could be found for entries or clearings for the ship.

On 6 May 1890, *Lookout* cleared Chicago harbor light, bound for St. Martin's Bay, Michigan. She picked up a load of lumber for Chicago. The vessel picked up another load of lumber from St. Martin's Bay, arriving at Chicago on 24 June (*Inter Ocean* 1890a, 1890b). No information on arrivals and clearings for the vessel was located for July, August, September or October. *Lookout* cleared Chicago light on 13 November 1890 bound for Gladstone, Michigan. By 6 December, *Lookout* was laid up for the winter in the North Branch of the Chicago River near Carpenter Street (*Chicago Tribune* 1890a, 1890b; *Inter Ocean* 1890c).

On 28 March 1891, Captain O.J. Christenson of Chicago purchased the half of the vessel held in receivership by the First National Bank of Grand Haven and a new enrollment document was issued at the Port of Chicago. Captain Larsen remained on as Master of the vessel (Bureau of Navigation 1889, 1891). *Lookout* cleared Chicago light for Muskegon, Michigan on 22 April for

her first trip of the 1891-season (*Chicago Tribune* 1891a). No arrivals or clearings were located for the vessel for May, June, or July. On 4 August *Lookout* cleared Chicago harbor light for Bay de Noc, Michigan. She arrived back at Chicago with a cargo of lumber on 13 August. Her next clearing of Chicago went undocumented, but on 23 August she arrived at the port again with lumber from Bay de Noc. One more trip to Bay de Noc occurred at the end of August. The vessel arrived at Chicago with lumber on 2 September. One other trip was record with an arrival at Chicago with lumber on 20 October from Hind Bay (*Chicago Tribune* 1891b, 1891c, 1891d, 1891e, 1891f).

Few records exist for shipments during the 1892-season. On 25 June 1892 *Lookout* arrived at Chicago from Little Bay de Noc, Michigan with lumber. Two clearings of Chicago harbor were located for the month of October; on 20 October with the vessel bound to Bark River, Michigan (near Escanaba) and on 28 October to an unreported destination (*Chicago Tribune* 1892a, 1892b, 1892c).

On 28 March 1893, Captain John Olson of Chicago purchased Captain Larsen's ½ share of *Lookout*. The other half remained in the possession of Captain Christenson and a new enrollment was issued at the Port of Chicago to express the change in owners (Bureau of Navigation 1891, 1893a). It is not known if the vessel carried cargo during the 1893-shipping season as no listings of arrivals or clearings could be located in contemporary newsprint. On 27 September John Olson purchased O.J. Christenson's half of the vessel to become sole owner and Master (Bureau of Navigation 1893a, 1893b).

Lookout carried two loads of cedar ties from Cheboygan, Michigan to Chicago on 26 May and on 2 June 1894 (*Cheboygan Democrat* 1894a, 1894b). It is not known if the vessel carried other cargoes for the months of July, August, September, or October 1894 as no records of trips were located. During the week of 17 November 1894, *Lookout* came into Sturgeon Bay, Wisconsin, already lumber laden having loaded at another port, and took aboard shingles on her deck from Thorkildson & Shaw's Mill (*Door County Democrat* 1894).

Only two trips were recorded for *Lookout*'s 1895-season. On 25 June the vessel cleared Chicago for Gladstone, Michigan. She arrived back at Chicago on 3 July, but her cargo was not documented. The only other listing during the season was an arrival at Chicago on 9 November with lumber. The port from which she acquired the cargo was not recorded (*Chicago Tribune* 1895a, 1895b, 1895c). No reports of trips during the 1896-navigation season were located.

Around 4 AM on 29 April 1897, while fighting their way north in a northeast gale from Chicago to Masonville, Michigan (Little Bay de Noc, Michigan) without a cargo aboard, *Lookout* came too close to Twin Rivers Point (Rawley Point) and stranded 200 yards off the beach approximately five miles north of Two Rivers. The ship did not send up any distress signals. Life Saving Service patrolman Gagnun discovered her at around 5 AM, while he was making his surveillance rounds on the beach. Gagnun sprinted back to the station to sound the alarm. As he approached at 5:20 AM, surfman Gauthier, who was on lookout, spotted the patrolman running down the beach waving his arms and hat. Everyone at the station was woken up and readied for

response. Since the storm served a fierce wind and high seas, it was impossible to row their surfboat to the scene. At 6:10 AM, two teams of horses were acquired from Shultz's Livery Barn to drive both their surfboat and beach apparatus to the stranded ship. The crew of *Lookout* watched the Life Savers slowly working their way up the beach. At 7:00 AM fearing *Lookout* was about to break up before the Life Saving crew would get to them, Captain John Olson ordered his crew to abandon ship and take their chances in the yawl. The rescue team and their equipment arrived at the scene at 7:30 AM shortly after *Lookout's* men came ashore. All seven of *Lookout's* men got ashore safely, although soaking wet. The shipwreck victims were walked back to the Life Saving Station in Two Rivers and given dry clothes from the Women's National Relief Association until their clothing could be dried. They were fed two meals and allowed to sleep over night at the station. The men departed the next day for Chicago. Captain Olson remained behind to save what he could of the ship. He visited the wreck the next day with the lighthouse keeper. They found the vessel under water, buried in quicksand up to her rails, with everything movable washed away. Her sails were torn to shreds, and practically a total loss. Captain Olson managed to save one anchor, seventy-five fathoms of chain, four jib sails, and three gaff top sails (*Advocate* 1897a; *Alpena Argus* 1897; *Alton Evening Telegraph* 1897; *Buffalo Evening News* 1897; *Duluth Evening Herald* 1897; *Hocking Sentinel* 1897; *Inter Ocean* 1897a, 1897b, 1898; *Marine Review* 1897; United States Life Saving Service 1898).

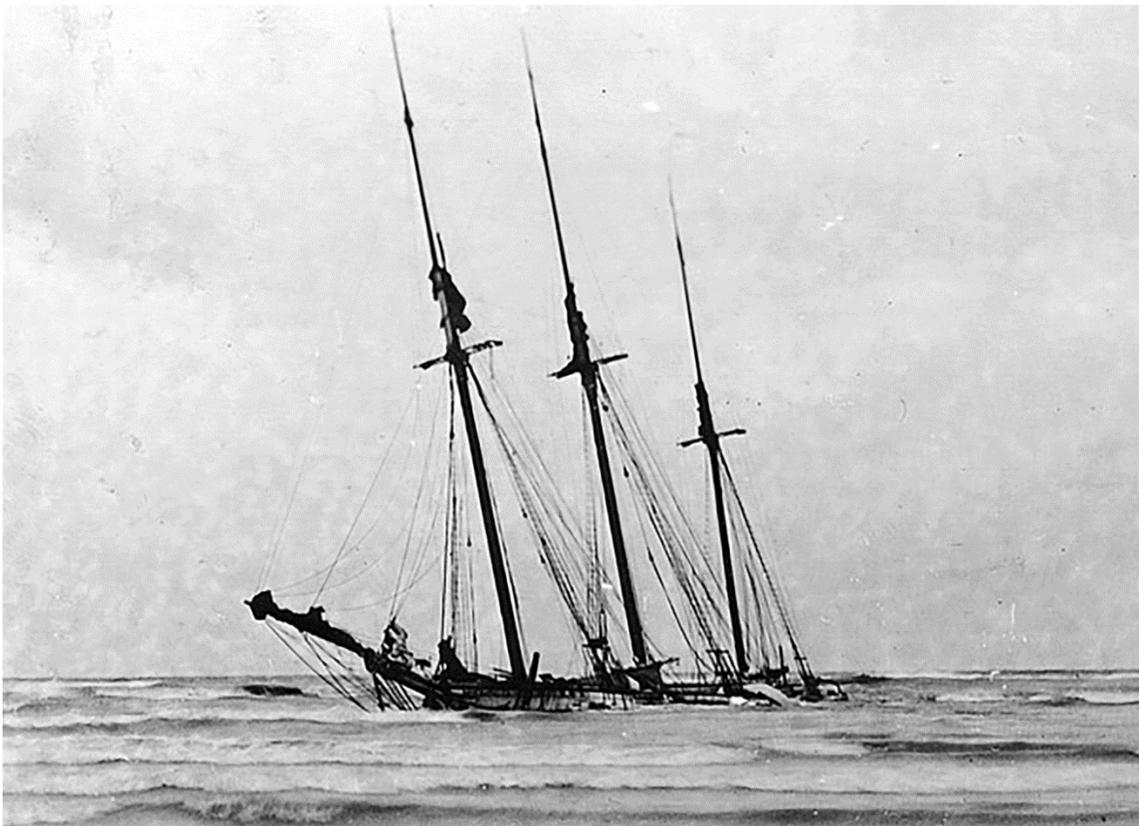


Figure 19. The *Lookout* on Rawley Point shortly after grounding

The ship's enrollment document was surrendered at the Port of Chicago on 12 May 1897 indicating the vessel was a total loss. The ship was valued at \$2,000 and Captain Olson carried no insurance (Bureau of Navigation 1893b; *Inter Ocean* 1897a, 1897b).

By July 1897, *Lookout* was described as “resting on her keel...broken in two in three places”, and heeled to starboard. She had settled so deep into the quicksand that only her port railing remained out of the water. The Mann Bros. of Two Rivers purchased salvage rights to the wreck for \$40. Captain LeClair of the tug *Temple Emery* was put in charge of the salvage operations. Her standing rigging and foremast were removed. A diver was sent into the cabin to salvage all navigation instruments including the compass, although the compass' box was broken upon removal. It was noted that the patent log, a pair of binoculars, and the barometer could not be located. Captain LeClair later built a new box for the compass with gimballed mounts and used it onboard the tug (*Advocate* 1897b, 1897c).

Site Description

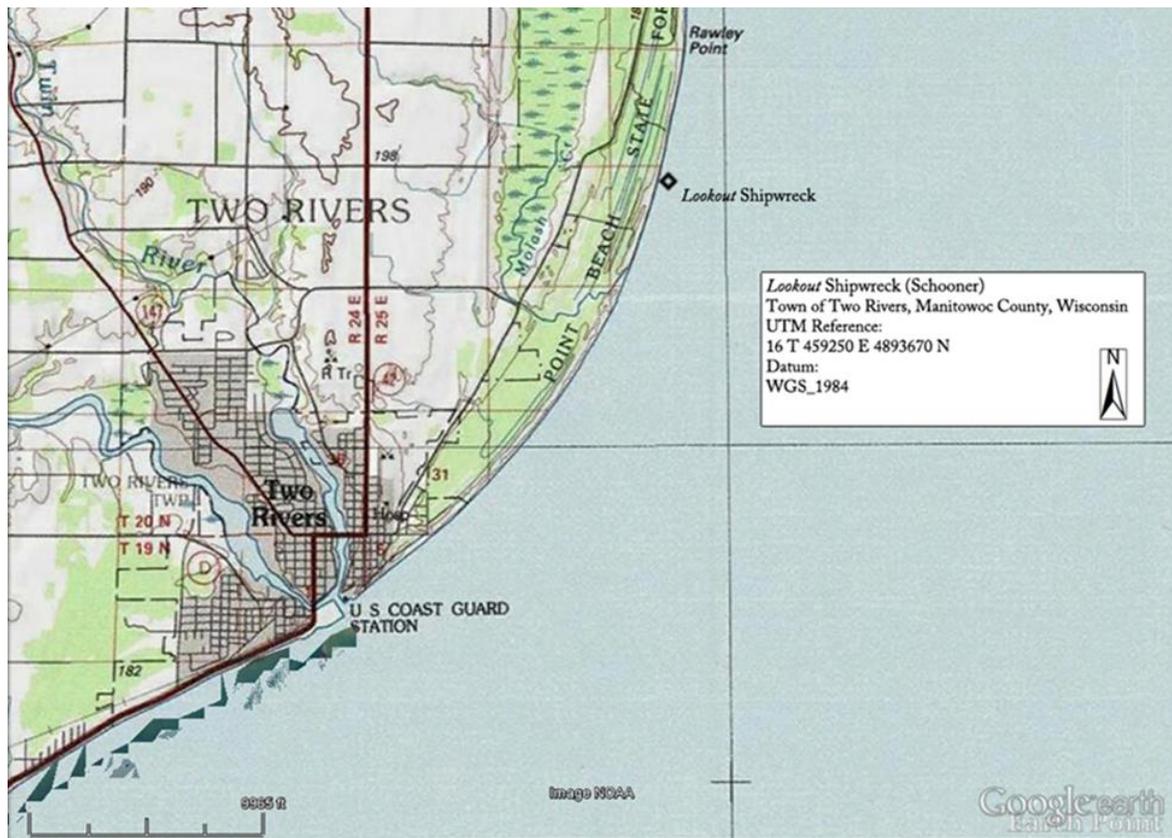


Figure 20. Location of the *Lookout* site

The remains of the schooner *Lookout* sit on a heading of 75 degrees, 4.35 miles northeast of the town of Two Rivers, Wisconsin ($44^{\circ} 11.706' N$, $087^{\circ} 30.596' W$). Her bow rests in 11 feet of water, and her stern rests in 15 feet of water. Her starboard side rises 3.5 feet above the sand at the highest point, and the port side frames rise 1.5 feet above the sand. Her starboard side, up to

the weather deck, remains extant and is on a 19-degree list to starboard. Her remains are well preserved as shifting sands on Rawley Point recently exposed the vessel, evident in the lack of invasive mussel colonization on her exposed structures. The remaining wreckage does not appear to be broken, suggesting that the stern and port side sections likely remain buried in the sand. Due to the nature of the bottom sediment, hand-fanning was not possible at the time of the survey. *Lookout*'s deck machinery and rigging was salvaged shortly after the wrecking in 1897.

Lookout is representative of the class of sailing vessels that transported bulk cargoes and general merchandise. As an integral part of the maritime transportation system, many features of this vessel type were common to all schooners on the Great Lakes. As mentioned in the Multiple Property Documentation Great Lakes Shipwrecks of Wisconsin (Cooper and Kriesa 1992), schooners were fore-and-aft rigged and had two or more masts, carrying square-rigged topsails on their foremasts augmented with a triangular sail. Most Great Lakes schooners were single-decked and had only a small cabin structure above the deck.

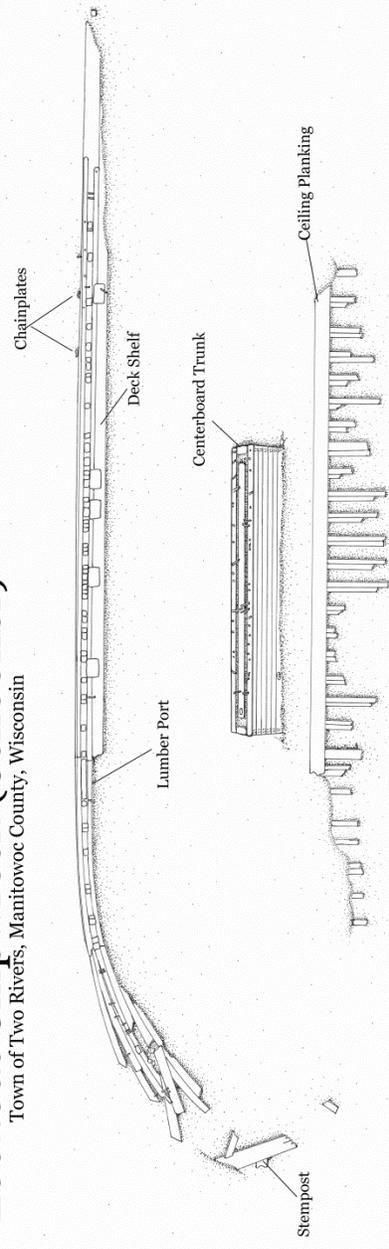
At the time of her registration, *Lookout* was described as a wooden schooner with one deck and two masts, a gross tonnage of 312 46/95 tons, a length of 126 feet 6 inches, breadth of 27 feet 2 inches, and depth of 9 foot 11 inches. She was converted circa 1883 to a three-masted schooner (Bureau of Navigation 1855; United States Merchant Vessel List 1896).



