

**Small Boats on a Big Lake:
Underwater Archaeological Investigations
of Wisconsin's Trading Fleet 2007-2009**



**State Archaeology and Maritime Preservation Technical
Report Series #10-001**



**W I S C O N S I N
H I S T O R I C A L
S O C I E T Y**

Keith N. Meverden and Tamara L. Thomsen

Funded by grants from the University of Wisconsin Sea Grant Institute, National Sea Grant College Program, and the Wisconsin Department of Transportation's Transportation Economics Assistance program. This report was prepared by the Wisconsin Historical Society. The statements, findings, conclusions, and recommendations are those of the authors and do not necessarily reflect the views of the University of Wisconsin Sea Grant Institute, the National Sea Grant College Program, or the Wisconsin Department of Transportation.



The Big Bay Sloop was listed on the National Register of Historic Places on 14 January 2009.

The Schooner *Byron* was listed on the National Register of Historic Places on 20 May 2009.

The Green Bay Sloop was listed on the National Register of Historic Places On 18 November 2009.

Nominations for the Schooners *Gallinipper*, *Home*, and *Northerner* are pending listing on the National Register of Historic Places.

Cover photo: Wisconsin Historical Society archaeologists survey the wreck of the schooner *Northerner* off Port Washington, Wisconsin.

Copyright © 2010 by Wisconsin Historical Society
All rights reserved

CONTENTS

ILLUSTRATIONS.....	iv
ACKNOWLEDGEMENTS.....	vii
Chapter	
1. INTRODUCTION.....	1
Research Design and Methodology.....	3
2. LAKESHORING, TRADING, AND LAKE MICHIGAN	
MERCHANT SAIL.....	5
Sloops.....	7
Schooners.....	8
Merchant Sail on Lake Michigan.....	12
3. THE BIG BAY SLOOP.....	14
The Mackinaw Boat.....	14
Site Description.....	16
4. THE GREEN BAY SLOOP.....	26
Site Description.....	27
5. THE SCHOONER <i>GALLINIPPER</i>	35
Site Description.....	44
6. THE SCHOONER <i>HOME</i>	56
Site Description.....	71
7. THE SCHOONER <i>BYRON</i>	84
Site Description.....	91
8. THE SCHOONER <i>NORTHERNER</i>	101
Site Description.....	104
9. CONCLUSIONS AND RECOMMENDATIONS.....	116
10. REFERENCES.....	120

ILLUSTRATIONS

Figure	Page
1. Location of the Big Bay Sloop.....	16
2. Big Bay Sloop site plan.	18
3. Big Bay Sloop photomosaic.....	19
4. Starboard bow viewed from outboard. Stem, outer hull planks, bowsprit ring, frames, and samson post are visible. Log crib is visible forward of the stem.....	20
5. Collapsed deck with fife rail in forward half of vessel.....	20
6. The rudder, rudder post, sternpost, and outer hull planks viewed from the starboard quarter. Transom timber is removed to show detail.	21
7. Centerboard trunk and centerboard. Looking forward on the starboard side.	23
8. Port chainplate attached to frame, looking aft.....	23
9. Location of the Green Bay Sloop.....	28
10. The Green Bay Sloop site plan.....	29
11. Location of the <i>Gallinipper</i> wreck site.....	44
12. Photomosaic of the schooner <i>Gallinipper</i>	45
13. View of the ornate bow from the port side. Note the empty ledge where the fiddle- or billethead once stood.	46
14. Windlass, bowsprit, and jibboom viewed from aft. The yard is visible lying across the windlass and the forecastle companionway.	48
15. Stern deck arrangement with below-deck cabin. Note missing wheel.....	51
16. Stern davits, viewed from port side. Note single bitts at either quarter.	52

17. The mainmast has toppled forward with trestle trees and tops intact. Looking aft from above the bowsprit. Note tangle of fish net on either side of the hull.....	53
18. Topmast lying off starboard side, looking forward. Masthead is at the bottom of the photograph with the trestle trees and tops. A mastcap is extant on the topmast at the top of the image.	54
19. Many of the vessel’s spars lie off the starboard side. The fore yard lies across the windlass, and a boom lies across the starboard rail. A topmast lies underneath the boom, with a gaff lying nearer the hull. A smaller yard is visible lying off the starboard bow. Most of the spars are tangled in fish net.....	55
20. Location of the <i>Home</i> wreck site.....	72
21. The <i>Home</i> site plan.....	73
22. The <i>Home</i> photomosaic.....	74
23. Damage on starboard side bow. Bowsprit and anchor fluke are visible on the lakebed near the stem.....	76
24. Windlass viewed from starboard aft. Forecastle hatch is visible beneath windlass, and the bilge pump and foremast aft of that....	78
25. Aft cargo hatch and mainmast. Cargo is visible on port side of hold.....	78
26. Centerboard winch, looking aft. The missing deck plank over the centerboard trunk is visible, as is the loose plank with chain attached.....	80
27. Cabin opening, viewed from astern.....	80
28. The stern viewed from the port quarter.....	81
29. Two stoneware jugs that remain on site. The one on the right is marked “J. R. Maxfield, Milwaukee”.....	83
30. Location of the <i>Byron</i> wreck site.....	92
31. The <i>Byron</i> site plan.....	94
32. The <i>Byron</i> photomosaic.....	95

33. The stern post.....	96
34. Frames and ceiling planks visible through cabin opening.....	97
35. Deck beams and planks	97
36. Broken bulwark stanchions on the starboard side, looking forward	98
37. Centerboard and trunk visible through the cargo hatch.....	99
38. Cabin roof lying on the lakebed off the starboard quarter.....	100
39. No evidence of a bowsprit, windlass, or collision damage is found on the hull.....	100
40. Location of <i>Northerner</i> wreck site.....	105
41. A rare billethead remains intact on the <i>Northerner</i> 's bow knee...	105
42. The <i>Northerner</i> site plan.....	107
43. The <i>Northerner</i> photomosaic.....	108
44. The windlass viewed from astern, with forecastle scuttle and deck pipes visible.	110
45. The forward cargo hatch, looking aft from the port side. Gaps in the bulwark stanchions are visible on either side of the hatch. The starboard gap on the aft cargo hatch is also visible.....	110
46. Centerboard winch and chain slot through deck, looking aft. The aft bilge pump is visible forward of the cargo hatch, as are the aft bulwark gaps on either side of the cargo hatch.....	112
47. The cabin opening, looking forward. Frames for the cabin bulkheads are extant, and the wood cargo is visible, neatly stacked in the hold.....	113
48. The foremast lies at an angle across the starboard rail.....	115

