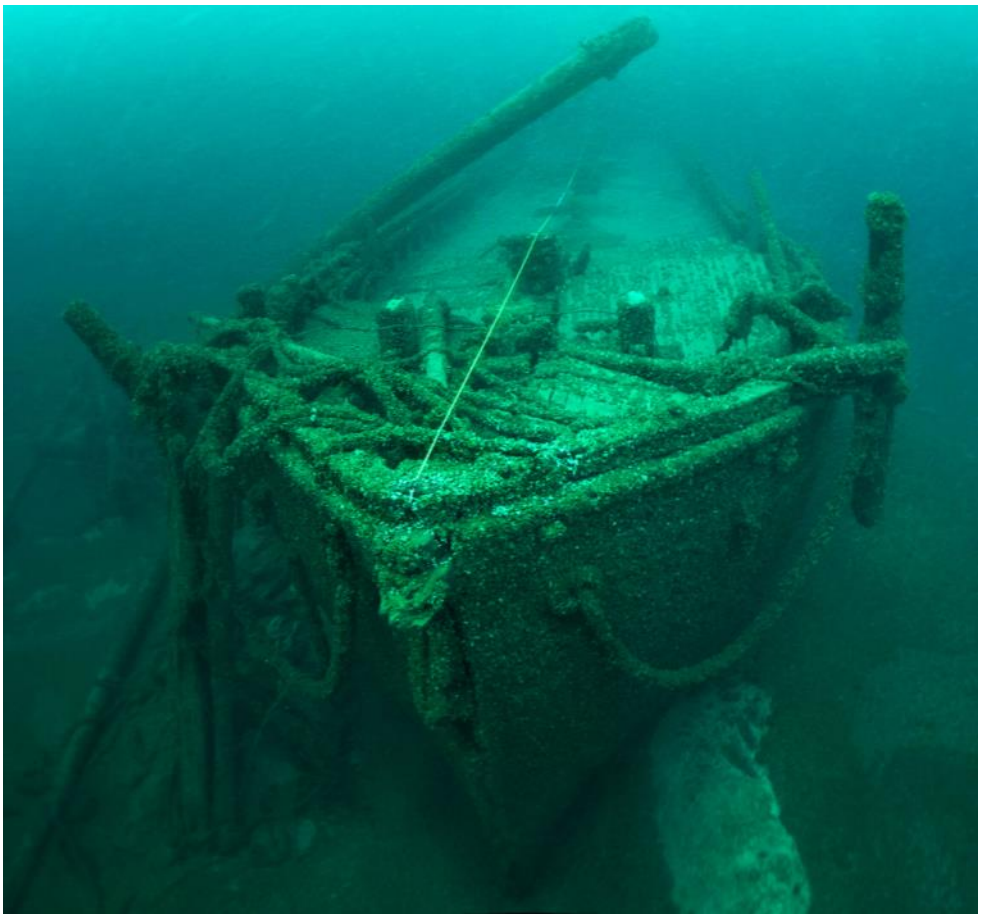
Great Lakes Sailing Canallers and Other Underwater Archaeological Investigations from the 2016 Field Season



State Archaeology and Maritime Preservation
Technical Report Series #17-001

WISCONSIN HISTORICAL SOCIETY

Tamara L. Thomsen, Caitlin N. Zant and Tori Kiefer

Assisted by grant funding from the National Park Service, and the University of Wisconsin Sea Grant Institute, this report was prepared by the Wisconsin Historical Society's Maritime Preservation and Archaeology Program. The statements, findings, conclusions, and recommendations are those of the authors and do not necessarily reflect the views of the National Park Service, University of Wisconsin Sea Grant Institute, or the National Sea Grant College Program.

Note:
At the time of publication *Grace A. Channon* and *Tubal Cain* sites are pending listing on the State and National Registers of Historic Places. Nomination packets for these shipwreck sites have been prepared and submitted to the Wisconsin State Historic Preservation Office.

Cover photo: The sailing canaller *Grace A. Channon* off Oak Creek, Milwaukee County, Wisconsin.

CONTENTS

ILLUSTRATIONS AND IMAGE..... iii

ACKNOWLEDGEMENTS..... vi

Chapter

1. INTRODUCTION..... 1

    Research Design and Methodology..... 4

2. THE GREAT LAKES GRAIN TRADE..... 7

3. BARQUE-RIGGED CANALLER *TUBAL CAIN*..... 15

    Tubal Cain Site Description..... 18

4. SCHOONER-RIGGED CANALLER *GRACE A. CHANNON*..... 25

    Grace A. Channon Site Description..... 31

5. SCHOONER *H.L. WHITMAN*..... 55

    H.L. Whitman Site Description..... 62

6. SISTER ISLANDS TUG..... 69

7. CONCLUSIONS AND RECOMMENDATIONS..... 77

8. REFERENCES..... 81

ILLUSTRATIONS AND IMAGES

Figure **Page**

1. Sailing canaller towed through the Welland Canal, the route bypassing Niagara Falls connecting Lakes Erie and Ontario (Niagara Falls Public Library)..... 7

2. Illustration of the route of the second Welland Canal (Brock University)..... 8

3. Sailing canaller *Edward Blake* displays folding davits, retracted catheads and a canted jibboom (St. Catherines Historical Museum)..... 9

4. Second-generation sailing canaller illustration (Loudon Wilson)..... 10

5. Folding davit illustration (Loudon Wilson)..... 10

6. Hull lines of the *Bermuda* typical of second-generation Welland canallers (C. Patrick Labadie Collection)..... 11

7. Sailing canaller *Arthur* in the Welland Canal locks near Thorold, Ontario (Public Archive of Ontario)..... 12

8. A sailing canaller traversing Lock 4 of the Welland Canal with its bowsprit raised (C. Patrick Labadie Collection)..... 13

9. James Monroe "J.M." Jones and his wife, Angeline Childs Jones (James H. Jones Collection, Lorain Historical Society)..... 15

10. Location of the *Tubal Cain* site..... 19

11. Aerial photograph of *Tubal Cain* site (Suzze Johnson)..... 20

12. *Tubal Cain*'s starboard side hull, frames, deck shelf and deck beam (Randy Wallander)..... 21

13. *Tubal Cain*'s chainplates with deadeye and bulwark stanchions protrude from the sand (Randy Wallander)..... 22

14. *Tubal Cain*'s sternpost (Randy Wallander)..... 22

15. Site plan of the *Tubal Cain* wreck site..... 23

16. Advertisement for the Tug *Favorite* (Blue Book, 1869)..... 29

17. Location of the *Grace A. Channon* site..... 31

18. Bow of *Grace A. Channon*..... 32

19. U-shaped bar on *Grace A. Channon*'s bow..... 34

20. *Grace A. Channon*'s port side wooden stock anchor and hinged cathead..... 35

21. Spar lies across *Grace A. Channon*'s weather deck and windlass..... 36

22. *Grace A. Channon*'s sampson post, windlass and forecastle scuttle..... 37

23. Centerboard winch on the deck of *Grace A. Channon*..... 38

24. Damage near *Grace A. Channon*'s bow caused by the propeller *Favorite*…..... 39

25. *Grace A. Channon*'s single, covered cargo hatch..... 41

26. Interior of *Grace A. Channon*'s cabin..... 43

27. Diagonal decorative planking on *Grace A. Channon*'s transom..... 45

28. Folding davit atop *Grace A. Channon*'s port side railing..... 46

29. *Grace A. Channon*'s fallen mainmast..... 47

30. Spars off *Grace A. Channon*'s starboard side..... 49

31. Spars, booms and gaffs on *Grace A. Channon*'s starboard side..... 51

32. *Grace A. Channon*'s ice chest..... 52

33. Photo mosaic of the *Grace A. Channon* wreck site..... 53

34. Location of the *H.L. Whitman* site..... 63

35. Bilge section of *H.L. Whitman* (Christa Waller)..... 64

36. *H.L. Whitman*'s missing keel section in profile (Christa Waller)..... 65

37. Mainmast step and keelson of *H.L. Whitman* (Christa Waller)..... 66

38. Foremast step on *H.L. Whitman* (Christa Waller)..... 67

39. Site plan of the *H.L. Whitman* wreck site 68

40. Location of the Sister Islands Tug site..... 69

41. Stempost of the Sister Islands Tug..... 70

42. Flayed hull of Sister Islands Tug..... 71

43. Deck beams and extant deck planking in bow of Sister Islands Tug..... 72

44. Sister Islands Tug's stern knees and deadwood..... 73

45. Metal loop at bow of Sister Islands Tug..... 74

46. Multibeam sonar image of Sister Islands Tug (Keith Cormican)..... 75

47. Multibeam sonar image of Sister Islands Tug (Keith Cormican)..... 75

48. Site plan of the Sister Islands Tug wreck site..... 76

ACKNOWLEDGEMENTS

Wisconsin Historical Society's Maritime Preservation and Archaeology Program conducted the projects within this report during the summer of 2016. The successful completion of this research relied heavily upon the hard work and dedication of many individuals and institutions. Major funding for the evaluation of the *Grace A. Channon* was provided by the National Park Service through a National Maritime Heritage Grant. The University of Wisconsin Sea Grant Institute provided additional project and internship funding.

None of this research would have been possible without hours of dedication and work conducted by volunteers. These include divers George Mayhew, John Janzen, John Scoles, Chris Spoo, Randy Wallander, Gretchen Dominoski, Christa Waller, Bob Jaeck, and John Nousaine. Jay Hanson, Ken Merryman, Jerry Eliason, David Phillips and Tom Crossman collected drop camera and ROV survey footage that was shared with the Society. Christa Waller, John Janzen, Bob Jaeck and Randy Wallander also shared images and videos of underwater resources, many which are included in this report.

This season we especially would like to acknowledge the hard work of Wisconsin Department of Natural Resources Conservation Warden Mike Neal for his yearly help in the coordination of the installation of shipwreck mooring buoys in Door County as well as boat support on many projects. Additionally, this year, we would like to thank him for his assistance in returning a 20-foot schooner hull section to its original location in over 300 feet of water. The piece was inadvertently brought up by commercial fishing operations in trawling nets.

Thank you to Captain Michael Rodaway for sharing with us his intimate knowledge of ship's rigging and machinery to help us through this report and several previous projects, to Captain Jim Robinson and Keith Cormican who provided information on several new and forgotten hull fragments pieces in Green Bay and Death's Door Passage, and to Captain Jerry Guyer for sharing information about various Lake Michigan shipwreck discoveries this past season. A special thanks also goes to Steve Radovan for sharing additional information on shipwreck discoveries in Lake Michigan and for housing our compressor for tank fills during the East Carolina University field school in Sheboygan.

Special appreciation needs to go to Tori Kiefer, a Masters Candidate in the Maritime Studies Program at East Carolina University. With fellowship funding through University of Wisconsin Sea Grant Institute she interned for three months at Wisconsin Historical Society. She worked alongside the East Carolina University field school on the steamer *Atlanta* (not covered in this report), researched and wrote a National Register of Historic Places Nomination for the *Atlanta*, and completed site history for the barque *Tubal Cain* National Register of Historic Places

nomination. Additionally, she assisted with the surveying and recording of the Sister Islands tug and several other new discoveries.

Another year of thanks goes to ultralight pilot Suzze Johnson who reported the remains of *Tubal Cain* while flying a powered-parachute aircraft along the shoreline of Lake Michigan in the spring of 2016. This previously unreported shipwreck had been inundated with sand. She graciously shared aerial photographs of the *Tubal Cain* site. Additional thanks goes to pilot Mike Thuss for assistance with photographing the *Tubal Cain* wreck from the air, ground-truthing GPS information for the site by locating shipwreck with his 12 ft. fishing boat. Thank goodness for calm weather. Thankfully for their fast work, the wreck was located and recorded before it became covered again with sand only three days later.

Russell Leitz deserves special recognition for his creation and continued maintenance of the newspaper database of maritime events in Wisconsin stored on the WisconsinShipwrecks.org website. During his winter vacation, Russ graciously used his personal subscription to an extensive newspaper database to find many extra references for the service histories for each of the shipwrecks worked on over this field season.

Our office's ship files were augmented throughout the year and our website, WisconsinShipwrecks.org was updated by volunteer Tom Villand, making historical research a much easier ordeal.

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 National Park Service. The surveys were organized and staffed by the Society's Maritime Preservation and Archaeology program staff and volunteers, and were conducted over the 2016 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 strategy 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 30 Wisconsin shipwrecks and underwater 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 2017, 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, 39 Maritime History Geocaches have been placed around the state in the communities of Superior, Two Rivers, Manitowoc, Sheboygan, Port Washington, 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

Website. WisconsinShipwrecks.org is a collaborative effort between the Wisconsin Historical Society and the University of Wisconsin Sea Grant Institute, which began in 1996. This website makes underwater archaeological research results available to the public and fosters the preservation of submerged archaeological sites. The heart of the site features detailed information on historically and recreationally significant shipwrecks in the Wisconsin waters of Lakes Michigan and Superior. Each shipwreck profile includes information about the ship's archaeology, history, final voyage, sinking, and current condition. However, to maintain public interest in the site, new research and updates of current shipwreck "profiles" must be added in a timely manner. Data and images gathered during the fieldwork, historical research, and trail creation is added to the popular website. With several searchable databases for Wisconsin's maritime resources, visitors are able to view shipwreck site plans as well as historic and underwater photos of shipwrecks. This website features a database of over 700 Wisconsin shipwrecks and a database of statewide maritime-related cultural attractions to promote heritage tourism and preservation of submerged cultural resources. 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 Natural 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, environmental 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 traditional and closed-circuit scuba technology. Documentation included digital photo mosaics, photogrammetry, 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 descriptions, 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
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.

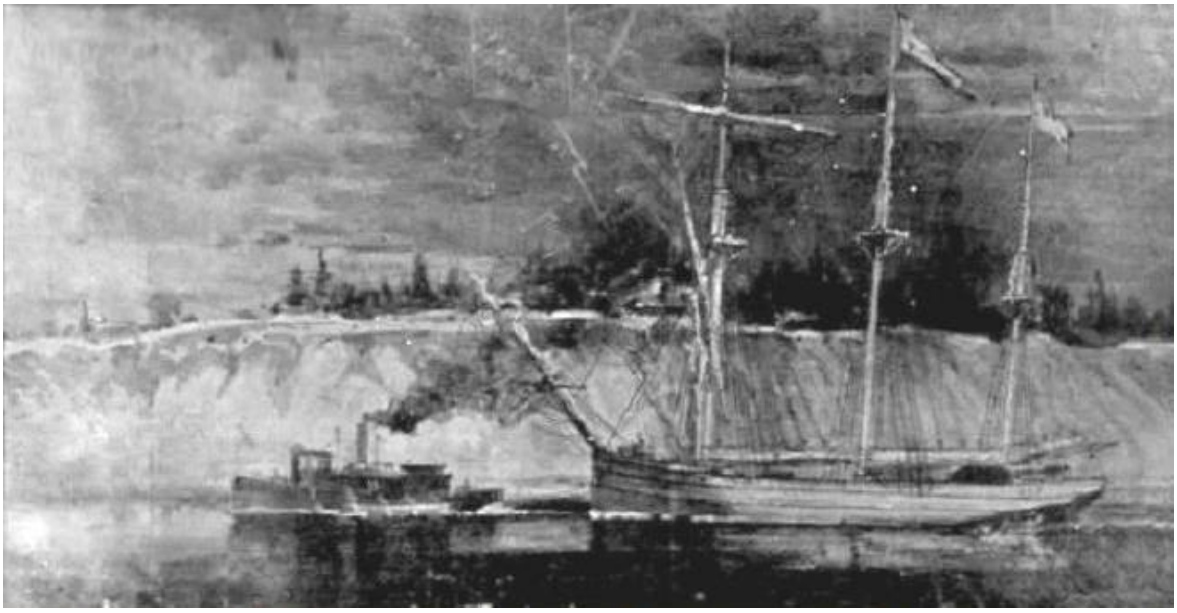


Figure 1. Sailing canaller towed through the Welland Canal, the route bypassing Niagara Falls connecting Lakes Erie and Ontario (Niagara Falls Public Library)

Wisconsin's first encounter with a European sailing vessel occurred in 1679 when Sieur de La Salle's ill-fated *Le Griffon* landed on the Door Peninsula. 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.

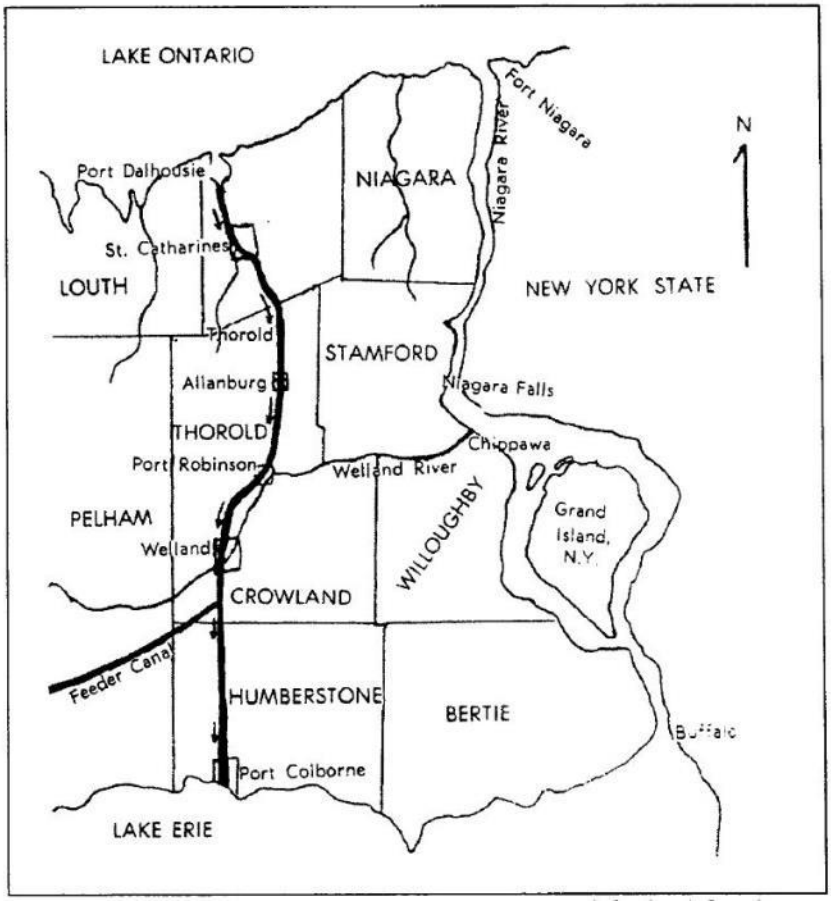


Figure 2. Illustration of the route of the second Welland Canal (Brock University)

A unique vessel type developed on the Great Lakes, which 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 jibboom 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*)*.

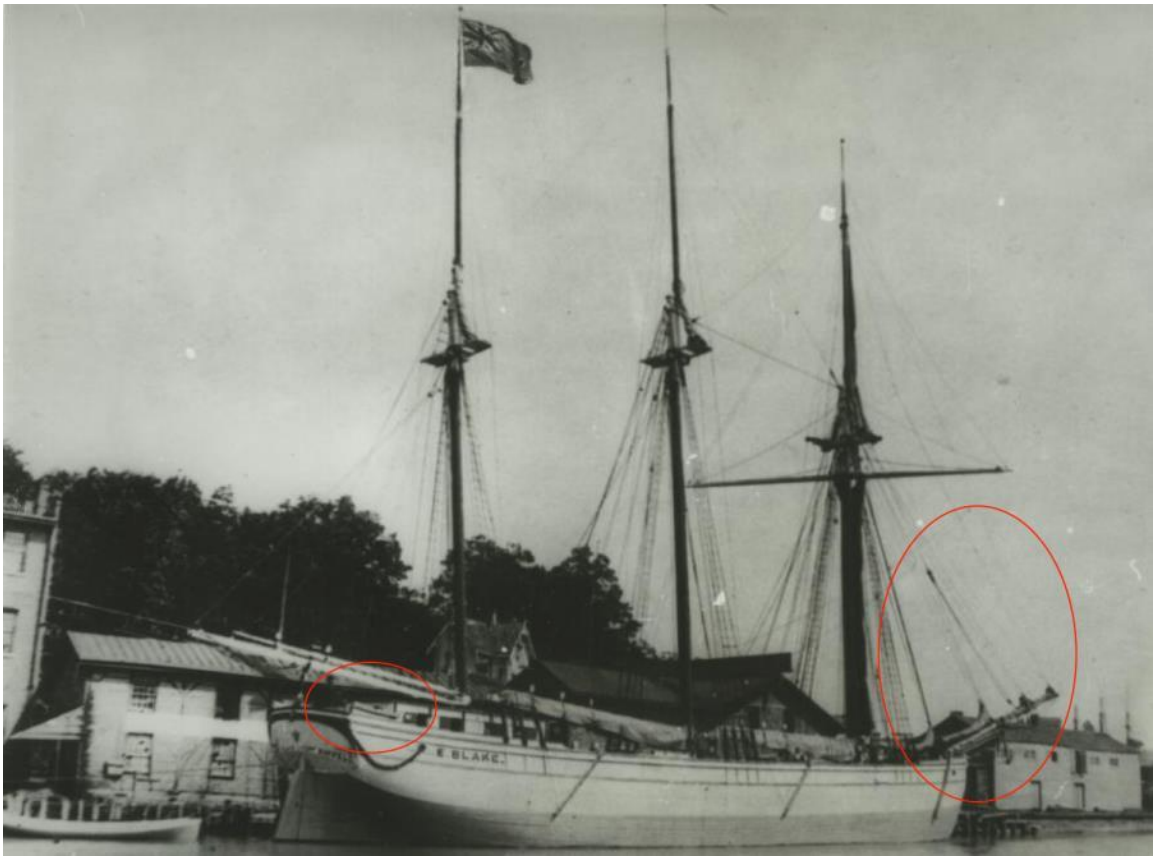


Figure 3. Sailing canaller *Edward Blake* displays folding davits, retracted catheads and a canted jibboom that is rigged with blocks to pivot upward when the vessel is lowered in the Welland Canal locks (St. Catherines Historical Museum)

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 upbound 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.