Figure 21. Aerial view of the *Lookout* (Suzze Johnson)

Lookout Shipwreck (Schooner)

Town of Two Rivers, Manitowoc County, Wisconsin



Stempost

0 10 20 30 40 50

WISCONSIN HISTORICAL SOCIETY
Maritime Preservation and Archaeology

Figure 22. Site plan of the schooner *Lookout*

In July 2015, a Phase II archaeological survey was conducted by Wisconsin Historical Society maritime archaeologists and volunteers over the course of two days. A baseline was attached at the bow and stretched 127.2 feet to the sternpost along the centerline of the ship. All measurements for the survey were taken from this baseline. The length of the ship was 127.2 feet, and the vessel's beam, measured at her widest point, was 25.5 feet. It was determined that the port side is broken off at the turn of the bilge, so the beam width is slightly smaller than the original beam of the vessel. Given the wreck dimensions, location, and comparison of vessel losses in the vicinity based on historic newspaper accounts, the vessel remains were determined to belong to the schooner *Lookout*. Due to the wreck being recently uncovered by sand, zebra and quagga mussels are not present.

Lookout's stempost measures 1.0 feet by 1.0 feet square. The sternpost measures 0.9 feet wide at the edge closest to the bow by 1.2 feet wide at the stern edge by 0.7 feet thick. Outer hull planking measures 0.9 feet wide by 0.2 feet thick. Ceiling planking measures 1.2 feet wide by 0.3 feet thick. The overall length of the ship is 127.2 feet. The starboard side extends into the sand at 98.4 feet along the baseline. The port side extends into the sand at 72.9 feet along the baseline. The vessel is double framed. The total number of frames is unknown due to sand build up. Individual futtocks measure 0.4 feet wide by 0.8 feet thick. The frame sets overall measures 0.8 feet wide. The hull is through bolted and peened on the exterior of the vessel. The bolts are measured on 1.0 feet centers and are 0.1 feet in diameter. Paint remains extant on the starboard outer hull planking, as does white caulking between the planks. Remnants of red paint just under the rub rail and remnants of blue paint lower on the outer hull planking were observed.

Although the vessel was stripped after running aground in 1897, evidence of *Lookout's* three masts is extant. Chainplates are extant on the starboard side only and are located near the bow and closer to the stern. They are near where the hull extends into the sand. Two extant chainplates that would have supported the mainmast are located 5.2 feet aft of the centerboard trunk along the baseline. The forward one is 0.7 feet wide at the upper extent, and the second one is 0.6 feet wide at the upper extent. Both measure 0.25 feet wide up to the upper extent by 0.05 feet thick. They extend 4.0 feet out of the sand and are spaced 1.0 feet apart.

Only one lumber port is exposed on the starboard side, allowing for dimensional lumber to be passed through the hull directly into the hold. It is located 30.3 feet aft from the 0.0 point on the baseline and is 15.0 feet starboard from the centerline tape. It is 3.3 feet long by 1.0 feet tall by 1.5 feet thick, measured from the outer hull. There is an iron lip that lines the port that is 0.3 feet thick and 0.1 feet wide. It is uncertain if any additional lumber ports are located on the port side, as the port side hull above the turn of the bilge remains buried in the sand.

The deck shelf is extant on the starboard side and extends from 34.5 feet to 86.1 feet along the baseline. It is 0.9 feet wide and 0.2 feet thick. Hanging knees were not visible during the 2015-survey. The rubrail is extant on the starboard side. It is made of iron and is 0.05 feet thick and 0.15 feet wide.

The centerboard trunk is located 36.6 feet along the baseline and measures 25.6 feet long. Its overall width is 1.2 feet, and its overall height is 7.15 feet. The trunk is on a 19-degree list to starboard. The list is the same as the overall list of the vessel, suggesting that the trunk may remain attached to the keelson beneath the sand. Six and a half planks of the trunk remain and measure 1.1 feet wide by 0.3 feet thick. The pivot pin is located on the centerboard trunk at 41.5 feet along the baseline. It is located on the bottommost plank and 0.1 feet from the top of the plank. The pivot pin measures 0.3 feet out from the centerboard trunk, 1.1 feet in diameter at the centerboard trunk, and 0.3 feet in diameter at its furthest extent. The centerboard is extant within the trunk and does not appear to be deployed. It measures 23.9 feet in length by 0.4 feet thick.

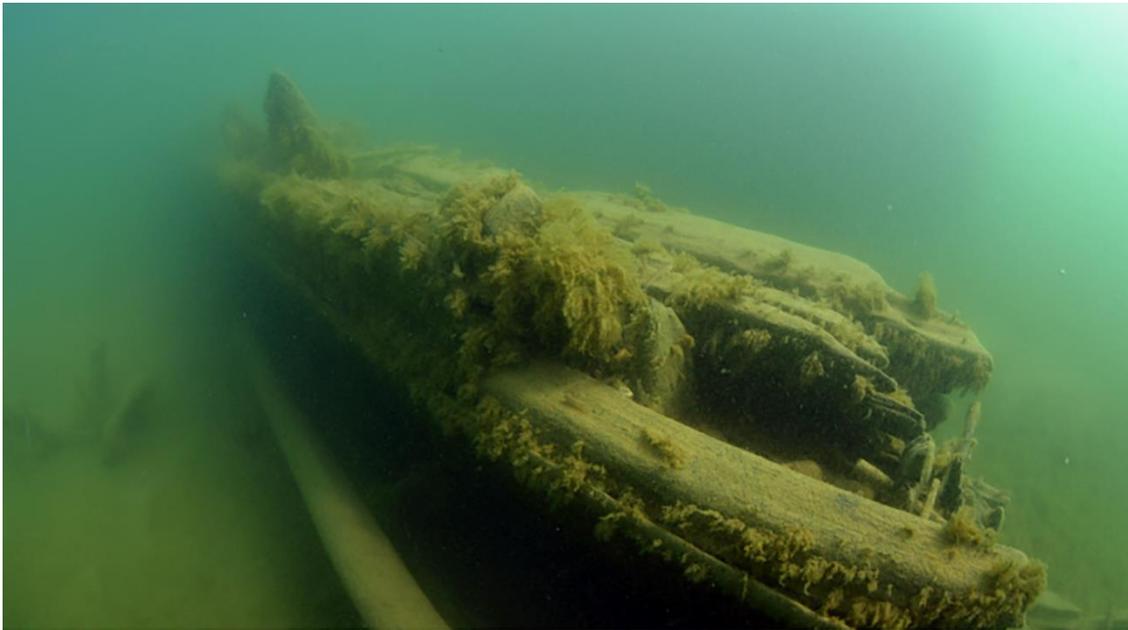


Figure 23. *Lookout*'s intact starboard side hull

Many of the smaller artifacts associated *Lookout* were salvaged shortly after sinking, but it is likely that other artifacts are buried in the gelatinous sand. Due to the nature of the surrounding quicksand, the probability for the stern and port side sections to be located beneath the sand remains high, as the remaining wreckage does not appear to be broken. The archaeological data collected during the 2015-survey has provided additional information about the construction of Great Lakes centerboard schooners and nineteenth century maritime commerce. The site was discovered by pilot, Suzze Johnson, observed from ultralight aircraft in May 2015 and remains lightly visited by kayakers and divers due to the recentness of her exposure and her relatively unknown location.

CHAPTER FIVE

SCOW SCHOONER ALASKA

Scow schooners were vital to many small communities around Lake Michigan, connecting them with regional markets through the lakeshoring trade. As vessel size grew throughout the nineteenth century, so too did their draft (the depth to which a hull is immersed), making stops at small lakeshore communities with shallow harbors difficult or impossible. The flat-bottomed scows, however, were well-suited to shallow harbors. Inexpensive transportation, the scow schooner was the life-blood of many lakeshore communities and immigrant families, providing an entry point for many into the Great Lakes maritime trades as sailors, masters, and vessels owners.

Scows were used in large numbers throughout North America, wherever there was a need for low-cost, shoal-draft transportation. Scows saw use along the Atlantic Coast from the Maritime Provinces to Mexico, the Great Lakes, the Gulf Coast, San Francisco Bay, and on nearly every river large enough for small craft (Chapelle 1951; Merchant Vessels of the United States 1885; Merriman 1997). Despite its proliferation, or perhaps as a result of it, it is difficult to trace the scow's introduction to the New World. It is also unknown when the term "scow" came into popular usage, but it was likely derived from the Dutch term "schouw", indicating a square-ended hull possessing a flat, or nearly flat, bottom. The first recorded use of the term appears well into the eighteenth century (Chapelle 1951). Flat-bottomed craft were numerous for several reasons. One was that vessels with flat bottoms and sides were easily constructed by people with limited shipwright skills working under primitive conditions. Flat surfaces and angular corners did not require the advanced woodworking skills necessary to construct vessels with round hulls and fine lines. An equally important reason was that flat-bottomed craft easily navigated shallow water with little difficulty. If they ran aground, they were easier to refloat and less likely to sustain damage. They were also a very stable craft able to carry large cargoes relative to their size.

Little recorded information has been discovered for colonial era flat-bottomed craft. Considering that planked canoes and scows were the easiest boats to build with the least skill, scows were numerous in the New World by 1670. Nearly every community used the scow or some other form of flat-bottomed boat (Chapelle 1951). There were several variants of flat bottom boats common to the New World, but differentiation in lineage is often blurred, as there were more similarities than differences between vessel types. The scow-type hull appeared under several names, including punt, flat, radeau, periaugua, gondalow, and gondolo. Sloop-rigged scows were common as early as 1725, and by the time of the American Revolution the scow rig expanded to schooners and occasionally square-riggers (Chapelle 1951). Prior to the war of 1812, few commercial craft sailed the western Great Lakes. Following the war, the scow schooner made its appearance alongside conventional sailing craft and expanded onto the western lakes (Inches and Partlow 1964). The Great Lakes scow schooner's earliest record appears in the mid-1820s, with reports of several scows on Lake Ontario and New York's Finger Lakes, as well as the 60-ton Bolivar constructed at Erie, Pennsylvania in 1825. By the 1840s, scows were common throughout the Great Lakes, surviving into the twentieth century and the last days of lake sail (Labadie and Herdendorf 2004; Martin 1991).

Other North American regions mirrored the scow's Great Lakes expansion, including the Atlantic coast, Gulf coast, and San Francisco Bay. The scow expanded all the way to the Pacific Islands, and if imitation is the highest form of flattery, much can be said by the fact that New Zealand scows were descendants of those of the Great Lakes. New Zealand's first scow was built in 1873 and named *Lake Erie*, followed by the *Lake Superior* in 1875, and the *Lake St. Claire* and *Lake Michigan* in 1876 (McGregor 1982; Hawkins 1987). Even today, the "Jon boat" is common on shallow waters throughout the United States. Built of aluminum, the Jon boat's lines are nearly identical to those of early colonial flat bottom craft.

The term "scow" refers to hull form rather than the rig type, resulting in the terms "scow schooner" or "scow sloop" to describe these vessels. Despite a wide range of regional variation, the scow is defined as a vessel with a flat bottom, vertical sides, and a hard chine. They more closely resembled a barge than conventional sailing craft. Conventional sailing vessels had rounded bottoms and sides with a relatively gentle curve at the turn of the bilge, where the hull bottom and sides met. As in other regions, there was wide variation in Great Lakes construction techniques, and the term "scow" was used to describe a variety of vessels. One of the clearest contemporary definitions is found in *Merchant Vessels of the United States* (1885):

Scows are built with flat bottoms and square bilges, but some of them have the ordinary schooner bow....The distinctive line between the scow and the regular-built schooner is, in the case of some larger vessels, quite obscure but would seem to be determined by the shape of the bilge, the scow having in all cases the angular bilge instead of the curve (futtock) bilge of the ordinary vessel.

As the above definition points out, there was occasional difficulty in distinguishing conventional craft from scows. This problem was not limited to Great Lakes vessels. A dispute arose in New Zealand's Auckland Anniversary Day scow race in 1884. Scow captains refused to race until the *Vixen*, a round-bilged vessel over which there was some dispute whether or not she was indeed a scow, withdrew from the competition (Hawkins 1987). Despite occasional disputes over identification, several traits are characteristic of scows and can be used to differentiate them from conventional vessels. These traits are most easily understood when viewed in cross section. Scows are boxy vessels with a flat bottom and vertical sides, connected by a hard chine, or a nearly ninety-degree angle where the bottom meets the side. Conventional sailing vessels, whether flat-floored or with deadrise, possessed a soft chine, or a smooth, rounded edge where the bottom and sides meet.

Scow construction varied from hull to hull as well as from region to region. This variation included obvious features such as sheer lines, transoms, and bows, in addition to less obvious features like cross or diagonal planking and longitudinal framing. Several bow variations are visible in historic photographs, including the square butt-end bow with little or no forward projection of the stempost, the pointed flat-iron bow that produced a finer entry (similar to conventional craft), and the rounded spoonbill, swim-headed, or barrel-shaped ends (Labadie and Herdendorf 2004).

Martin (1991) categorizes scows into three distinct types: (1) full scow with angular bilge along its entire length, (2) half scow with angular bilge along only part of its length with the bow and stern being similar to that of a conventional hull, and (3) a less clearly defined category for hulls not clearly exhibiting an angular bilge, but flat-bottomed enough to be considered scows by contemporaries. Martin supports this classification with evidence from insurance registers that list both “scow” and “half scow” hulls as well as vessels with a “scow stern” or “scow bottom” (Martin 1991) This model illustrates the large variation within the scow vessel type, but may be too simplified. Problems arise when attempting to define a vessel with a bow or stern “similar” to a conventional hull. The flat-iron bow, while having a fine entry not unlike a conventional vessel, remains an obvious scow with an angular joint where the bow meets the hull side. More historical and archaeological research is needed to determine the extent of variation within the scow vessel type, and how dissimilar from conventional hulls they needed to be for consideration as a scow. This may be a daunting task, as contemporaries appear to have been as confused as modern researchers.