ACKNOWLEDGEMENTS

The projects within this report span three years of maritime field work conducted by the Wisconsin Historical Society. The successful completion of these projects relies heavily on the hard work and dedication of many different people and institutions. Major funding for these projects was provided by the University of Wisconsin Sea Grant Institute and the Wisconsin Department of Transportation. John Karl of the University of Wisconsin-Sea Grant Institute deserves special thanks for providing consistently valuable insight and support over the program's many years. Additionally, University of Wisconsin-Sea Grant has provided invaluable support by allowing us the use their boats and vehicles. Their research vessels *RV Dawn Treader* and *RV Orion* have provided superb working platforms in all types of lake conditions. The City of Port Washington deserves special thanks for their support of the 2009 *Northerner* survey, where they allowed us to take over one of their maintenance buildings as our field headquarters and to stow our boats and equipment. Evan Kovacs and Bill Lange from the Woods Hole Oceanographic Institution provided cutting-edge technology to create stunning ultra-high resolution photomosaics of the deeper wreck sites.

Steve Radovan provided valuable information for many of the vessels included here. Few people maintain such meticulous records of their discoveries and diving, but time and again Steve's notes have provided information that it not recorded elsewhere. Nearly all of the *Home*'s operational history included here is the result of several years worth of comprehensive historic research conducted by Steve, who graciously donated all of his work to the Wisconsin Historical Society. Steve also provided valuable information on the discovery and early dives on the *Byron*, and donated a copy of John Steele's video from the first dives to the vessel that are now an invaluable record of the wreck site.

Likewise, James Brotz has also been an important source of ships' histories and site information. Actively involved in the local diving and maritime history scene, we have repeatedly turned to Jim for early site descriptions as well as a knowledgeable source of nineteenth-century ship construction techniques.

We are indebted to Randy Wallander, without whom we would never have known of the Green Bay Sloop's existence. Randy was gracious enough to take us to the site that he helped discover in the 1990s, and the site has proven to be one of the most important in all of Wisconsin's waters.

None of these projects would have been successful without the many hours donated each year by our field volunteers. Dedicated individuals that return year after year to burn in the hot summer sun, freeze in the frigid depths of the Great Lakes, and stoically face the occasional wrath of the seas, they devote many hours knowing their only compensation is the satisfaction of preserving Wisconsin's rich maritime past. These individuals include Paul Bentley, Russel Leitz, Matt Schultz, George Mayhew, Jason Dostal, Steve Radovan, Tom Milbrath, Jeff Milbrath, Christa Waller, Ethan Brodsky, Warren Miller, Kimm Stablefeldt, Ken Merryman, and Brad Ingersol. Thank you to all.

CHAPTER ONE INTRODUCTION

Archaeological surveys conducted by the Wisconsin Historical Society are joint efforts of many different organizations and individuals. The surveys conducted in this report were the result of a cooperative effort by the Wisconsin Historical Society, the University of Wisconsin Sea Grant Institute, and the Wisconsin Department of Transportation. Funding was provided by grants from the University of Wisconsin Sea Grant Institute and the Wisconsin Department of Transportation. The surveys were organized and staffed by the Society's Maritime Preservation and Archaeology program and Society volunteers and conducted over the 2007, 2008, and 2009 field seasons.

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 values 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 have 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 – Public History, 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 four stretches of Wisconsin coastline 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 links them within the overall context of Wisconsin's, as well as the greater Great Lakes region's, maritime heritage (Green and Green 2004).

The Maritime Trails initiative has become the Society's strategic plan for managing the state's diverse submerged cultural heritage while encouraging preservation and promoting public awareness and visitation. Initiatives aimed at identifying, managing, and interpreting Wisconsin's coastal cultural resources must consider these resources at both a local and regional level. The sheer length (approximately 860 miles), as well as the geographical, social, and cultural diversity of Wisconsin's Great Lakes coastline makes this essential. The Maritime Trails initiative encourages divers and non-divers alike 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 25 historic shipwrecks statewide. These moorings facilitate recreational access, provide a means of interpreting the wreck sites to visitors, provide a safe point of ascent and descent for divers, and eliminate anchor damage from recreational boaters anchoring into the site.

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

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

Interpretive Signage and Kiosks. As of March 2010, the Society has installed shore-side informational markers for 33 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. Five interactive touch-screen kiosks that highlight Wisconsin's historic shipwrecks are installed at the Wisconsin Maritime Museum, the Kenosha Public Museum, the Door County Maritime Museum, the Society's Madeline Island Museum, and the History Museum at the Castle. 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.

Websites. Two websites dedicated to Wisconsin's historic shipwrecks, underwater archaeology, and maritime history ensure the general public has access to timely and useful information. The gateway to these sites is the Wisconsin's Maritime Trails website (www.maritimetrails.org), which serves as a unified "maritime resource" information point for Wisconsin's residents and visitors. Unveiled in 2003, this website features a statewide database of shore-side maritime-related resources and over 700 historic Wisconsin shipwrecks. A searchable database includes contact information, Web links, and maps for historic maritime venues, as well as location and historic data for shipwrecks. An updated version of the website will debut in the spring of 2010. Wisconsin's Great Lakes Shipwrecks (www.wisconsinshipwrecks.org) is a collaborative effort between the Society and the University of Wisconsin Sea Grant Institute that began in 1996. Making underwater archaeological research results accessible to the public, this site features detailed information on historically and recreationally significant shipwrecks in Wisconsin's Great Lakes waters. Each shipwreck profile includes information about the ship's archaeology, history, final voyage, sinking, and current condition.