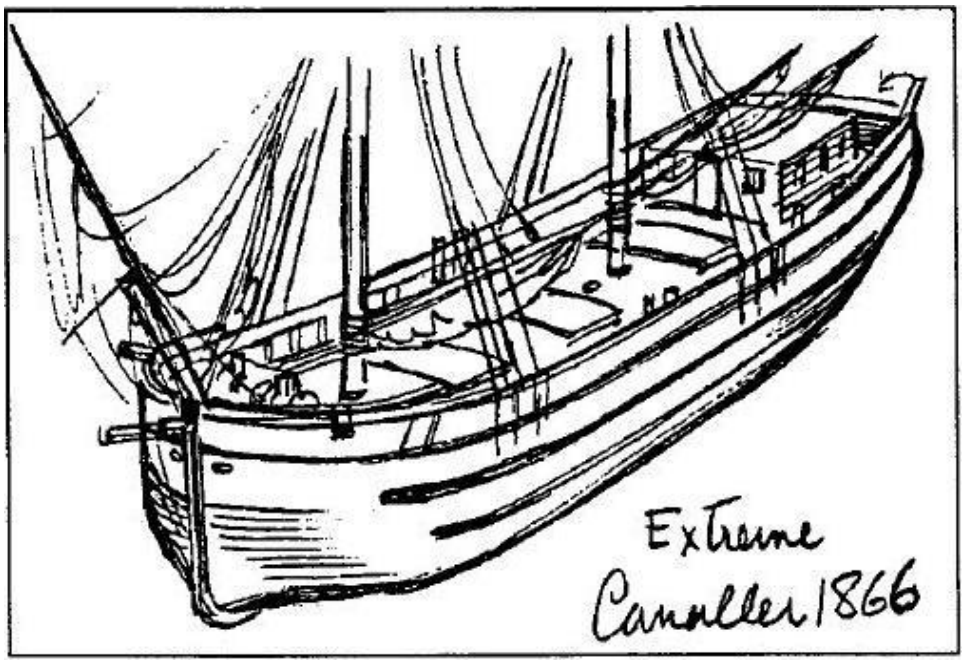


Figure 4. Second-generation sailing canaller illustration (Loudon Wilson)

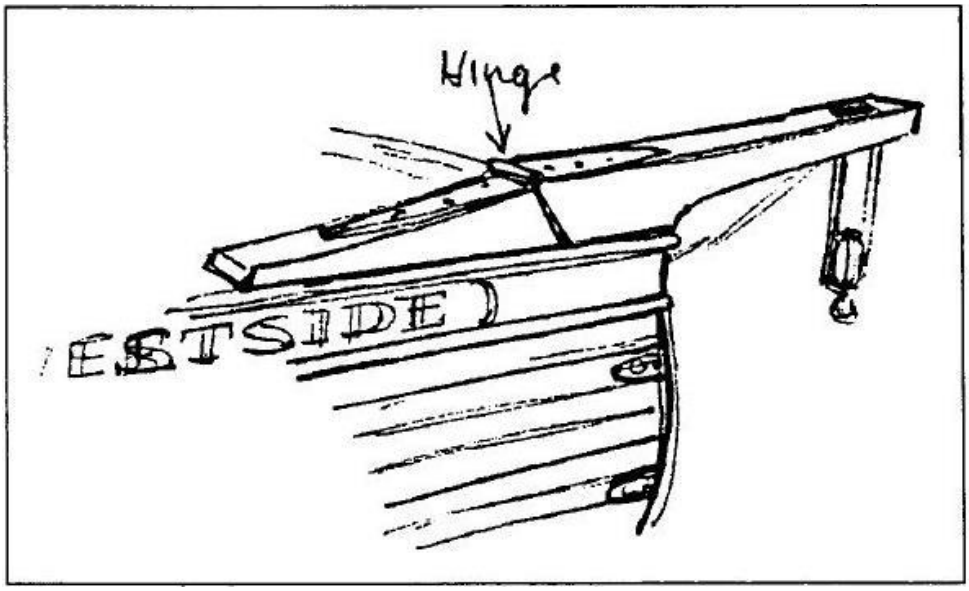


Figure 5. Folding davit illustration (Loudon Wilson)

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).

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.

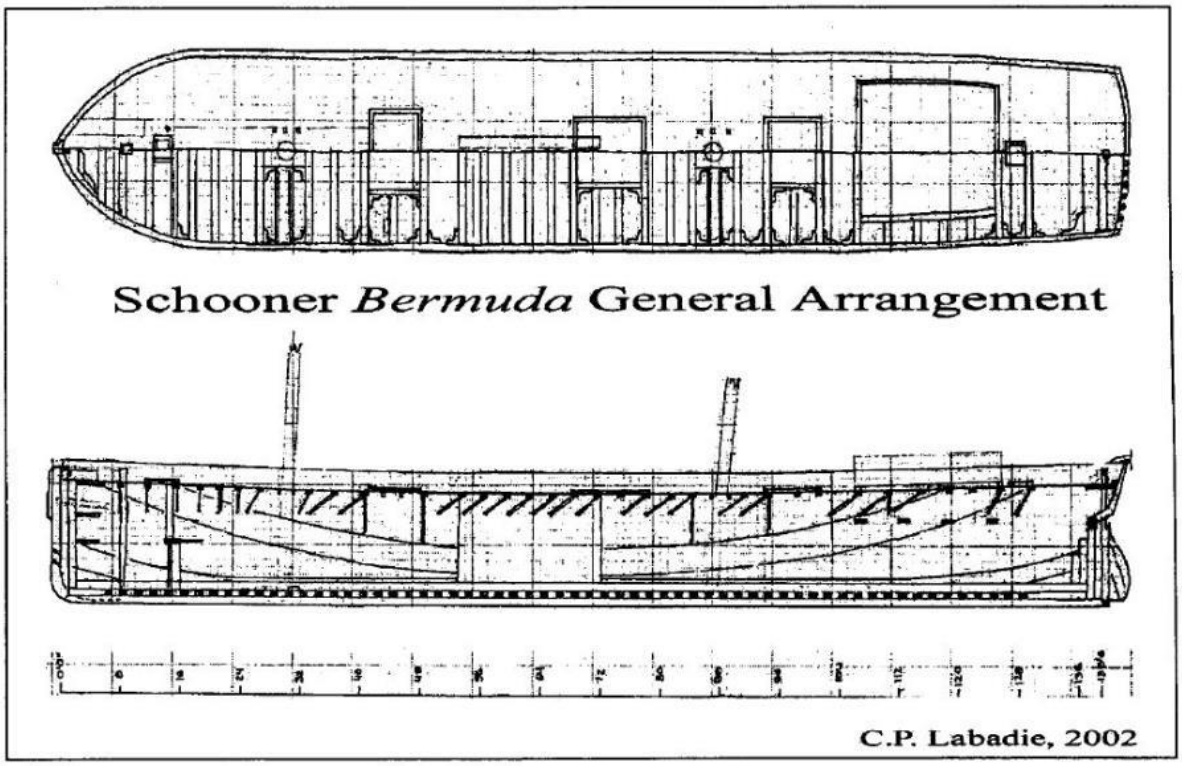


Figure 6. Hull lines of the *Bermuda* typical of second-generation Welland canallers (C. Patrick Labadie Collection)

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 Lake 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 steamers. During the 1860s, rates dropped to between 4 and 7 cents per bushel. From 1874 onward, rates began a constant decline, reaching $1.53 per bushel by 1898 (Cooper 1988; Mansfield 1899; Mills 1910).

Figure 7. Sailing canaller *Arthur* in the Welland Canal locks near Thorold, Ontario. After the third expansion in the late 1880s, the locks were wide enough for tugs to escort vessels within the locks and through the canal. (Public Archive of Ontario)

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).

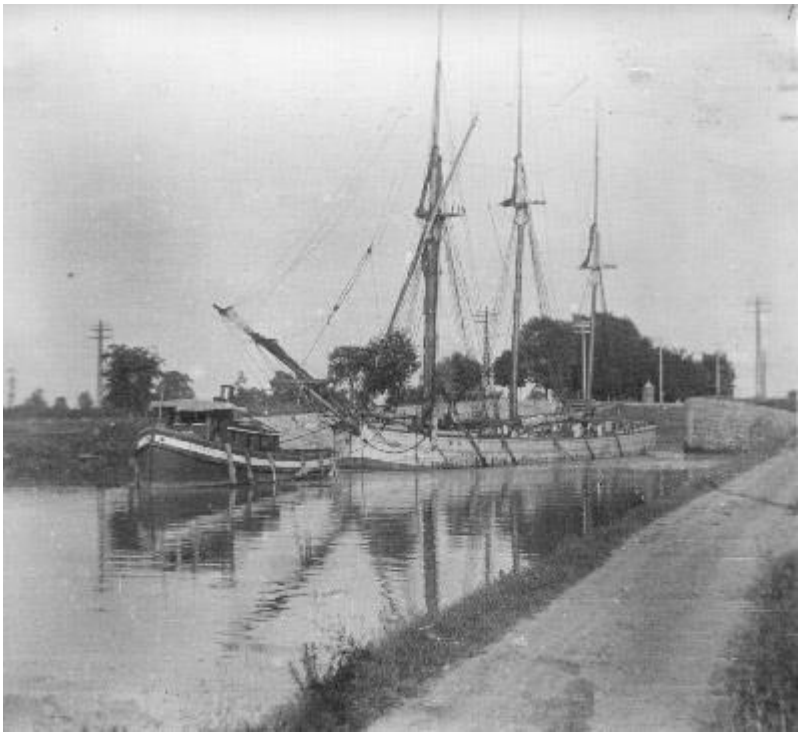


Figure 8. A sailing canaller traversing Lock 4 of the Welland Canal with its bowsprit raised (C. Patrick Labadie Collection)

CHAPTER THREE
BARQUE-RIGGED CANALLER *TUBAL CAIN*

Tubal Cain Operational History

James Monroe "J.M." Jones was the fifth and youngest son of Great Lakes pioneer shipwright Augustus Jones, born on 17 March 1824 at Black River (Lorain), Ohio. As an infant, J.M. rode 30 miles in an open boat on his mother's lap, when Augustus relocated his family, and his shipbuilding business, in 1824 from Black River to Sandusky, Ohio. As a young man, J.M. worked aboard and captained vessels. He learned the shipbuilding trade from his brother, Augustus' third son, George Washington "G.W." Jones. In 1840, J.M. joined his brother, Augustus' second son, Benjamin Buel "B.B" Jones' at his shipyard in Milwaukee. Soon after, he established his own small yard along the South Menominee River. Large-scale shipbuilding operations were not started until 1854 on the northern end of a nearby island he named Jones Island. When a financial depression struck in 1857, J.M. Jones was forced to close shop. In 1865 he relocated to Detroit, Michigan and commenced shipbuilding operations there. Between 1865 and 1873, J.M. Jones launched over forty vessels from his yard at Detroit (Jones, Shorf, and Weisman).

Figure 9: James Monroe “J.M.” Jones and his wife, Angeline Childs Jones (James H. Jones Collection, Lorain Historical Society)

One of these vessels built at Detroit, was the barque *Tubal Cain*, launched on 20 May 1866. The barque consisted of a plain head, one deck, three masts, and square stern. She was 137 feet in length and 26 feet in beam with a depth of 9.5 feet and capacity of 294 tons. On 23 May the vessel was enrolled at the Port of Detroit under partial ownership by Detroit businessmen Dibble, Jones, Ashley, and Howe. J.M. Jones took a 6/16th share of interests in his new vessel. Noah Dibble, Master of the vessel, also had a 6/16th share. A. Ashley had a 3/16th stake in the vessel while A. Howe had only 1/16th. *Tubal Cain* was designed for transporting lumber and grain from Lake Michigan eastward to New York. Unfortunately, the barque was only operational for a little under two years, ending a brief but unfortunate career (*Buffalo Evening Courier & Republic* 1866a; Bureau of Navigation 1866a; *Cleveland Daily Leader* 1866; *Detroit Free Press* 1866a, 1866b).

June of 1866 consisted of steady sailing between Chicago and Buffalo. On 15 June, *Tubal Cain* cleared the Port of Chicago heading east toward Buffalo with 26,275 bushels of oats (*Buffalo Daily Courier* 1866a). On 25 June she passed the Port of Detroit heading downbound (*Detroit Free Press* 1886c). Within three days, she was recorded leaving the Port of Chicago for Buffalo carrying 25,584 bushels of oats for the grain merchant company Nims, Gibson, and Lyon of Buffalo (*Buffalo Daily Courier* 1866b; Thomas 1866).

The *Tubal Cain* began July with a transfer of ownership. J.M. Jones and E.W. Hudson, of Detroit, became equal sole owners of the barque. Jones acquired another 2/16ths making him half owner while Hudson acquired the other half interest from Dibble, Ashley, and Howe. Each half interest equaled $9,000 totaling the vessel's worth at $18,000. When Dibble sold his share, he also gave up his position as the vessel's Master to Captain James Stebbins (*Buffalo Evening Courier & Republic* 1866b; Bureau of Navigation 1866b; *Chicago Tribune* 1866a, 1866b; *Detroit Free Press* 1866e). Records also indicate that the barque spent some time transporting lumber. On 8 July she sailed from Saginaw City, Michigan to Chicago carrying lumber at $5.75 per thousand board feet (*Detroit Free Press* 1866d).

Not much is recorded of the *Tubal Cain* as she ended the 1866 season. From the little documentation available, it is apparent she regularly sailed from Lake Michigan to ports on Lake Erie under the watchful eye of Captain Stebbins. On 5 August she arrived at Buffalo with 25,730 bushels of oats for J.R. Bentley & Co., spending only two days in port before heading back to Chicago. The vessel's returning cargo was undocumented (*Buffalo Daily Courier* 1866c; *Buffalo Evening Courier & Republic* 1866c). Records show that the barque passed the Port of Detroit, heading up bound, on 11 September. She was documented arriving again in East Saginaw on 20 September (*Buffalo Daily Courier* 1866d; *Detroit Free Press* 1866f). On 9 October *Tubal Cain* left Chicago for Ogdensburg, New York with 18,800 bushels of corn (*Chicago Tribune* 1866c). On 1 November the vessel passed through the Welland Canal

heading to Ogdensburg from Chicago, and by 16 November she was seen passing the Port of Detroit (*Detroit Free Press* 1866i, 1866j).

These voyages across the Lakes were not always smooth. Near the end of October, *Tubal Cain* was heading downbound from Chicago when she was caught in a gale just south of Detroit. Records indicated that the vessel was detained and slightly damaged; unfortunately the extent of the damage was not reported (*Buffalo Daily Courier* 1866e; *Daily British Whig* 1866; *Detroit Free Press* 1866g, 1866h). The *Buffalo Commercial Advertiser* (1867) included in their casualty report for 1866, a report that the *Tubal Cain* was damaged by a collision on Lake St. Clair accruing $600 in property loss. Upon further inquiry no details of the collision were found.

The 1867 season began with another change of ownership. On 28 March, Byron Whitaker and William Beals purchased *Tubal Cain* for a total of $18,000 becoming equal owners. The 1867 certificate of enrollment also documented that the Master of the barque was Jas Parsons (Bureau of Navigation 1867; *Detroit Free Press* 1867a, 1867b). *Tubal Cain* continued her route between Chicago and ports on Lake Erie passing Detroit as she sailed between lakes. The barque's usual cargo was grain but she occasionally moved lumber. On 13 July she passed Detroit heading up bound to Saginaw where she loaded lumber for Oswego at $5.25 per thousand board feet (*Buffalo Daily Courier* 1867a; *Detroit Free Press* 1867c, 1867d, 1867g, 1867h).

June was an unfortunate month for *Tubal Cain.* Early in the month a collision occurred between the *Tubal Cain* and the barque *Lafrinier* in Chicago. The tug *Union* was towing *Tubal Cain* into port as *Lafrinier* was sailing outward when the two collided. The careless maneuvering of the *Union* was to blame. *Lafrinier* sustained considerable damage to her head gear and *Tubal Cain* lost her taff rail and part of her cabin roof. The property damage of the *Lafrinier* only amounted to $75 that was billed to the tug (*Buffalo Daily Courier* 1867b, 1867d; *Detroit Free Press* 1867m). On 11 June, *Tubal Cain* was chartered for use in the transportation of lumber from East Saginaw to Buffalo at $4.25 per thousand board feet (*Detroit Free Press* 1867e). A week after the charter, the barque was heading to Bay City, Michigan from Chicago when it was struck by lightning as it entered Saginaw Bay. The bolt struck the mizzen topmast all the way into the captain's cabin scattering wood pieces along the deck. One man was severely injured (*Buffalo Daily Courier* 1867c; *Chicago Tribune* 1867*; Daily British Whig* 1867a; *Detroit Free Press* 1867f, 1867m). Documentation of vessel repairs after the lightning strike could not be found. By the end of June *Tubal Cain* was sailing again under Captain Parsons. On 26 June the barque left for Saginaw with 300,000 feet of lumber for J.S. Noyes & Co., making it past Wyandotte in two days (*Buffalo Evening Courier & Republic* 1867a, 1867b).

Newspapers reported that *Tubal Cain* visited Marquette, Michigan in Lake Superior for iron ore in early September. Twenty miles out, the barque sprung a leak and had to return to port for

repairs (*Buffalo Daily Courier* 1867d; *Detroit Free Press* 1867n). This is the first indication of the barque sailing on Lake Superior. By 20 September she arrived at the Port of Detroit (*Detroit Free Press* 1867i). At the end of October *Tubal Cain* was chartered again to transport lumber from Saginaw to Chicago at $4 per thousand board feet (*Buffalo Daily Courier* 1867e; *Detroit Free Press* 1867j). At the end of November, she lost her small anchor in Saginaw Bay during a gale (*Buffalo Daily Courier* 1867f; *Detroit Free Press* 1987m).

On the morning of 26 November 1867, *Tubal Cain* was headed from Milwaukee carrying 18,000 bushels of wheat from Jenkins & Doolittle, consigned to the Second National Bank of Oswego when she went ashore near Two Rivers. The morning produced a hard southeastern wind, rain, and heavy fog. This, along with careless navigation was determined to be the cause of the wreck. Fortunately, all crew members survived. While ashore on Sunday, a northeast gale came up that evening washing away her cabin. By Tuesday, she had settled into the sand so deep that the deck was ten feet underwater. Her anchors and rigging were all that could be saved. *Tubal Cain* was partially insured between $10,000 and $18,000, and the cargo for $37,500. (*Buffalo Daily Courier* 1867g; *Daily British Whig* 1867b; *Detroit Free Press* 1867k, 1867m; *Detroit Post* 1867a, 1867b; *Manitowoc Pilot* 1867a; *Milwaukee Sentinel* 1867a). On 6 December the remains of the *Tubal Cain* were sold to Jonah Richards, Esq. for $800. It is uncertain if Richards planned on attempting to salvage the vessel. No documentation of any further actions on the *Tubal Cain* could be found (*Manitowoc Pilot* 1867b; *Milwaukee Sentinel* 1867b).

Site Description

The remains of the canaller *Tubal Cain* sit on a heading of 120 degrees, 1.33 miles northeast of the harbor entrance at Two Rivers, Wisconsin and approximately 300 feet offshore. The wreckage rests in 7 to 10 feet of water lying on an even keel. Her port and starboard sides remain intact up to the deck shelf with the vessel's deck and bulwark not extant. Her remains are well-preserved and from the lack of invasive mussel colonization on her exposed structures, it is evident that the vessel was recently exposed. The vessel's keel and lower hull do not appear to be broken although they remain buried beneath the sand. This suggests that the starboard and portside 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.

The *Tubal Cain* 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 National Register of Historic Places Multiple Property Document, Great Lakes Shipwrecks of Wisconsin (Cooper and Kriesa 1992),

barques carried three or more masts; the foremast and mainmast were square-rigged, and mizzenmast was fore-and-aft rigged. Most Great Lakes canallers, regardless of the rig type, were single-decked and had only a small cabin structure above the deck.

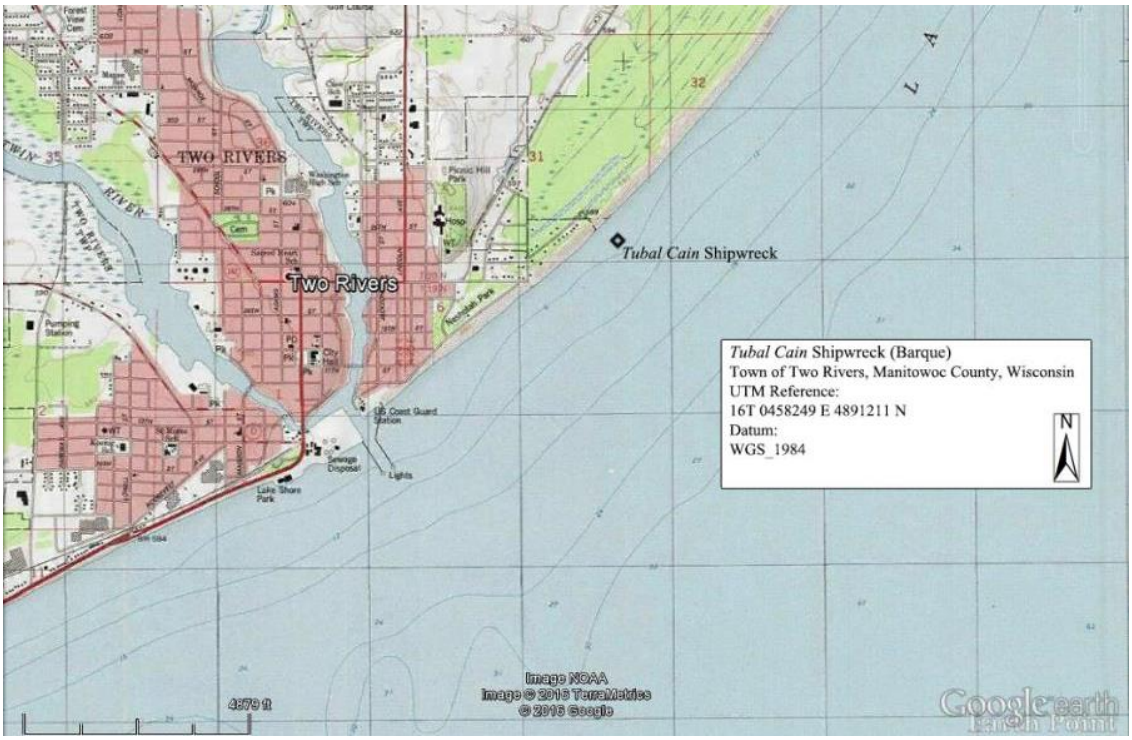


Figure 10. Location of the *Tubal Cain* site

The site was discovered by pilots, Suzze Johnson and Michael Thuss, observed from ultra-light aircraft in April of 2016. The site remains unvisited by kayakers and divers due to her relatively unknown location and the fact that the vessel was covered again by sand shortly after the initial discovery and survey. In May 2016, 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 137.4 feet to the sternpost along the centerline of the ship. All measurements for the survey were taken from this baseline.

The overall length of the ship is 137.4 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 and other known wreck locations nearby, the vessel remains were determined to belong to the barque *Tubal Cain*. As the wreck was recently uncovered by shifting sand, zebra and quagga mussels are not present.

The *Tubal Cain*'s stempost sits upright and nearly vertical, and measures 1.2 feet long by 0.7 feet wide. A false stempost, forward of the stempost measures 0.7 wide by 0.8 thick. Eleven feet

aft of the stem is the vessel's samson post. Leaning 3.0 feet to the port side, the samson post measures 0.9 by 0.9 feet square with 6.5 feet exposed above the lakebed.

Figure 11. Aerial photograph of *Tubal Cain* site (Suzze Johnson)

The outer hull planking has sprung from the stem on the port side, but remains connected on the starboard side. Outer hull planking measured at the vessel's starboard quarter measures 0.5 feet wide by 0.2 feet thick. Caulking remains between the planks. The ceiling planking is 0.5 feet wide by 0.3 feet thick. The starboard side extends into the sand at 60.2 feet along the baseline but the bulwark stations and chainplates reappear at 94.8 feet and continue to 136.4 feet. The port side extends into the sand at 34.8 feet along the baseline and reappears 112.4 feet ending at 136.4 feet. The visible portions of the ship indicate irregular framing, varying between double and triple frame sets. The total number of frames is unknown due to sand build up. Individual futtocks in double frame sets measure 0.6 feet wide by 0.4 feet thick and the frame sets overall measure 1.2 feet wide with a 1.4 feet spacing. With triple frames, individual futtocks measure 0.4 feet wide by 0.4 feet thick and the frame sets overall measure 1.2 feet with a 0.7 feet spacing. The hull is through bolted and peened on the exterior of the vessel.