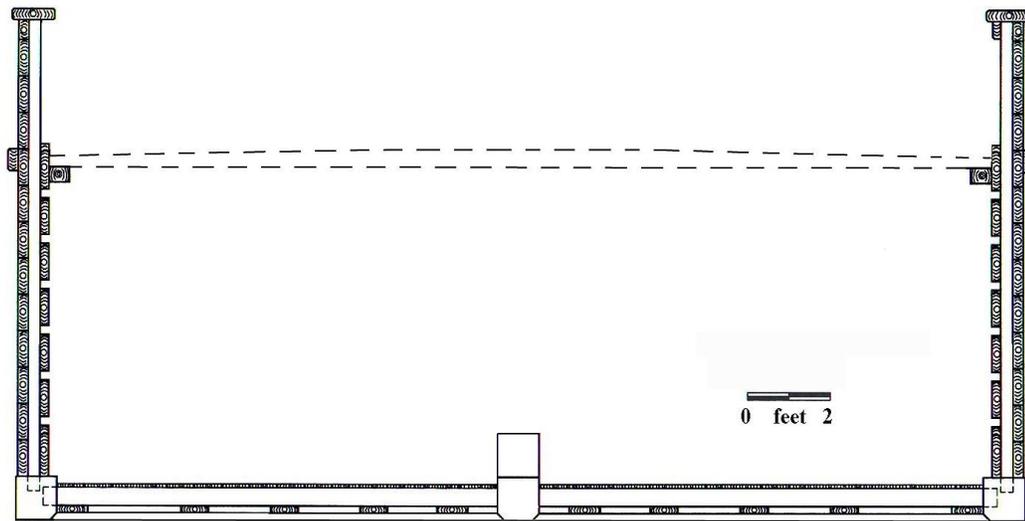


Figure 24. Scow schooner cross section. Note flat bottom and hard chines with chine log (adapted from Rodgers and Corbin 2003)

Scow bottoms could be longitudinally, cross, or diagonally-planked, the latter two methods requiring nontraditional framing. Hull sides were also subject to variation, from the traditional frame-on-plank construction to the scow-specific “gunnel-built” sides. Gunnel-built scows were constructed with thick longitudinal hull planks edge-bolted with iron drift bolts that ran through two or more side planks (Inches and Partlow 1964). These edge bolts not only clamped the side hull planking together, but served as reinforcement against horizontal forces, eliminating or reducing the need for frames typical of conventional hulls. Gunnel-built planking averaged four inches thick in vessels of sixty to ninety feet in length. Inches and Partlow (1964) suggest that gunnel-built construction, with few, if any, frames, was one characteristic common to nearly all Great Lakes scows. A second trait unique to scows, and perhaps equally as common as the gunnel-built side, was the use of a chine log at the turn of the bilge. The scow’s hard chine was a

weak point in the hull, strengthened through the incorporation of a heavy longitudinal timber. These six to eight inch stringers were the principle framing members of the hull, fitted along both sides for the entire length of the bilge (Inches and Partlow 1964).

It is open to debate whether the scow's development and popularity resulted from a need for vessels capable of transiting shallow waters or because their unsophisticated hull form was economical to build and maintain (Labadie and Herdendorf 2004; Inches and Partlow 1964). It is certain, however, that scows required the simplest construction techniques of any freight-carrying vessels. The great variation in construction and appearance is likely a combination of the builder's shipbuilding skill, the type and quality of construction materials available, and available funding.

Variation in construction was not limited to the Great Lakes. Despite the fact that New Zealand's scows were based on a Great Lakes model, there were many adaptations to fit local needs. For example, New Zealand's scows carried all of their cargo above decks. While proportional in length and beam to Great Lakes scows, New Zealand's scows carried half the depth of hold with no provisions for internal cargo. Registration documents stated that, "no cargo is to be carried below deck, everything carried above; in fact, no hatchways are provided" (Hawkins 1987). There were several variations in hull framing as well. New Zealand scows utilized either a "post and rail" construction that used longitudinal stringers and stanchions, or a "solid partition" construction that utilized longitudinal bulkheads that partitioned the vessel into compartments. Centerboards were not as common as on the Great Lakes, and both the drop keel and pivoting centerboard was used (Hawkins 1987).

San Francisco's scows were more similar to Great Lakes' scows than New Zealand's, but even they exhibited an equal amount of variation in both construction and hull lines. San Francisco vessels had both longitudinal- and cross-planked hulls, but the latter was less common. Longitudinally-planked hulls were framed similarly to conventional vessels, with transverse floors scarphed into frames at the chine, precluding the need for a chine log. Ceiling planking was usually longitudinal, as was the outer planking on both the hull bottom and sides.

Cross-planked scows were of an entirely different construction, called "log built" in local vernacular. These vessels used several longitudinal floor keelsons with a heavy outer hull and ceiling planking that was edge bolted. The sides were sometimes stiffened with widely spaced frames. The most noticeable difference between longitudinal and cross-planked vessels was the angle of the bow and stern ramps. Longitudinally planked vessels required steaming the bow and stern hull planks and resulted a more gradual upward curve of the bow and stern ramps. Cross-planked vessels did not require steamed hull planks, allowing a more abrupt angle where the bow and stern ramps met the bottom. This created a boxy hull with a nearly vertical bow and stern. Local opinion held that the boxy cross-planked hulls were less handy and slower than the finer longitudinally-planked ones. Many builders, however, opted for the cross-planked construction as it was cheaper to build and provided more cargo capacity (Olmsted 1988).

Scows were generally considered good sailors and were as fast, or faster, than conventional schooners, perhaps with the exception of sailing in heavy seas. Their shallow draft and flat bottoms created little water drag. Sailing to windward was their worst point of sail. The wide, flat bows took a beating in head seas and their shallow draft allowed considerable leeway in strong winds (Chapelle 1951; Inches and Partlow 1964; Kristiansen 1981; Olmsted 1988). Despite how seaworthy a scow may or may not have been, insurance companies held little faith in the scow's seaworthiness, and even less confidence in cross-planked bottoms and gunnel-built sides. Construction rules for 1866 note:

Frame built scows, well-constructed and of good material, with fore-and-aft bottom planking, may be entitled to Class B1, [for] five years, but in no case will scows be entitled to the B1 grade if built with gunwale sides or athwartships bottom" (Board of Lake Underwriters 1866).

Vessels built according to underwriters' rules were given a classification rating that determined a vessel's insurance premium. Ratings of A1, A2, B1, B2, C1, C2, or "not insurable" were assigned, A1 being the highest rating with the lowest premium - a rating scow schooners never achieved. In 1876, the Board of Lake Underwriters (1876) categorized scows with barges and even describes them as "of unseaworthy form."

Operational History

The scow schooner *Alaska* was constructed under the hand of Master Ship Carpenter Smith Neville, Sr. at Sheboygan, Wisconsin and launched on 18 June 1869. Smith Neville, Sr., a shipbuilder by trade, began his career in Cleveland, Ohio. He moved to Sheboygan with his wife, Charlotte and their children sometime in the mid-1860's where he lived and worked building ships until his death in 1872 (Bureau of Navigation 1869; Lewis Publishing 1894).

Alaska was built for Sheboygan businessman Adolph Hoechner, primarily for use in the lumber trade. He co-owned the vessel with the ship's Master, C. Kleiver. She measured 89.6 feet in length, 19.3 feet in beam, with 6.4 feet depth of hold. The vessel had a carrying capacity of 85 14/100 tons, of which 78 20/100 tons accounted for the capacity under tonnage deck and 6 94/100 tons capacity of enclosures on the upper deck. The scow was described as having one deck, two masts with a plain head and square stern. Her initial enrollment was entered at the Port of Milwaukee on 26 June 1869. Her official number was assigned 105090, and Sheboygan was listed as her homeport (Bureau of Navigation 1869). Although her early season routes for 1869 are not known, several trips with cargoes of cordwood and dimensional lumber from Manistee, Michigan and White Lake, Michigan to Chicago were recorded in August, September and October 1869 (*Daily Milwaukee News* 1869; *Chicago Tribune* 1869a, 1869b).

On 19 April 1870, the *Chicago Tribune* announced a court judgment against the owners of the scow *Alaska* in the amount of \$2,297.84 in favor of the young lawyer and recently named President of Northwestern Mutual Life Insurance Company, John H. Van Dyke, Esq., and other parties. A search of contemporary newsprint and available legal documents revealed no details of

the case. Likely as a result of the decision, however, Hoechner and Kleiver were compelled to sell *Alaska* to Frederick Vogel, tanner and businessman, of Milwaukee for \$4,000. Vogel immigrated from Württemberg, Germany to Buffalo, New York and finally to Milwaukee in the 1850's. He opened a tannery in partnership with his cousin, a leather goods purveyor named Guido Pfister. The business became known as Pfister & Vogel Leather Company. The sale of the vessel was announced 1 May 1870, but *Alaska's* documents were not immediately surrendered for the change in ownership. On 3 May 1870, *Alaska* was taken to the Milwaukee shipyard of Allen, McClelland & Company for an overhaul (*Buffalo Courier* 1870; *Chicago Tribune* 1870a, 1870b; *Daily Milwaukee News* 1870a, 1870b; *Milwaukee Journal* 1940).

On 10 May 1870, the scow *Alaska's* enrollment document was surrendered at the Port of Milwaukee for her recent change in owners. A new document was entered listing Frederick Vogel as sole owner. Captain Albert Toke became her new Master and Milwaukee her new homeport (Bureau of Navigation 1869, 1870). Only one record could be located for arrivals or clearings for the vessel for the 1870-season. The ship arrived at Milwaukee from Two Creeks, Wisconsin on 11 June 1870 with 40 cords of wood and 1,400 posts. She cleared the port on the same day for an unknown destination (*Daily Milwaukee News* 1870c).

At 2:30 AM on 13 May 1871, the scow *Alaska* was entering Milwaukee harbor under full sail in a northeast wind when the outbound iron propeller *Philadelphia* met her and a violent head-on collision resulted. *Alaska* had her entire bow crushed in below the waterline. One of *Philadelphia's* 3/8-inch thick, iron hull plates on her starboard bow was cut through and another was cracked. After the initial impact, the vessels came together for a second time causing another severe dent in the *Philadelphia's* hull a few feet aft of first break. *Philadelphia* returned to the Milwaukee River for temporary repairs and continued on to Buffalo where her hull plates were replaced. *Alaska* discharged her cargo of wood, and was immediately sent to the dry dock for repairs. Damage estimates for *Alaska* were reported at \$1,000 and for both vessels estimated between \$1,500 and \$2,000 (*Buffalo Courier & Republic* 1871; *Buffalo Morning Express* 1871; *Chicago Tribune* 1871a; *Detroit Free Press* 1871). On 12 July 1871, *Alaska* cleared Milwaukee for Two Creeks. It is not known if this was her first clearing following repairs or if others occurred, but went unreported (*Daily Milwaukee News* 1871).

In early October 1871, heavy gales paired with extremely heat and dry conditions fueled several forest fires across the region. Large fires burned unabated for days. The most well-known fire that consumed large sections of Chicago from 8 October through 12 October became known as the Great Chicago Fire, and the fire that burned through northern Wisconsin became known as the Peshtigo Fire. Many other forest fires flared up for days on either side these famous events. Kewaunee County, Wisconsin also experienced extensive fires in their woods. The most successful battles of the fire occurred at the Hitchcock, Mashek & Kwapil Company in Pierce, Wisconsin. A large gang of men saved the company's pier, store, and stock of ties, posts and wood valued at \$17,000 through an almost superhuman effort. The scow *Alaska* had been tied up to the pier as the fire approached, and only partially loaded. She was forced to leave at the last minute to escape the flames. The pier itself caught on fire four different times before the battle was won (*Chicago Tribune* 1871b, 1871c).

Little information has been located regarding *Alaska*'s 1872-shipping season. On 15 April 1872 *Alaska* experienced a rough passage in a severe gale and snowstorm on Lake Michigan. While attempting to enter Milwaukee harbor that afternoon, the scow lost the majority of her deckload of lumber while outside the harbor. Upon arrival *Alaska*'s Captain Toke reported the stranding of the scow *Selt* below North Point Lighthouse near Milwaukee; she was swamped with water and fortunately her crew escaped (*Chicago Tribune* 1872; *Detroit Free Press* 1872; *Inter Ocean* 1872; *Janesville Daily Gazette* 1872; United States Army Signal Corps 1873). No other reports for *Alaska* could be located for the season.

Similarly, little is known of her 1873-shipping season. At the Port of Milwaukee on 5 April 1873 Captain Martin Hansen took command of *Alaska* as her new Master (Bureau of Navigation 1870). *Alaska* along with the schooner *Josephine Lawrence*, departed for ports on the northern shore of Lake Michigan. On 22 April 1875, both vessels were reported trapped in ice off Manitowoc during their return passage to Milwaukee (*Chicago Tribune* 1873). One record was located for her 1874-season marking a clearing of the Port of Kewaunee on 6 August for Milwaukee with a cargo of wood and bark (*Kewaunee Enterprise* 1874).

On the night of 9 August 1875, *Alaska* struck the harbor pier at Racine while seeking shelter from a northeastern gale. The blow crushed in her port bow to her light water mark and sprung her stern and deck. The ship was towed to Chicago and placed in dry dock for repairs (*Chicago Tribune* 1875a; *Inter Ocean* 1875a; United States Army Signal Corps 1877). It is not known how long *Alaska* remained out of service for repair. On 13 October 1875, as Captain Hansen sailed through Death's Door Passage on his way out of Green Bay, he spotted two ships aground, one on Spider Island and one on the reef between Pilot and Detroit Islands. He was unable to determine a name for either ship, but they were both light and high on the reefs. The groundings were reported upon *Alaska*'s arrival at Milwaukee on 15 October (*Buffalo Courier* 1875; *Chicago Tribune* 1875; *Inter Ocean* 1875).

At the opening of the 1876-season, N.A. Peterson and Christ M. Christianson purchased *Alaska* from Frederick Vogel. *Alaska*'s enrollment was surrendered on 25 April 1876 and a new document was issued at the Port of Milwaukee. Both men, recent immigrants from Norway, became equal owners in the vessel and as both owners resided in Milwaukee, Milwaukee remained her homeport. N.A. Peterson became her new Master. During his career, Captain Peterson owned and sailed other vessels including the schooner *City of Toledo*, and scows *John F. Prince*, and *Selt* (Bureau of Navigation 1870, 1876; Gjerset 1928).

On 28 August 1875, *Alaska* arrived at the Port of Chicago with lumber from Muskegon, Michigan (*Inter Ocean* 1876a). She was moved to Milwaukee during the next week and went to the Wolf & Davidson shipyard to receive a new mainmast (*Inter Ocean* 1876b). No records could be located for the vessel's movements during the 1877 or 1878-shipping seasons.

A new enrollment was entered at the Port of Milwaukee on 19 March 1879 for a change in owners. N.A. Peterson sold his share in *Alaska* to Cornelius S. Jacobson of Milwaukee.

Milwaukee remained the vessel's homeport and C.M. Christianson took over as Master (Bureau of Navigation 1876, 1879). Four days after the sale, on 23 March 1879, *Alaska* was blown ashore north of the Twin Rivers Point (Rawley Point) Lighthouse near Two Creeks, Wisconsin. The scow was sailing light from Milwaukee to Ahnapee, Wisconsin after a cargo of lumber when she was thrown high on the beach around 11 PM under gale conditions. The crew all escaped the vessel safely, although they were drenched and mildly suffered from exposure. Luckily the scow suffered little damage, as she was uninsured (*Buffalo Courier* 1879; *Door County Advocate* 1879a; *Inter Ocean* 1879a; United States Army Signal Corp 1880).

The next day Captain Christianson departed for Milwaukee to summon assistance. On 29 March 1879, the tug *Kitty Smoke* arrived on the scene to begin the work of freeing the vessel, but the continued rough conditions made several of the men aboard the tug sick to their stomachs. In fear that they may drift ashore themselves, two men were moved from *Kitty Smoke* to *Alaska* and left aboard to man a steam pump for forty-eight hours while the seas calmed. Three unsuccessful attempts were made to drag the ship off the beach. Still, ten days after the accident, *Alaska* remained grounded in less than a foot of water with the sand and clay settling around the vessel.

On 5 April 1879 Captain Christianson made the decision to have the ship jacked up with screws, put on ways, and relaunched. By 10 April the ship was raised, and ready to be launched when a heavy sea undid the work and stranded the vessel in a worse condition than before. The vessel remained stranded twenty-six days after the initial accident (*Ahnapee Record* 1879a; *Daily Milwaukee News* 1879; *Door County Advocate* 1879b; *Inter Ocean* 1879b, 1879c; *Manitowoc Pilot* 1879a, 1879b).