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 vessels built and operated during the first half of the nineteenth century, especially the smaller sailing craft that continued sailing until the end of the century. As the nineteenth century progressed, most contemporary authors focused their attention on the rapidly advancing steam technology and its ever-increasing share of the Great Lakes merchant trade. As a result, much of what we know about Great Lakes sailing craft has come from the archaeological record of vessels lying on the Great Lakes' bottomland. The archaeological surveys within this report were designed to provide a better understanding of the lesser-known classes of nineteenth-century Great Lakes merchant sail – lakeshorers and traders.

Field survey methods included traditional baseline surveys aided by digital photo and video documentation. Archaeological documentation was conducted along guidelines established by the National Park Service for submerged cultural resource survey and evaluation in determining site eligibility for the National Register of Historic Places. Research designs were directed toward formulating site descriptions and archaeological assessments with a package of management questions, some specific to the site itself (i.e. location, environment, parameters, integrity, extant features, and artifacts), as well as more general questions that place the site within its broader context as an historic resource (i.e. historical significance, archaeological

potential, recreational potential, and management requirements). Research objectives included:

1. Determine the site location, environment, and parameters through visual survey of extant elements, features, and artifacts.
2. Document and map exposed remains using trilaterated survey points and an onsite (submerged) datum.
3. 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.
4. 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 open- and closed-circuit scuba technology. Documentation included digital photomosaics, measured sketches, construction schematics, digital still and video imagery, and scaled site plans for National Register-level documentation. Analysis was conducted using comparative evidence obtained from archaeological surveys of similar sites, and augmented by historical documentation relating to individual sites and general Great Lakes maritime history. Where artifacts were encountered, material culture was interpreted in the context of its relevance to shipboard activities, shipboard hierarchy, shipboard activity/use areas, and other aspects of maritime anthropology.

This submerged cultural resource survey report serves as a source document for site description, analysis, interpretation, and management recommendations for use in cultural resource management planning, recreational development, and public education. It also serves as the source document for eligibility determination and nomination for listing in the National Register of Historic Places. Inclusion of these sites onto 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 LAKESHORING, TRADING, AND LAKE MICHIGAN MERCANT SAIL

The Wisconsin Historical Society's 2007, 2008, and 2009 maritime archaeology field seasons concentrated on the smaller sailing vessels lying within Wisconsin's Great Lakes waters. The chosen sites included two sloops and four schooners that ranged in size from 27 to 98 feet in length, and concentrated on vessels constructed in first half of the nineteenth century. Three of these vessels, the Big Bay Sloop, the Green Bay Sloop, and the schooner *Byron*, fall with the classification of "small craft", or vessels under 65 feet in length. In the case of the two sloops, their small size and early build date precluded even a tentative vessel identification that resulted in a complete absence of historical documentation. Unfortunately, this is more often the rule than the exception when it comes to historic Great Lakes small craft, and researching these vessels is a challenging endeavor. Due to their diminutive size many small craft were not documented, which eliminates one of the best resources of information on historic vessels – enrollment documents. For undocumented vessels patience and luck are key research elements, as research frequently involves many hours scouring historic newspapers for an obscure mention of a vessel's name (if one is lucky enough to know the vessel's name). Due to these challenges, historic Great Lakes small craft are one of the least understood vessel classes today. They were rarely mentioned in historic newspapers, and today any form of documentation regarding their construction and operation is virtually nonexistent.

The larger of the vessels studied here, the schooners *Gallinipper*, *Home*, and *Northerner*, fall into a trade that was originally referred to as "lakeshoring". As the nineteenth century progressed and improved harbors sprung up around Lake Michigan, however, lakeshoring evolved into what became known as "trading". Although the terms lakeshoring and trading are often used interchangeably (Karamanski 2000; Meverden and Thomsen 2006), ongoing research has indicated the terms describe somewhat similar, yet distinct trades that occurred during different time periods on Lake Michigan. More narrowly defined, lakeshoring describes Lake Michigan trade during the frontier years of the early nineteenth century when an absence of harbors required lightering of cargoes to and from ships anchored in unprotected waters offshore. The narrower definition of trading describes a class of vessels that carried a wide variety of cargoes between ports within Lake Michigan but rarely, if ever, ventured to ports on other lakes¹. The line between the two trades sometimes blurred, but within the context of this work lakeshoring includes early vessels like the *Gallinipper* that supplied the Wisconsin frontier with goods and immigrants from eastern ports, and trading refers to vessels that limited their trade to ports within a single Great Lake which may have included lightering at some of the smaller lakeshore communities. Continuing research into the operational practices of the smaller Great Lakes vessels will further illuminate the correct historic definitions of lakeshoring and trading vessels.

¹ It should be noted that lakeshoring and trading were not limited to Lake Michigan. The other Great Lakes had similar trades that required lightering or in which vessels rarely, if ever, ventured off their respective lake.

Collectively, both Lake Michigan's lakeshoring and trading fleets were largely populated by schooners less than 100 feet in length. Initially, the size of vessels that operated as lakeshorers was an artifact of early Great Lakes navigation in which the region's shipping needs were suitably served by a few small-capacity vessels and the lack of deepwater ports or well-marked channels disallowed the construction of large displacement craft. Even though the size of wooden vessels grew rapidly during the nineteenth century and the Great Lakes schooner eventually exceeded 300 feet in length², the small trading schooner did not disappear from the Great Lakes until well into the twentieth century, despite being pushed aside by larger, more profitable vessels (Meverden and Thomsen 2006). Instead, they adapted from lakeshoring vessels into what became known as trading vessels, and continued to provide a viable means of lake transportation for many years.