The deck shelf is visible on the port side from 12 feet to 24 feet along the baseline. It is 1.7 feet wide and 0.2 feet thick. This section of deck shelf is cut with 0.6 feet long by 0.5 feet wide slots for bulwark stanchions, measuring 0.3 feet long by 0.2 feet wide, could pass through. Extant bulwark stanchions near the stern measure 0.4 feet long by 0.3 feet wide. Bulwark stanchions in the forward portion of the ship are spaced 1.4 to 1.8 feet, but near the center they are spaced 1.8 to 2.1 feet and toward the stern they are spaced 2.1 to 2.4 feet. One hanging knee was visible above the sand located at 8.0 feet on the port side. It measures 2.3 feet long by 1.7 feet tall by

0.3 feet thick and is 1.0 foot across the throat. Another section of deck shelf is visible on starboard side from 116 feet to 135 feet along the baseline to the end of the vessel. This section of deck shelf is rabbeted 0.1 feet deep to accept deck beams. One deck beam is visible above the sand on the starboard side at 121.6 feet along the baseline and measures 0.9 feet wide, 0.4 feet thick with 9.1 feet exposed. The centerboard trunk was not exposed from the sand at the time of the survey. A Wisconsin Historical Society volunteer returned to the site two days after the survey was completed and dug a hole 60 feet aft of the stempost to discover evidence of the centerboard trunk, however no measurements were taken. Given the upright nature of the trunk, the trunk may remain attached to the keelson beneath the sand. As the depth of hold of the vessel is 9.5 feet and depth of the hole that was dug was approximately 3 feet, it is estimated that 12 feet of sand cover the center section of site.

Figure 12: *Tubal Cain*'s starboard side hull, frames, deck shelf and deck beam (Randy Wallander)

Evidence of two of *Tubal Cain's* three masts remains on the site. Chainplates are extant on the port side only and are located near the bow and close to the stern. Two extant chainplates at 34.7 feet and 46.6 feet would have supported the foremast. The plates measure 0.7 feet wide at the upper extent and 0.06 feet thick extending 2.2 feet out of the sand. The three extant chainplates located at 109.4 feet, 111.8 feet, and 113.7 feet along the baseline would have supported the mizzenmast. The plates also measure 0.7 feet wide at the upper extent and 0.06 feet thick, but extend 4 feet out of the sand. The forward two chainplates in this set hold deadeyes that measure 1.1 feet wide by 0.8 feet thick.

The sternpost measures 0.8 feet wide by 1.3 feet thick with a 0.2 feet deep groove on the aft edge to receive the rudder post. Evidence of Tubal Cain's transom is not extant however. Given the nature of the surrounding bottom substrate, it is like to be covered and nearby.

Figure 13: *Tubal Cain*'s chainplates with deadeye and bulwark stanchions protrude from the sand (Randy Wallander)

No known records indicate that any artifacts associated *Tubal Cain* were salvaged after her sinking, so the probability that many other items remain buried in the surrounding quicksand remains high. The archaeological data collected during the 2016 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.

Figure 14: *Tubal Cain*'s sternpost (Randy Wallander)

Figure 15. Site plan of the *Tubal Cain* wreck site

CHAPTER FOUR
SCHOONER-RIGGED CANALLER *GRACE A. CHANNON*

Grace Channon Operational History

The canaller *Grace A. Channon* was launched into the Saginaw River on 21 July 1873 from the shipyard of W.S. Ellinwood & Co. in East Saginaw, Michigan. She was built for Henry Channon and Henry L. Graham of Chicago, and named for Channon's ten-year-old daughter. It took an additional eight days to finish fitting out the ship. Upon her enrollment on 29 July at Port Huron, Michigan her builder, W.S. Ellinwood of Detroit, retained ownership of the vessel. Additionally, Mr. Ellinwood was entered as Master, and Detroit became the ship's homeport. The ship's official number was assigned as 85309. The vessel was described as schooner-rigged with three masts, a single deck, square stern and a figurehead. The ship, designed for transit of the Welland Canal, measured 140 6/10 feet in length, 26 2/10 feet in breadth, with an 11 5/10 feet depth of hold. Her total tonnage was measured as 265 tons 99/100 tons, of which 248.89 tons were calculated as capacity under the tonnage deck and 17.10 tons capacity of enclosures on her upper deck (Bureau of Navigation 1873a; Polk 1884; *Saginaw Morning Herald* 1873).

The ship was moved to Chicago in anticipation of being received by her intended owners. By 18 August 1873 full payment for the new ship had not yet been received, conceivably either from a lack of available funds by the buyers or because of a dispute over the build of the ship, W.S. Ellinwood transferred title to Joseph B. Scott and Hiram L. Brown, principals in the ship brokerage firm of Scott & Brown of Detroit, Michigan. Captain Simon Murray, the ships' husband and Master surrendered her initial temporary enrollment document at the Port of Chicago and another temporary enrollment was taken out for the purpose described as "changing owners while away from her home district". Joseph B. Scott and Hiram L. Brown were then listed as *Grace A. Channon*'s equal half owners. Her homeport remained Detroit, and Captain Murray was listed as her Master (Bureau of Navigation 1873a, 1873b; Weeks 1875).

On 21 August 1873, *Grace A. Channon* took on board a cargo of 19,200 bushels of wheat and departed Chicago for Buffalo. The ship delivered her cargo a little over a week later, although her arrival at the port went unreported in newsprint. *Grace A. Channon* was chartered to carry coal from Buffalo at $1.12 ½ per ton and departed the next day for Chicago (*Buffalo Daily Courier* 1873; *Chicago Daily Tribune* 1873).

Upon her arrival at the Port of Chicago on 3 September 1873, Captain Simon Murray surrendered the ship's enrollment document. A new and permanent enrollment was entered transferring ownership of *Grace A. Channon* at last to Henry Channon and Henry L. Graham as equal partners. Chicago became the vessel's new homeport (Bureau of Navigation 1873b, 1873b). The transfer reportedly cost the new owners $21,600 (*Chicago Daily Tribune* 1873b; *Detroit Free Press* 1873).

On 26 September *Grace A. Channon* entered the Welland Canal at Port Colborne, Ontario on her first trip down bound to Lake Ontario. She arrived at Oswego, New York light on 3 October and returned to Chicago with a cargo of coal on 19 October (*Chicago Daily Tribune* 1873c, 1873d; *Daily News* 1873; *Oswego Daily Times* 1873).

It is presumed that *Grace A. Channon* spent her first winter laid up in Chicago. On 4 May 1874, the ship cleared Chicago with 19,044 bushels of wheat bound for Kingston, Ontario. The ship arrived at Kingston on 21 May and offloaded her wheat at the Montreal Transportation Co. warehouse before departing for Oswego. At Oswego she loaded coal and began her up bound trip to Chicago arriving back into that port on 11 June (*Buffalo Daily Courier* 1874a, *Chicago Daily Tribune* 1874a; *Daily News* 1874; *Inter Ocean* 1874a, 1874b).

Grace A. Channon was contracted to take wheat from Milwaukee to Port Colburne, Ontario at $0.04 per bushel. She departed Milwaukee on 22 June and arrived at the Port Colborne elevator on 3 July (*Buffalo Courier* 3 July 1874b, 1874c; *Chicago Daily Tribune* 1874b; *Inter Ocean* 1874c; *Oswego Daily Times* 1874). The ship then proceeded to Cleveland where she loaded coal and arrived at Chicago on 16 July (*Chicago Daily Tribune* 1874c). In August 1874, *Grace A. Channon* hauled lumber from Pensaukee, Wisconsin to Chicago. No other arrivals or departures were found for the 1874-season. By 24 December, the vessel was reported laid up amongst Chicago's winter fleet (*Inter Ocean* 1874d, 1874e).

It is not known when *Grace A. Channon* came out of winter quarters. Early season cargos during 1875 could not be arranged and the vessel sat idle at Chicago for months. On 20 July 1875 the ship was finally chartered on her first trip of the season to carry wheat from Chicago to Ogdensburg, New York at $0.07 per bushel. She cleared Chicago the next day with 19,475 bushels on board. For her return trip to Chicago, she loaded coal at Oswego and cleared that harbor on 9 August (*Inter Ocean* 1875a, 1875b, 1875c, 1875d; *Oswego Daily Times* 1875a, 1875b). In September, *Grace A. Channon* twice called on Alpena, Michigan for cargos of lumber (*Alpena Weekly Argus* 1875a, 1875b).

With shipments in short supply, her owners began looking at the possibility of moving *Grace A. Channon* into ocean service. On 30 September 1875, Henry Cannon took out an ad in the *Chicago Tribune* soliciting cargos of "black walnut, white wood, or oak staves" that could be transported aboard the vessel to San Francisco (*Chicago Daily Tribune* 1875a). Relocation of the ship did not occur in 1875, however. On 11 October *Grace A. Channon* was chartered to carry 19,000 bushels of wheat from Sheboygan, Wisconsin to Buffalo at $0.03 ¼ per bushel. She arrived at the elevator at Buffalo on 23 October with a short cargo and Captain Murray was fined $80 for the discrepancy. The ship was loaded with 575 tons of coal the next day and cleared for Chicago (*Buffalo Courier & Republic* 1875; *Buffalo Daily Courier* 1875; *Chicago*

Daily Tribune 1875b, 1875c; *Inter Ocean* 1875e, 1875f). For her final trip of the season, *Grace A. Channon* was chartered on 23 November to haul wheat from Milwaukee to Buffalo at $0.07 per bushel. The vessel laid over in Buffalo for the winter (*Chicago Daily Tribune* 1875d; *Inter Ocean* 1875g).

During the first week of May 1876, *Grace A. Channon* came out of winter quarters in Buffalo and began the ritual of preparation for the season. Her departure from port was anticipated soon thereafter for Chicago. She did not depart, however, until 2 June on her first trip of the season. She had on board a cargo of coal at $0.50 per ton (*Buffalo Daily Courier* 1876a, 1876b; *Buffalo Evening Republic* 1876a; *Chicago Daily Tribune* 1876a, 1876b). Even before his vessel's arrival at Chicago, again, Henry Channon began making noise about relocating the vessel and solicited for freight to carry to Europe (*Buffalo Evening Republic* 1876b; *Inter Ocean* 1876a). Nonetheless, in July *Grace A. Channon* made a trip to the lower lakes to pick up 565 tons of coal for People's Gas Light & Coke Company of Chicago (*Buffalo Daily Courier* 1876c; *Inter Ocean* 1876b). By the end of July notices appeared in the newspapers suggesting that Henry L. Graham sold his one-half share of *Grace A. Channon* to Henry Channon for one dollar, making Henry Channon sole owner. This transfer of ownership, however, was never expressed in the vessel's official documents (*Chicago Daily Tribune* 1876c; *Inter Ocean* 1876c).

On 8 August, the schooner entered the shipyard at the Chicago Dry Dock Company to receive a thorough recaulking and to be fit out for ocean service. The work was completed by the end of the month and again, Henry Channon spoke of the virtues of his handsome ship, indicating that he would soon be sending her on a European trip (*Inter Ocean* 1876d, 1876e; *Cleveland Herald* 1876). The European trip never materialized.

On 12 September 1876, *Grace A. Channon*'s enrollment document was surrendered at the Port of Chicago for change of owners. This transfer was explained in the newspapers as Henry Channon had sold one-half share to Mrs. Ethel F. M. Graham for the cost of one dollar. Since the previous sale, reported only in the newspapers, was never official with respect to the government documents, the paperwork showed that Henry Channon remained one-half owner, but Henry Graham moved his one-half share into his wife's name, Ethel F.M. Graham. The ship's homeport and Master remained unchanged (Bureau of Navigation 1873c, 1876; *Inter Ocean* 1876g). At the time of transfer, *Grace A. Channon* was valued at $13,000 and received an A1 insurance rating (U.S. Merchant Vessel List 1876).

It should be noted that in 1861, Illinois passed the Married Women's Property Act granting wives absolute control over real and personal property brought into, or acquired during marriage (Stowell 2002). Laws initially enacted in order to protect women's dowers, were immediately seized upon as a way to protect business property, like ships, from foreclosure. It became common for men to place assets in their wives' names to avoid bankruptcy, debts and claims,

but also women may have been listed as ship owners so men could borrow more money, not just hide from creditors. Little is know about the Graham's financial history or the impetus behind Ethel Graham's ownership of the *Grace A. Channon*. If we can say no more than Ethel F.M. Graham was taking advantage of her State's rights by owning a ship in the interest of her husband's business, that is still showing the fast evolving Women's Suffrage Movement and her place in it (Basler 1953; Brehm 1987; Evans 1989; Hitchcock, 1881).

Grace A. Channon departed Chicago soon after the ownership transfer to pick up 527 tons of rod iron from the slitting mill in Cleveland. She returned to the lower lakes for two additional trips in September and October (*Buffalo Daily Courier* 1876d; *Inter Ocean* 1876f; *Oswego Daily Times* 1876). In early November, *Grace A. Channon* was chartered to carry bulk salt from Buffalo to Chicago for her last trip of the season. The ship wintered over at Chicago (*Inter Ocean* 1876h).

On 16 April 1877, *Grace A. Channon* was chartered to take 19,138 bushels of corn from Chicago to Kingston at $0.07 per bushel. The ship fitted out, loaded and cleared Chicago on 20 April. She arrived at Kingston on 14 May, unloaded and cleared light for Charlotte, New York where she took on coal for a return trip to Chicago. The ship arrived at Chicago on 2 June 1877 (*British Whig* 1877; *Chicago Daily Tribune* 1877a, 1877b; *Daily News* 1877; *Inter Ocean* 1877a, 1877b, 1877c, 1877d; *Oswego Daily Times* 1877a). On 27 June *Grace A. Channon* called on Apena, Michigan for lumber, hauled at $1.25 per thousand board feet. Upon arrival at Chicago with the cargo of lumber, the ship was delayed at the dock for several days. So lengthy was the delay that Henry Channon asked for demurrage for the vessel's detention at the lumber-market docks. *Grace A. Channon* was chartered to bring 555 tons of coal from Buffalo at $0.50 per ton. The shipment was consigned to E.L. Hadstrom & Co. of Chicago. The vessel took the cargo on board on 22 July and began her trip up bound. Henry L. Graham and his two young sons, Harry and Alexander, came aboard at Buffalo taking passage home to Chicago by water. In addition to the three passengers, onboard were Captain Murray, Mate John Higgins, and S. Conshine, Edward Ennis, James Neville, and William Bishop, seamen. The vessel was noted passing Detroit on 28 July (*Alpena Weekly Argus* 1877; *Chicago Daily Tribune* 1877c, 1877d; *Cleveland Herald* 1877a; *Inter Ocean* 1877e; *Oshkosh Daily Northwestern* 1877a).

On the evening of 2 August 1877 at 9PM, between Milwaukee and Racine and about ten miles out in Lake Michigan, under bright moonlight, and reefed topsails, the crew spotted the lights of a propeller in the distance. The propeller was the *Favorite* of the Menomonee River Lumber Company with three light barges in tow bound for Green Bay. The propeller was on a course a point off from the schooner. A torch on the *Grace A. Channon* was lighted and run forward to illuminate the sails. As the two vessels approached, Captain Murray gave the order to port the helm, at the same time he heard someone on the *Favorite* give an order to bring their vessel hard to starboard. Captain Thomas Hutchinson of the *Favorite* thought the schooner was

keeping out of the steamer's way, and after telling the watchman to keep lookout, he went aft "on a call of a personal nature". The captain came across money in his pocket, which should have been placed in the safe; so he took the time to go to the safe. When he came on deck again, he heard the lookout running along the deck, but could not see *Grace A. Channon*'s lights. The lookout reported that the green light was hidden, and that the red light and the torch were showing. The captain immediately gave the order to starboard. The order came too late, however, and at 10:30PM, the propeller struck the *Grace A. Channon* with a heavy blow to her port side, striking between the fore and main rigging, and penetrating five feet into her hull, cutting down to the waterline. Water immediately poured in and the schooner careened. In less than five minutes from the initial collision, she started down, bow first. As she sank, her headgear and foremast canted to port so that some of her rigging was thrown across the bow of the *Favorite*. The weight of the sinking schooner drew the *Favorite* down several feet before the *Grace A. Channon*'s masts broke (*Chicago Daily Tribune* 1877e; *Daily Milwaukee News* 1877; *Door County Advocate* 1881; *Inter Ocean* 1877f; *Milwaukee Sentinel* 1877a, 1877b, 1877c, 1877d; *Oshkosh Daily Northwestern* 1877b; *Oswego Daily Times* 1877b; *Pantagraph* 1877).

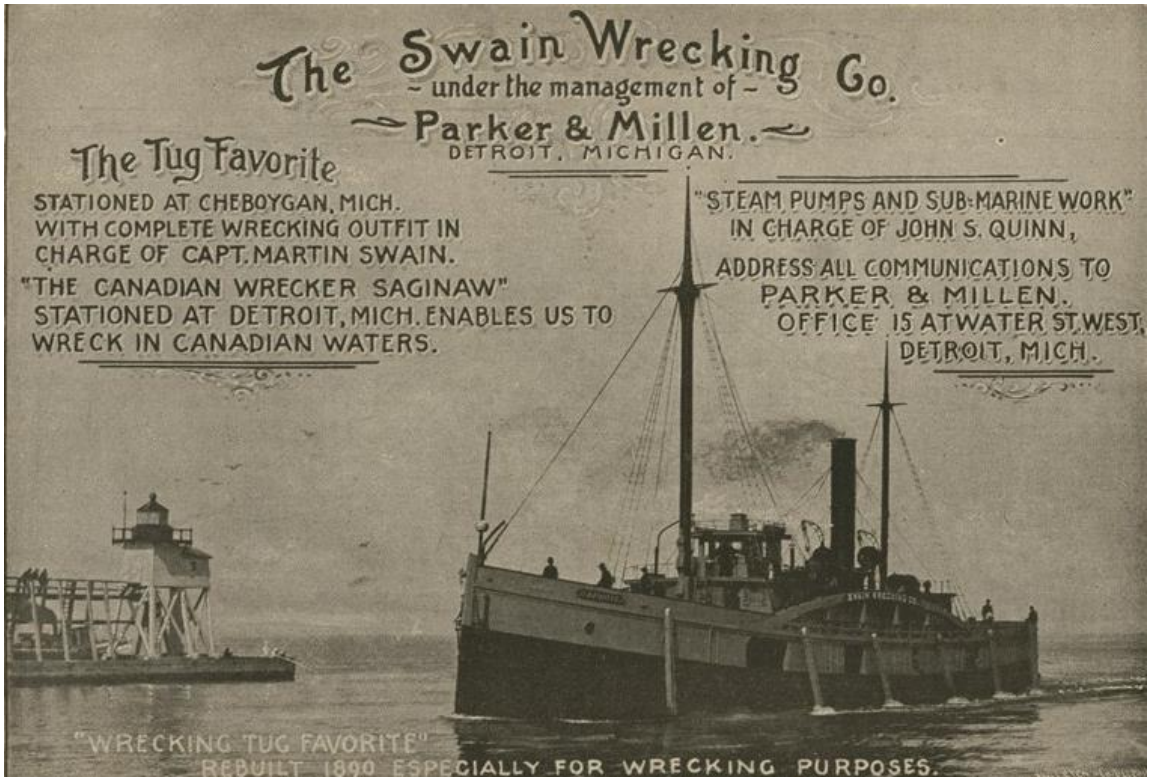


Figure 16. Advertisement for the Tug *Favorite* (Blue Book, 1896)

Henry Graham had his sons by his side just before the crash. Crewman Edward Ennis lowered the yawl boat from the stern davits. Capt. Murray, the Mate, and the rest of the crew jumped overboard in time to escape the vortex created by the sinking vessel. Henry Graham and his nine-year-old son, Harry threw themselves overboard and were saved by the yawl boat, but seven-year-old Alexander Graham became separated from his father and was sucked into the

cabin by the rush of water before he could be rescued, and went down with the ship. Captain Murray had on board with him a pet poodle. The dog jumped overboard before the vessel sank and clung to Captain Murray's neck so tightly that it endangered his life. The captain was able to swim to a fender to keep himself and the animal above water until those in the yawl boat could reach them. Mate John Higgins was the only crewmember not rescued by the yawl, but was rescued by a line thrown to him from the *Favorite*. He was taken into the engineer's room where he received dry clothing. While there he asked if the engineer received any commands to stop or back; he said that he did not. The force of the collision was the only indication by those in the engine room that the accident has occurred (*Chicago Daily Tribune* 1877e; *Daily Milwaukee News* 1877; *Inter Ocean* 1877f; *Milwaukee Sentinel* 1877a, 1877b, 1877c, 1877d; *Oshkosh Daily Northwestern* 1877b; *Oswego Daily Times* 1877b; *Pantagraph* 1877).

The propeller escaped mostly uninjured, save for minor damage in the bow. The *Favorite* remained close to the schooner following the accident and picked up the survivors. They were taken to Milwaukee in the early morning hours of 3 August and boarded a Northwestern Railroad train to Chicago. Following the collision, *Favorite* received extensive bow repairs (*Chicago Daily Tribune* 1877e; *Door County Advocate* 1877a; *Milwaukee Sentinel* 1877b).

Captain Murray entered a protest at the Customs House in Chicago. A few days later, on 13 August, Henry Channon and Ethel F. M. Graham initiated a lawsuit in the United States District Court against the propeller *Favorite* to recover $15,277.50, the cost of the lost schooner and the amount of freight fees she would have earned had the vessel completed her voyage. Kirby-Carpenter Company, owners of the *Favorite* filed a response to the suit denying that they or their employees were to blame and claimed that the collision was entirely the fault of the Captain Murray (*Chicago Daily Tribune* 1877e, 1887f, 1887g; *Cleveland Herald* 1877b; *Door County Advocate* 1877b). On 16 August the *Favorite* was seized by the U.S. Marshal to satisfy the libellant's damages (*Inter Ocean* 1877g). *Grace A. Channon*'s enrollment was ultimately surrendered at the Port of Chicago on 29 September 1877 (Bureau of Navigation 1876).

It was not until 15 February 1878 that Henry Graham filed an intervening suit against the propeller *Favorite* to recover $5,000 damages for the death of his son. The *Favorite* had been appraised at $12,397.80 in August 1877 and at that time, was bonded by the Kirby-Carpenter Company (*Chicago Daily Tribune* 1878; *Inter Ocean* 1881a).

Final judgment on the vessel loss was made in June of 1881. Judge Blodgett of Milwaukee found the *Favorite* at fault. The captain was solely to blame for quitting his post to put the money in the safe, leaving the lookout in command. The aggregate claims against the propeller amounted to nearly $40,000, but the liability was limited by proceedings under an 1877 Act of Congress entitled, "An act to limit the liability of ship-owners," to $12,000 on the value of the propeller and $340 on the freight (*Buffalo Daily Courier* 1881; *Door County Advocate* 1881;

Inter Ocean 1881b, 1881c, 1881d). Damages were later assigned in the Graham suit for the death of Alexander resulted in $1,000, and damage to the insurers of *Grace A. Channon*'s coal cargo resulted in a $2,500 payout (*Inter Ocean* 1882).