The tug *Hagerman* arrived from Chicago on 23 May 1879. The tug spent eight days on site in an attempt to release the scow. She, too, was unsuccessful, having had only two hours of calm seas during that period to work. The crew managed to rip off *Alaska*'s chocks and her foremast in their efforts to get her into deep water, but otherwise *Alaska* remained solidly stuck (*Door County Advocate* 1879c, 1879d; *Chicago Tribune* 1879). Of the whole ordeal to remove the grounded craft, the editor of *Manitowoc Pilot* joked, "The scow *Alaska* is as fruitful a source of items as the roads and the weather, or teachers meetings in their palmyest days" (*Manitowoc Pilot* 1879c).

With *Alaska*'s owners unable to pay their debts with their vessel stranded on the beach, United States Marshal Fink seized the scow on 22 May 1879. The *Alaska* was sold at auction on 12 June 1879 to Hans Petersen, a Norwegian immigrant, ship owner and Captain from Milwaukee. Petersen immediately disposed of the vessel to Captain M. Mathiesen of Chicago (*Manitowoc Pilot* 1879c; Gjerset 1928).

Ela Cone of Manitowoc, Wisconsin, a house mover by trade, was hired for the next turn at freeing *Alaska*. By 9 October 1879, Cone was successful in raising the vessel up on jacks, and her owner was undertaking the task of making her seaworthy enough to launch (*Ahnapee Record* 1879b; *Manitowoc Pilot* 1879d; United States Army Signal Corp 1880). *The Manitowoc Pilot* reported on 19 November 1879, that *Alaska*'s owner had not given up on many months of fruitless labor

and did not expect to abandon the vessel. Efforts continued to salvage the ship and relaunch her, but winter was closing in (Bold & Smithing 1880; *Manitowoc Pilot* 1879e).

The winter of 1879-80 proved to be especially harsh. As happened many times before, the effort to save *Alaska* and make her seaworthy failed. On 30 June 1881 *Alaska*'s enrollment document was ultimately surrendered at the Port of Milwaukee. No documentation of the change in ownership from the U.S. Marshal's sale, or subsequent sale, was expressed. Clarification of the vessel's final state of deposition is made clear both from what is written and what is not written on the form. The paperwork indicated that the ship was a total loss. The document did not indicate that the vessel was left stranded, or that she was abandoned, as would have been required, but rather that *Alaska* had wrecked in Lake Michigan with little other explanation (Bureau of Navigation 1879).

Site Description

Partially covered by sand south off the southern end of Point Beach State Forest, Town of Two Rivers, Wisconsin (44° 11.606' N, 087° 30.677' W), the scow schooner *Alaska* lies in 5 feet of water on the bottom of Lake Michigan on a heading of 14-degrees. Located by ultralight airplane pilot, Suzze Johnson, in May 2015 following a period of coastal erosion, the scow was documented by Wisconsin Historical Society archaeologists and volunteers over two days in July 2015.

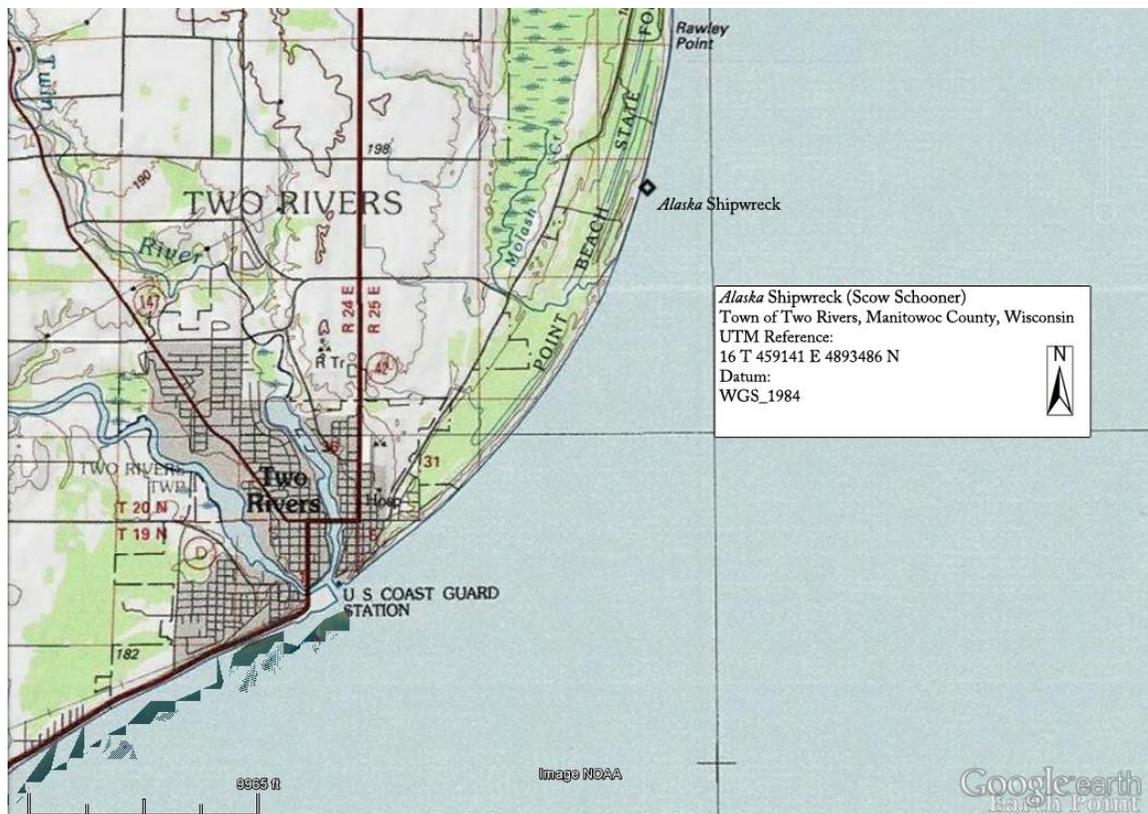


Figure 25. Location of the *Alaska* site

A search of Wisconsin Historical Society's shipwreck database, generated from historic newspaper accounts for vessels lost in the area, revealed that several scow schooners went missing and have not yet been accounted for in the vicinity of Rawley Point. The scow *Speed*, which was lost in 1894, measured 59.5 feet in length with a 16.9 foot-beam, and the scow *Libby Carter*, which was lost in 1907, measured 62.3 feet overall with a 17.9-foot beam, were both too short and narrow. The scow *Milton*, lost in 1885 measured 101.9 feet in length with a 24-foot beam, and the scow *Nellie Church*, lost in 1855 measured 99.7 feet in length with 24-foot beam, were both too long and wide. The only other vessel that matched the measurements of the wreck was the scow *Mary Ann Scott*, which measured 90 feet long with 22.7-foot beam. This vessel however, was stranded and abandoned in November 1875 only a two miles north of Manitowoc, more than seven miles from where the wreckage was located. This left *Alaska* as the only remaining unaccounted vessel loss in the vicinity of Rawley Point and a close match for dimensional measurements. At the time of her registration, *Alaska* was described as a wooden scow schooner with one deck and two masts, a gross tonnage of 85 14/100 tons, 89.6 feet in length, 19.3 feet in beam, with a 6.4-foot depth of hold (Bureau of Navigation 1869).

Alaska is representative of a subclass of sailing vessels that transported bulk cargo and general merchandise within its hull. As an integral part of the transportation system, many features of this vessel type were common to all scow schooners on the Great Lakes. As mentioned in the Multiple Property Documentation Great Lakes Shipwrecks of Wisconsin (Cooper and Kriesa 1992), scow schooners were schooner-rigged, with a flat bottom, boxy hull, and flat or only slightly curved bow. Scows were usually outfitted with two to three masts, and were generally crudely built. Great Lakes scow schooners were single-decked and had only a small cabin structure above the deck.

Overall the site exhibits excellent preservation and integrity with major hull sections intact above the chine, a section of the centerboard and centerboard trunk, and various artifacts remain beneath the sand. Due to the lack of invasive mussels on the wreck, it is evident that *Alaska* has been largely covered by sand until recently. The vessel's integrity, along with the presence of rigging and operational implements, offers a wealth of information for archaeologists and researchers.

The remains of the vessel rest upright on the lakebed with a large portion of the aft section likely still covered by sand. The sand moves around the site, covering and uncovering different hull structures, rigging, and machinery. The sand, which is historically described as quicksand, is fine, soft and moves with the slightest touch, and easily consumes objects that find their way to the bottom. This substrate aids in the preservation and protection of the wreck site from environmental influences.

The bow of the vessel sits at a 2-degree list to starboard and is embedded in a bank of approximately four feet of sand. Three feet of *Alaska*'s port side is exposed, while her starboard side remains significantly buried up to the railing by sand. The centerboard trunk sits atop a ridge of more solid sand at a 6-degree list to starboard, evidence of the twisted nature of her hull caused by the ridges of various density of bottom substrate close to shore. The vessel is broken just aft of

the centerboard trunk, yet most of the vessel forward of the break is intact beneath the sand. It is possible that the stern protruded above the water after the initial sinking and was broken off by the force of ice and waves. The stern was not located during the initial survey, but likely remains in the vicinity under sand or organic debris.

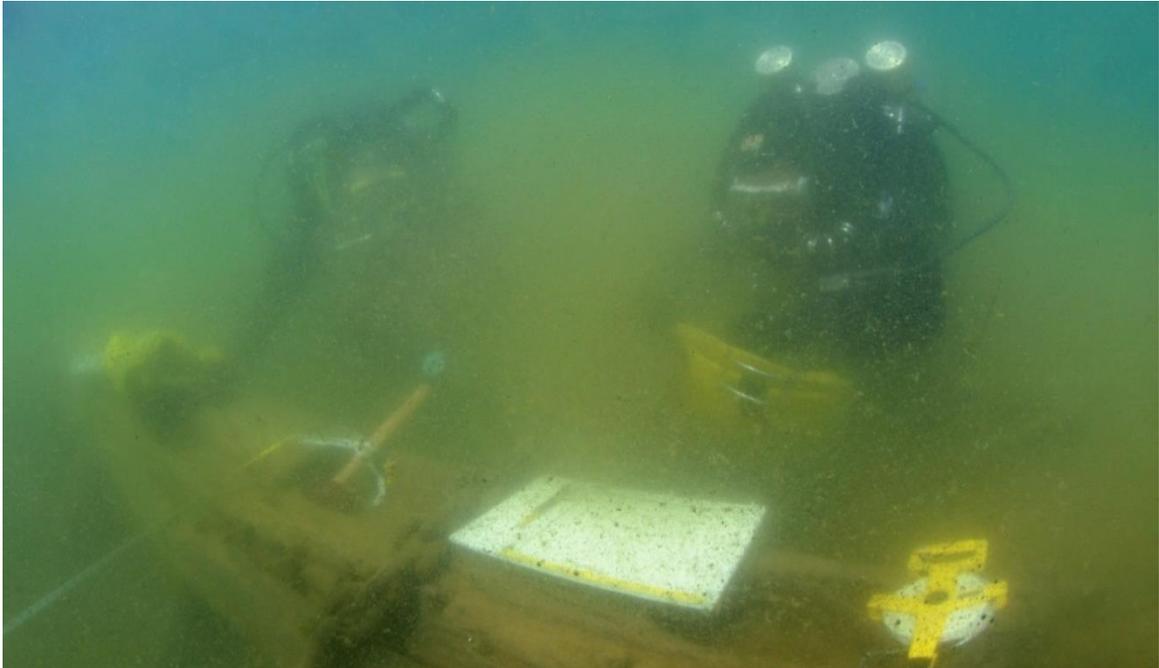


Figure 26. Archaeologists investigate *Alaska*'s bow in low visibility caused by the gelatinous bottom sediment surrounding the site

For the archaeological survey, a temporary baseline was attached to the stempost and extended toward the stern, ending at the broken keelson aft of the centerboard trunk. All measurements were taken in reference to the baseline. The extant hull structure measures 45.5 feet long. From the location of the centerboard trunk it has been estimated that the length of the vessel originally measured approximately 90 feet long overall, similar to the reported length of *Alaska*. The width of the wreckage measures 18.8 feet.

The bow of *Alaska* rises 1.5 feet out of the sand and is relatively flat with a 0.3-foot camber from each side of the stempost. The stempost measures 1-foot sided by 1-foot molded. The breasthook, or deck joint, of the vessel's bow remains extant and measures 1.85 feet wide and 1.0-foot thick. The breasthook is constructed of two timbers joined by a plain scarf. Seven of the eight mortises for the bow's bulwark stanchions that supported the bow bulkhead remain visible above the sand. These mortises are cut into the breasthook and vary in measurement 0.45 feet wide by 0.6 to 0.7 feet long, and 0.03 feet deep. The mortises are spaced 1.85 to 1.95 apart. Below the breasthook seven of the eight bow frames, or ramp stringers, are visible. The bow frames measure 0.4 feet square and are spaced 1.80 feet apart. To the outside of the bow frames, the vessel's bow ramp appears flat and athwartship planked. No evidence of her head rigging remains extant or visible above the sand.

The starboard side of the wreckage extends into sand at a range from 7.4 feet to 30.2 feet along the baseline. The port side disappears into sand at a range from 15.5 feet to 27.7 feet along the baseline. The vessel featured kingpost construction; these measured 0.4 feet sided and 0.4 feet molded. Measured on the port side, the outer hull side planking measures 0.9 feet sided and 0.4 feet molded. A remnant of the rubbing strake remains extant on the port side of the hull near the bow. The rubbing strake extended 4.6 feet along the hull and measures 0.2 feet sided and 0.3 feet molded. White caulking was found in between the outer hull planks. The ceiling planking, also measured on the port side, measures 1.0 foot sided and 0.4 feet molded. The hull is through bolted and peened on the exterior of the hull with bolts 0.1 foot in diameter.

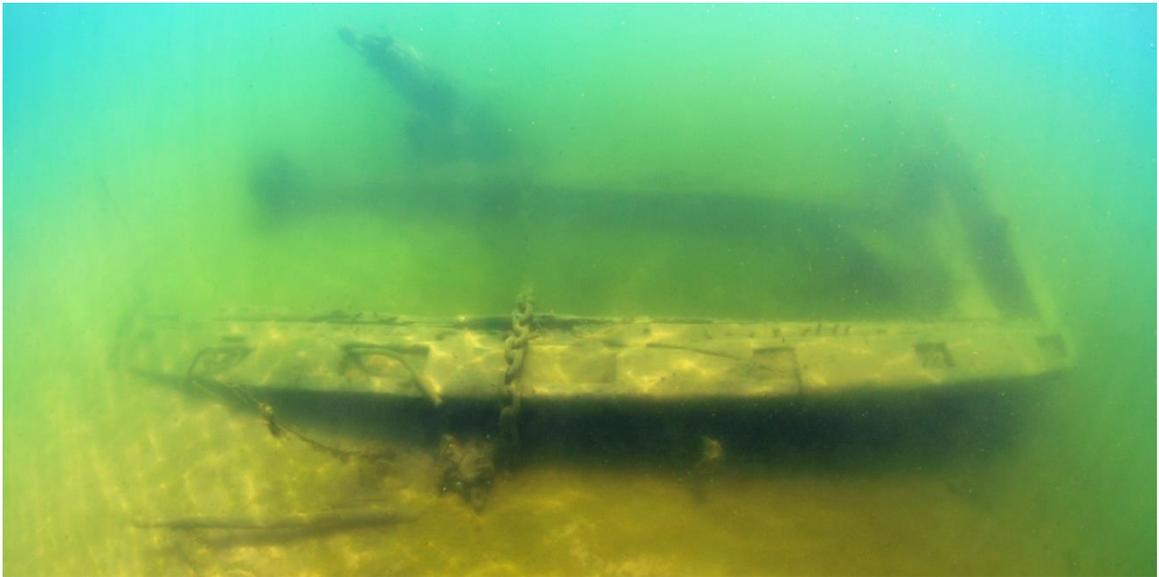


Figure 27. The bluff bow of *Alaska* looking aft

The sister keelsons and sister rider keelsons are located on either side of the centerboard trunk and both measure 0.65 feet sided and 0.85 feet molded. The cousin keelsons, located just outside of the sister keelsons, measure 0.7 feet sided and 0.4 feet molded. Three floor stringers that measured 0.5 feet sided and 0.1 feet molded were located outside of each cousin keelson. These stringers were only found in the stern beginning at 30.5 feet along the baseline and extending to the break of the hull at 40.5 feet along the baseline. Structural members of the vessel's floor, possibly the vessel's chine stringers, located outbound of the stringers that would have rested alongside the chine, measures 0.6 feet wide by 0.8 feet thick on the port side and 0.8 feet square on the starboard side. The difference in measurements could likely be the results of the vessel's expensive repairs. Several pieces of athwartship bottom planking were observed beneath the stringers, and measured 1.4 feet wide, and 0.4 feet thick.