A concise definition of trading is difficult to pin down. By tracing the histories of small vessels referred to in historic documents as "trading vessels", trading on Lake Michigan can be described as smaller vessels that connected local communities throughout Wisconsin, Illinois, Indiana, and Michigan in a discrete regional economy by transporting varied cargoes from one Lake Michigan port to another. These vessels rarely, if ever, ventured onto any of the other Great Lakes. While only a fraction of the total Great Lakes tonnage, this trade was the lifeblood of many smaller communities and was worked in no small part by immigrant sailors. Trading vessels became an entry point for many immigrants into Great Lakes maritime commerce not only as sailors, but also as vessel owners and masters (Gjerset 1928; Hirthe and Hirthe 1986). There is also evidence to suggest that the crews of smaller vessels tended to come from a single family or the local community, and often included a landsmen who had little or no training as seaman, farm hands and wage laborers who turned to the lake when no other work presented itself, and even family men who did not want to venture on long voyages but instead remain near home (Martin 1995:37).

Because there is little historic documentation on how trading vessels operated, it is a challenge to understand the trading fleet today, especially within the dramatic shifts in maritime commerce during the nineteenth century. Escaping notice from contemporary authors, the small lakeshoring vessels that serviced frontier settlements along the Lake Michigan shoreline evolved into trading vessels that continued to survive within a busy industrial region that included one of the world's busiest shipping ports - Chicago (Karamanski 2000:127). The rapidly evolving trade patterns during this period required small vessels to be highly adaptable to shifting markets, and through this adaptability small lake vessels not only survived, but appeared to thrive despite competitive pressure from increasingly larger vessels in both sail and steam. Given that small trading vessels were operating well into the twentieth century suggests they were one of the most hardy and adaptable vessel types ever to sail the Great Lakes.

Small trading vessels are also one of the most difficult vessel classes to document and describe. Lakeshoring and trading are largely absent from nineteenth-

² Although James Davidson's *Pretoria* was technically a schooner barge, the 2,790-ton, 338-foot wooden vessel launched in 1900 well-illustrates the rapid increase in vessel size during the nineteenth century and provides a clear example of what small vessels were competing against by the close of the century.

century literature. Understandably so, as these small vessels set no records for the fastest passage or the largest tonnage carried, nor were they owned by wealthy and powerful men who used their fleets as pawns in a game of industrial competition. Instead, they were typically well-worn vessels owned and operated by ordinary men in support of small, local economies. One defining aspect of these small vessels' operation is that while they were rarely limited to a specific cargo (including lumber), their trade was frequently centered around the vessel owner's local community and serviced the transportation needs of that community, or even the owner's specific business.

Although the Great Lake's small vessels continued to operate alongside the larger and more glamorous sail and steam vessels, they were always in the shadows of their larger counterparts. If wrecked or lost, even with all hands, they made little mention in the newspapers and were quickly forgotten. Overlooked and underappreciated, much of how the small lake vessels operated is lost to us today. As more information is uncovered on this maritime subculture, particularly from archaeological studies like those included here, a better understanding of the small vessel's role in nineteenth-century commerce will emerge.

Sloops

Sloops are perhaps the least documented sailing craft to have worked the Great Lakes, and because the sloop rig was adapted to a wide variety of hull types a simple classification of a sloop is difficult and tenuous. Although Mackinaw boats were sometimes sloop-rigged, their hulls (including those of their cousin, the Huron boat) were distinct from the larger capacity sloops designed for the freight trade and are discussed separately in Chapter Three. In the context of this report, sloop refers to a fore-and-aft rigged vessel with a single mast that tended to be smaller than schooners, typically 60 feet or less in length. Sloops were highly maneuverable vessels that required little maintenance, but were large enough to be capable of long coastwise voyages. Sloops were a preferred rig for smaller bodies of water that required sailing in shallow waters with unsteady winds or poorly marked channels. For these very same reasons they were not preferred for operating in open waters far from shore, although many were certainly used in that capacity. Like the schooners, sloops were capable of carrying a square sail set on a yard.

One complication in tracing the development of the sloop rig is that many different hull types incorporated sloop rigging, such as scows, skiffs, dinghies, etc. Although the origin of the sloop rig is uncertain, the rig type was in common use in colonial America and undoubtedly came from England. By the end of the eighteenth century, the sloop was a well-developed hull and rig combination (Chappelle 1951:14-15).

Sloops were frequently used by early explorers in the Great Lakes region, and the first merchant sloop constructed on the Great Lakes was built by the North West Company at the head of Sault St. Marie in 1785, the 74-ton *Otter* (Lenihan 1994:26). The sloop was quickly overshadowed by the schooner as the preferred Great Lakes rig, but the sloop never wholly disappeared as a commercial vessel and continued to be used by those who worked close inshore or as a trader. They were particularly well-suited to the Green Bay, Door County, and the Apostle Islands regions. They

were often owned and operated by farmers, contractors, and by those for whom maritime activities were a sideline rather than their primary occupation. Great Lakes sloops carried farm products such as hay, fruits and vegetables, and building material such as lumber, stone, and cement from their production sites to nearby communities. Sloops commonly made longer interlake trips during the early part of the nineteenth century, but after 1840 they were most often used for local trips (Cuthbertson 1931:233; Martin 1995:34).

As hull and rigging size increased, however, the schooner rig became favored over the sloop rig due to the size of individual sails. For a given spread of sail, the two smaller individual sails of a schooner were easier to handle by a small crew than the single large sail of a sloop. Additionally, the schooner rig could be used on longer and narrower hulls than a sloop rig. During this time it became known that between two hulls of equal displacement, a longer, narrower hull was faster than a short, wide hull, giving a speed advantage to the schooner rigs with longer hulls (Lenihan 1994:28).

Schooners

The schooner was the backbone of the Great Lakes merchant trade, but within the Great Lakes region there is little discussion of the schooner's history or its role outside the sweetwater seas. From its origin in seventeenth-century Europe to twentieth-century Midwest, the schooner has played an important role in the world's economy. To understand the schooner's importance in America, it is necessary to discuss the role the schooner played in the greater American economy as it came to be the standard of the Atlantic coasting and Great Lakes sailing fleets.