The *Grace A. Channon* was located in April 1985 by Kent Belrichard, William Kappelman and John Trumbo; the team promptly removed the vessel's nameboard and several pieces of ironstone china (*Milwaukee Journal* 1985). Despite this initial salvage, the shipwreck retains many artifacts due its depth in over 180 feet of water, placing it outside of recreational diver range.

Site Description

The *Grace Channon* 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 National Register of Historic Places Multiple Property Document, 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 or a triangular, raffee sail. Most Great Lakes schooners were single decked and had only a small cabin structure above the deck.

Figure 17. Location of the *Grace A. Channon* site

The remains of the canaller *Grace A. Channon* sit on a heading of 70 degrees, 12.75 miles northeast of the Bender Park boat launch, in Oak Creek, Wisconsin. The vessel rests in 180 feet of water, with its deck located at 165 feet under the surface of Lake Michigan. The vessel remains on an even keel, and completely intact up to the main deck except for the damage on the vessel's port side from the collision that caused the vessel's sinking. The remains are well preserved due to its great depth in the cold waters of Lake Michigan. All of *Grace A. Channon*'s deck machinery, spars, rigging, and aft cabin structure remain extant on the site.

In July 2016, a Phase II archaeological survey was conducted by Wisconsin Historical Society (WHS) maritime archaeologists and volunteers over the course of eight days. A baseline was attached at the bow and stretched 141.0 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 141.0 feet, and the vessel's beam, measured at her widest point, is 26.2 feet. Given the wreck dimensions, location, and comparison of vessel losses in the vicinity based on historic newspaper accounts, as well as evidence recovered by early divers on the site (nameboards), the vessel remains were determined to belong to the schooner *Grace A. Channon*.

Figure 18. Bow of *Grace A. Channon*

The canaller's bluff bow is apparent with the stempost sitting at 90-degrees to the keel. The depression from the vessel's impact with the lake bottom left a small crater under the bow. The bow of the vessel sits on a 2-degree list to starboard, while the stern sits on a 4-degree list to starboard. The stempost is 1.5 feet sided, 1.5 feet molded, and extends 14.5 feet vertically from the keelson. The vessel's bowsprit remains stepped into the samson post, and features a square housing inside the railing, measuring 10.6 feet in length. It measures 1.15 feet wide and 1.5 feet thick, and extends 0.9 feet forward of the bow railing. Atop the bowsprit, just inboard of the bow railing, 1.8 feet of the jibboom remains. An additional 0.9 feet of the jibboom extends outboard of the forward railing.

The vessel's head knee and cutwater is intricately carved with scrollwork, and now lies in two pieces. The body of the head knee remains attached to the stempost, and measures 2.3 feet at its widest point, tapering down to 0.3 feet wide, and measures 1.0 feet thick. The arm of the head knee remains attached to the broken section of the bowsprit and jibboom. It measures 1.0 feet thick, 1.9 feet at its widest point. The vessel was equipped with a scroll head, which would have been located at the end of the arm of the head knee, but it has yet to be located on the site.

The rest of the bowsprit lies along the starboard side of the ship with its end entangled in the remains of the head rigging, keeping it elevated near the main rail. This section of the bowsprit is round and extends 15.1 feet in length, measuring 1.15 feet in diameter, and remains attached to the jibboom. Forward of the end of the bowsprit, the jibboom is broken yet again, and lies in the sand, off the vessel's starboard side. This section of the jibboom measures 33.4 feet in length and 1.0 feet in diameter near its broken end. The jibboom tapers at its other end to 0.15 feet in diameter. Two iron rings are located 2.0 feet from the end of the jibboom, one of which still has head rigging attached. Additionally, a rectangular hole, approximately 0.7 feet long, is located 18.5 feet from the broken end of the jibboom. A single piece of wire rigging runs through the hole.

The vessel's martingale is located across the vessel's bow, tangled in head rigging. The direction and angle of this piece and head rigging corroborate accounts that *Grace A. Channon*'s list placed its head rigging onto the bow of the propeller *Favorite* as the vessel descended. With no orders to reverse, *Favorite* continued moving forward as *Grace A, Channon*'s bow sank below the surface, pulling the head rigging with it before the foremast and bowsprit broke, allowing both to fall to the starboard side of the vessel on the lakebed.

There is an additional, unidentified spar lying across *Grace A. Channon*'s bow, that is also tangled in head rigging. This spar may be the remains of *Favorite*'s steering pole, which could have broken as *Grace A. Channon*'s head rigging detached from *Favorite*'s bow, and remained caught in the rigging as the vessel sank. Following the collision with *Grace A. Channon*, it was

reported that *Favorite* experienced major damage to its bow, which required an extensive reconstruction, though it is not known what specifically was damaged.

Grace A. Channon's bow possesses a U-shaped metal rod that extends across the very forward section of the bow railing. This rod is located 2.2 feet aft of the stempost, and measures 0.2 feet in diameter. The rod extends across the ship's width 4.8 feet, over the railing, and 1.7 feet down from the railing top through two iron eyelets, which measure 0.4 feet in diameter, with a 0.2 foot diameter opening for the bar to be secured through. The rod itself is bent inward (away from the bow) slightly starboard of the ship's centerline. This damage likely occurred during the sinking, when the bowsprit broke, while the head rigging of *Grace A. Channon* was tangled on the bow of the propeller *Favorite*. The port side of the rod no longer extends through the eyelet, while the starboard side of the rod remains attached. This rod is a feature unique to *Grace A. Channon* and has yet to be identified on any other canallers in Wisconsin waters, but as in other canallers, this rod could be lifted, along with a section of railing, so the bowsprit could be hoisted upwards by the rigging when transiting the canal locks. This allowed the vessel to be built larger, maximizing its carrying capacity to allow for more clearance in the locks.

Figure 19: U-shaped bar on *Grace A. Channon*'s bow

The *Grace A. Channon* is equipped with a small weather deck that extends from the stempost to 11.6 feet along the centerline of the ship, which remains intact over the windlass deck. Unlike many forward weather decks, *Grace A. Channon*'s is V-shaped along its aft end, extending from the samson post to the catheads, 2.1 feet forward along the baseline. It is comprised of deck planks measuring 0.4 feet wide and 0.15 feet thick. The catheads themselves measure 0.7

feet wide and 0.8 feet thick, and extend 2.8 feet from the inside of the main rail. The catheads both feature an iron hinge on the inside of the rail that measures 0.2 feet in diameter. These hinges are located on top of the catheads, which are made of two separate timbers. Yet another feature unique to canallers, these hinges allowed the catheads to be flipped inboard of the railing, along with the attached anchors, allowing the canaller to fit through the Welland Canal locks. Although not initially identified on other canaller vessels, it is apparent that this was a common feature on these vessels, allowing a ship that measured 26.2 feet in beam, to fit through a canal lock that measured only 26.6 feet wide.

Figure 20: *Grace A. Channon*'s port side wooden stock anchor and hinged cathead

Both of *Grace A. Channon*'s wooden stock anchors remain extant on the site, and in remarkable condition, attached to the catheads. Both port and starboard anchors are of the same measurements. The iron anchor shaft measures 5.6 feet long, and both arms, measured from bill (fluke tip) to bill, measures 5.2 feet. The flukes measure 1.4 feet wide, and 1.4 feet from arm to bill. The anchor's eye measures 0.6 feet in diameter, and has a depth of 0.7 feet. An anchor ring goes through the eye, and is attached to the anchor chain. This ring measures 0.2 feet thick, and is 1.2 feet in outer diameter. The anchor's stock is made of wood and measures 10.8 feet from end to end. At the shaft, the stock measures 1.2 feet in diameter, and tapers to 0.7 feet in diameter at both ends. Each anchor's shaft hangs outboard of the ship's railing and is attached to the catheads. The body of the anchor, however, sits atop the railing and extends over the main deck, as was common on sailing vessels. The anchor's arm is held upright, so it is level with the

top of the bulwarks, by a small wooden board, measuring 0.3 feet wide, 0.1 feet thick, and 4.5 feet tall. This feature can be seen on the vessel's port side, but the starboard side board is obscured by built up clay, quagga muscles, and rigging.

The anchor chain remains present, and extends out of the vessel's hawsepipes, which are located 2.5 feet aft of the stempost. These measure 1.3 feet wide and 1.2 feet tall in outer dimensions, and are lined with iron, measuring 0.4 feet wide. The links of the chain measure 0.5 feet long, and 0.3 feet wide, and are made of iron 0.1 feet thick. Each link contains an iron stud in its center measuring 0.1 feet wide. These studs added strength to the anchor chain.

The forward edge of the vessel's samson post is located 10.6 feet along the baseline. Since the bowsprit remains intact, stepped inside the samson post, it is difficult to determine the shape of the mortise for the bowsprit's heel tenon. The mortise measures 1.5 feet in height, and 0.5 feet wide, and is likely concave in shape, which corresponds to the same convex curve on the heel tenon of the bowsprit. This component is indicative of a canaller, and would have allowed the bowsprit to be raised while the vessel was traversing the Welland Canal. The samson post itself measures 1.5 feet molded by 1.5 feet sided and rises 4.5 feet above the deck.

Figure 21. Spar lies across *Grace A. Channon*'s weather deck and windlass

Grace A. Channon's windlass remains intact just aft of the samson post, 12.1 feet along the baseline, and measures 13.1 feet in overall length. The iron crosshead is still attached to the forward side of the samson post, and measures 3.0 feet long, 0.3 feet wide, and 0.4 feet thick. The two purchase rods connecting the crosshead to the purchase rims are also extant. The

windlass' strongback is not attached to either the carrick bitts or the pawl. The windlass ends (gypsy heads) are 1.8 feet wide and 1.2 feet in diameter on end while the carrick bitts are 1.5 feet by 0.9 feet and stand 3.0 feet above the deck. A standard knee supports each carrick bitt and measures 0.4 feet wide, 3.0 feet along the main deck, and extends 2.7 feet in height. The carrick bitt cheeks measure 1.0 feet wide by 0.9 feet thick. The pawl rim measures 2.4 feet from the samson post to its aft extent, and 0.7 feet wide. The purchase rims are 0.4 feet wide by 0.2 feet thick and made of iron. The central barrel in which the pawl rests is 1.5 feet wide and the windlass barrels measure 2.5 feet long 0.2 feet wide and 0.3 feet thick. Both port and starboard side anchor chain is wrapped one time around the windlass, and extends into the port and starboard chain pots (chain-pipe holes), located 2.0 feet aft of the windlass. These are holes that lead into the chain locker allowing the chain to be stored below decks. These chain pots are oval in shape and measure 1.0 feet by 0.8 feet, with a rim that stands 0.2 feet above the main deck which is fastened to the deck with bolts.

Figure 22. *Grace A. Channon*'s sampson post, windlass and forecastle scuttle

Just aft of the windlass, 15.2 feet aft of the samson post, is the vessel's forecastle scuttle. Centered 1.5 feet from each chain pot, it measures 2.0 feet long by 2.0 feet wide, and has a combing on all four sides, which rises 0.7 feet above the deck and 1.0 feet from its upper extent into the hatchway. The combing measures 0.2 feet in thickness. No evidence of an aft facing companionway covering the entrance to the chain locker exists on *Grace A. Channon* as in many other similar vessels. The forecastle scuttle ladder remains extant, leading down into the

scuttle, allowing access to the chain locker and forecastle. The ladder has been slightly dislodged, which likely happened during the sinking. It was common on vessels of this time period for the forecastle to be used as berthing for crewmembers during a voyage. As the remaining cargo of coal inside the hull has pushed against the forecastle bulkhead, investigations and identification of any artifacts inside the forecastle were not possible during the survey, but it is likely that additional cultural materials are located in this area. No excavation of the sand or cargo was conducted during the survey.

The main rail is intact around the entire perimeter of the deck except for the section of the port side damaged by the vessel's collision with *Favorite*. It measures 1.4 feet wide, and 0.2 feet thick. The rail rises 1.3 feet above the weather deck in the bow, 3.7 feet at midships, and 1.1 feet in the area of the cabin at the stern. A rail cap is also extant atop the main rail. The cap measures 0.5 feet wide, and 0.1 feet thick, and sits 0.6 feet above a secondary cap that measures 1.4 feet wide and 0.2 feet thick. The rail is supported by bulwark stanchions 0.55 feet sided by 0.55 feet molded, with a spacing of 5.0 feet between stanchions. The outer bulwark planking is missing along most of the perimeter of the ship at the weather deck however, where it is extant, it is a single plank 0.8 feet tall by 0.2 feet thick, and is 1.8 feet above the deck. The inner bulwark planking is also extant in a number of places where it is to be found directly beneath the rail, measuring 0.8 feet high, and 0.2 feet thick.

Figure 23. Centerboard winch on the deck of *Grace A. Channon*

There are ten mooring bitts in total installed on the ship along both sides of the deck – a set at the bow located forward of the fore chainplates, 16.5 feet along the baseline, another amidships just forward of the centerboard winch at 62.4 feet along the baseline, and another just forward of the cabin at the stern at 182.8 feet along the baseline. Each bitt is paired except the bits located amidships on both the port and starboard sides, which are single bitts. All of the bitts are fastened to the inside of the bulwark stanchions. Each bitt is 0.55 feet thick, 0.8 wide, and rises 4.5 feet above deck level. The forward pair of bits measure 1.3 feet spaced, while the aft pair measures 2.3 feet spaced. Iron rings are extant on each bitt, located 1.5 feet above the deck. These rings measure 0.6 feet in outer diameter, 0.4 feet in inner diameter, and are 0.1 feet thick. The aft bitt pairs on the port and starboard sides contain the only extant scuppers between them. A single, short plank 2.3 feet long, and 1.5 feet in height spans the gap between the bitts and contains the scuppers. The scuppers measure 1.0 feet wide, 0.35 feet tall, and have a 0.3 foot wide rim around them. They measure 0.9 feet thick, spanning the width of the entire bulwark.

Figure 24. Damage near *Grace A. Channon*'s bow caused by the propeller *Favorite*

Two separate single bitts are located along the centerline of the ship at 62.4 feet and 105.4 feet aft of the bow. These bitts are located forward of the foremast and forward of the mainmast, measuring 0.9 feet long by 0.9 feet wide, and rises 4.4 feet above the deck. Wooden arms extend 0.9 feet from either side of the bitt latterly to form a cleat. These arms measure 0.25 feet thick and are located 1.4 feet above the deck on the bitts. Just forward of both centerline bitts is

a U-shaped iron traveler, measuring 2.0 feet wide, 0.5 feet tall, and 0.15 feet in diameter. Both have blocks attached. An additional iron traveler, of the same dimensions, is located at the stern, attached to the stern rail atop the transom. A block would have been attached to each of these, and were used to maneuver the boom and sail while underway. While not under sail, this bitt and traveler combination was used to secure the booms so they would not swing freely.
The vessel's outer hull planking varies between the topside planks that would have been above the waterline, and those below the turn of the bilge. The topside planks measure 0.6 feet wide by 0.15 feet thick, while the planks at and below the turn of the bilge measure 0.75 feet wide, and 0.15 feet thick. The ceiling planking measures 1.1 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 frame sets, with the individual futtocks measuring 0.4 feet wide by 0.8 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 foot centers and are 0.1 feet in diameter. The overall thickness of the hull is 1.4 feet thick. White caulking remains extant between the outer hull planks, and there is evidence of white paint on some of the outer hull planking.

The deck of *Grace A. Channon* is almost entirely intact except for the port side where the propeller *Favorite*'s bow tore into the hull almost to the vessel's centerline at the forward cargo hatch, between 35.2 and 42.5 feet along the baseline. The deck is buckled in an additional area forward of the foremast, at 24.2 feet along the baseline. This buckle extends from the portside railing, to the starboard side railing. The deck was likely weakened when the foremast broke, and broke from the impact of the vessel with the hard clay bottom. The deck planks measure 0.35 feet wide and 0.15 feet thick. In general the deck planking remains very tightly caulked. *Grace A. Channon* has two rub rails running from the stempost to the transom, located 0.5 feet below the bulwarks. This rubbing strake measures 0.8 feet wide, and 0.1 feet thick. A second rubbing strake is also present, located on the outboard side of the main rail. This rub strake measures 0.4 feet wide and 0.4 feet thick.

Grace A. Channon featured two bilge pumps that remain extant on the vessel's deck. The forward bilge pump is located 22.2 feet aft of the bow and 4.2 feet aft of the forecastle scuttle. This pump is a two-cylinder force pump (dual action bilge pump) with a central holding chamber. The pump measures 2.3 feet wide and stands 2.3 feet above the deck. The central holding chamber measures 0.8 feet wide and 1.2 feet tall, with each cylinder measuring 0.7 feet in diameter. An additional dual action bilge pump is located 75.7 feet aft of the stempost and 3.7 feet aft of the mainmast. This pump is of the same dimensions as the forward bilge pump.

Additionally, the vessel's capstan remains on the main deck. The capstan measures 2.0 feet in diameter at its base and stands 2.6 feet in height above the deck. The capstan drum measures 1.2 feet long and 1.0 feet in diameter. The drum cap measures 0.6 feet tall and 1.5 feet in diameter.

Below this, the base of the capstan measures 0.2 feet thick and has a pawl rim at its base measuring 2.1 feet in diameter and 0.1 feet thick. The bolts used to fasten the capstan to the deck remain extant and measure 0.1 feet in diameter and 0.4 feet long.

Four cargo hatches allowed access to the hold. The forward and aft hatches are the largest with the two hatches amidships of slightly smaller construction. The foreword most cargo hatch, located 35.2 feet aft of the stempost, measures 8.6 feet wide and 6.7 feet long, while the aft most cargo hatch, located 94.4 feet along the baseline, measures only 7.5 feet wide and 6.6 feet long. The second hatch, located 54.4 feet aft of the stempost, measures 8.0 feet wide and 4.6 feet long, while the third hatch, located 77.7 feet along the baseline, measures 7.2 feet wide and 4.0 feet long. The difference in the dimensions of these two amidships hatches are due to the hatch cover being extant on the second hatch. This extant hatch cover allows us to examine hatch cover construction. In many cases, escaping air during a vessel's sinking causes hatch covers (and cabin roofs) to blow out, leaving hatchways open. In the case of *Grace A. Channon*, the massive collision damage on the vessel's port side allowed the air to escape, and allowed one of the cargo hatches to remain in place. As one of the few examples of an intact cargo hatch, this provides vital information.

Figure 25. *Grace A. Channon*'s single, covered cargo hatch

The extant hatch cover is cambered and measures 1.2 feet in height at its center, and 0.9 feet high at both the port and starboard edges. The hatch is made of 11 planks measuring 0.2 feet in width that run longitudinally along the ship's length. An iron strap extends longitudinally as well, along the center of the hatch cover, which measures 0.2 feet wide and 0.05 feet thick. The iron strap is latched to two iron plates at the fore and aft ends of the hatch cover. These plates measure 0.25 feet wide and 0.05 feet thick. It appears that this was the main latching mechanism for the hatch covers. This iron strap and plate latch system is extant on the two aft most cargo hatches, though the hatch covers were dislodged by the air escaping from the hold. The iron strap on the forward most cargo hatch no longer remains, though evidence of the aft facing iron plate latch is extant. This cargo hatch was likely completely dislodged during the collision with *Favorite*. All four cargo hatch combings are identical in construction with the head ledge at both ends butt-scarphed to the coaming. The coamings extend 0.8 feet above the deck with an interior height of 1.5 feet along the coamings (port and starboard coamings), and 1.8 feet at the tallest point of the head ledges (fore and aft facing).

Below decks there is a single hold in which the deck beams are of the same size, measuring 0.65 feet molded and 0.5 feet sided and spanning the breadth of the vessel, except where the cargo hatches are located. The spacing between deck beams remains consistent throughout the vessel at 2.3 feet. The beams are supported by hanging knees 0.5 feet wide with an arm length of 1.8 feet and body 3.2 feet long. Although each knee supports a deck beam, not every deck beam has a corresponding hanging knee extant. The vessel's deck beams are supported by stanchions running along the vessel's keelson. These measure 0.6 feet sided and 0.5 feet molded. There is no visible hogging arch present inside the hull. Toward the bow a bulkhead ran athwarthships separating the forecastle from the cargo hold. Access to the forecastle is not possible due to the coal cargo mounted up against this forward bulkhead. Although it is not possible to investigate beyond the bulkhead, this is where the crew's quarters and chain locker would have been located.

The *Grace A. Channon* carried a single centerboard located on the vessel's centerline. The centerboard trunk is 24.5 feet long and starts 44.1 feet along the baseline, and measures 1.6 feet wide. Eight boards are visible above the cargo of coal. The boards measure 0.8 feet wide and 0.5 feet thick. The forward and aft ends of the centerboard trunk are capped with a timber measuring 0.4 feet in width. The pivot pin was not visible at the time of the survey due to cargo remaining in the hold. It is likely that it still remains extant on the site, preserved beneath layers of coal and silt. The centerboard is not visible within the trunk due to the accumulation of silt and mussel shells within the trunk. The centerboard winch is extant on the deck just aft of the hatch amidships. Chain remains wrapped around the spool of the centerboard winch. The winch is 3.0 feet in height above the deck, and measures 2.1 feet wide and 1.6 feet long at its base. The chain spool is 1.1 feet above the deck, measured on center. It is difficult to discern how many turns of chain are wrapped around the winch, and without further information it is impossible to

tell if the centerboard is extended or stowed. Just aft of the centerboard is the lower section of the mainmast, which measures 2.0 feet in diameter, measured just above where it extends into the coal cargo. Aft of the mainmast, extending 5.5 feet to the third cargo hatch opening is a longitudinal bulkhead, located atop the keelson. This bulkhead is made up of planks measuring 0.8 feet wide and 0.15 feet thick.

The stern cabin is readily discernable on deck, and remains largely intact. The cabin is not rectangular, measuring 15.0 feet wide, and 20.0 feet long. Each corner of the cabin is supported by a timber that has had its outward facing corner cut, creating a rhombus shape. These measure 0.3 feet molded, and have a sided dimension of 0.6 feet tapering to 0.2 feet. With no structural purpose, these were likely crafted in this manor for visual appeal. Although the floor planking survived intact during the sinking, a thick layer of debris and artifacts covered in silt obscure it from view. The walls of the cabin remain, and extend 3.3 feet above the stern deck, and 6.2 feet above the main deck. The cabin is planked horizontally on its exterior, with planks measuring 0.3 feet wide and 0.1 feet thick. The interior of the cabin is lined with vertical planks of the same dimensions. Although many of the exterior planks remain, many of the interior planks have fallen within the cabin structure. The cabin walls are supported by vertical frames measuring 0.3 feet sided and 0.4 feet molded, and are spaced 1.7 feet apart. Intermittently, horizontal studs extend between two frames. These studs measure 0.3 feet wide and 0.2 feet thick and may be evidence of repairs.

Figure 26. Interior of *Grace. A. Channon*'s cabin with stove and marine head aft along port wall

Much of the cabin roof remains extant on the site as well. The roof is composed of a double layer of planks, all featuring tongue and groove edges. The planks measure 0.5 feet wide, 0.1 feet thick, and the seams of the two layers are offset. This was done to make the cabin roof as water tight as possible. The roof planks extend 1.3 feet forward of the forward facing cabin wall, creating a slight overhang. These planks sit atop support beams measuring 0.3 feet wide and 0.3 feet thick, and have a spacing of 2.2 feet. The aft most support beam now lies within the cabin. The edges of the roof are equipped with a top plate, or roof shelf, which supports the roof beams. This top plate measures 0.5 feet thick and 0.3 feet wide, and is tapered to 0.2 feet thick on the interior edge where it is fastened to the roof beams. Unfortunately, within the last five to ten years, some of the roof planks have been removed by divers to allow easier access to the interior of the cabin, and the artifacts that lie within.