Alaska Shipwreck (Scow Schooner)

Town of Two Rivers, Manitowoc County, Wisconsin

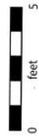
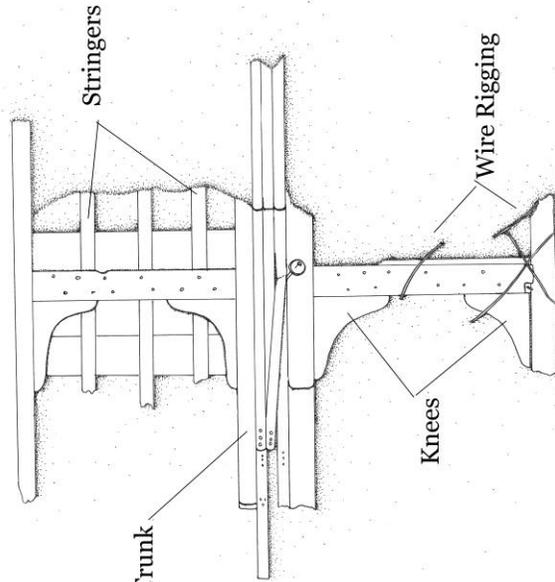
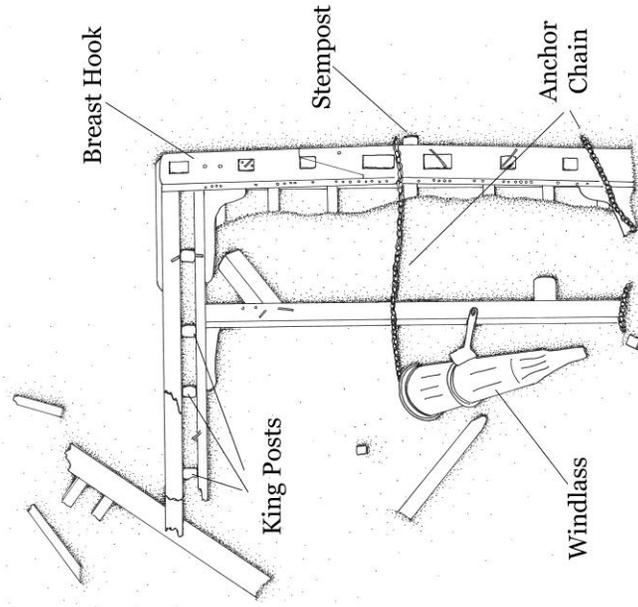


Figure 28. Site plan of the scow schooner *Alaska*

Two half-cross keelsons are extant astride the centerboard trunk at its center point and measure 0.9 feet sided and molded. Four aft facing lodging knees were fastened to the cross keelson to secure to the timber to the trunk and to the hull of the ship on both the port and starboard sides. These lodging knees measured 3.6 feet in length and were 2.6 feet sided and 0.65 feet molded, with slight differences in the overall shape of the knees between sides of the vessel, likely evidence of a repair.

The centerboard trunk emerges from the sand at 24.6 feet along the baseline, extends 15.2 feet, and ends just before the keelson break at 39.8 feet along the baseline. The centerboard trunk measures 1.3 feet wide, and was broken off level with the sister rider keelsons. The upper portion of the centerboard trunk is not extant. Therefore, the centerboard trunk planking as well as the pivot pin, which both would have been located in this area is missing, and no information could be obtained on these features. A broken remnant of the centerboard is extant within the centerboard trunk. It could not be determined if the centerboard was deployed during the time of wrecking.



Figure 29. *Alaska*'s port side bow and lodging knee; king posts can be seen in the background

Lodging knees were located on both corners of the bow to secure the hull sides to the bow ramp at the breasthook. The lodging knees along the bow ramp measured 3.6 feet in length and were 1.7 feet sided and 0.65 feet molded. A traverse, deck beam was located in the forward section of the ship, forward of the windlass six feet on the baseline. This beam measures 0.55 feet sided and molded. One additional lodging knee was disarticulated from its original position aft of the deck beam on the port side. Although evidence of deck planking through extant fasteners was observed on the wreck, no deck planking was found on the site.

Additionally, non-structural features were found during the survey of *Alaska*. The vessel's port and starboard bow bitts remain extant on the site. Both bitts are wooden posts that measure 1.1 feet square. The starboard bitt has become disarticulated and canted outbound, but the port bitt is fastened to the forward edge of the deck beam, four feet aft of the breasthook and two feet inbound of the hull side.

The ship's windlass was found ten feet along the baseline, tipped onto its port side end and angled upward with 6.6 feet exposed from the sand. The windlass had a diameter of 1.5 feet at the middle, the widest part of its whelp, and tapered down to 0.7 feet at the end of its well-weathered gypsy head. The tops of both carrick bitts can be seen protruding from the bottom. The starboard carrick bitt has tipped forward and lies under the windlass and the port carrick bitt is aft of the windlass. The starboard side iron purchase rim has spun its arm forward. The iron pawl rim is located on the windlass just above the sand.



Figure 30. *Alaska's* windlass and anchor chain

Two anchor chains remain extant running from the sand beneath the windlass over the bow. The links on the chain measured 0.02 feet in thickness and 0.02 feet by 0.03 feet overall. The anchor chains were followed out by feel through the gelatinous sand, but the anchors were not located. These anchors may be buried in the shifting sands or may have been salvaged. Remnants of the vessel's wire rigging were located draped across the wreckage near the centerboard trunk along the vessel's port side. Additional artifacts likely remain scattered near the wreck, buried by a layer of sand. Further archaeological investigations will likely provide new information.

CHAPTER SIX CANALLER LA SALLE

The Great Lakes Grain Trade

Discussion of Wisconsin's maritime economy often requires the inclusion of the eastern Great Lakes of Huron, Erie, and Ontario. Many of Wisconsin's commodities were shipped beyond Lakes Michigan and Superior to eastern Great Lakes ports such as Buffalo, New York and Kingston, Ontario. These distant ports returned goods, supplies, and immigrants to Wisconsin, creating a diverse regional economic universe. Separating Wisconsin from the eastern Great Lakes frequently results in a fragmented understanding of Wisconsin's maritime heritage as a whole.

Wisconsin's first encounter with a European sailing vessel occurred in 1679 when French explorer Robert de La Salle's ill-fated *Le Griffon* landed on the Door County Peninsula. Robert de La Salle continued southward to explore the Mississippi Valley. *Le Griffon*, loaded with furs bound for the European market, departed Washington Island on 18 September 1679, never to be seen again. Following *Le Griffon*, it was nearly 100 years before a sailing vessel again entered Lake Michigan. It is probable that ventures onto Lake Michigan were made by King George's Royal Navy in the 1760s, but the next confirmed sailing ship to enter the lake was John Askin's *Archange* in 1778, which sailed to Chicago and Green Bay in search of corn to supply Canadian fur traders (Quaife 1944). From the *Archange* to 1815, most sailing vessels on Lake Michigan supported military outposts such as Fort St. Joseph and Fort Dearborn (present day Chicago). In 1818, the *Walk-in-the-Water* was the first steamer constructed on the upper lakes. It entered Lake Michigan one year later to sail to Green Bay (Mansfield 1899; Mills 1910).

By 1836 regularly scheduled steamship lines connected western Lake Michigan with eastern cities, and steam vessels were under construction at Milwaukee (Quaife 1944; *Milwaukee Advertiser* 1836). These steamers quickly pulled passenger traffic and high-dollar cargo from the schooners. On 21 May 1853 the Michigan Central Railway made the first rail connection with Chicago and in 1855 the first all-rail connection between Buffalo and Chicago was established (Quaife 1944; Mills 1910). These railroads quickly stole the steamers' passenger and high-dollar cargo trade, resulting in even stiffer competition for sailing vessels. Unlike lake vessels, the rail lines could provide regularly scheduled shipments that were unaffected by weather, as well as year-round transportation unaffected by ice-covered water. Despite increasing competition, however, lake sail did not die easily. Sail's advantages were lower construction and operation costs, adaptability to many different trades, and the fact that sail technology was already at its zenith, having benefited from centuries of technological development. Sail required less capital investment, its propulsion cost nothing, and the smaller crews were inexpensive relative to steamers.

A unique vessel type developed on the Great Lakes that was designed to transit the Welland Canal locks while carrying the largest possible amount of cargo; these box-shaped vessels were called canallers. Designed to carry the maximum amount of cargo through the canal locks with

only inches to spare, canallers had bluff bows, flat bottoms and sterns, short bowsprits, and highly-canted jibbooms. Some canallers were rigged with a hinged or shortened jib boom that could be folded, removed, or de-rigged for passage through the locks. The mainmast (on two-masters) and mizzenmast (on three-masters) booms were typically shortened so they would not overhang the stern. Due to their boxy shape, there were claims that canallers were notoriously poor sailors in heavy weather, a claim supported by the fact that one particularly violent storm in October 1873 sent six Oswego canallers to the bottom with all hands (Karamanski 2000; *Oswego Daily Palladium* 1873).

The Welland Canal opened on 30 November 1829. The first vessel through the canal was the British schooner *Ann and Jane* on a two-day up-bound transit from Port Dalhousie on Lake Ontario to Port Colburne on Lake Erie. The original Welland Canal (1829-1845) limited vessels to 110 feet in length, 22 feet in beam, and 8 feet in depth. It followed many natural water routes, beginning with Twelve Mile Creek from Port Dalhousie to Merritton, where vessels locked through 40 locks over the Niagara Escarpment. The canal then followed the Welland River from Merritton to Port Robinson to avoid the Niagara Falls.

With increases in grain traffic and vessel size, the small canal locks were soon obsolete. The Canadian government purchased the Welland Canal Company and expanded the canal in 1846, reducing the number of locks to 27 and cutting a more direct route. The new locks were expanded to allow vessels of 150 feet in length, 26.5 feet in beam, and 9 feet in depth. The canal's original wooden locks became control weirs for the new canal, reducing the physical labor of towing ships from lock to lock (Aitken 1997; Mansfield 1899; St. Lawrence Seaway Management Corporation 2003).

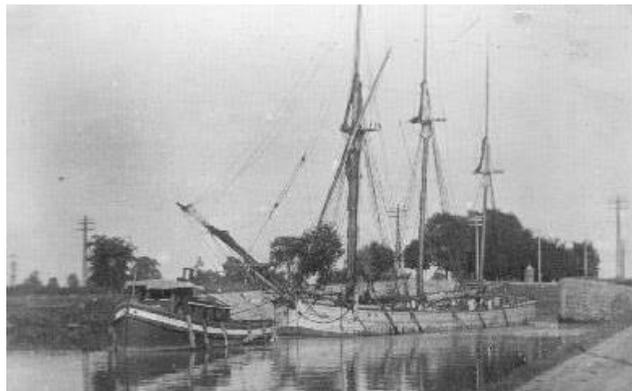


Figure 31. A canaller traversing Lock 4 of the Welland Canal with its bowsprit raised (C. Patrick Labadie Collection)

The large number of immigrants that arrived on Lake Michigan's western shore during the early nineteenth century soon began moving from the lakeshore to populate the rich Midwestern prairie lands. Under the industrious settlers' hands, the fertile Midwestern soil soon began producing a large surplus of grain that made its way to Lake Michigan's port cities for transport to eastern markets via the Great Lakes. The inland lake route greatly facilitated the grain trade's growth by providing cheap and ready transportation.

The brig *John Kenzie* carried the first Lake Michigan grain shipment from Grand River, Michigan to Buffalo, New York in 1836. Chicago followed suit two years later, sending 39 bags of wheat to Buffalo aboard the *Great Western* in 1838. In 1839 the brig *Osceola* carried Chicago's first bulk shipment of wheat, carrying 1,678 bushels from Chicago to Black Rock (Buffalo), New York (Mansfield 1899).

It wasn't until the 1840s, however, that the Great Lakes' grain trade began in earnest. Chicago grain exports between 1834 and 1840 totaled 13,765 bushels (Mills 1910). The year 1841 alone, however, saw 40,000 bushels exported from Chicago. By 1847, Chicago was shipping more than two million bushels yearly. Milwaukee achieved an equal volume by 1853, and surpassed Chicago in grain exports by 1862 (Karamanski 2000). Due to a lack of adequate harbor facilities and grain elevators elsewhere on Lake Michigan, Milwaukee and Chicago were the dominant grain ports.

Freight rates for grain were subject to supply and demand, dropping during summer months and peaking during the fall harvest time. Freight rates for the 1837-1838 seasons were eight cents a bushel, with an additional two cents per bushel surcharge for elevator service. During the 1850s, rates from Chicago to Buffalo remained steady between 10 and 15 cents per bushel, with steamers earning a fraction of cent more than schooners. During the 1860s, rates dropped to between 4 and 7 cents per bushel. From 1874 onward, rates began a constant decline, reaching 1.53 cents per bushel by 1898 (Cooper 1988; Mansfield 1899; Mills 1910).

The Lake Michigan grain trade consisted of mostly wheat until 1848, when corn began shipping in increasing quantities. Oats, barley and rye were also shipped in small quantities (Cooper 1988). Buffalo and Oswego were early rivals for Lake Michigan grain, with Buffalo capturing a larger share of the trade during the early years. Oswego's disadvantage was that to reach Oswego from Lake Michigan, vessels were required to transit the Welland Canal and were charged a toll of six dollars per thousand bushels, a toll not required to reach Buffalo. By the 1870s, however, canal tolls from Buffalo to Syracuse equaled or exceeded the Welland Canal tolls, and with a shorter route from Oswego to eastern sea ports, Oswego's grain traffic swelled (*Oswego Daily Palladium* 1897). Vessels returning to Lake Michigan were often loaded with coal from ports on Lakes Erie and Ontario, used for heating Midwestern cities and powering steam-powered factories. Coal tonnage grew with transportation improvements between the mines to eastern lake shipping ports (Mansfield 1899).

Grain schooners made the Oswego-Chicago round trip in thirty to thirty-five days, and six to seven trips were completed seasonally (*Oswego Daily Palladium* 1897). The heyday of the

canallers and the grain trade was short lived. By the late 1870s, the railroad was gaining ever-larger shares of Lake Michigan grain, and in 1880 rail tonnage finally exceeded lake tonnage (Mansfield 1899).