The schooner's origins can be traced to the seventeenth-century Dutch *speeljaght*. A *speeljaght* was a two-masted pleasure craft that was fore-and-aft rigged with the mainmast stepped aft. This Dutch vessel was soon copied by the British and the design made its way to North America. The fore-and-aft design was adopted much more quickly in America than in Britain. In Britain, the schooner rig did not become popular until the 1830s, and evidence suggests that American schooners influenced the later British models, as the practice of rigging British vessels as schooners spread slowly outward from English ports that had experienced the North American vessels first-hand (Greenhill 1988b:11).

As legend has it, the fore-and-aft rig did not receive the name "schooner" until 1713 in Gloucester, Massachusetts, where a spectator made a chance remark during the launching of a two-masted vessel. According to legend, as Andrew Robinson was launching a new vessel someone called out, "Oh, how she schools!", to which Robinson responded, "A schooner let her be!" As fanciful as the story sounds, the fore-and-aft rig type had existed for more than one hundred years on both sides of the Atlantic, but the term "schooner" was not used to describe the rig type before 1713 (MacGregor 1982:16).

Use of the term schooner has no implication of hull size, specifically of an intermediate-sized vessel between the brigantine and ketch (MacGregor 1984:87). Many hulls have been converted from one rig to another, illustrating that hull size did not begin with a barquentine and decline in size from brigs down through brigantines, schooners, ketches, and sloops.

There are two general permutations of rigging within the class of schooner: the topsail schooner and the fore-and-aft schooner. Topsail schooners (in addition to gaff-rigged courses) carried square topsails from yards on the fore topmast, and more rarely the main topmast as well. The fore-and-aft schooner, however, carried no square topsails, but rather gaff topsails or no topsails at all. Herein lies a clear distinction between British and American schooners. In Britain, topsails schooners were so commonplace that this design was simply called a schooner without any technical qualification, while vessels without square topsails were called fore-and-aft schooners. The opposite, however, was true of American vessels. On the American coast, the fore-and-aft rig without square topsails was the common rig and became the natural form of the American schooner. American vessels that carried square canvas were less common and were known as topsail schooners (MacGregor 1997:77).

The schooner's American popularity was established well before merchant vessels appeared on the Great Lakes. As early as 1736, American schooners began arriving in England, and by 1800 the two-masted schooner dominated the American coasting trade (Chapelle 1967:258; MacGregor 1982:19). The schooner rig earned much of its popularity in the coasting trade where it had many advantages over square-riggers. Coasting required vessels to navigate shoal waters - beating their way into and out of sounds, bays, and rivers - often in unfavorable winds. Under these conditions square-rigged vessels were disadvantaged, as they were unable to sail close-hauled to the wind and tacking and jibing required a great amount of coordination and rig handling. At the mercy of erratic and often baffling coastal winds, square riggers sometimes had to sail from Maine to New York by way of Bermuda if the winds were especially troublesome (MacGregor 1997:71). Under these conditions, however, the schooner excelled. The fore-and-aft rig allowed schooners to sail much closer to the wind, allowing a more direct sailing route between coastal ports that significantly cut trip times and costs. The less complicated schooner rigs also required fewer crew than square-riggers, significantly reducing overhead costs, and profitability, compared to square-riggers.

By 1860, the schooner was the universal rig of the coasting trade, and as vessel and sail size continued to increase, the three-masted schooner quickly became the norm. Dividing the sail area into thirds reduced the size of individual sails without decreasing the total amount of canvas, which allowed schooners to increase in size without a proportionate increase in the number of crew (Morris 1973:20). The larger three-masters were more profitable than the smaller two-masters as they could carry a larger cargo without a proportionate increase in operating costs.

Although the first three-masted schooner can be traced to the late eighteenth-century, the use of three-masters in the coasting trade did not become widespread until 1850, and by the end of the Civil War three-masters dominated the coasting trade (Chapelle 1967:259; Greenhill 1988b:24; Morris 1973:21). During this period there were two types of three-masters in the coasting trade: a deep-draft standing keeler and a shoal-draft centerboard model. The standing keeler was not reliable when light, and the centerboard model could not carry enough cargo to be profitable, but by the late 1870s the two designs were combined to produce a deep centerboard model that proved highly successful. This vessel was similar to the Great Lakes vessels, with a small raised deckhouse forward of an exposed wheel, a flat hull with

little deadrise, and a fairly flat sheer with a raised bow that produced a fast, graceful appearance with a sharp entrance. She carried gaff topsails and all three masts of equal height – a rig that later became known as “tern” schooner (Chapelle 1967:260). Tern schooners became the most common of the three-masted coasting schooners. They were efficient, handy, and economical, and often engaged in trans-oceanic as well as long-range coastal trade. The tern schooners had the simplest of rigging and required a smaller crew than schooners with square canvas. In one 1855 account, the tern schooner *Eckford Webb* had a splendid winch installed on each mast that allowed two crewmen to hoist all three sails in five minutes, and the vessel carried a crew of only six men (Greenhill 1988b:13; MacGregor 1997:73).

The Atlantic coal trade between the Chesapeake Bay and New England propelled the schooner to its largest form as a self-propelled vessel. The first four-master was built in 1879, and increasingly larger vessels were constructed that finally culminated in the only seven-masted schooner ever constructed, the *Thomas Lawson*, built in Quincy, Massachusetts, in 1902. At 395 feet in length she was the largest of the Atlantic coasters, but her mammoth size made her rather unwieldy. Like many of the large coasting schooners built in New England near the turn of the century, the *Thomas Lawson* met a violent end rather early in her career (Greenhill 1988a).