The interior of the cabin is largely in disarray and covered in a thick layer of silt. Through the silt, however, it is possible to identify some of the artifacts extant on the site. The cabin's stern door now lies atop the silt near the cabin's missing aft wall. The door measures 5.5 feet in length (height), 1.8 feet wide, and 0.2 feet thick. The door is a two-paneled door, with the top and side rails measuring 0.3 feet wide, and the lock rail measuring 0.5 feet wide. Additionally, the cabin's stove remains extant on the port side of the cabin, near its forward wall. The cabin's marine head (toilet bowl) can also still be identified sticking up out of the debris and silt. It is located along the cabin's port wall, near the aft of the cabin. Additional artifacts likely remain preserved beneath the thick layer of debris and silt.

Located 133.5 feet on the baseline and aft of the stern cabin is a stern scuttle, measuring 2.6 feet long and 1.4 feet wide. The scuttle's combing measures 0.15 feet thick, and rises 0.7 feet above the aft deck, with the interior facing combing measures 1.0 feet wide. This scuttle would have given access to the steering mechanisms, rudder chain components, and rudderpost within the hull.

The center of the rudderpost is located 135.2 feet on the baseline. The rudderpost is 1.1 feet in diameter and rises 2.5 feet above the deck. The vessel was steered with a wheel that was mounted to the aft deck and connected to the worm gear. The wheel no longer remains on the site, but the wooden spindle on which the wheel would have turned does remain, and extends 1.8 feet forward of the wheel stand. The spindle measures 0.2 feet in diameter, and extends 3.0 feet in length between the fore and aft standards. The forward standard of the wheel stand is located 133.5 on the baseline with the rear standard 136.1 feet aft of the bow. Both standards are 0.4 feet thick, 2.0 feet wide at top, 1.2 feet wide at the deck and stand 2.5 feet above the deck. An additional two support timbers extend between the fore and aft standards. These measure 0.4 feet square, and are located 1.0 feet above the deck.

The rudder is turned to starboard and is 10.2 feet tall, 1.0 feet thick, and extends 3.3 feet aft of the rudderpost at its widest part. The blade is constructed from vertical timbers attached to the rudderpost. Although broken, a section of the vessel's preventer remains attached to the rudder, 4.1 feet below the top of the rudder. This metal strap measures 0.2 feet wide and 0.05 feet thick. The sternpost is not raked and sits at 90 degrees to the keel. It is 1.0 feet sided by 1.0 feet molded.

The transom is angled at 30 degrees and is 18.1 feet wide at the rail. The transom railing measures 0.55 feet wide, and is 0.7 feet above the stern deck. Two stern knees are readily apparent where the sides of the hull connect to the vessel's fashion timbers. These knees rise 0.1 feet above the stern deck, with an arm length of 3.8 feet and arm thickness of 0.2 feet, and measuring 1.5 feet at its widest point. The body of both knees extends across the entire width of the transom, measuring 0.5 feet in thickness.

Figure 27. Diagonal decorative planking on *Grace A. Channon*'s transom

Centered on each knee is an iron ring that measures 0.6 feet in outer diameter, and 0.4 feet in inner diameter, and is 0.1 feet thick. These are fastened to the knees with eyebolts measuring 0.2 feet wide. These correspond to two sets of fairleads on both the starboard and port sides of the transom railing. These fairleads measure 0.5 feet in overall width, with an opening of 0.35 feet, and are spaced 1.2 feet apart. The fairleads and iron rings were likely used for maneuvering and launching the vessel's yawl boat. Additionally, three wooden cleats adorn the stern deck,

located just inboard of the transom railing. These measure 2.0 feet wide, 0.2 feet thick, and stand 0.35 feet off the deck. The port and starboard cleats are located 1.6 feet from the bulwarks, measured on center, and are located evenly between the two sets of fairleads on the transom railing. The third cleat is located along the ship's centerline. A short section of an iron-impregnated line, 0.1 feet in diameter, remains wrapped around this central cleat. Additionally, a single brass lantern sits on the port quarter of the aft deck. The main body of the lantern measures 0.5 feet in height, and is rounded, with a diameter of 0.4 feet. The lantern has a hinged arm and a wick still in place. It is not known where this artifact originated, but it was likely pulled from the interior of the cabin by divers and set on the deck.

The outside of the transom is unique, as it features decorative, diagonal planking. These planks measure 0.25 feet wide and only 0.08 feet thick, and are angled upward from the lower corners of the transom to meet at the transom's centerline, forming a chevron pattern. Two of these planks have been dislodged, revealing horizontal planks running underneath. These planks measure 0.8 feet wide. Most sailing vessels feature this simple, horizontal transom planking, but *Grace A. Channon* was outfit with diagonal planking for purely decorative purposes. The transom also features two port lights located 3.0 feet below the transom railing. These measure 1.0 feet wide and 1.2 feet in height, and they are spaced 9.6 feet apart, each 4.8 feet away from the centerline of the ship. No glass remains extant within the holes.

Figure 28. Folding davit atop *Grace A. Channon*'s port side railing

At the stern, the vessel's two folding davits are extant. These would have been used to store, raise, and lower the vessel's yawl boat. One remains in place on the vessel's stern, folded inward, while the other now lies in the sand off the starboard side of the vessel. The davits measure 5.0 feet long from their hinges, 0.7 feet wide, and 0.45 feet thick. These davits were hinged on the topside so they could be lifted up, and stowed along the aft main rail. The hinge measures 0.2 feet in diameter, and is located 0.4 feet inboard of the transom allowing the upper arm of the davit to rest on this section of railing when extended. The davit features a heel tenon, measuring 0.1 feet wide that fits into a corresponding mortise cut into the aft end of the railing to prevent the davit from becoming dislodged or swinging during rough weather while in use. The ends of the davits feature a built in sheave that would have allowed the yawl boat to be raised and lowered when needed. Additionally, the railing features a 0.15 feet diameter circular mortise that corresponds to a 0.15 feet diameter peg on the top of each davit. This small feature was likely used to secure the davits in place while storing the yawl on deck or while going through the Welland Canal locks. Just forward of these davits are two wooden posts that rise 2.0 feet above the railing, and measure 0.1 feet in diameter. At the time of the survey it was not possible to determine what these were used for, but they were likely associated with the davits and yawl boat.

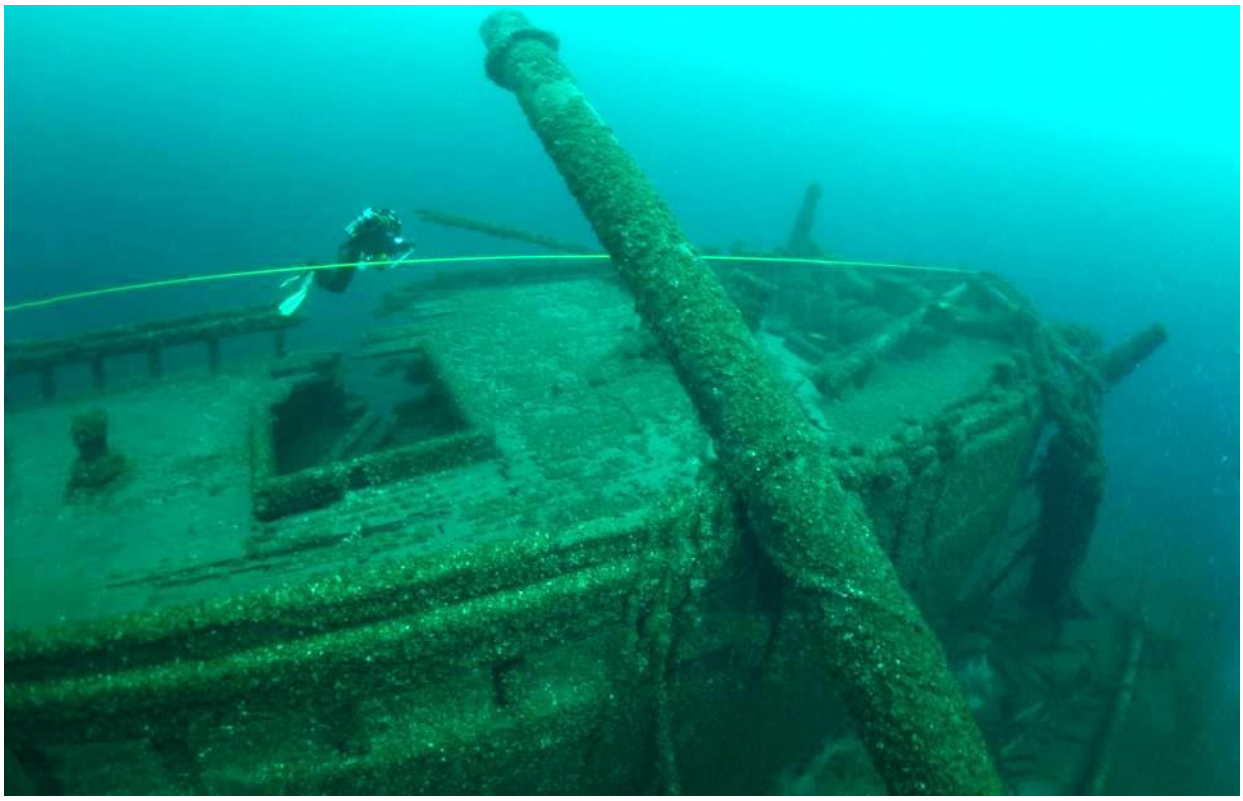


Figure 29. *Grace A. Channon*'s fallen mainmast

Two of *Grace A. Channon*'s three masts remain extant on the site in their entirety, although broken. The vessel's foremast is located 25.0 feet aft of the stempost, and measures 2.0 feet in

diameter, measured at the main deck. The mast is broken, and now lies across the vessel's starboard side rail, angling down toward the sand. The mast table remains attached to the bottom of the broken section of the mast. The mast table would have risen 3.6 feet above the deck if the mast was still upright. The mast table extends 0.5 feet from the mast. The mast table cheeks measure 0.8 feet long and 0.36 feet thick near the top, and bevel to 0.16 feet thick near the bottom, where they would have been attached to the deck. The rest of the mast table remains attached to the deck, and measures 2.4 feet in height, and has four remaining spindles, which are spaced at 1.7 feet intervals. The mast table is set into a base that measures 0.15 feet tall, and 0.8 feet wide, with a cuff measuring 0.5 feet tall and 0.1 feet thick.

A single mast hoop remains on the foremast, measuring 0.1 feet wide and 0.05 feet thick. The foremast extends 52.1 feet until it reaches the sand, where it is broken in a second place. The top section of the mainmast is located in the sand, near its broken counterpart, with the foremast trestletree still attached. This section of the foremast, its head, measures 11.4 feet long, and has a diameter of 1.2 feet. Both ends of this piece are broken. The tip of the mainmast likely remains in the sand under the broken timbers and rigging. The foretopmast is extant on the vessel's starboard side, although broken into two pieces. One section of the topmast lies near the fore-trestletree, and measures 10.0 feet long, with a diameter of 1.0 foot. Its end, or heel, is square, and would have been inserted into the other end of the trestletree when upright. The remaining section of the topmast lies parallel to the ship, and measures 49 feet in length, with a diameter of 0.9 feet near its broken end. Near its tip, the topmast tapers to a diameter of 0.2 feet.

The foremast boom and gaff also lie nearby in the sand. The boom measures 48.5 feet in length, from its end to the ends of the boom jaws, and has a diameter of 1.0 foot near the jaws, and 0.7 feet at its end. The end is covered with a metal cap, and a single block remains, attached to the boom, 9.0 feet from its end. The foremast gaff lies on top of the mainmast's broken end, and measures 0.75 feet in diameter near its jaws and tapers to its tip, which is buried in sand. Additionally, *Grace A. Channon* was outfit with a raffee (triangular) sail on its foremast. This raffee yard lies in the sand and measures 31.0 feet in length. It has a diameter of 0.9 feet at its midsection, and tapers on both ends. The hoops that would have been attached to the raffee and used to furl and unfurl the sail, remain extant along the yard's length. Wire standing rigging lies draped over all components of the foremast. Two additional spars lie in the sand near the fallen foremast. Both are rectangular in shape, with one measuring 30.0 feet long, 0.7 feet wide, and 0.4 feet thick, and the other measuring 29.0 feet long, 0.5 feet wide, and 0.3 feet thick.

The *Grace A. Channon*'s mainmast remains extant, broken at the main deck; the lower section of which is located 71.3 feet aft of the stempost. The upper sections of the mainmast now lie parallel to the ship, in the sand off the starboard side. This broken section of the mainmast measures 50.0 feet in length, extending through the main-trestletree, which remains attached, 8.0 feet from the mainmast's tip. The mainmast has a diameter of 1.3 feet, taken near its

midsection. The mast is broken just below the mast table, which has the same dimensions as the foremast table. A number of mast hoops remain on the deck near the mainmast table. These measure 2.2 feet in diameter and 0.7 feet thick. The main topmast remains attached to the mainmast trestletree. The topmast measures 36.0 feet in length, and has a diameter of 0.7 feet near the trestletree, and 0.5 feet near its opposite end. The tip of the topmast is broken, however, and could not be identified from the other broken timbers in the sand near the stern of the vessel.

The mainmast boom and gaff remain on the site off the vessel's starboard side. The mainmast boom lies propped on the starboard side railing near the forward wall of the aft cabin, with its jaw extending to the sand. The boom measures 42.0 feet in length and has a diameter of 1.0 feet, measured near its jaw. The tip of the boom is covered with an iron cap, and a single block remains, attached to the boom 11.0 feet from its end, and measures 0.35 feet wide and 1.3 feet long. The mainmast gaff also lies propped on the starboard side railing, but with its jaw resting on the rail, and its end extending to the sand. The gaff measures 32.5 feet in length, and has a diameter of 0.8 feet near the jaw. The jaw itself measures 0.5 feet from tip to end. Each jaw, for the vessel's booms and gaffs are made up of two knees on either side of the main timber. These three sections are held together with a kidney shaped cap that measures 1.7 feet wide, 0.35 feet long, and 0.1 feet thick. This cap is fastened to the jaw with iron fasteners, measuring 0.1 feet in diameter.

Figure 30. Spars off *Grace A. Channon*'s starboard side

The lower section of the vessel's mizzenmast is located 116.1 feet aft of the stempost, although it is broken off at the cabin roof. No evidence of the rest of the mizzenmast, or its associated rigging, were found on the site. Three components associated with the mizzenmast, however, remain. The mizzenmast boom and gaff are present, lying near the ship's stern. The mizzenmast boom lies along the starboard side companionway, next to the cabin, with its jaws facing forward. The boom measures 32.5 feet in length and has a diameter of 0.8 feet near the jaws. The jaws measure 0.5 feet from end to tip. The boom has an iron cap attached to its end, and 14.0 feet from the cap; a single block remains attached. The mizzenmast gaff lies in the sand, parallel to the vessel and the fallen mainmast. The gaff measures 25.0 feet in length and has a diameter of 0.5 feet near the jaw, tapering to 0.3 feet near its tip. Two blocks remain attached to the gaff; one located 4.5 feet from the end, and the other located 9.0 feet from the end.

Additionally, a third trestletree is located on the deck midships, at 85.2 feet along the baseline. Although closer to the location of the mainmast, this is the mizzenmast trestletree. This trestletree measures 2.0 feet wide, 4.1 feet long, and 1.5 feet thick. It is made of two main timbers, and three cross timbers all measuring 0.4 feet in thickness. The cross timbers measure 1.2 feet in width. A single piece of the mizzenmast remains attached to the trestle tree, and measures 1.0 feet in diameter. Two iron eyebolts are attached to the main timbers near the broken piece of the mizzenmast. These measure 0.35 feet by 0.1 feet in dimension. This location, forward of the mizzenmast's actual location on the ship points to how the mizzenmast broke and collapsed. The location of the trestletree, along with the location of mizzenmast boom and gaff, indicated that the mizzenmast broke forward, and was carried away at some point after the vessel sank. Contemporary reports from after the sinking state that there was a single mast sticking out of the water near the location of *Grace A. Channon*'s wreck site. This mast was later removed as it was considered a hazard to navigation. While this may have been *Grace A. Channon*'s mizzenmast, and could explain why the mizzenmast is missing, it is impossible to determine. There are other historic vessel losses near this location, which sank in the same year, so this reported mast may have belonged to another wrecked vessel.

A number of deadeyes and blocks remain attached to the extant masts, booms, gaffs, and bitts around the vessel. On the mizzenmast section still within the mizzen-trestletree, there is a single block measuring 0.8 feet long, 0.6 feet wide, and 0.3 feet thick, with a rounded interior iron bolt measuring 0.15 feet thick. An additional single block is attached to the U-shaped iron traveler amidships. This block measures 1.0 feet long, 0.8 feet wide, and 0.7 feet thick. It contains a rounded interior iron bolt measuring 0.15 feet thick. Another disarticulated single block remains on the deck near a pile of wire rigging on the vessel's starboard side. This block measures 1.2 feet long, 1.0 feet wide, and 0.7 feet thick, with two rounded interior iron bolts measuring 0.5 feet wide together. Two upper deadeyes also remain on the main deck near this location, and are both "turned-in". One measures 0.55 feet in diameter and 0.25 feet thick, and the other measures

0.7 feet in diameter and 0.3 feet thick. Both deadeyes contain three lanyard holes, all three of which are scored, or rounded, on the bottom to avoid snagging the rigging on a sharp edge.

Figure 31. Spars, booms and gaffs on *Grace A. Channon*'s starboard side

Each of the vessel's three masts has associated chainplates on the port and starboard sides. Each mast has four chainplates, and they measure 0.25 feet wide, 0.05 feet thick, and are spaced 1.5 feet apart. Lower deadeyes remain in each chainplate, bolted to the plate by the flat metal band, or strop, wrapped around their outer edge. These are similar to the upper chainplates, except that the lanyard holes are rounded on both sides to prevent snagging of the rigging. Three belaying pin racks are extant and visible on *Grace A. Channon*. The starboard foremast belaying pin rack is extant, yet obscured by a tangle of rigging, as is the port and starboard mainmast belaying pin racks. All three racks contain five pinholes, spaced 1.3 feet apart on center, with the forward and aft most measuring 0.8 feet from the ends of the rack. Each rack is 8.0 feet in length, sticks 0.4 feet out from the railing, and measures 0.25 feet thick. Only one belaying pin remains within the belaying pin racks, and it is located in the forward rack. Other belaying pins may remain on the site, but many are likely tangled within the rigging.

Figure 32. *Grace A. Channon*'s ice chest

One additional identifiable artifact lies in the sand off the starboard side of the ship. A wooden box, measuring 2.6 feet by 1.75 feet with a height of 1.55 feet, lies in the sand with its top removed, revealing an empty interior. The rim of the box measures 0.3 feet thick; the box is lined with metal, which remains covered in white paint. It is possible that this was the ship's ice chest. Ice chests were generally made of wood and lined with metal at this time, and could explain its presence onboard, but its specific use has yet to be identified. Boxes similar to this have been found on other canaller sites, but it is not known if these were specific to canallers, or just schooners in general around this time period.

Due to the great depth at which this vessel lies, many of the associated artifacts remain intact. Despite this, the extent of the quagga muscle colonization at this depth in recent years has obscured many of the smaller artifacts located inside the cabin, within the hold, and in the associated debris field. Because of this, the probability for additional artifacts to be identified in subsequent years remains high. The archaeological data collected during the 2016 survey has provided additional information about the construction of Great Lakes canallers and nineteenth century maritime commerce, but more remains to be uncovered.

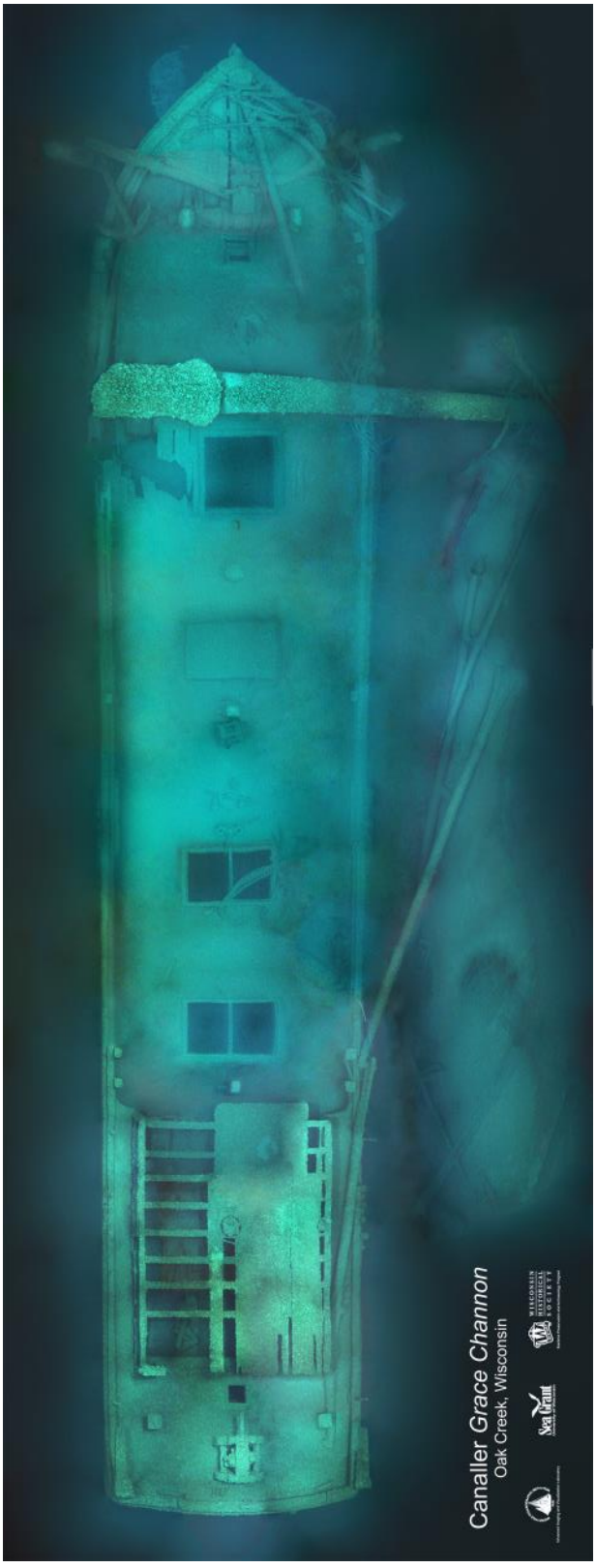


Figure 33. Photo mosaic of the *Grace A. Channon* wreck site

CHAPTER FIVE
SCHOONER *H.L. WHITMAN*

H.L. Whitman Operational History

The schooner *H.L. Whitman* was launched into the Milan Canal on the Huron River from the shipyard of Salmon Ruggles in Milan, Ohio on 23 June 1856. Salmon Ruggles' shipyard and dry dock were located about eight miles from Lake Erie, where, over his career (1846-1857) he built no less than seventeen schooners for the lake trade. Ruggles' schooners had a reputation for speed (Boyd 1857; Bureau of Navigation 1856; Lupold 1988; Matthew and Shorf 2016; Pekee 1916).