Operational History

Under ceremony and fanfare at 11:30 AM on 11 April 1874, Parsons & Humble shipyard's newly completed three-masted schooner was christened *La Salle* and slid off the ways into the Niagara River in Tonawanda, New York. Named for the scenic village La Salle located half way between Tonawanda and Niagara Falls, the vessel was specifically designed for the lumber and grain trade between Lake Michigan and the lower Lakes. Parsons & Humble employed a force of upwards of fifty men to prepare their new vessel for launch. The pride of the shipyard, *La Salle* was 2/3 owned by Samuel V. Parsons, and 1/3 owned John Humble, and valued at \$27,000 (*Buffalo Courier* 1873, 1874; Bureau of Navigation 1874; *Evening News* 1900).

Born in 1821, Samuel V. Parsons was a native of Newfoundland. He began his maritime career with the People's Steamship Line, which ran between New York City and Albany, New York. Parsons arrived in Buffalo in 1852 to take charge of shipping contracts for L. & H. Crampton Company. Later at Buffalo, he initiated a shipbuilding business of his own, growing into one of the city's largest employers, and known for cash payments of wages (Genealogical Publishing Company 1906).

John Humble was born in 1832 in Lac Beauport, Quebec. He married and moved to Buffalo around 1855 and rose through the ranks from shipwright to foreman of B.B. Jones' shipyard, and later to superintendent at R. Mills & Co. shipyard and dry dock on Buffalo Creek. Through his work he became known for his attention to detail and his skill to manage large operations. He gained the reputation of being one the finest shipbuilders and general superintendents on all of the lakes (*Detroit Tribune* 1886; Jones, Shorf, and Weisman 2015; Thomas & Lathrops 1855).

Samuel Parsons' partnership with John Humble in the Parsons & Humble shipyard at Tonawanda began in 1866, where they engaged in general shipbuilding and ship repair through 1878. During this time the yard became renowned in building some of the finest vessels on the lakes. The lumber used by the firm was purchased from Ohio and Canada. Considered a good judge of oak and pine, much of this construction material was personally selected by Samuel Parsons (*Buffalo Courier* 1873; Genealogical Publishing Company 1906).

Great detail and planning was put into the design of the schooner *La Salle* with reference to strength, size and speed. *La Salle* was described as having one deck, three masts, a plain head, and square stern. She was built with angle-iron deck knees to provide greater strength than was typically given to vessels of her description. Additionally this added to the capacity she could carry in her hold, estimated at greater than 23,000 bushels of grain (*Buffalo Commercial Advertiser* 1874a; *Buffalo Courier* 1874; Bureau of Navigation 1874).

As she was purpose built for transit through the Welland Canal locks to trade on Lake Ontario, she was constructed of a boxy nature and to dimensions that allowed her hull to fit fully within the lock chambers with only inches to spare. She measured 139 feet in length, 26 3/10 feet in beam, with a 10 95/100 feet depth of hold. Her tonnage was calculated at 307.15 tons, of which 287.42 tons accounted for the capacity under the tonnage deck, and 19.73 tons capacity of enclosures on her upper deck (*Buffalo Courier* 1874; Bureau of Navigation 1874).

She was towed from Tonawanda into Buffalo harbor during the afternoon of 6 May 1874 to complete her fitting out. Her rigging was supplied by the chandlery of Vosburgh & Baker of Buffalo, and her sails were made at David Provost & Son. The vessel received an A1 insurance valuation and her enrollment was entered at the Port of Buffalo on 9 May 1874. Her official number, # 15996, was assigned. Buffalo was listed as her homeport, and Captain Joseph H. Parker was appointed as her Master (*Buffalo Commercial Advertiser* 1874a; *Buffalo Courier* 1874, Bureau of Navigation 1874).

At Buffalo, *La Salle* was partially loaded with coal and began her maiden voyage to Chicago. She was taken in tow to transit the Detroit River on 12 May 1874. While passing Lime Kiln Crossing, her centerboard struck bottom, jammed into the box, and caused the ship to careen partially over to one side. Damage from the incident cost her owners \$400 in repairs, where they were made at Detroit. The striking of the bottom was denied in the *Buffalo Commercial Advertiser* of 15 May, but a report of the repair cost for the incident appeared in *Inter Ocean* in December of that year in a synopsis of marine disasters on the lakes (*Buffalo Commercial Advertiser* 1874b, 1874c; *Inter Ocean* 1874a, 1874e).

The remainder of *La Salle*'s shipping schedule can only be pieced together from sporadic notices that appeared in regional newsprint. The vessel loaded 19,735 bushels of wheat at Chicago and arrived at the Montreal Transportation Company wharf in Kingston, Ontario on 13 June 1874 (*Daily News* 1874a, 1874b). On 8 July *La Salle*'s movement was noted as the schooner passed Detroit downbound. She arrived at Holcomb & Stewart's wharf in Kingston with 18,400 bushels of wheat from Chicago (*Detroit Free Press* 1874; *Daily News* 1874c). No trips were located for August. On 7 September *La Salle* arrived at James Swift & Company's wharf in Kingston with 17,924 bushels of wheat from Chicago (*Daily News* 1874d). Her return to Lake Michigan went undocumented, however, the schooner cleared Chicago on 7 October with 20,050 bushels of wheat bound for Buffalo (*Inter Ocean* 1874b). A passage by Detroit downbound was marked on 19 November. A month later, *La Salle* was reported in winter quarters at Tonawanda (*Inter Ocean* 1874c, 1874d).

No records were located for *La Salle*'s early 1875-season. The schooner's upbound passing of Detroit was noted on 4 August 1875 but her destination and cargo are unknown (*Detroit Free Press* 1875). On 22 October 1875, *La Salle* loaded 22,000 bushels of wheat owned and shipped by parties in Chicago, and departed for Buffalo. As the schooner sailed north into the teeth of a gale on the night of 25 October, she unslipped her rudder while abreast of Two Rivers Point (Rawley Point). Before Captain Parker could get the vessel to come to anchor, she struck bottom and drifted shoreward. There, she became imbedded in quicksand. The vessel filled with water,

her quarters sank nine feet under, forcing her crew into the rigging. The men remained aloft all night where they anxiously awaited daybreak. Come morning they were rescued by fishermen from Two Rivers, Wisconsin. Several days later, the tugs *Leviathan* and *J.J. Hagerman* were sent from Milwaukee to lend assistance to the stranded vessel. They could not free *La Salle*. Moreover, the ship was determined to be badly damaged and proved a total loss. The one-year-old schooner was subsequently stripped of her anchors, spars, and some of her rigging, and abandoned (*Ahnapee Record* 1875; *Toronto Daily* 1875; *Milwaukee Sentinel* 1875a, 1875b, 1875c; *Daily Freeman* 1875; *Evening Telegram* 1875).

La Salle's hull was fully insured in the Aetna Company. Her grain cargo was insured for \$7,500 in the Pacific, \$7,500 in the Phoenix, \$4,000 in the Northwestern, and \$5,000 in the Amazon (*Daily Freeman* 1875; *Evening Telegram* 1875; *Inter Ocean* 1875). Following the loss, the ship's enrollment documentation was surrendered at the Port of Buffalo on 30 September 1876 (Bureau of Navigation 1874). Nearly three years after her sinking, during the last week of August 1878, Parsons & Humble's schooner *W.H. Rounds* called on Two Rivers and took aboard the spars, anchors and rigging salvaged from the schooner *La Salle* and returned them to the shipyard at Tonawanda to be used again (*Inter Ocean* 1878).

Site Description

La Salle is representative of a unique class of sailing vessels that were purposefully built to fit exactly within the dimensions of Welland Canal locks to transport grain, lumber and coal between the Midwest and the large industrial centers of the eastern United States. As an integral part of the maritime transportation system, many features of this vessel type were common to other canallers on the Great Lakes. As mentioned in the Multiple Property Documentation Great Lakes Shipwrecks of Wisconsin (Cooper and Kriesa 1992), schooners were fore-and-aft rigged and had two or more masts, carrying square-rigged topsails on their foremasts augmented with a triangular sail. Most Great Lakes schooners were single-decked and had only a small cabin structure above the deck.

The remains of the canaller *La Salle* sit on a heading of 60 degrees, 4.15 miles northeast of the town of Two Rivers, Wisconsin (44° 11.523' N, 087° 30.591' W). Her bow rests in 15 feet of water, and her stern rests in 11 feet of water. The bow and most of the ship's lower hull remain intact and protected in very fine, gelatinous, quicksand. Near the stern, starting where the starboard side descends into sand, a hard, sandy bottom replaces the gelatinous sand and extends past the sternpost. Her port and starboard sides remain intact up to the weather deck until just before the end of the centerboard, and lays on an even keel.

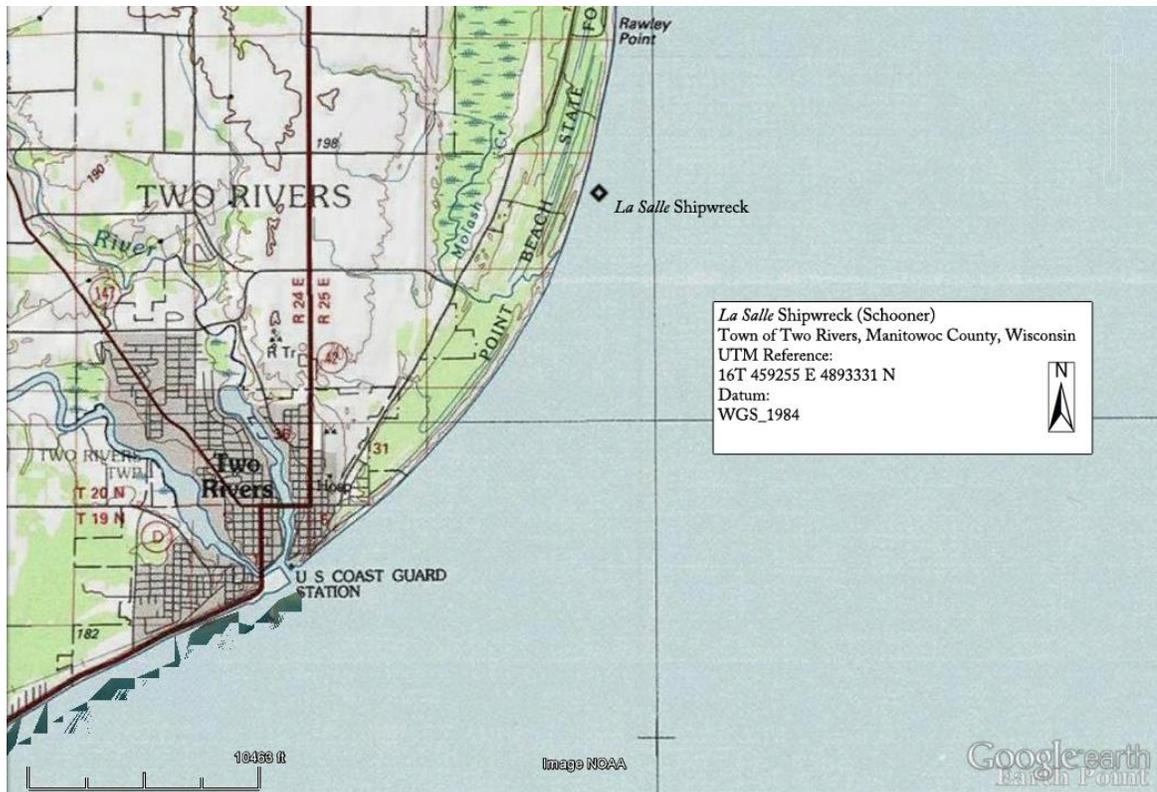


Figure 32. Location of the *La Salle* wreck site

The vessel's bow remains entirely intact up to her sheerstrake and weather deck. Only the vessel's bulwark is not extant. Her remains are well-preserved as shifting sands on Rawley Point recently exposed the vessel, evident by the lack of invasive mussel colonization on her exposed structures. The vessel's keel and lower hull does not appear to be broken although they remain buried beneath the sand. This suggests that the starboard and port side upper hull sections likely remain buried in the sand as well. Due to the nature of the bottom sediment, hand-fanning was not possible at the time of the survey. *La Salle*'s deck machinery, spars, and rigging were salvaged shortly after wrecking in 1875.

The site was discovered by pilot, Suzze Johnson, observed from ultralight aircraft in May 2015 and remains lightly visited by kayakers and divers due to the recentness of her exposure and her relatively unknown location. In July 2015, a Phase II archaeological survey was conducted by Wisconsin Historical Society (WHS) maritime archaeologists and volunteers over the course of two days. A baseline was attached at the bow and stretched 139.6 feet to the sternpost along the centerline of the ship. All measurements for the survey were taken from this baseline. The length of the ship is 139.6 feet, and the vessel's beam, measured at her widest point, is 26.3 feet. Given the wreck dimensions, location, and comparison of vessel losses in the vicinity based on historic newspaper accounts, the vessel remains were determined to belong to the schooner *La Salle*. Due to the wreck being recently uncovered by sand, zebra and quagga mussels are not present.

The canaller's bluff bow is readily apparent with the stempost sitting at 90-degrees to the keel. The stempost is 1.55 feet sided, 1.5 feet molded, and is rabbeted to accept the outer hull planking.

The stempost extends 4.2 feet vertically from the sand. *La Salle*'s cutwater also remains extant, measuring 1.4 feet molded and 1.5 feet sided, tapering to 0.5 feet sided at its forward most point. Although the vessel's bowsprit is not extant, its bed is clearly defined by the hawse timbers and knightheads on the port and starboard sides. These knightheads would have held the bowsprit strongly in place while underway. The knightheads measure 0.6 feet wide by 0.3 feet thick. The starboard knighthead rises 1.3 feet above the hawse timber, while the port side raises only 0.2 feet above the hawse timber. The hawse timbers themselves measure 1.1 feet wide and extend 3.2 feet along the baseline.

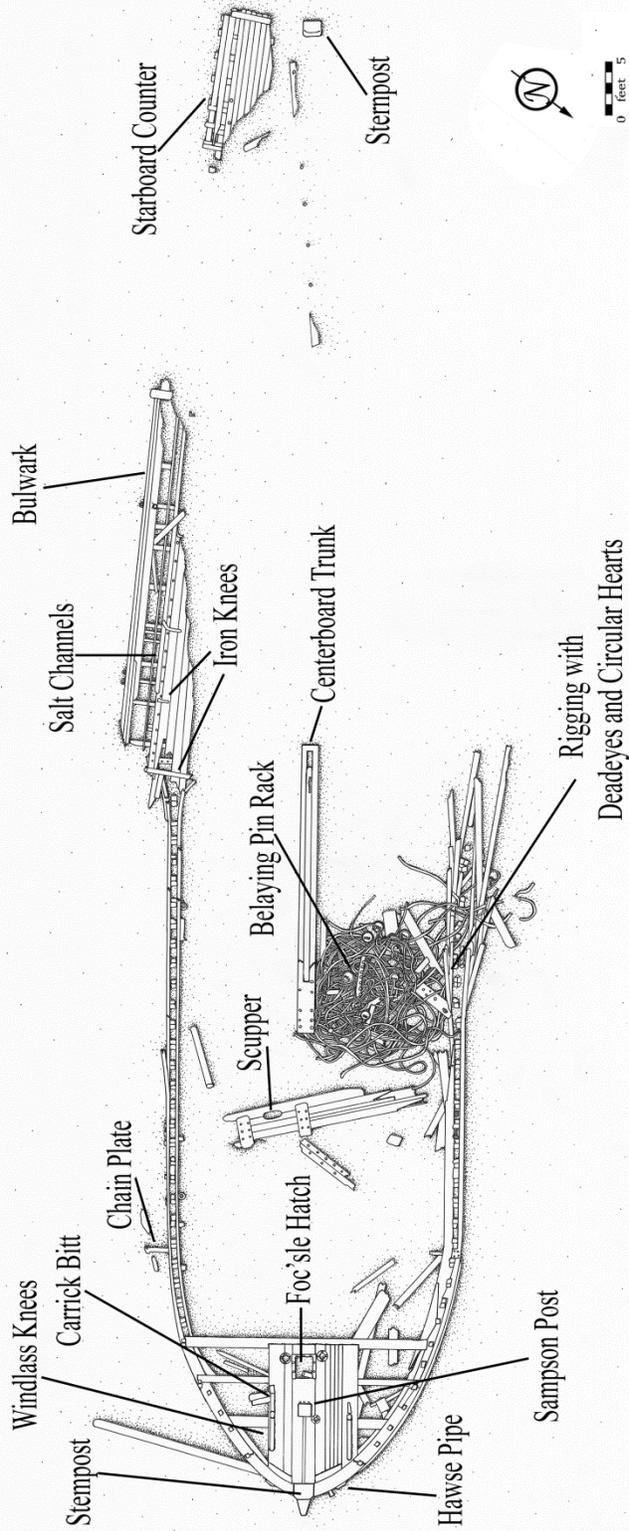
Two rods are located on either side of *La Salle*'s bowsprit bed that would have been used to hold the bowsprit in position. These are located on both the port and starboard side and measure 0.3 feet wide, 1.4 feet long, and are 0.05 feet thick. The port side rod is bent outward and appears broken, which was likely caused by the removal of the bowsprit and bowsprit rigging during salvage. The starboard side rod remains intact and upright. These rods are a feature unique to canallers, and they are extant on many canaller sites, including the *Walter B. Allen*. These rods could be removed so the bowsprit could be unstepped and hoisted upwards into the rigging with block and tackle when transiting the canal locks in tight quarters. This allowed the vessel to be built larger, and allow for more clearance in the locks.