The development of the schooner on the Great Lakes was similar to that of the Atlantic, and here too, they quickly came to dominate the Great Lakes trade. The first Great Lakes schooner appeared roughly 75 years after its first appearance in the American colonies, but the exact date is uncertain. According to the *Andrews Report on Colonial and Lake Trade* (Andrews 1852:49) the first American schooner on the lakes was built at Erie, Pennsylvania, in 1797, but was lost soon afterward. Karamanski (2000:27), however, dates the first lake schooner to 1778, the *Archange*, sent from Mackinac to Milwaukee to collect furs. Whichever of these was the first, it does not appear that another was built until the 25-ton *Surprise* at Buffalo, New York, in 1804, and the *Mary* built soon after at Erie, Pennsylvania. In 1808, the 45-ton *Zephyr* was one of the first ships launched at Cleveland, Ohio, and its size was found to be well-suited to the lakes trade during the first decades of the nineteenth century (Lenihan 1994:28).

The first clipper-type schooner that resembled those on the Atlantic was built under the supervision of Captain Dobbins, hired by the American Navy to construct Perry’s fleet in Erie, Pennsylvania, during the War of 1812 (Lenihan 1994:26). By 1817, the largest American merchant vessel on the lakes was the schooner *Michigan*, rated at 132 tons and rigged as a double topsail schooner (Lenihan 1994:28). By this time the schooner was the preferred Great Lakes rig with a design based on the shoal models of the Atlantic coasting trade (Chapelle 1967:268). Similarities in Great Lakes and Atlantic vessels is unsurprising as many of the Great Lakes’ early shipwrights had come from the Atlantic coast, bringing the Atlantic hull designs along with them.

Although centerboards first appeared on the Great Lakes early in the nineteenth century, the first centerboard vessel about which much is known was a clipper type schooner built by Manitowoc shipbuilder William Bates in 1851 (Barkhausen 1990:14; Chapelle 1935:269). This vessel was a shoal draft, flat-floored, sharp-ended schooner rigged with square topsails on the foremast. Bates produced several of these two-masted schooners, the *Challenge*, *Clipper City*, and *Montowoc*,

all in the early 1850s. These vessels differed from the ordinary type of lake vessel of the time in that they had greater proportionate breadth, a shallower draft, and a longer and sharper bow with greater lifting power. The amidships section was dead flat with a centerboard, and a red stripe was painted on their side to show the light draft waterline (Hall 1884:137). These two-masters reportedly achieved speeds of 13 knots and developed a good sailing reputation, and today are often recognized as having introduced the merchant clipper idea to the lakes. For many years following, the two-masted centerboard schooner of this design dominated the lakes shipping trades. Much like the Atlantic coasters, Great Lakes vessels grew in size and developed into three-masters and the occasional four-master, all with centerboards and square topsails (Chapelle 1967:269).

The standard Great Lakes schooner rig was different than that of the Atlantic coasters, however. The typical lake schooner carried at least one yard on the foremast, and frequently two or three (Hall 1884:138). These foremast yards carried one or two square topsails, with a gaff topsail carried on the remaining masts. Another popular arrangement was to hang a large square sail from the yard that hung down almost to the deck, called a runner (Lenihan 1994:29). These square sails gave greater speed when running before the wind and was a desirable quality on the lakes, taking advantage of the prevailing westerlies on a downbound voyage. A popular sail that was somewhat unique to the Great Lakes and replaced the square topsail was a triangular topsail on the foremast, better known as the raffe. Although the raffe is often declared a Great Lakes innovation that was exclusive to the lakes, the raffe sail was also occasionally found on British vessels. It is uncertain from where the raffe originated, but it is certain that it was not exclusive to the Great Lakes, as several photographs exist of British schooners in European waters with a triangular topsail identical to the raffe.

Other differences existed between coastal and lake schooners, as well. For unspecified reasons, the construction rules for Great Lakes ships required less freeboard than for ocean vessels (Hall 1884:137), and the hulls of lake vessels tended to be longer and narrower than those of ocean vessels of comparable tonnage (Hall 1884:138). Lake schooners were also sparred somewhat differently. While the Atlantic coasters were typically tern schooners with masts and topmasts of equal length, the lake schooner usually stepped masts of differing heights with the mainmast being the tallest, followed by the foremast and the mizzenmast, respectively. Additionally, the fore and main topmasts were usually of equal height, but the mizzen topmast was somewhat shorter (Hall 1884:138).

One trait shared between the coasters and the lake schooner was a lack of ornate decoration. Barring simple scroll work sometimes carved near the bowsprit or deckhouse, or iron stars fastened on the transom, these schooners were built for work rather than beauty. Figureheads were the exception rather than the rule, and on those vessels that did carry a figurehead they were often rather simple carvings that lacked intricate detail. Both coasters and lake schooners were designed to be low-cost and practical, and decoration did not readily fit into this schema. Both types of vessels were designed and built to meet local conditions and economic specifications. The most important of these were draft limitations imposed by shoal waters, as well as the requirements of carrying bulk cargoes such as ore, timber, grain, and coal.

The self-propelled lake schooner never reached the gargantuan size of their Atlantic counterparts. Four-masted lakers were rare, and only one five-master was ever constructed, the 275-foot *David Dows*, built in Toledo, Ohio, in 1881. The *David Dows* proved too large and unwieldy for the confined waters of the Great Lakes, however, and after colliding with and sinking two vessels she was considered a menace to navigation and stripped as a sailing vessel. Her status was lowered to that of a schooner-barge, and less than a decade after her launch she sprang a leak and sank off Chicago (Karamanski 2000: 37).

Merchant Sail on Lake Michigan

The first sailing vessels on Lake Michigan carried a wide variety of cargoes. Everything that was needed by settlers on the frontier, as well as the settlers themselves, arrived via sailing ship, most often a schooner. With the exception of the earliest vessels, however, sail technology never had a monopoly on Lake Michigan. The first European sailing vessel to enter Lake Michigan was LaSalle's *Le Griffon*, which departed Washington Island on 18 September 1679 and sailed into "a crack in the lake". Following *Le Griffon*, it was nearly 100 years before a sailing vessel would again enter 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 1944:100).

From the *Archange* to 1815, most Lake Michigan vessels 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, and a year later the *Walk-in-the-Water* entered Lake Michigan and sailed to Green Bay (Mansfield 1899a:184, 596; Mills 1910:92). By 1836, regularly scheduled steamship lines connected western Lake Michigan with eastern cities, and steam vessels were under construction at Milwaukee (Quaife 1944:150; *Milwaukee Advertiser* 1836). These steamers quickly pulled passenger traffic and high-dollar cargo from the schooners, relegating the schooner to the bulk trades.