H.L. Whitman was named for banker Henry L. Whitman, owner and principal in the banks H.L. Whitman & Co., and Whitman, Standart & Co. of Cleveland. The vessel was enrolled at the Port of Cleveland on 30 June 1856 by her managing owner, Henry W. Standart. Henry W. Standart was a produce dealer and commission merchant of the firm Standart, Hamilton, & Co. of Cleveland and owned ¾ share in the vessel. Her builder, Salmon Ruggles of Milan, owned the remaining ¼ of the schooner. The ship measured 120 9/10 feet in length, 24 9/10 feet in breath with a 10 31/95 feet depth of hold, and her capacity was measured at 286 31/95 tons. She was described as having one deck and two masts, with square stern and plain head. Her Master was listed as Captain John Jennings (Boyd 1857; Bureau of Navigation 1856).

H.L. Whitman arrived in Buffalo on 16 July 1856 and cleared the same day for Toledo, Ohio; her cargo is not known. On 29 July the ship arrived at Buffalo from Toledo with 55,000 barrel staves consigned to stave dealer Edward Clark. It is not known when the ship cleared Buffalo, but on 12 August the schooner arrived back at the port from Toledo with 64,000 feet of lumber for steamer agent Cleveland Forbes and 35,000 barrel staves for Buffalo stave dealer, J.S. Harbeck. The vessel cleared on 28 August for a trip to Toledo. No other arrivals or clearings were found for the 1856-shipping season (*Buffalo Daily Courier* 1856a, 1856b, 1856c, 1856d; Jewett 1857).

It is likely the Panic of 1857 curbed the *H.L. Whitman* for much season, as few records of the ship's movements could be located in contemporary newsprint. By the beginning of October 1857, Salmon Ruggles decided to part with his share of the vessel. On 5 October 1857 *H.L. Whitman*'s enrollment document was surrendered at the Port of Cleveland and a new enrollment was issued showing that Henry W. Standart remained the managing owner with ¾ share, and Theo M. Pomeroy of Auburn, New York purchased Ruggles' ¼ share of the schooner, and surprisingly, Henry W. Standart was entered as Master. Only 2 days later, the schooner's enrollment was surrendered again at the Port of Sandusky, Ohio. Joseph E. Otis and Ebenezer Andronus of Milan, Ohio bought out Henry W. Standart and split equally his ¾ shares; Theo M.

Pomeroy retained his ¼ share of the schooner. Captain L.L. Phillips became the vessel's new Master and Milan, Ohio became her new homeport (Bureau of Navigation 1856, 1857a, 1857b). On 13 October, *H.L. Whitman* delivered 95,000 feet of lumber to Milwaukee -- her only reported arrival for the season (*Daily Milwaukee News* 1857).

It is likely that *H.L Whitman* wintered over in Chicago. On 14 April 1858 she loaded 13,860 bushels of wheat and cleared for Oswego, New York. Captain Jennings was reported as her Master, although this change in command does not appear within her enrollment document. The ship arrived, unloaded, and cleared Oswego on 1 May continuing on to Cleveland. Trips to Oswego from Chicago were recorded in mid-June, and mid-September. In October and November *H.L. Whitman* sailed cargos to Buffalo. On 16 November 1858, while lying at anchor off Port Huron, Michigan, *H.L. Whitman* was struck by the down bound schooner, *Miami Belle*. Both vessels sustained damage to their headgear (*Buffalo Daily Courier* 1858; *Chicago Daily Tribune* 1858a, 1858b, 1858c; *Cleveland Leader* 1858a, 1858b; *Detroit Free Press* 1858; *Oswego Palladium* 1858).

Little is known of *H.L. Whitman*'s early season. The first report of the vessel's movement for the season occurred on 29 June 1859; that evening as the schooner entered Lake Huron she was struck by a squall that carried away her mainmast. In its fall, a section of her rail was also damaged. The vessel was towed back to Detroit by the tug *Rederic* for repairs (*Buffalo Daily Courier* 1859a; *Chicago Daily Tribune* 1859a).

On 2 September the ship was down bound through the Welland Canal enroute to Oswego. She arrived at Chicago from Oswego 2,230 barrels of salt twenty days later. Additional trips to Oswego were made in October and November. On the up bound leg of her November trip, on 16 November, *H.L. Whitman* went ashore about six miles west of the Genessee River on Lake Ontario. The ship sailed on a compass bearing northwest from the Sodus Light on a course toward Toronto. More than a dozen vessels had gone ashore there within a ten-year period, and in every instance, the disaster was attributed to defects in the compasses. A warning to mariners was put out in the newspapers indicating that there may be some influence on shore that affected the compass, and thus mislead sailors in their navigation. The tug *Page* was working nearby to remove the schooner *Andover* that stranded there a week earlier, and went to *H.L. Whitman*'s assistance. She was pulled free and continued on her voyage (*Chicago Daily Tribune* 1859b; *Cleveland Leader* 1859; *Daily British Whig* 1859; *Detroit Free Press* 1859a, 1859b, 1859c, 1859d). *H.L. Whitman* returned to the lower lakes one more time for the season. On 7 December the vessel arrived at the Port of Buffalo from Toledo with 12,860 bushels of corn for commission merchant Cutter & Nims. Following delivery, the ship laid up in Buffalo for the winter (*Buffalo Daily Courier* 1859b; *Detroit Free Press* 1859e; Jewett 1860).

By early April *H.L. Whitman* was out of winter quarters and called on ports on Lake Ontario. On 18 April 1860, she entered the Welland Canal bound to Chicago with a stop enroute on 21 April at Detroit. Her Master for the trip was recorded as Captain Jones. Jones employment as captain of the vessel was not reflected in her enrollment document (*Chicago Daily Tribune* 1860a, 1860b; *Detroit Free Press* 1860a, 1860b). Trips to the lower lakes were reported in May and June. On 28 June, the vessel cleared Buffalo for Cleveland; Captain L.L. Phillips was recorded as her Master (Buffalo Daily Courier 1860a; Chicago Daily Tribune 1860c, 1860d).

On 6 July 1860, a new enrollment was taken out for the ship at Port of Sandusky as her previous paperwork had somehow become lost (Bureau of Navigation 1860). Soon thereafter, *H.L. Whitman* was reassessed for insurance purposes. She was valued at $8,000 and described as "rather flat", therefore she was reduced to an A2 insurance rating (United States Merchant Vessel List 1860).

Although we know little of the ship's destinations or cargos, her movements were recorded passing Detroit twice in July, and she was reported at Chicago harbor on 24 August. The vessel passed Detroit both up and down bound twice in September (Detroit Free Press 1860c, 1860d, 1860e, 1860f, 1860g). On 17 October 1860, *H.L. Whitman* cleared the Port of Cleveland for Chicago with 250 tons of coal. She unloaded and cleared for Buffalo on 2 November. The vessel arrived at Buffalo on 15 November and cleared the same day for Cleveland. It is not known why the ship was delayed enroute but she did not arrive at Cleveland until 24 November. She loaded coal and departed for Chicago the same day. The vessel was put up in Chicago for the winter (*Buffalo Daily Courier* 1860b, 1860c; *Cleveland Daily Leader* 1860a, 1860b). At some point during the year, 500 bushels of a wheat cargo were claimed as damaged, but additional information on this event was not available (*Buffalo Morning Express* 1861).

On 19 April 1861, *H.L. Whitman* was up bound with her first cargo of the season when she stranded at the foot of Grassy Island in the Detroit River. Captain L.L. Phillips was able to kedge the ship off without damage (*Buffalo Commercial Advertiser* 1861; *Detroit Free Press* 1861a). A trip was made from Chicago to Port Colburne, Canada West in May, and another trip in June to Oswego each with 18,000 bushels of wheat. Although we know little about the ship's destinations or cargos, her movements were recorded passing Detroit in July, August and early September (*Chicago Daily Tribune* 1861a; *Daily Milwaukee News* 1861a; *Detroit Free Press* 1861b, 861c; *Oswego Commercial Times* 1861a, 1861b). *H.L. Whitman* was chartered to carry wheat from Chicago to Buffalo at $0.13 per bushels and on 11 September the ship cleared Chicago. She unloaded and was on her way up bound at Detroit on 24 September (*Buffalo Daily Courier* 1861; *Chicago Daily Tribune* 1861b; *Daily Milwaukee News* 1861b; *Detroit Free Press* 1861d; *Oswego Commercial Times* 1861c, 1861d). On 2 October *H.L. Whitman* cleared Chicago with a cargo of 12,050 bushels of wheat bound for Port Colburne. While down bound in the St. Clair Flats on 7 October the *H.L. Whitman* collided with the scow schooner *Lime*

Rock. *Lime Rock* sustained considerable damage to her hull, lost her jibboom, bowsprit and headgear. *H.L. Whitman* only damaged her yawl in the accident (*Chicago Daily Tribune* 1861c; *Detroit Free Press* 1861e). The schooner continued on and discharged her cargo at the elevator at Port Colburne on 15 October and began her trip back to Chicago. A final trip to Lake Ontario was made in November; *H.L. Whitman* arrived in Oswego on 18 November. Upon unloading, she took on 1,220 barrels of salt for Sandusky. It is likely that the ship wintered over there (*Chicago Daily Tribune* 1861d, 1861e; *Oswego Commercial Times* 1861e, 1861f).

On 2 April 1862, *H.L. Whitman*'s enrollment was surrendered at the Port of Sandusky and new papers were issued for change of owners. Joseph E. Otis and Ebenezer Andrews retained their ¾ share, but Theo M. Pomeroy sold his ¼ share of the schooner to William C. Beardsley. Captain Theo White became the vessel's new Master. This document introduced slight changes to the ship's depth of hold and tonnage; 10 13/100 feet was entered for her depth, and 286 tons 21/95 for her tonnage. It is not clear if the ship was remeasured or if this was a clerical error (Bureau of Navigation 1860, 1862).

On 17 April 1862, *H.L. Whitman* grounded on Fighting Island in the Detroit River. She had on board a partial cargo of stone and the hard grounding resulted in some damage to her stern quarter. The tug *Oswego* steamed down from Detroit to pull her free (*Buffalo Daily Courier* 1862a, 1862b; *Chicago Daily Tribune* 1862a). *H.L. Whitman* arrived at Chicago on 6 May and took on 18,900 bushels of corn. She made Buffalo with the cargo on 14 May (*Buffalo Daily Courier* 1862c, 1862d; *Chicago Daily Tribune* 1862b).

Another trip to the lower lakes was recorded in early June 1862. On 16 June, the ship cleared the Port of Cleveland reportedly for Chicago; her cargo was not listed. Apparently her return to Chicago did not occur or Chicago was misreported as her final destination. Only 10 days later, the schooner departed Oswego with 600 barrels of salt bound for Chicago (*Cleveland Daily Leader* 1862a; *Detroit Free Press* 1862a; *Oswego Commercial Times* 1862a). Demand for shipments continued steadily, and before the schooner arrived at Chicago, on 1 July she was chartered to carry wheat to Kingston, Canada West at $0.14 2/3 per bushel "payable in U.S. dollars" (*Buffalo Daily Courier* 1862e; *Buffalo Evening Courier & Republic* 1862; *Cleveland Daily Leader* 1862b). The vessel was chartered on 7 August to take wheat to Buffalo at 0.10 ½ per bushel. She arrived at that port on 18 August, promptly unloaded and cleared light for Cleveland. An unspecified cargo was loaded at Cleveland and the vessel was reported up bound at Detroit on 26 August (*Buffalo Daily Courier* 1862e, 1862f; *Detroit Free Press* 1862b).

The ship's later season movements are known only through notices of passage at Detroit or through the Welland Canal. On 3 October 1862, *H.L. Whitman* passed through the Welland Canal to claim a cargo on Lake Ontario and on 8 November she was reported sailing up bound past Detroit. Her destinations and cargos remain unknown. On 19 November the ship cleared

Chicago for Oswego loaded with 8,500 bushels of wheat and 900 barrels of flour consigned to W.H. Herrick. She arrived at Oswego on 6 December and was put up for the winter at that port (*Buffalo Daily Courier* 1862f; *Cleveland Daily Leader* 1862c; *Detroit Free Press* 1862c, 1862d; *Oswego Commercial Times* 1862b, 1862c, 1862d). In the Great Lakes Casualty List published for 1862, *H.L. Whitman* reportedly ran aground on Elk Island in the St. Clair River at some point during the season. It is not known if this event was actually the grounding on Fighting Island in the Detroit River that occurred in April of 1862 and simply misreported, or a separate stranding (*Buffalo Commercial Advertiser* 1863).

On 13 April 1863, *H.L. Whitman* cleared the Port of Oswego for Sandusky with 50 tons of coal. Upon her arrival at Sandusky on 25 April, her enrollment document was surrendered and a temporary enrollment taken out for a change in managing owner, owners, and districts. Ebenezer Andrews retained his ¾ share ownership along with partner Joseph E. Otis. Andrews, however, took over as managing owner of the vessel. As Chicago was now the home of both partners, the ship's homeport was changed to that city. Master John Wood took over the remaining ¼ share. Discrepancies introduced in the 1862 enrollment in respect to her depth of hold and tonnage, were carried forward. *H.L. Whitman* received a B1 insurance rating, as she continued to be described as "rather flat", and consequently she was valued at $6,500 (Bureau of Navigation 1862, 1863a; *Oswego Commercial Times* 1863; Thomas 1864). *H.L. Whitman* carried a cargo from Cleveland to Sandusky and upon delivery she cleared on 27 April for Chicago (*Cleveland Daily Leader* 1863).

On 5 May 1863 *H.L. Whitman* was chartered to carry wheat from Chicago to Buffalo at $0.09 ½ per bushel. Before she left Chicago, on 7 May, a permanent enrollment was issued for the vessel as she arrived at her new homeport. She cleared the same day for Buffalo with 18,000 bushels of wheat. It is not known when the ship arrived in Buffalo, however she was reported sailing up bound past Detroit on 28 May. Trips to Lake Erie were made in June and August (Bureau of Navigation 1863b, *Chicago Daily Tribune* 1863a, 1863b; *Detroit Free Press* 1863a, 1863b, 1863c). On 5 September *H.L. Whitman* arrived from Chicago from Erie, Pennsylvania with 268 tons of coal (*Chicago Daily Tribune* 1863c). The ship made a trip in late October to Lake Ontario, her movements are known only through notices of passage at Detroit on 20 October and through the Welland Canal on 29 October (*Detroit Free Press* 1863d; *Oswego Commercial Times* 1863).

Few records were found for *H.L. Whitman*'s movements in 1864. The ship was recorded passing Detroit up bound on 13 May and again on 8 June. On 28 August she passed through the Welland Canal down bound (*Oswego Commercial Advertiser* 1864; *Oswego Commercial Times* 1864; *Cleveland Morning Leader* 1864).

On 26 April 1865, *H.L. Whitman*'s enrollment was surrendered at the Port of Chicago for change of owners. Frances Hutchinson of Joliet, Illinois owned ¾ of the schooner and Captain Edward Comerford of Chicago became Master and ¼ owner. Comerford, a native of Ireland, had sailed the Great Lakes for twelve years, but *H.L. Whitman* was his first command. At the time of transfer of ownership, the vessel was re-measured. She measured 117 1/10 feet in length, 25 1/10 feet in breadth, with a 10 23/100 feet depth of hold. The ship's total tonnage was calculated at 208 tons 43/100 tons of which 197.45 tons capacity was under tonnage deck and 10.98 tons capacity was of enclosures on upper deck. The ship was described as having one deck and two masts with a square stern and a knee head. Also at this time her official number, #11187, was assigned (Bureau of Navigation 1863b, 1865; Mansfield 1899).

Little is known of *H.L. Whitman*'s early season movements. On 21 August 1865 the ship passed Detroit up bound. She loaded 13,500 bushels of corn and cleared Chicago on 2 September bound for Buffalo. The ship arrived at Buffalo on 11 September, delivered her cargo and departed the same day for Saginaw, Michigan (*Buffalo Daily Courier* 1865a; *Buffalo Evening Courier & Republic* 1865a; *Chicago Daily Tribune* 1865a; *Detroit Free Press* 1865a). Her business in Saginaw is unknown. On 29 September *H.L. Whitman* cleared Chicago with 13,425 bushels of corn. She arrived at Buffalo on 9 October, unloaded and departed the same day for Chicago (*Buffalo Evening Courier & Republic* 1865b; *Buffalo Daily Courier* 1865b, 1865c, *Detroit Free Press* 1865b, 1865c). One additional trip was recorded in early December when *H.L. Whitman* brought 2,400 barrels of salt from Bay City, Michigan to Chicago (*Chicago Daily Tribune* 1865b).

On 12 May 1866 *H.L. Whitman* passed through the Welland Canal on her way to Oswego for her first trip of the season. She arrived at the port on 16 May, loaded coal and cleared for Chicago (*Buffalo Evening Courier & Republic* 1866a; *Daily Palladium* 1866a; *Detroit Free Press* 1866a, 1866b). Another trip to Oswego with wheat took place in June at $0.22 per bushel. *H.L. Whitman* cleared Oswego on 16 June with a full cargo pig iron for Chicago (*Buffalo Evening Courier & Republic* 1866b; *Buffalo Daily Courier* 1866; *Daily Palladium* 1866b; *Detroit Free Press* 1866c, 1866d). Regular trips between Oswego and Chicago occurred in July, August, September and early October (*Chicago Daily Tribune* 1866a; *Detroit Free Press* 1866e, 1866f, 1866g, 1866h, 1866i, 1866j, 1866k). For her last trip of the 1866-season, on 25 October *H.L. Whitman* loaded wheat at Chicago and departed for Ogdensburg, New York. She arrived at the port on 10 November (*Chicago Daily Tribune* 1866b; *Detroit Free Press* 1866l, 1866m). It is likely that *H.L. Whitman* wintered over at Chicago.

On 26 April 1867, *H.L. Whitman* was chartered to take a combination cargo of wheat and corn at $0.10 per bushel from Chicago to Buffalo. She arrived at the port sometime during the second week in May and returned to Chicago (*Buffalo Evening Courier & Republic* 1867; *Buffalo Express* 1867; *Detroit Free Press* 1867a). In June the vessel was hired to bring wood products

to Chicago from Harrisville, Michigan (*Daily Milwaukee News* 1867). In August and twice in September she carried corn from Chicago to Kingston. On 29 October *H.L. Whitman* arrived at Chicago with 178,000 feet of lumber and 12,000 feet of lath from Bay City, Michigan. A trip to Lake Erie was recorded in November (*Chicago Daily Tribune* 1867a, 1867b; *Detroit Free Press* 1867b, 1867c, 1867d, 1867e, 1867f, 1867g).

On 25 November 1867 the Federal Admiralty court in Chicago heard arguments in a suit brought by crewman Frederick Krantz against the owners of the *H.L. Whitman* to recover wages that he claimed were due to him and damages for being put ashore at Port Colborne. The defense argued that the owners of the vessel should not have to pay because of disobedience and neglect to complete his contract. Judge Drummond ruled that the wages when the claimant was put off the boat were $40 and these costs were to be paid by the ship's owners (*Chicago Daily Tribune* 1867c).

On 2 April 1868 *H.L. Whitman*'s enrollment document was surrendered at the Port of Chicago for a change in owners. Captain Comerford sold his interest to this partner, Frances Hutchinson for $2,000, and bought an interest in the schooner *Yankee Blade*. The sale made Frances Hutchinson sole owner. Captain Comerford, however, remained the *H.L. Whitman*'s Master (Bureau of Navigation 1865, 1868).

On 23 April 1868, *H.L. Whitman* was chartered to carry corn from Chicago to Kingston at $0.16 per bushel. Two trips to the lower lakes were made in June. On the evening of 3 July while the schooner was towed up bound in the St. Clair River, the towline parted, as the tug was straightening up on the line. The recoil broke the arm of E.W. Dobbins, a sailor onboard the *H.L. Whitman* (*Chicago Daily Tribune* 1868a, 1868b; *Buffalo Evening Courier & Republic* 1868; *Daily Milwaukee News* 1868a, 1868b, 1868c, 1868d; *Detroit Free Press* 1868a, 1868b). The vessel made a trip to Oswego in early September and returned to Chicago. No other information on vessel movements was located for 1868 (*Buffalo Moring Express* 1868; *Chicago Daily Tribune* 1868c; *Daily Milwaukee News* 1868e; *Detroit Free Press* 1868c, 1868d).

On 3 April 1869 *H.L. Whitman*'s enrollment was surrendered at the Port of Chicago for a change of owners. Frances Hutchinson sold ¼ share in the vessel to E. Finn of Chicago. Captain Finn became the ship's new Master (Bureau of Navigation 1868, 1869). On 13 June the ship was chartered to carry wheat to Oswego at $0.13 ¼ per bushel. Another trip to the lower lakes as made in July. In August, *H.L. Whitman* was contracted to bring lumber products, boards and strips, from Peshtigo, Wisconsin to Chicago. Trips were made on 3 August with 175,000 feet of boards and strips at $15.50, on 26 August with 160,000 feet of boards and strips at $14.00, and on 2 September with 165,000 feet of boards and strips at $14.00. On 30 September 170,000 feet of joists, scantling and wide planks were delivered to Chicago from Menominee, Michigan (*Detroit Free Press* 1869a, 1869b, 1869c; *Door County Advocate* 1869a, 1869b, 1869c).

On the night of 11 October 1869, while bound from Oconto, Wisconsin to Chicago with a cargo of lumber, *H.L. Whitman's* captain navigated too close to Racine's North Point (now known as Wind Point) and struck the reef. Her deck load was thrown overboard in an attempt to lighten the vessel, but the ship filled with water and sank. A steam pump was requested to be sent up from Chicago the next day but it was delayed in arrival. A south wind for the next three days created heavy seas that pounded the vessel on the reef. On 14 October, the tug *Mosher* arrived from Chicago towing the schooner *John S. Wallace* as a lighter. After only one day of work on the stranded vessel, Captain Brewster of the tug *Mosher* reported that the *H.L. Whitman* was too far gone, and would be left to go to pieces. He salvaged her sails and returned to Chicago (*Daily British Whig* 1869; Hall 1870; *Milwaukee Sentinel* 1869a, 1869b, 1869c, 1869d, 1869e, 1869f; *Racine County Argus* 1869).

Hutchinson and Finn abandoned the ship to the underwriters on 18 October 1869. On 14 July 1870 *H.L. Whitman*'s enrollment was surrendered at the U.S. Customs Office in Chicago. *H.L. Whitman* had a B1 insurance rating, valued at $6,000 and insured by the Republic Insurance Co. of Chicago. The company paid $5,000. Soon after claiming the vessel loss, Frances Hutchinson brought a suit against Republic Insurance Co. to collect an additional $208 upon his insurance policy. Judgment was ultimately for the defendant (Chicago Daily Tribune 1871; Bureau of Navigation 1869; *Milwaukee Sentinel* 1869e, 1869f; *Racine County Argus* 1869).