La Salle's weather deck remains intact over the forecastle, extending from the stempost to 15.9 feet along the baseline, and is comprised of deck planks of varying widths. A single plank, measuring 1.5 feet wide runs from the stempost back to the forecastle scuttle. The port side of the weather deck is made up of six planks. The plank to the port side of the central plank measures 0.9 feet wide while the next four planks measure only 0.4 feet wide. An additional wide plank, measuring 1.3 feet wide, supports the port windlass knee. The starboard side of the weather deck is comprised of only three planks. The plank just to the starboard side of the central plank measures 0.7 feet wide and the next plank measures 0.5 feet wide. The third plank measures 1.3 feet wide and supports the starboard windlass knee. The reasoning for this difference in the planking is likely due to a repair to the port side at some point during the vessel's career. The rest of the weather deck does not remain extant, exposing the deck beams and the sand filled forecastle. Three deck beams remain extant. The forward most beam and the aft most beam measure 1.0 feet wide and 0.5 feet thick, while the middle deck beam measures only 0.6 feet wide and 0.5 feet thick.

Although *La Salle*'s bulwark is no longer intact in the bow, the vessel's bulwark stanchions remain extant. These begin just aft of the hawse timbers and measure 0.4 feet sided and 0.4 feet molded, and are spaced 1.8 feet apart. Seven bulwark stanchions are extant on the starboard side, while eight remain extant on the port side. These bulwark stanchions extend out of the planksheer, which measures 1.1 feet wide and 0.2 feet thick. The planksheer separates the bulwark from the topside planks of the outer hull, and it is made up of timbers fitted together with plain scarfs. The planksheer remains extant 9.4 feet along the baseline on the port side, and 15.6 feet along the baseline on the starboard side.

La Salle Shipwreck (Canaller)

Town of Two Rivers, Manitowoc County, Wisconsin



WISCONSIN HISTORICAL SOCIETY
Maritime Preservation and Archaeology

Figure 33. Site plan of the canaller *La Salle*



Figure 34. *La Salle*'s intact weather deck and bluff bow

The forward edge of the vessel's samson post is located 6.3 along the baseline. The mortise for the bowsprit measures 1.5 feet tall, 0.5 feet wide, is cut 0.5 feet into the samson post, and is slightly concave on the back side, which would have corresponded to the same convex curve on the heel tenon of the bowsprit. Like its flat bow, this component is indicative of a canaller, and would have allowed the bowsprit to be raised while the vessel was traversing the Welland Canal, permitting the vessel more clearance in the canal locks. The samson post itself measures 1.2 feet molded by 1.2 feet sided and rises 4.7 feet above the deck. The aft facing side of the samson post is grooved for the windlass. Running between the samson post, through the stempost, and to the cutwater is a rounded tie rod, measuring 0.1 feet in diameter. This rod would have given the samson post more support, and given additional strength to the bow.

Although the windlass barrel was recovered during the original salvage in 1875, other aspects of the windlass remain. Just aft of the samson post are the remains of the vessel's carrick bits. These bits extend down into the forecastle and act as the major support structure for the windlass. They measure 1.1 feet wide, 0.4 feet thick, and rise 4.3 feet from the weather deck. On the forward facing side of each is a standard knee, supporting the bit. These measure 5.3 in length along the weather deck, rise 3.0 feet along the carrick bit, and are 0.3 feet thick. One cheek, or a cheek of the carrick bit, is attached to the aft facing side of the starboard carrick bit. This cheek is broken off at the bottom, but the remaining section measures 2.1 feet in height, 0.9 feet wide, and 0.4 feet thick. A reinforcing iron strap is extant and would have extended around the base of the cheek of the carrick bit and held it in place, fastened to the carrick bit. It measures 0.1 feet wide and 0.05 feet thick. The port side bit has broken off only 0.2 feet above the weather deck. Its measurements

would have matched those of the starboard side bit. The port side cheek of the carrick bit does remain extant on the site, though it now rests inside the forecastle on a bed of sand. This cheek matches the dimensions of the starboard side cheek, and includes an intact reinforcing iron as well.

Just aft of the windlass' original location, 12.7 feet aft of the samson post, is the vessel's forecastle scuttle. It measures 2.05 feet long by 1.75 feet wide, and has a combing on three sides, which rises 0.3 feet above the deck, and measures 0.2 feet in thickness. The forward edge of the combing is not extant. Additional planks would have likely risen above this combing, creating an aft facing companionway covering the entrance to the chain locker. Although it was not visible at the time of the survey, a ladder would have led down into the scuttle, allowing access to the chain locker and forecastle. It was common on vessels of this time period for the forecastle to be used as berthing for crew members during a voyage. A single bulkhead is extant on the port side of the forecastle, visible through the missing deck planking. This bulkhead measures 0.1 feet thick, and is heavily worn by sand. Due to accumulated sand buildup inside the forecastle, identification of any artifacts inside the forecastle was not possible during the survey, but it is likely that additional cultural materials are located in this area protected beneath the sand. No excavation of the sand was conducted during the survey.

Although no anchor chain remains extant on the site, two chainpipe holes are located through the deck on either side of the forecastle scuttle, and are located 0.1 feet from the edges of the combing, measured to their closest edges. These chainpipe holes are 0.5 feet in diameter, rise 0.4 feet off the weather deck, and are lined with metal. They are fastened to the weather deck with a circular metal plate and four square bolts each. The metal plate measures 1.1 feet in diameter and 0.05 feet thick, while the bolt heads measure 0.1 feet by 0.1 feet square. The chain for each anchor would have been stored in the chain locker in the deck below, and would have passed through these holes as each corresponding anchor was being raised or lowered. There is an additional hole on the port side corner of the samson post that measures 0.4 feet in diameter. This hole is also lined with metal and fastened to the weather deck with a metal plate measuring 0.8 feet in diameter and 0.05 feet thick, and circular bolts, measuring 0.05 feet in diameter. At this time, it is unknown what this hole was used for, as most other smaller vessels, and other sailing vessels, of this time period did not have a third chainpipe hole this far forward.

Additionally, the vessel's hawsepipes remain extant and are located 2.2 feet aft of the stempost along the baseline, extending through the hawse timbers. They are lined with metal, and are oval in shape, measuring 1.3 feet wide, and 1.2 feet tall. The edge of the hawsepipes are 0.2 feet thick. *La Salle's* rub rail is extant on both sides of the vessel and extends from 6.6 feet along the baseline to 23.5 feet along the baseline. It is made of wood and measures 0.2 feet thick and 0.1 feet wide.



Figure 35. Archaeologists investigate *La Salle*'s forecastle, forecastle scuttle, samson post, and chain-pipe holes

The vessel's outer hull planking measures 0.8 feet wide by 0.25 feet thick, while the ceiling planking measures 1.2 feet wide by 0.3 feet thick. The starboard side extends into the sand at 109.5 feet along the baseline, while the port side is broken at 71.5 feet along the baseline. The vessel features double frames, with the individual futtocks measuring 0.4 feet wide by 0.5 feet thick. Overall the frame set measures 0.8 feet wide. The hull is through bolted and peened on the exterior of the vessel. The bolts are measured on 1.0 feet centers and are 0.1 feet in diameter. The overall thickness of the hull is 1.1 feet thick. White caulking remains extant between the outer hull planks.

A section of the starboard bulwark now lies within the vessel's hold, just forward of the centerboard trunk, 35.5 feet along the baseline. It measures 18.5 feet in length and 3.2 feet in width. The planks on the bulwark vary in width, measuring between 0.6 feet wide and 1.0 feet wide. Two bulwark stanchions also remain extant attached to the planks and measure 2.9 feet long, 1.7 feet wide and 0.5 feet thick. These bulwark stanchions are thicker than those found in the bow, a common feature for bulwark stanchions near the vessel's scuppers. The single scupper is located between the two bulwark stanchions and is oval in shape, measuring 1.5 feet wide and 0.6 feet tall. The scupper would have allowed any water that accumulated on the weather deck of *La Salle* to be drained as the ship was underway.

The deck shelf is extant on both the port and starboard sides. On the starboard side, it is extant in the forecastle only, and extends to 15.1 feet along the baseline, while on the port side it extends from the bow to 43.5 feet along the baseline. Although greatly worn by the shifting sand, it

measures 0.9 feet wide and 0.2 feet thick at its widest point. Iron knees were observed throughout the vessel. These knees measure 4.0 feet tall, extend 1.3 feet out from the ceiling planking, and measure 1.25 feet thick. These iron knees are one of the most distinctive features of the vessel, and allowed for its identification as *La Salle*. Iron knees were not used regularly in shipbuilding until the 1870's, and were not used long into the 1880's due to the switch from wooden composite vessels to iron and steel hulled ships around this time period.



Figure 36. *La Salle*'s deck shelf, supported by iron knees

La Salle carried a single centerboard located on the vessel's centerline. The centerboard trunk is located 44.9 feet along the baseline and measures 36.7 feet long. Its overall width is 1.5 feet, and it protrudes 6.4 feet out of the sand at the aft end and 2.5 feet at the forward end, on an even keel. Six planks of the trunk remain visible above the sand at the aft end and measure 1.0 feet wide by 0.4 feet thick. The forward end of the centerboard trunk is covered by a cap, measuring 1.5 feet wide and extending 6.4 feet along the top of the centerboard trunk. The pivot pin was not visible at the time of the survey due to sand buildup in the hold. It is likely that it still remains extant on the site, preserved beneath layers of sand. The centerboard is extant within the trunk and does not appear to be deployed. It measures 0.5 feet thick.

Further aft the starboard side hull is broken at 70.4 feet along the baseline. Aft of this, the hull is slightly canted outward, but remains intact up to the bulwarks and topgallant rail. This extent of preservation allows for the identification of salt channels in the vessel's hull planking. In the late nineteenth century it was commonly thought that to have a more seaworthy or waterproof vessel, the wood of the vessel's hull needed to be "pickled". To do so, holes were drilled in the ceiling planking so that salt or brine could be poured into the space between the frames, the ceiling

planking, and the outer hull planking. These holes measure 0.2 feet in diameter and are spaced 1.85 feet apart, measured on center. Additionally, along the length of the hold, iron rings are located at varying intervals. These rings measure 0.55 feet in diameter and are made of iron 0.1 feet in diameter. They are attached to the hull by iron eyelets measuring 0.4 feet in diameter. These would have been used to tie down cargo within the hold so that it would not shift during transport, and were commonly found on Great Lakes cargo vessels.



Figure 37. *La Salle*'s starboard side ceiling planking with salt channels and bulwark, with the main rail still attached

The starboard side disappears into the sand at 109.5 feet along the baseline and reappears out of the sand at 129.8 feet along the baseline. It is clear that this is a continuation of the topside and bulwark hull sections that extended into the sand at 109.5 feet, as it remains in line with the hull section and salt channels are also evident drilled through the ceiling planking on this section as well. This piece would have connected to the vessel's transom, which was not extant at the time of the survey. It is likely that it remains buried beneath the sand aft of the sternpost. The hull section tapers to only 3.0 feet wide at the stern end, which is indicative of the vessel's counter, which would have been located just below the bulwark at the stern. At the end of the hull section is a large timber, measuring 0.9 feet molded and 0.9 feet sided. This timber is likely the remains of the starboard side fashion timber, which would have fastened the counter and the transom together.

Although the vessel was stripped after running aground in 1875, evidence of *La Salle*'s masts and rigging remain extant. Chainplates are extant on the starboard side near the bow, located 23.6 feet aft of the stempost along the baseline, indicating the location of the foremast. The forward most

chainplate remains intact, measuring 4.6 feet long. The other two chainplates are broken off just below the sheerstrake. All three measure 0.3 feet wide up to the upper extent and 0.05 feet thick. They are spaced 1.0 feet apart. Additional chainplates are extant on the starboard side, aft of the break in the hull, 87.1 feet along the baseline. These chainplates measure 4.6 feet tall, 0.3 feet wide, and 0.05 feet thick, matching the forward chainplates. These would have been associated with the vessel's mizzenmast and indicate its approximate original location along the baseline. Additionally, three iron eyelets associated with the vessel's standing rigging are extant attached to the vessel's topgallant railing. These are located at 87.0 feet, 88.0 feet, and 103.1 feet along the baseline and measure 0.2 feet in diameter. The vessel's main rail also remains intact on this section of the ship, and the belaying pin holes remain extant, though no belaying pins remain.