In May 1853, however, the Michigan Central Railway established the first rail connection with Chicago, and in 1855 the first all-rail connection between Buffalo and Chicago was established (Quaife 1944:155; Mills 1910:155). The railroads quickly stole the steamers' passenger and cargo trade, resulting in even stiffer competition for sailing vessels. Despite the increasing competition, lake sail did not die easily. Sail had the advantage of lower construction and operation costs, adaptability to many different trades, and sail technology had developed for centuries and was nearly perfected with little room left for improvement. Sail required small capital investment, its propulsion cost nothing, and the smaller crews were inexpensive relative to steamers. These advantages allowed sailing vessels to operate where the volume or value of trade was insufficient to justify steam traffic.

As the nineteenth century progressed, lumber became the backbone of Lake Michigan's schooner fleet. Nearly every form of wood product was carried aboard Lake Michigan schooners, including bark, lumber, pulpwood, shingles, and even evergreen trees destined to decorate holiday homes. The lumber trade not only employed more lake schooners than any other lake trade, but it was also largely

responsible for allowing the aging schooner to continue working the Great Lakes well into the twentieth century – long after merchant sail had been rendered obsolete by advances in steam technology. The shallow draft of the smaller sailing vessels allowed them to load at many unimproved lake ports along Lake Michigan's northern shore, places where larger steam vessels could not enter. Most importantly, however, the durable nature of lumber was well suited to being carried in old, leaking vessels where wet holds would have ruined more fragile cargoes. By the end of the nineteenth century, most of the Great Lakes merchant sailing vessels were well worn and operated under such tight profit margins that little money was left for vessel improvements or even basic maintenance. Many vessels were in a very poor condition, and it was often (erroneously) believed that carrying a load of lumber, a cargo inherently buoyant on its own, would prevent a waterlogged vessel from sinking. It is no coincidence that Lake Michigan's last working schooner, the *Our Son*, was carrying a load of pulpwood when she foundered off Manitowoc on 26 September 1930.

The decline of the lumber industry was also the passing of the golden age of sail on the Great Lakes (Cooper 1987:52). Despite enormous obstacles, lake schooners remained adaptable to rapidly evolving trade patterns, shifting markets, and technologies, making the schooner one of the most hardy and adaptable vessels ever to sail the Great Lakes.

CHAPTER THREE THE BIG BAY SLOOP

The Big Bay Sloop was tentatively identified as a Huron boat following its discovery in the early 1990s, but the vessel's construction features fit neither the description of a Huron boat nor the related Mackinaw boat. Archaeological evidence suggest the vessel is a vernacular sloop that was constructed and used near the end of the nineteenth century or early twentieth century. The vessel's intended use is uncertain, but its relationship to an anomalous submerged crib suggest it may have been used a small working craft. The Big Bay Sloop is the only sloop of its type known to exist in Wisconsin waters, making it a significant archaeological resource.

The Mackinaw Boat

Discussions of Great Lakes working sail invariably focus on the ubiquitous schooner and its nineteenth-century heyday. A neglected class of working sail also existed on the Great Lakes, however, sail-powered small craft. Small sailing craft have played an important role throughout North American waters, ranging from the sleepy backwaters of inland rivers to the unprotected waters of larger bodies of both salt and fresh water. While the tidewater regions of the southeastern United States have received increasing attention to their small working vessels (Alford 1990; Fleetwood 1995), the Great Lakes' small working craft have received scarce attention in the literature.

Long before Europeans entered the Great Lakes region, Native Americans used the Great Lakes for transportation as well as food source. Paddling light canoes, long trading voyages were not uncommon, and the birch bark canoe was widely used in netting and spearing fish (Bogue 2000:7; Mansfield 1899a:61). The French enlarged the Native canoe to suit their early freighting needs and also introduced the first European craft used on the upper Great Lakes – the bateaux. The bateaux was a double-ended, flat bottomed boat that was most often rowed, paddled, or poled, but was also occasionally sailed under favorable conditions. The bateaux is most often associated with the fur trade, but it is likely the vessel was also used for fishing and saw use throughout the upper Great Lakes prior to 1700 (Swanson 1982:106).

The origin of the Mackinaw boat is unknown, but it was most likely inspired by the bateaux and evolved during the early- to middle-nineteenth century. Its cultural influence is open to debate, but it is probable that Mackinaw boats began with French influence and evolved with the influx of other European settlers into the upper Great Lakes. With these settlers came varied boat building traditions that refined the double-ended bateaux into what is today widely recognized as the Mackinaw boat.

The term "Mackinaw boat" originally referred to any small sailing craft used in the Straits of Mackinaw area, but sometime after 1790 the term "Mackinaw boat" came to define double enders, most often flat-bottomed boats modeled after the bateaux. By 1830, the term became more restricted to round-bottomed double enders (Swanson 1982:106). Although the definition of a true Mackinaw boat is difficult to pin down, today most historians recognize the Mackinaw boat as:

A double ender of 18-30' plus in length, plumb stemmed, marked rake to the sternpost, half decked, two masted (usually gaff ketch), round bottomed, fitted with a centerboard, and sporting a jib set on a hogged bowsprit. Planked, either lapstrake or carvel. Original waters of use – the Upper Great Lakes. Often associated with the Straights of Mackinaw. Certain specific variation associated with time and place. (Swanson 1982:100)

The earliest documented construction of a vessel fitting the Mackinaw boat's modern description was the *Wabesi*, built at St. Ignace, Michigan, in 1845. Following the *Wabesi*, builders throughout the Upper Great Lakes began producing similar hull designs that incorporated different regional characteristics. According to Chapelle (1951:182), the western Mackinaw that developed on Lakes Superior and Michigan possessed distinct differences from its eastern counterparts on Lakes Huron and Erie, and that the western variety was unquestionably the finest of the lake types, being a fast and excellent sea boat. The western Mackinaw had a strong sheer and a high bow with a plumb stem and a marked rake to the sternpost. The beam was carried well forward, and the run was long and fine. Twenty-six feet appeared to be the average length (Cochrane and Tolson 2002:72).