Site Description

The remains of the schooner *H.L. Whitman* lie 0.13 miles off shore north of North Bay, Wisconsin, in the waters of Lake Michigan (42° 46.216' N, 087° 46.241' W). The vessel sits on a heading of 260 degrees, 0.94 miles southeast of Wind Point, and lie perpendicular to the shore, resting in 10 feet of water, with the extent of her bow and stern missing. The wreckage rises 3.0 feet to 5.0 feet off the bottom of the rocks and silt within the bay. From just below the turn of the bilge down, the floors and frames of its lower hull remain relatively intact on an even keel. The location of this wreckage has been known to divers of the area for many years, but was brought to the attention of Wisconsin Historical Society maritime archaeologists by Bob Jaeck in August of 2016. The wreck's shallow location near the surf zone has contributed to the lack of mussel growth on the remaining timbers. Though all of its upper deck works, rigging, hull components, and machinery were salvaged after sinking or were broken by years of wave and ice action along the shore, major structural components of the vessel remain extant, including its keel, keelson, and mast steps.

A survey of the *H.L. Whitman* was conducted in August of 2016 by maritime archaeologists and volunteers from the Wisconsin Historical Society. A baseline was attached at the bow edge of the broken keelson and stretched 117.5 feet along the centerline of the vessel to the furthest extent of the stern section. All measurements for the survey were taken from this baseline. The

overall length of the remains of *H.L. Whitman* is 117.5 feet, while the width of the remaining hull, measured at its widest point, is 20.2 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 likely belong to the schooner *H.L. Whitman*. As the site lies in a dynamic area, no invasive zebra or quagga mussels have colonized the interior of the bilge allowing for detailed observations.

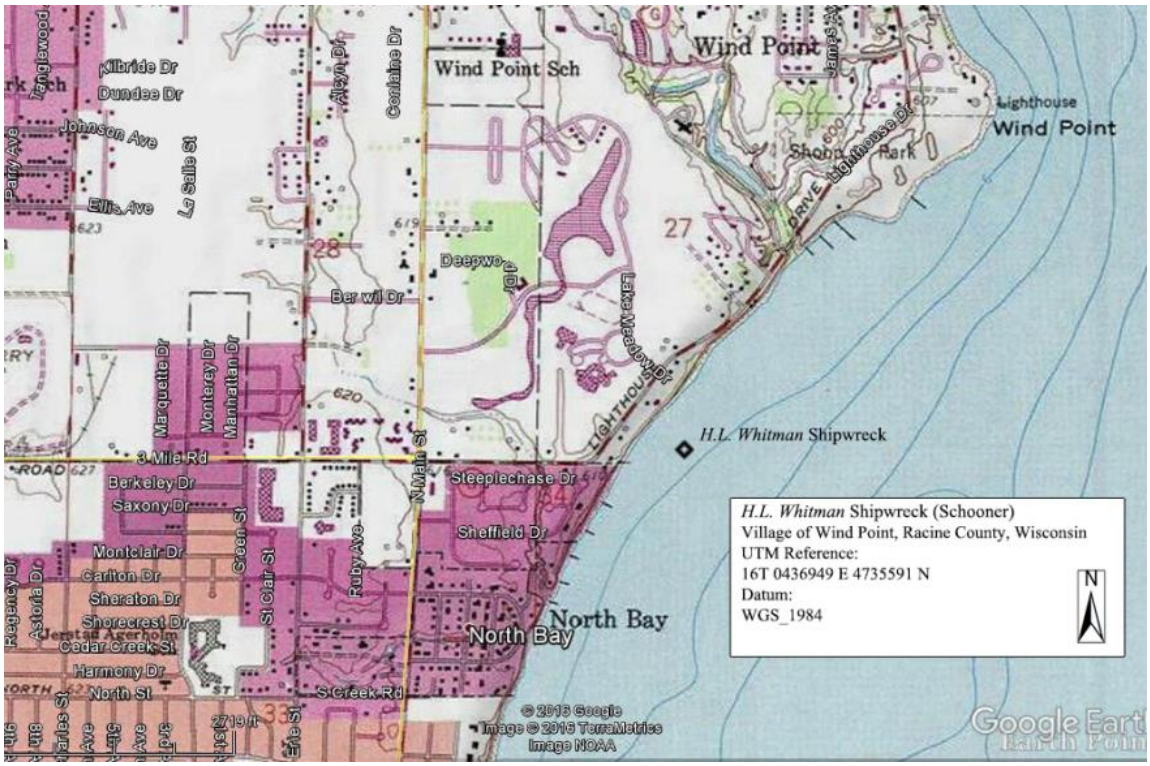


Figure 34. Location of the *H.L. Whitman* site

The *H.L. Whitman*'s stempost and sternpost are no longer extant. Although much of its upper hull is no longer extant, some remnants of *H.L. Whitman*'s first and second futtocks remain, as well as all of the floors. The vessel is double framed, with each futtock measuring 0.8 feet sided and 0.4 feet molded, with an overall molded dimension of 0.8 feet with 1.0 foot spacing between each frame set. Only a few sections of outer hull planking remain attached to the frames near the keel. These planks measure 1.0 foot wide and 0.2 feet thick. The vessel's ceiling planks also remain extant in the bilge, measuring 0.8 feet wide and 0.3 feet thick. Ceiling planking, futtocks, and outer hull planking are fastened together with iron drift pins, roved atop the ceiling planking and peened on the outside of the vessel.

The vessel's keelson is extant along most of the ship, and measures 1.0 foot sided and 1.0 foot molded. The keelson is broken near the center of the vessel, from 34.0 feet to 67.0 feet along the baseline, corresponding to where the centerboard trunk would have originally sat. Two sister keelson's are evident as well, located on each side of the keelson, which measure 0.8 feet wide

and 0.55 feet thick. Additionally, because of the lake bottom's relatively hard surface in this area, the vessel's keel remains partially visible beneath the remains of the outer hull on the starboard side of the wreckage. Although a width could not be determined, the keel measures 0.6 feet thick. Located at the bow of the vessel, a repair to the keelson can be observed, measuring 0.2 feet wide and 2.0 feet long. Near the stern, an additional timber is located near the keelson. This is a single timber, measuring 0.3 feet thick, 5.0 feet long, and stands 2.1 feet above the keelson. Although it is not known what this timber is, it is possible that it was associated with the vessel's deadwood and stempost, which are no longer extant on the site.

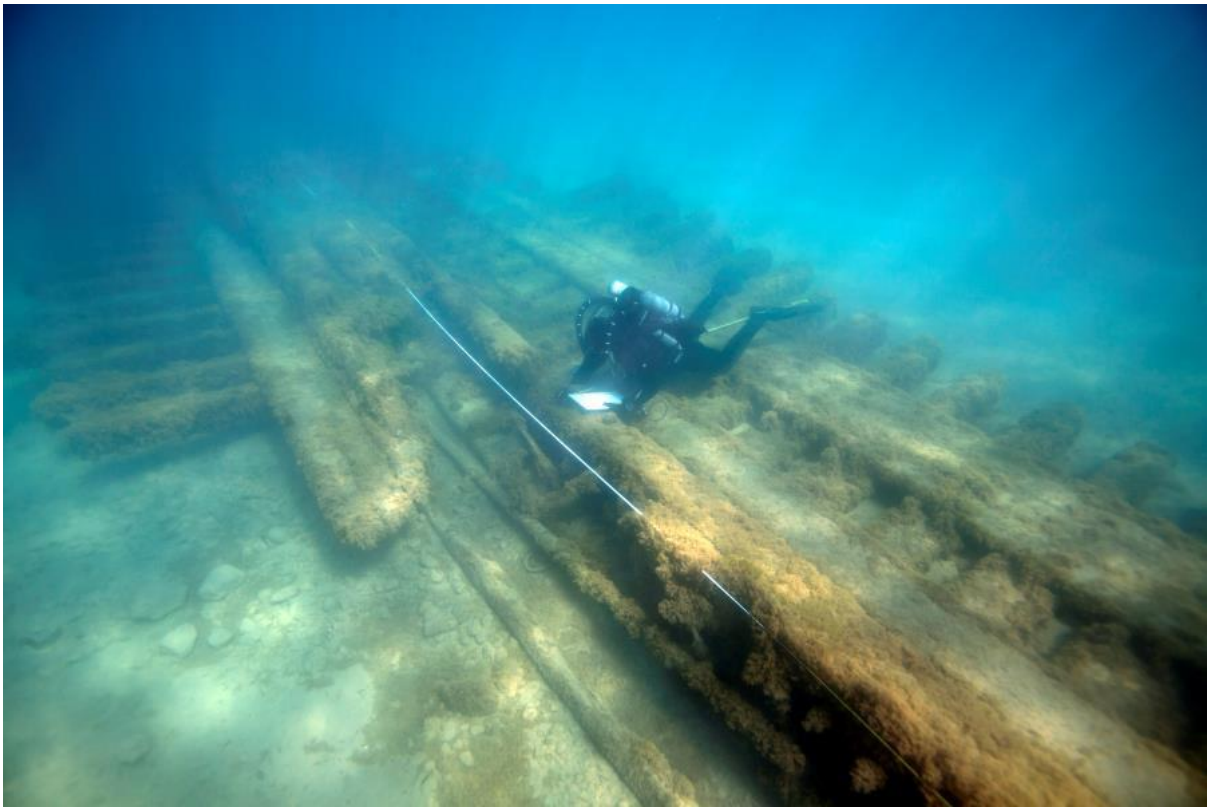


Figure 35. Bilge section of *H.L. Whitman* (Christa Waller)

Along with the upper extent of the vessel's hull, the vessel's deck, machinery, masts, and rigging no longer remain, however, evidence of the *H.L. Whitman*'s two masts does remain. The vessel's two mast steps remain intact, cut into the keelson. The foremast step is located 11.9 feet along the baseline, and measures 3.0 feet long, 0.7 feet wide, and 0.52 feet deep. The foremast's side chocks are intact on three sides of the mast step, measuring 0.2 feet thick on the port and starboard sides, and extending 4.6 feet aft of the edge of the step. The chocks raise 0.58 feet above the keelson. The mainmast step is located at 66.7 feet along the baseline, and measures 3.6 feet long, 1.0 feet wide, and 0.55 feet deep. As with the foremast step, the mainmast step has side chocks on three sides, measuring 0.2 feet thick on the port and starboard sides, while extending only 3.1 feet aft of the mainmast step. This step also rises 0.6 feet above the keelson.

Figure 36. *H.L. Whitman*'s missing keel section in profile (Christa Waller)

Originally, *H.L. Whitman* was outfit with a centerboard, although no components of the centerboard or centerboard trunk remain extant on the site today. The only evidence of the missing centerboard is the large missing section of frames and floors on the starboard side of the ship, just forward of the mainmast step. This section stretches 27.1 feet in length, consistent with the measurements of a centerboard for a vessel of this size. Although it has not been confirmed, it seems as though the centerboard and centerboard trunk was pushed starboard by wave and ice action, eventually breaking away from the keelson. Due to the location of this break, it is also likely that the centerboard was offset from the keelson.

Additionally, there remain a few unidentified components on the *H.L. Whitman* site. Two holes are located in the vessel's bilge, near the centerline of the ship, which extend through the hull. The forward most hole is located 66.7 feet along the baseline, near the mainmast step, and measures 0.4 feet in diameter, and is lined with a metal coaming measuring 0.2 feet wide and 0.05 feet thick. The aft hole is located 85.4 feet along the baseline, and measures 0.2 feet in diameter, and is lined with a metal coaming measuring 0.2 feet wide and 0.05 feet thick.

Figure 37. Mainmast step and keelson of *H.L. Whitman* (Christa Waller)

Upon first inspection, these appear to be associated with the vessel's bilge pumps, and used to expel water out of the hull. Although plausible, these were usually located above the vessel's

waterline. Since these are located near the vessel's keelson, this is not likely the case. It is possible, however, that these were still used for some type of drainage system for the bilge.

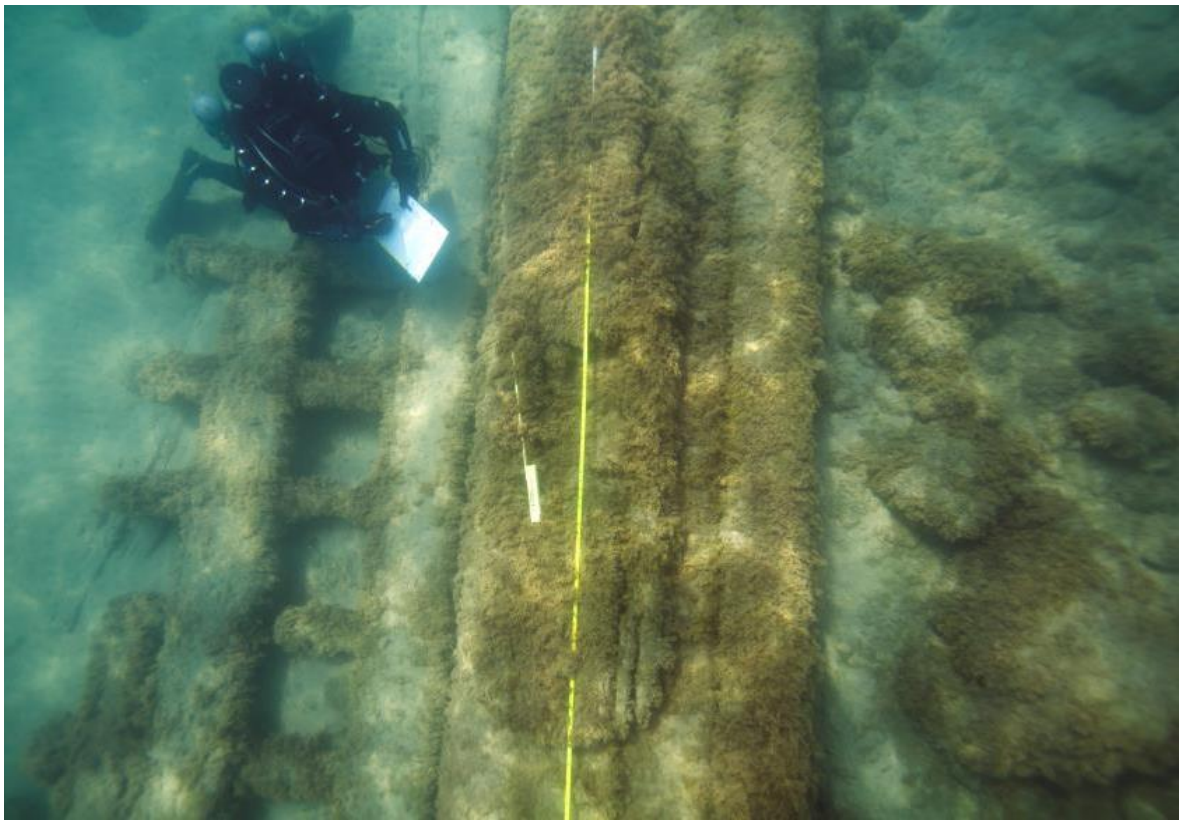


Figure 38. Foremast step on *H.L. Whitman* (Christa Waller)

It is not likely many other components of the *H.L. Whitman*'s hull structure remain on the site or nearby on the outlying reefs. Most of the remains were likely broken up and swept ashore by wave and ice action over the 147 years since its sinking. The 2016 investigation did preliminarily indicate that no other significant portions of the hull remain and additional investigations will likely not provide additional data about the construction of early Great Lakes schooners. Data already gathered on the site has increased our understanding of small schooner construction. The site has been visited by many local divers over the years, and remains a popular diving spot for beginning divers when conditions are favorable.

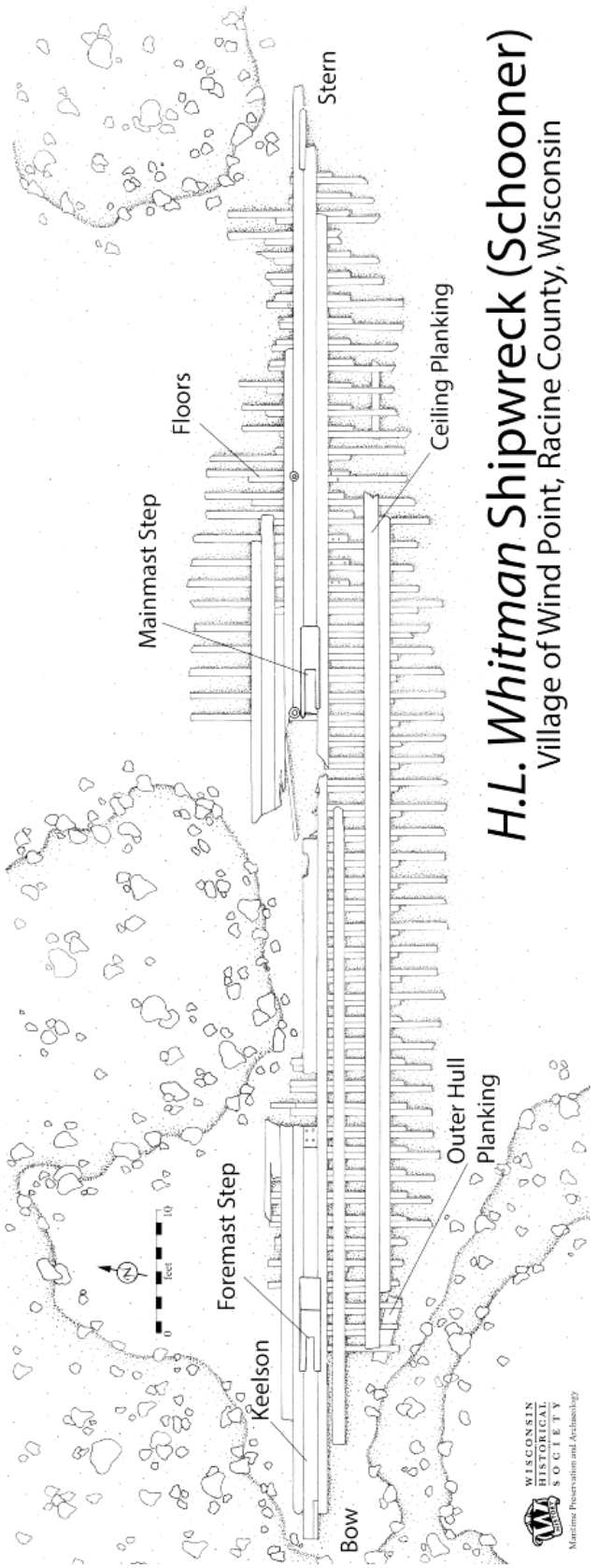


Figure 39. Site plan of the *H.L. Whitman* wreck site

CHAPTER SIX
SISTER ISLANDS TUG

Site Description

The remains of a newly located fish tug are located near the Sister Islands in the bay of Green Bay, 2.17 miles northwest of Sister Bay, Wisconsin in Green Bay (45° 12.927'N, 087° 08.881'W). Known as workboats, fish tugs were locally built, and came in various sizes. Although not much is known of the Sister Islands tug historically, the archaeological remains offer some interesting insights into local fish tug construction. Though there is no indication of what caused this sinking event, the fact that all of its machinery was removed prior to its sinking indicates and abandonment, and not a catastrophic loss. Although no bulwarks remain on site, the extant lower hull and bilge features are consistent with those of known fish tug designs.

Figure 40. Location of the Sister Islands Tug site

The vessel sits on a heading of 210 degrees, lying near the reef in 55 feet of water, perpendicular to the Sister Islands. Remnants of the lower hull frame structure remain intact, although the keel appears to be broken due to the variance of the vessel's list. The bow lies on a 24-degree list to starboard, and on a 4-degree pitch forward, while the stern lies on an 18-degree list to starboard and a 17-degree pitch aft. Due to the extent of the ship still covered by sand, it is probable that much of her lower hull structure remains intact. At the time of survey, 1.0 to 7.5

feet of structure were visible above the sand. The sand surrounding the wreck remains fairly stagnant, though winter storms and weather patterns could lead to additional sand movement. It is clear that some sediment movement has recently taken place on the site, as the bottom 1.0 to 2.0 feet of the wreck are not covered by invasive zebra or quagga mussels, allowing for detailed observations.

Figure 41. Stempost of the Sister Islands Tug

The site was discovered by Keith Cormican and Captain Jim Robinson in May of 2016. The site remains lightly visited by divers following the initial discovery and survey due to her new discovery and relatively unknown location. In June 2016, a Phase II archaeological survey was conducted by Wisconsin Historical Society (WHS) maritime archaeologists and volunteers over the course of six dives.

A baseline was attached to the stempost and stretched 44.7 feet along the centerline of the vessel to the remains of the vessel's sternpost. All measurements for the survey were taken from this baseline. The overall length of the vessel is 44.7 feet, with a beam of 17.1 feet, measured at its widest point. Given that there were an innumerable amount of fishing boats used in this area throughout history, it is difficult to identify this particular fish tug. Because of its location near Sister Bay, it is likely that this vessel was associated with the profitable fishing industry that occurred in Door County. Additionally, abandonments were typically unceremonious and went unreported in local newsprint, so determining the vessel's name or previous owners is difficult to achieve.

The stempost remains sitting upright, extending 7.9 feet out of the bottom substrate, and measures 0.5 feet wide on its aft facing side and tapers to 0.3 feet, with an overall sided dimension of 0.6 feet. The stempost is made up of two timbers, each measuring 0.3 feet in sided dimension. Additionally, the vessel was equipped with a wooden cutwater, measuring 0.3 feet at its aft facing edge, tapering to 0.2 feet, and measuring 0.25 feet in sided dimension. Although a good amount of sand has accumulated within the hull, obscuring large sections of the keelson and frames, much of the vessel remains uncovered.

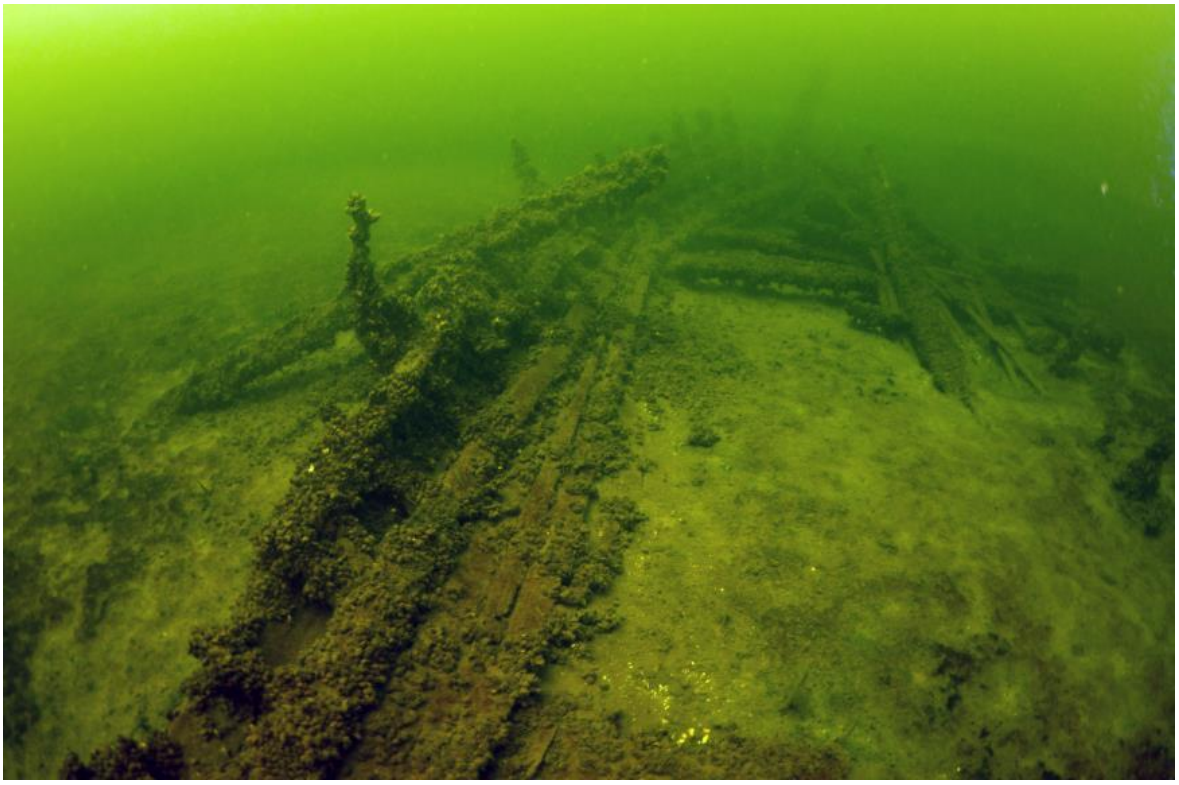


Figure 42. Flayed hull of Sister Islands Tug

The hull has flayed outward, with large sections of outer hull planking and ceiling planking lying flat on the sand. Both the port and starboard sides of the hull structure have fallen away

from the stempost, leaving it exposed. Near the stempost, the vessel's forward stanchions are visible, measuring 0.25 feet molded and 0.35 feet sided, and are spaced 1.2 feet apart. Further aft, intact sections of the vessel's double frames appear. These frame sets measure 0.35 feet sided, and 0.55 feet molded overall, with each individual futtock measuring 0.25 feet molded. Each set of frames is spaced 1.2 feet apart. The upper extent of many of the frame sets near the bow appear to have been charred, indicating the possibility that this vessel was burned at some point, either in the sinking event, or intentionally to expedite abandonment. This is an indication of why most of the upper deck structure of the vessel no longer remains.