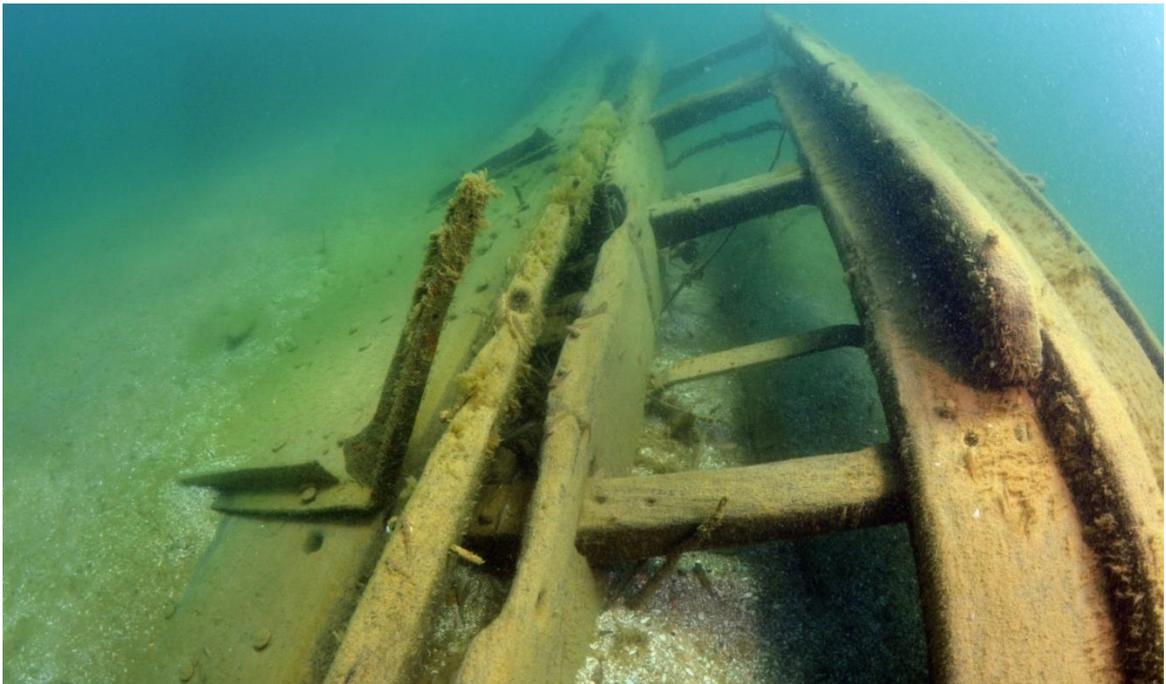


Figure 38. Intact chainplates located on the starboard side of *La Salle*

During the 1875 salvage of *La Salle* it was reported that the vessel's rigging was to be recovered for use in other vessels. From the wire rigging still remaining on the site, it is evident that much of the rigging was not able to be salvaged as was originally intended. Located in the port side of the hold, from 41.9 feet to 56.1 feet along the baseline, a pile of entwined wire rigging, deadeyes, and circular hearts remains extant. From the extent of the rigging and associated artifacts, it is clear that a large portion of the rigging was not recovered at the time of the salvage. It seems as though the rigging was fouled during its attempted removal, and instead of it being removed, it was simply discarded on the wreck. The rigging measures 0.1 feet in diameter.

Within the pile of rigging lie five deadeyes of two different sizes, measuring 0.7 feet and 0.6 feet in diameter. Four of the deadeyes are upper deadeyes, and are "turned-in", with the standing wire rigging seized around the outer score, or groove, of the deadeye. Each deadeye has three holes, two of which are scored, or rounded, on the bottom to avoid snagging the rigging on a sharp edge.

The fifth deadeye is a lower deadeye, and is scored around its outer edge with a metal band, or strop, which would have been used to bolt to the head of a chainplate. The bolt is still extant attached to the strop. Two other deadeyes remain extant on the site as well, one seized with wire rigging located at the break in the port side hull, and the other seized by a strop, located in between frame sets of the port side hull, 37.8 feet along the baseline.



Figure 39. Fouled rigging, including deadeyes and circular hearts, located in *La Salle*'s hold

Additionally, a single circular heart is located in the rigging pile as well, scored by the wire rigging. Circular hearts were used in place of deadeyes to set up bowsprit rigging or fore and aft stays. Instead of having three holes scored for the wire rigging, hearts had a large hole in the shape of a D lying on its side cut into them, with three rounded scores along the bottom edge. The existence of a circular heart indicates that the rigging pile is comprised of the vessel's standing rigging and bowsprit rigging. A section of the vessel's main rail or belaying pin rack is extant in the pile of rigging as well. It measures 3.8 feet in length and 0.5 feet wide, with belaying pin holes, 0.2 in diameter.

The sternpost measures 1.5 feet wide and 1.5 feet thick. The aft edge of the sternpost is flat while the forward edge and top of the sternpost are curved. It is likely that this smooth curve has been caused by sand washing over it for nearly 150 years. It is probable that this was originally squared off and would have been attached to the vessel's deadwood. Due to the amount of sand build up around the sternpost, it is not possible to discern if the deadwood remains extant, but it is likely buried beneath the sand. The remains of the hull planking at the stern appear to be part of the vessel's counter, and include the topside planks and bulwark planks to just beneath the main railing. This indicates that there is much more of the vessel's hull buried beneath the sand.

Many of the larger artifacts associated *La Salle* were salvaged shortly after sinking, but it is still likely that other artifacts are buried in the gelatinous sand. Due to the nature of the surrounding quicksand, the probability for the stern and aft port quarter to be located beneath the sand remains high. The archaeological data collected during the 2015 survey has provided additional information about the construction of Great Lakes canallers and nineteenth century maritime commerce, but more remains to be uncovered beneath a thick layer of sand.

CHAPTER SEVEN CONCLUSIONS AND RECOMMENDATIONS

This field report is a component of the ongoing research and contributes to the ever-increasing body of knowledge to document and interpret Wisconsin's collections of historic shipwreck and submerged cultural sites. Archaeological surveys conducted by the Wisconsin Historical Society are designed to document sites according to the standards and guidelines established by the National Park Service for submerged cultural resources. The primary goal of the surveys is to evaluate a site to determine its eligibility for listing on the National Register of Historic Places. A National Register of Historic Places nomination has been submitted and is under review at the state level for all five shipwreck sites described within this report.

S.C. Baldwin

As an early wooden steamer and converted wooden stone barge, *S.C. Baldwin* survey was designed to document early Great Lakes stone barge conversion and to provide positive vessel identification through identifying marks or artifacts.

The first objective, to provide positive vessel identification through identifying marks or artifacts, was not achieved. A complete archaeological documentation of *S.C. Baldwin* site will be a continuing process for years to come. Much of *S.C. Baldwin*'s remaining hull structure is buried in sand near the site. Large quantities of sand move through the area despite its depth, and various sections of wreckage are exposed at different times. As the sand continues to move, there is potential for previously undocumented hull structure and artifacts to be uncovered and exposed. For this reason the site should be monitored and any newly exposed structure or artifacts should be documented and added to the site plan. The vessel's size, location and construction details, all support the identification as *S.C. Baldwin*. Likewise, the location of the pile of cut limestone located 5.5 miles to the northeast, the same heading on which the vessel was being towed when it overturned, also suggests that this vessel is indeed *S.C. Baldwin*. The stone lies together in a pile, on a bed of sand, with no other rock formations anywhere in the vicinity.

The second objective, however, was achieved and *S.C. Baldwin* is under review for listing on the State Register of Historic Places. Its nomination will then be forwarded to the National Park Service for consideration for listing on the National Register of Historic Places.

The *S.C. Baldwin* site is easily accessible by boat, and is within recreational diving limits, located 2.3 miles south southeast of Rawley Point Lighthouse near the town of Two Rivers, Wisconsin. Due to its depth and location, visibility at the site is oftentimes very good, though weather patterns and currents, on occasion, reduce visibility. The site continues to be visited by recreational divers yearly. The State-sponsored mooring buoy on site greatly facilitates diving activities, and protects the wreck from anchor damage, continuing to be an asset on the site. Information gathered during the survey will be used for website updates, public outreach, and educational materials for Manitowoc County and the surrounding communities.

Grape Shot

As an early schooner, *Grape Shot* survey was designed to document early Great Lakes schooner construction and to provide positive vessel identification through identifying marks or artifacts.

The first objective, to provide positive vessel identification through identifying marks or artifacts, was not achieved. A complete archaeological documentation of *Grape Shot* site will be a continuing process for years to come. Much of *Grape Shot*'s remaining hull structure is believed to be buried in the rocky sediment near the site, or was washed ashore on Plum Island shortly after the wrecking event. Due to the shallow nature of the wreck, and various disarticulated pieces of hull structure strewn across the bay, it is evident that pieces of the vessel move about the lake bottom. As pieces continue to move, there is potential for previously undocumented hull structure and artifacts to be uncovered and exposed. For this reason the site should be monitored and any newly exposed structure or artifacts should be documented and added to the site plan. The vessel's size, location and construction details, all support the identification as *Grape Shot*.

The second objective was achieved, and *Grape Shot* is under review for listing on the State Register of Historic Places. Its nomination will then be forwarded to the National Park Service for consideration for listing on the National Register of Historic Places.

Grape Shot site is shallow and is easily accessible by boat, and is located 0.18 miles northwest of the former U.S. Coast Guard Station on Plum Island, in Door County, Wisconsin. Despite its shallow nature, visibility usually remains good, though wave action in the bay can cloud visibility with sediment. Due to her location in shallow water behind a reef, she remains lightly visited by divers. Because of the site's location near the historic Plum Island Lifesaving Station, which is undergoing restoration, and the recent opening of the island to day visitors, it is highly recommended for a State-sponsored mooring buoy. Information gathered during the survey will be used for website updates, public outreach, and educational materials for Door County and the surrounding communities.

Lookout

Like *Grape Shot*, the *Lookout* survey was designed to document early Great Lakes schooner construction and bulk cargo trades, and to provide positive vessel identification through identifying marks or artifacts.

The first objective, to provide positive vessel identification through identifying marks or artifacts, was not achieved. A complete archaeological documentation of the *Lookout* site will also be a continuing process. Much of *Lookout*'s remaining hull structure is believed to be buried in sand near the site. The soft, gelatinous substrate in the area allows tools and hull sections to disappear beneath its surface. As the sand continues to move, there is potential for previously undocumented hull structure and artifacts to be uncovered and exposed. For this reason the site should be monitored and any newly exposed structure or artifacts should be documented and added to the site plan. The vessel's size, location, historic photographic analysis, construction details, and details of her loss all support the identification as *Lookout*.

The second objective was achieved, and *Lookout* is under review for listing on the State Register of Historic Places. Its nomination will then be forwarded to the National Park Service for consideration for listing on the National Register of Historic Places.

The *Lookout* site is easily accessible by boat or kayak from Point Beach State Forest, and is located 4.35 miles northeast of the town of Two Rivers, Wisconsin. Due to its shallow nature and cladophora blooms, visibility at the site is usually poor. Only recently uncovered from the sands and reported in the spring of 2015, she remains lightly visited. Because of the site's shallow location and the changing nature of the site, it is recommended for a State-sponsored mooring buoy. As a way to mark a potential navigation hazard to passing boats and as an identifying marker for kayakers, snorkelers and divers, a mooring buoy would be a great asset to the visitation of this site. Information gathered during the survey will be used for website updates, public outreach, and educational materials for Point Beach State Forest, Manitowoc County and the surrounding community.

Alaska

Alaska represents a unique site, as it is one of only seven documented scow schooners in Wisconsin waters. The *Alaska* survey was designed to record Great Lakes scow schooner construction and to provide positive vessel identification through identifying marks or artifacts.

The first objective, to provide positive vessel identification through identifying marks or artifacts, was not achieved. A complete archaeological documentation of the *Alaska* site will be an ongoing process for years to come. Although quite intact for such a shallow wreck site, the location of the aft section of *Alaska*'s hull structure remains unknown. Due to the site's shallow nature, a large quantity of sand moves through the area on a yearly basis, and wave action takes its toll on the site. Sand bars continually move in and out of the area and it is probable that the aft section of the vessel is buried beneath one of these sand bars nearby. As the sand moves, previously undocumented hull structure and artifacts will continue to be uncovered and exposed. For this reason the site will be closely monitored and any newly exposed structure or artifacts will be documented and added to the site plan. Although no nameboard was located, the vessel's size, location, construction, and description of her salvage all support the identification as *Alaska*.

The second objective was achieved, and *Alaska* is under review for listing on the State Register of Historic Places. Its nomination will then be forwarded to the National Park Service for consideration for listing on the National Register of Historic Places.

The *Alaska* site is easily accessible via boat or kayak from Point Beach State Forest, and is located 4.25 miles northeast of the town of Two Rivers, Wisconsin. Due to its shallow nature, visibility at the site remains poor at times. The site is best explored during prolonged periods of calm weather. As the wreck lies in 4 to 7 feet of water, the site can be easily viewed from the surface. Because of the site's proximity to shore and the shallow and changing nature of the site, it is suggested for a State-sponsored mooring buoy. As with the *Lookout*, the extremely shallow nature of this site makes it a navigational hazard for boaters, and a buoy can help as an aid for boaters, divers, kayakers, and snorkelers. Information gathered during the survey will be used for

website updates, public outreach, and educational materials for Point beach State Forest, Manitowoc County, and the surrounding community.

La Salle

As one of only a handful of known canal schooners found in Wisconsin that were specifically built to traverse the Welland Canal, the *La Salle* survey was designed to document early Great Lakes canaller construction, adding a wealth of information about the vessel type, and to provide positive vessel identification through identifying marks or artifacts.

The first objective, to provide positive vessel identification through identifying marks or artifacts, was achieved. It was the discovery of the iron hanging knees that positively identified the vessel as *La Salle*. Though an increasingly common construction technique in vessels as the nineteenth century came to a close, it was noteworthy to find these in vessels built in the early to mid-1870's. As a relatively new method of lightening large wooden vessels, the inclusion of iron hanging knees was something noted in the local newspapers at the time of *La Salle*'s launch. This information, paired with an analysis of other vessel's lost off Rawley Point of roughly the same dimensions, positively pointed to identification as *La Salle*.

The second objective was also achieved, and a National Register of Historic Places nomination *La Salle* is under review for listing on the State Register of Historic Places. Its nomination will then be forwarded to the National Park Service for consideration for listing on the National Register of Historic Places.

While achieving the first and second objectives, many opportunities remain for further research that could significantly add to our understanding of Great Lakes sailing vessels in general, and to canallers specifically. A complete archaeological documentation of the *La Salle* site will still be an ongoing process. Much of *La Salle*'s remaining hull structure is believed to be buried in sand near the site. While canallers were commonly used throughout the Lakes, only fledgling work has been conducted on the many variances in canaller construction. Additionally, *La Salle* offers a unique opportunity to study the use of iron knees in late nineteenth century wooden hull construction, a technique underrepresented in the archaeological record in Lake Michigan. Although no nameboard was located, the vessel's size, location, construction, description of her loss and salvage, and the discovery of iron hanging knees all support the identification as *La Salle*.

La Salle is an excellent location to study and observe the construction techniques used to build Great Lakes canal schooners. Although the hull is broken in some places, the site remains in remarkable condition and nearly all of the *La Salle*'s hull components and rigging are extant, both above and below the sand. To many divers, a shallow, somewhat broken hull such as *La Salle* holds less appeal compared to more intact deeper vessels, as the vessel was stripped of much of her rigging, gear, and artifacts during salvage attempts following the wrecking. To an analytical eye, however, the *La Salle* site presents a prime opportunity to study and learn about wooden vessel construction. It is also extremely rare to have a vessel this intact in this shallow of water. With no zebra or quagga muscle colonization, *La Salle* offers a unique opportunity for divers,

kayakers, and snorkelers, many of whom would not ever get to see this level of integrity in wooden vessels, and to experience a ship that looks almost as she did when she sank almost 150-years ago. For this reason the *La Salle* site is the best of both worlds – she is intact enough to have nearly all hull sections represented, but allows a thorough examination of the many intricate details that would be hidden were the vessel intact.

The *La Salle* site is easily accessible by boat or kayak from Point Beach State Forest, and is located 4.15 miles northeast of the town of Two Rivers, Wisconsin. Despite its shallow nature, visibility at the site usually remains good. The site does sit in an area covered by very fine sand and cladophora, which can cloud visibility on days of heavy weather or when disturbed by a passing diver. The site is best explored during prolonged periods of calm weather, and can be seen from the surface. Because of the shallow and changing nature of the site, it is recommended for a State-sponsored mooring buoy. As with the other two shallow water vessels located off Rawley Point, a mooring buoy would benefit boaters in identifying the wreck's location and it would easily mark the wreck site for interested divers, kayakers, and snorkelers, and allow them to visit the site with ease. Information gathered during the survey will be used for website updates, public outreach, and educational materials for Point Beach State Forest and the surrounding community.

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