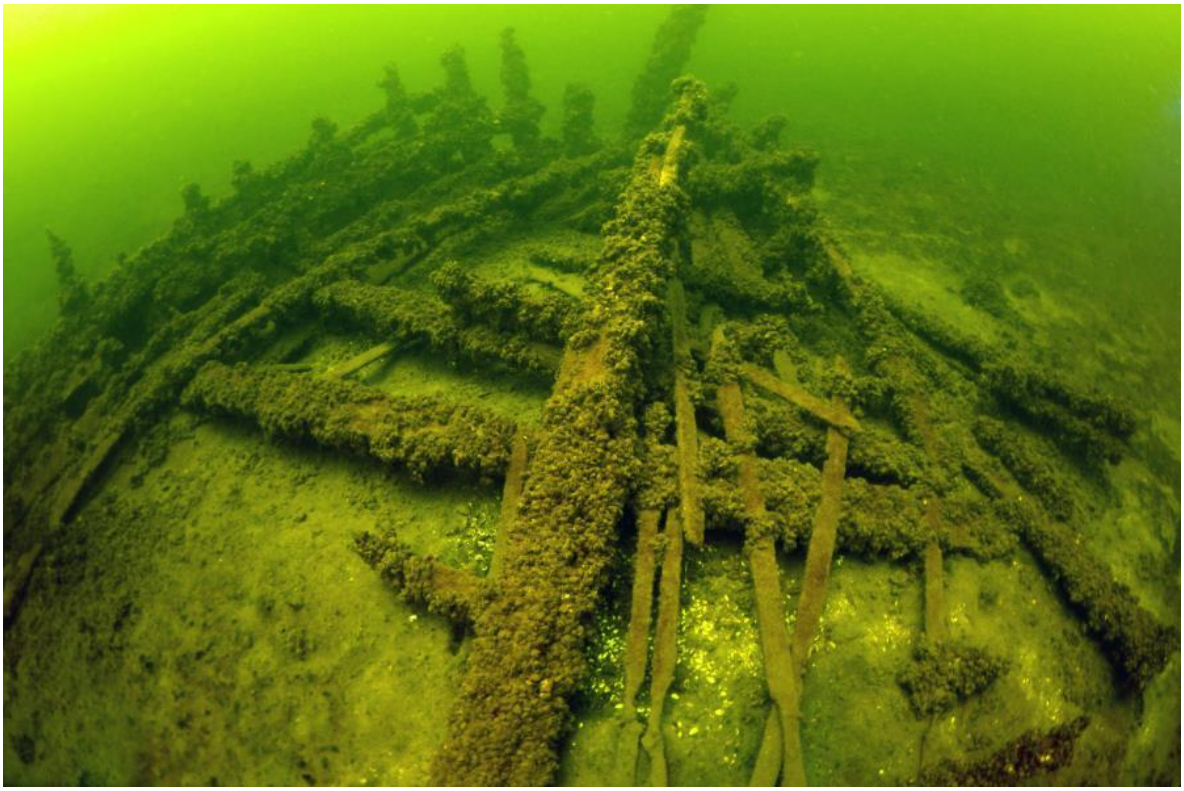


Figure 43. Deck beams and extant deck planking in bow of Sister Islands Tug

Although much of the upper structure of the vessel no longer remains, sections of the vessel's outer hull planking and ceiling planking remain visible and attached to the frame sets. The outer hull planking measures 0.5 feet wide and 0.1 feet thick, and appears to have been sheathed in metal. The metal sheathing measures 0.01 feet thick and remains attached to the lower hull. The ceiling planking has two distinct sizes. This difference is between the ceiling planks found higher up on the hull, and those planks located below the turn of the bilge. The upper ceiling planks measure 0.7 feet wide, and 0.1 feet thick, while the lower ceiling planks are much thicker and more robust, measuring only 0.4 feet wide and 0.2 feet thick. This variance is commonly found on Great Lakes vessels. The vessel is through bolted and peened on the exterior of the hull, with the fasteners measuring 0.1 feet in diameter, and measured on 1.2 feet centers.

Although most of the deck structure no longer remains on the site, a few deck planks were located near the bow. These planks measure 0.2 feet wide and 0.05 feet thick. They now lie broken within the bilge near the fish tug's bow. Additionally, a single deck beam is extant, lying athwarthships, 12.5 feet aft of the stempost. This deck beam measures 0.6 feet wide and 0.5 feet thick. Just forward of this, another deck support is extant, measuring 0.45 feet wide and 0.5 feet thick. Both of these beams originally extended across the vessel's beam.

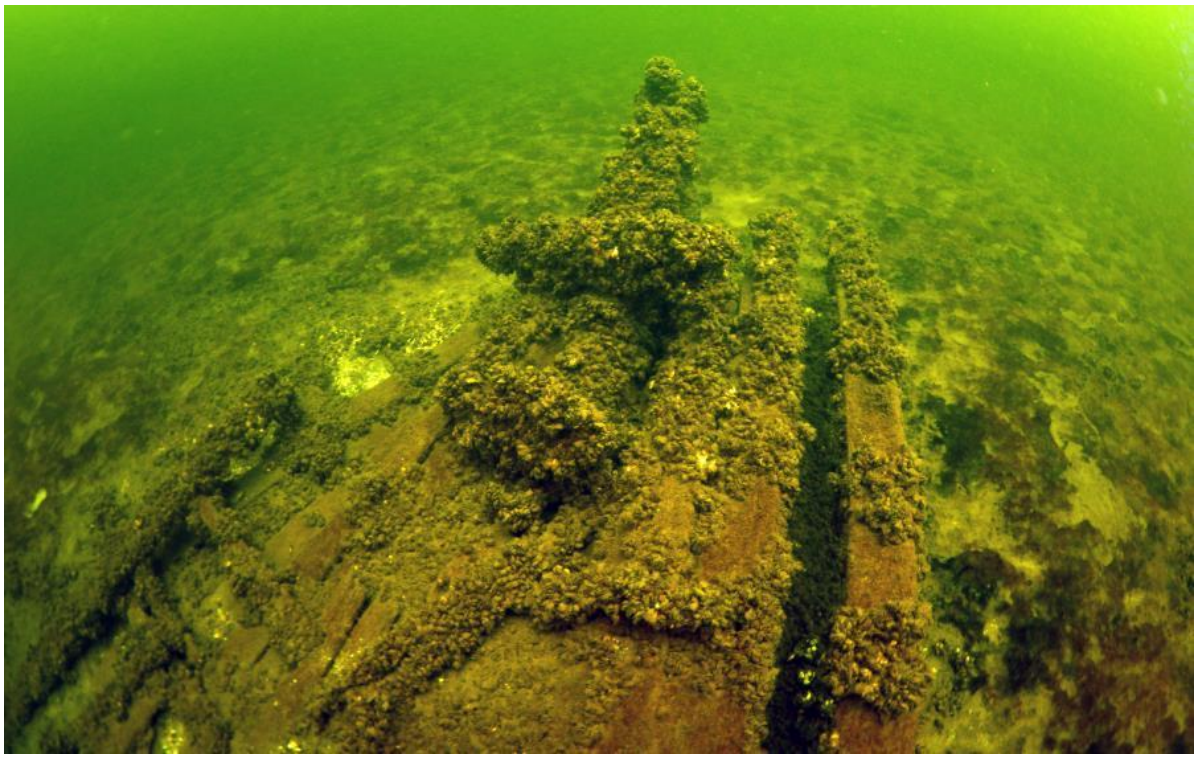


Figure 44. Sister Islands Tug's stern knees and deadwood

Much of the aft section of the bilge is now covered by a layer of sand and silt, obscuring many of the vessel's interior components. On the vessel's port side, however, a metal engine mount remains extant protruding from the sand, 24.9 feet along the baseline. This mount is located right next to the outer hull at the turn of the bilge, 0.9 feet port of the vessel's centerline. The mount measures 2.8 feet wide, 3.1 feet long, and it extends 0.3 feet out of the silt. Made of metal, the mount appears to be slightly corroded, or damaged, as the top layer of the metal remains rough, with a jagged edge near the outer hull. There appears to be a seam running longitudinally across the mount, separating the metal piece into two smaller pieces, each measuring 1.4 feet wide. No rivets or fasteners were located at the time of the survey, so it is possible that this was not two separate metal sections fastened together, but one piece with a superficial seam placed along its middle. No additional pieces of machinery were located within the vessel's hull, indicating that the vessel was stripped of its machinery either prior to an abandonment, or was salvaged shortly after its sinking. This may also be an indication as to why the upper deck structure no longer remains extant, and the hold remains empty.

Near the stern, 38.1 feet aft of the stempost, the centerline of the vessel once again becomes visible above the sand. The deadwood and stern structure rises 2.5 feet out of the sand. Two stern knees are extant attached to the deadwood. The forward most is located 40.4 feet aft of the stempost and measures 0.2 feet wide, 0.2 feet thick, and 2.0 feet long. The aft most knee is located 42.1 feet aft of the stempost and measures 0.4 feet wide, 0.2 feet thick, and 3.3 feet long, reaching across the ship's beam. The sternpost itself is visible just aft of this, measuring 0.55 feet sided and 0.4 feet molded. Although this vessel is presumed to be a small fish tug, and there is evidence of an engine mount within the hull, no shaft log, propeller shaft, propeller, or stuffing box were located during the survey. Since there are still layers of sand within the hull, it is possible that these components are simply still buried. It is also possible that these components were simply removed prior to abandonment.

Figure 45. Metal loop at bow of Sister Islands Tug

A few additional, unidentified components were located within the site as well. Near the bow, 6.6 feet aft of the stempost, a thin metal strap was found, shaped like a loop. This measures 3.7 feet long and 1.2 feet wide, and the metal measures 0.1 feet thick. This piece has yet to be identified definitively, but was likely a lead for some type of line when the vessel was in use.

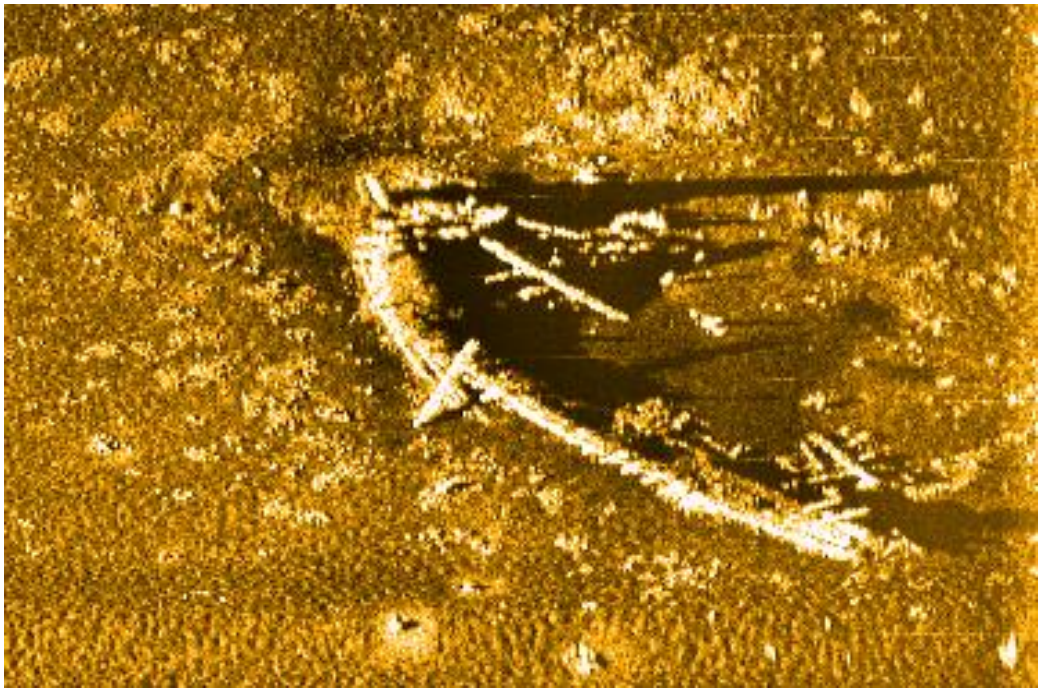


Figure 46. Multibeam sonar image of Sister Islands Tug (Keith Cormican)

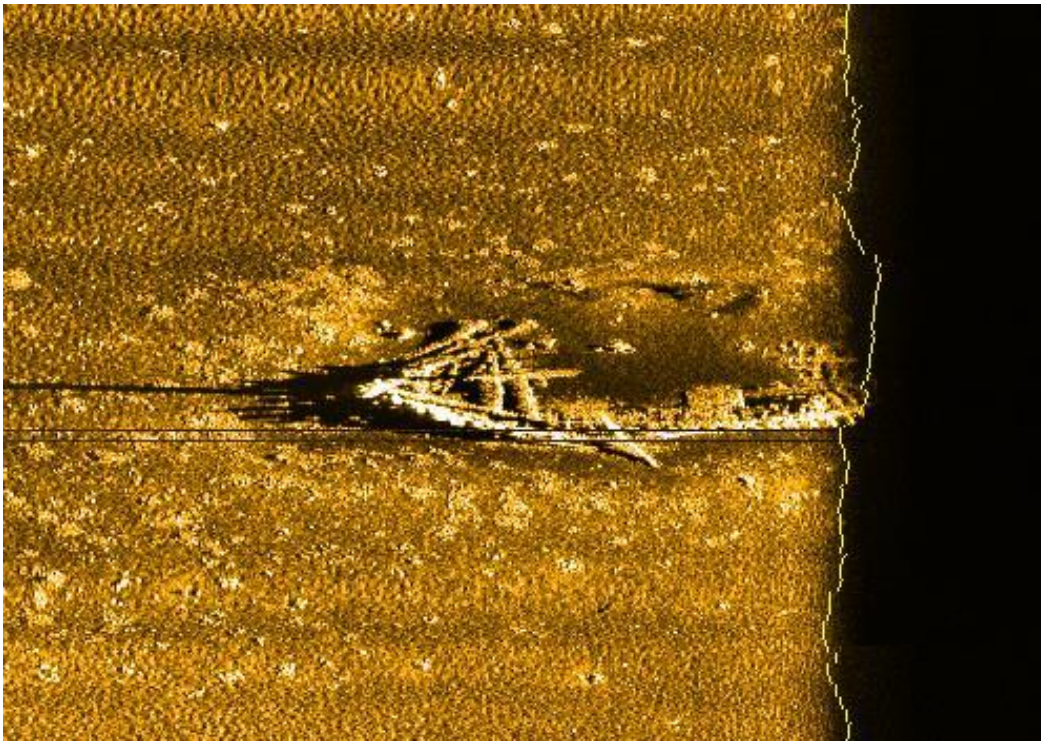


Figure 47. Multibeam sonar image of Sister Islands Tug (Keith Cormican)

Figure 48. Site plan of the Sister Islands Tug wreck site

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 shipwrecks 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. One of the primary goals 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 two of the four shipwreck sites described within this report.

Tubal Cain

As an early wooden, barque-rigged sailing canaller, the *Tubal Cain* survey was designed to provide positive vessel identification through identifying marks or artifacts and to document features of early ships of the Great Lakes grain trade.

The first objective, to provide positive vessel identification through identifying marks or artifacts, was not achieved. A complete archaeological documentation of *Tubal Cain* site will be a continuing process for years to come. Much of *Tubal Cain's* remaining hull structure is buried in bottom substrate. Large quantities of sand move through the area, 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 likely the *Tubal Cain*.

The second objective, however, was achieved and *Tubal Cain* 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 *Tubal Cain* site is easily accessible by snorkelers, divers and kayakers from shore or by boat, and is within recreational diving limits, located 1.3 miles northeast of the Two Rivers harbor entrance and a few hundred feet directly offshore from where the Ice Age National Scenic Trail meets Lake Michigan. Due to its shallow depth and its location in the surf zone, visibility at the site is oftentimes very good, though weather patterns and currents, on occasion, reduce visibility. As of the writing of this report, the site is again covered over by sand. If uncovered, a mooring buoy on site would greatly facilitate diving and kayaking activities, and would protect the wreck from anchor damage. Information gathered during the survey will be used for website updates, public outreach, and educational materials for Manitowoc County and the surrounding communities.

Grace A. Channon

As an early wooden, schooner-rigged sailing canaller, the *Grace A. Channon* survey was designed to provide positive vessel identification through identifying marks or artifacts and to document features of early ships of the Great Lakes grain trade.

The first objective, to provide positive vessel identification through identifying marks or artifacts, was achieved as the ship's nameboards were removed from this vessel shortly after discovery and are in repository at Milwaukee Public Library. A complete archaeological documentation of *Grace A. Channon* site will be a continuing process for years to come and the information gathered during the 2016 survey should serve as a baseline for monitoring the *Grace A. Channon* site for changes caused by environmental affects as well as increased visitation by divers.

The *Grace A. Channon* site is one of only two known canaller sites in Wisconsin waters that retain a high degree of hull integrity. Most canallers that wrecked in Wisconsin, like *Daniel Lyons*, *Floretta*, or *America*, lie broken and scattered on the lake bed and do not exhibit the superb level of preservation and integrity as that of *Grace A. Channon*. In most cases it is easier to document the structural components integral to vessel construction when a shipwreck is broken in pieces. When intact there is slower process of discovery and evaluation of the resource that is required. Additionally, as more sailing canallers are documented by the Society, a greater our understanding of the features of the vessel type can be achieved and the greater the necessity to return to early sites for comparative analysis.

The second objective was achieved, and *Grace A. Channon* 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.

Grace A. Channon site is deep, and considered beyond recreational diving depths. As technical diving increases in popularity, the site will only become more accessible to an increasing number of divers. The site lies 13 miles offshore, although easily reached by boat, diving the wreck should only be attempted in the best of conditions without risk of being caught out in weather that can blow up on the lake during the summer months. Because of the depth and the long distance from shore, it is not recommended for a State-sponsored mooring buoy. Information gathered during the survey will be used for website updates, public outreach, and educational materials for Milwaukee County and the surrounding communities.

H.L. Whitman

The *H.L. Whitman* survey was designed to provide positive vessel identification through identifying marks or artifacts and to document early Great Lakes schooner construction and bulk cargo trades.

The first objective, to provide positive vessel identification through identifying marks or artifacts, was not achieved. From the current breadth of archaeological material on the site, precise positive identification of the wreck was not possible. A complete archaeological documentation of the *H.L. Whitman* site will also be a continuing process. Much of *H.L. Whitman*'s remaining hull structure could be buried in sand near the site or lost on the outlying reefs. Erosion from Wind Point causes typically low visibility at the site. As the sediment 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 and location, construction details, and details of her loss all support the identification as *H.L. Whitman*.

The second objective was achieved. *H.L. Whitman* site was evaluated under the standards of the National Park Service for listing on State and National Register of Historic Places. Due to the compromised integrity of the site of the site, the lack of large majority of hull structure, decks, rigging and machinery it was found ineligible for listing.

Although initially thought to be an early sailing canaller due to the ship's historical context, her available construction features evaluated contrary to this premise. Many early Great Lakes sailing vessels could, by fortune, fit within the Welland Canal locks without adapted features like hinged davits or raked bowsprits, and therefore without modification could trade on Lake Ontario. The *H.L. Whitman* was one of these many sailing ships.

The *H.L. Whitman* site is easily accessible by boat, as it is only 2.5 miles north of the Racine harbor breakwater or by kayak ½ south of the Shoop Park parking area south of Wind Point. Due to the wreck's shallow nature and erosion from the point, visibility at the site is usually poor. On clear days, however, the wreck is a popular snorkeling and diving spot. Boating in the bay is popular and many boats frequenting the area and do not always understand or obey dive flag laws, so diving remains hazardous. Because of the site's lack of integrity, shallow location and the lack of water clarity on the site on most days, it is not recommended for a State-sponsored mooring buoy. Information gathered during the survey will be used for website updates, public outreach, and educational materials for Wind Point Lighthouse, Racine County and the surrounding community.

Sister Islands Tug

The Sister Islands tug represents a unique site, as it is one of only a few documented tugboats in Wisconsin waters. The Sister Islands tug survey was designed to provide positive vessel identification through identifying marks or artifacts and to record Great Lakes tug construction.

The first objective, to provide positive vessel identification through identifying marks or artifacts, was not achieved. A complete archaeological documentation of the Sister Islands tug

site will be an ongoing process. Although the site appears quite intact for what appears to be an abandonment, the location of several portions of hull structure remains unknown. Perhaps these are buried in the soft substrate or nearby, but a further search of the vicinity is in order. For this reason archaeologists will need to return to the site for further monitoring and any newly exposed or newly located structure or artifacts will be documented and added to the site plan. No nameboard was located, the vessel's size, location, construction, match no known vessel losses reported for the area.

The second objective was achieved, and the Sister Islands tug was evaluated for listing on the State and Nation Register of Historic Places. According to the standard and guidelines of the National Park Service for consideration for listing on the National Register of Historic Places, the site was determined ineligible for listing due to the lack of site and structural integrity as well as a lack of historical context.

The Sister Islands tug site is easily accessible by boat, and is located about 2.5 miles northwest of the town of Sister Bay, Wisconsin. As with the *H.L. Whitman*, the popularity of boating around the Sister Islands makes diving on this site hazardous, as many boaters to this vacation area remain unfamiliar with dive flag laws. A State-sponsored buoy is not recommended for the site, as there is already a buoy on the *Meridan* shipwreck nearby. Divers attempting to locate and dive the Sister Islands tug, should use care in anchoring. Because of the light construction of the hull and fragility of the site, it is recommended that instead of anchoring into the shipwreck, a marker buoy should be deployed and the boat should anchor away from the wreck. Additional buoys in this location would prove more of a hazard to navigation. Information gathered during the survey will be used for website updates, public outreach, and educational materials for Door County, and the surrounding community.

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