The hull could be either clinker- or carvel-planked. The boats most often carried two masts, although single masts were not unusual, and most were unstayed. Early vessels usually carried lug or sprit sails, but the gaff rig soon became the standard. The slender bowsprit was hogged downward by the bobstay. Centerboards were typically iron, and most were also fitted for oar propulsion in tight quarters or slack winds. Ballast often consisted of pig iron, bags of gravel, or stone. Their rudders were externally hung (Watts and March 1997:32, 33).

The Mackinaw boat was used for many types of water transportation, but its primary use was in the commercial fishing industry. In 1872, a fisherman of modest means only needed to invest \$225 for a light gill net rig and \$100 for a Mackinaw boat to get a start in commercial fishing on Lake Michigan (Bogue 2000:40). Not only were Mackinaw boats inexpensive, they were also very seaworthy. In his report on the Great Lakes fisheries, Milner (1872) reported the Mackinaw boat had been in use longer and had a better safety record on the Upper Great Lakes than any other boat. He described the Mackinaw boat as “fast, the greatest surf boat known, and with an experienced boatman will ride out any storm, or, if necessary, beach with greater safety than any other boat” (Milner 1872:13,14). An even greater demonstration of their seaworthiness, the Life-Saving station at Collingwood, Ontario, would use a Mackinaw boat in their rescues when the surf was too treacherous for their lifeboats (Watts and Marsh 1997:32).

The Huron boat was a less common variant of the Mackinaw boat that possessed a square stern to allow more working room in the boat's aft end. The Huron boat looked very much like a Mackinaw with the stern cut off and a narrow transom installed in its place. The Huron boat was usually somewhat larger than the Mackinaw, typically ranging from 20-40 feet in length and had much more variation than the Mackinaw in its hull and rigging (Chapelle 1951:177, 180, 185; Cochrane

and Tolson 2002:72). Huron boats were used in much the same manner as Mackinaws, but are even less documented in historic literature than the Mackinaw.

As obscure as the Mackinaw and Huron boats' origin, so too is their demise. As the end of the nineteenth century neared, overfishing and pollution significantly reduced the productivity of the Great Lakes fisheries. At the same time, advances in steam technology were quickly eroding the practicality of sail propulsion, and the commercial fishing industry was not immune from the efficiency and low cost of steam propulsion. With the increased use of steam power (and eventually oil power) tugs by Great Lakes commercial fishermen, sail-powered fishing boats became obsolete and were abandoned. Because the Mackinaw and Huron boats were never well-documented during their existence, they quietly slipped into extinction with even less notice. Today, we have little historic, and even less archaeological, evidence to learn about this important Great Lakes vessel type.

Site Description

A Phase II non-disturbance archaeological survey of the Big Bay Sloop site was conducted in September 2007. The Big Bay Sloop site lies within Big Bay on Madeline Island, Ashland County, Wisconsin, and consists of the remains of a small sloop 27.3 feet in length that lies next to a submerged wood crib (Figure 1). The site was initially investigated in the early 1990s by Society archaeologists and was tentatively identified as a Huron boat - a transomed version of the double-ended Mackinaw boat. Several artifacts were identified during the preliminary survey, including a small wooden cask, two sheave blocks, turnbuckles, and the base of a clear glass bottle. During the 2007 survey dives only one block and two turnbuckles remained at the site. A small iron cleat was discovered that was not documented in the preliminary survey.

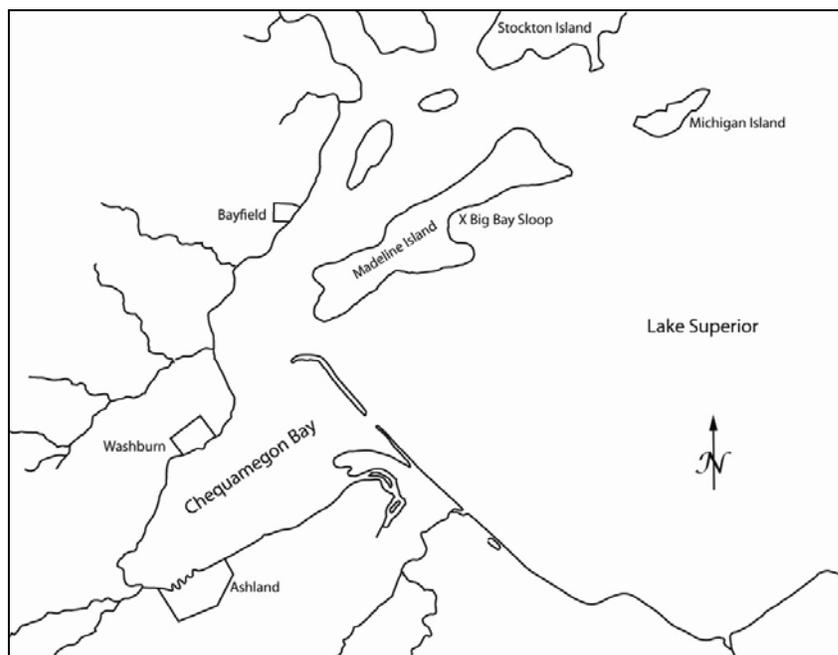


Figure 1. Location of the Big Bay Sloop.

The Big Bay Sloop is remarkably intact for such a lightly-built vessel that lies near enough to the shoreline to be impacted by the surf zone as well as the buildup of winter ice floes (Figures 2 and 3). The vessel lies upright on a sand bottom on a heading of 023 degrees. The hull length between perpendiculars is 26.23 feet. Overall length, including the rudder, is 29.0 feet. The beam is 11.6 feet, measured at the hull's widest point at the aft end of the centerboard trunk.

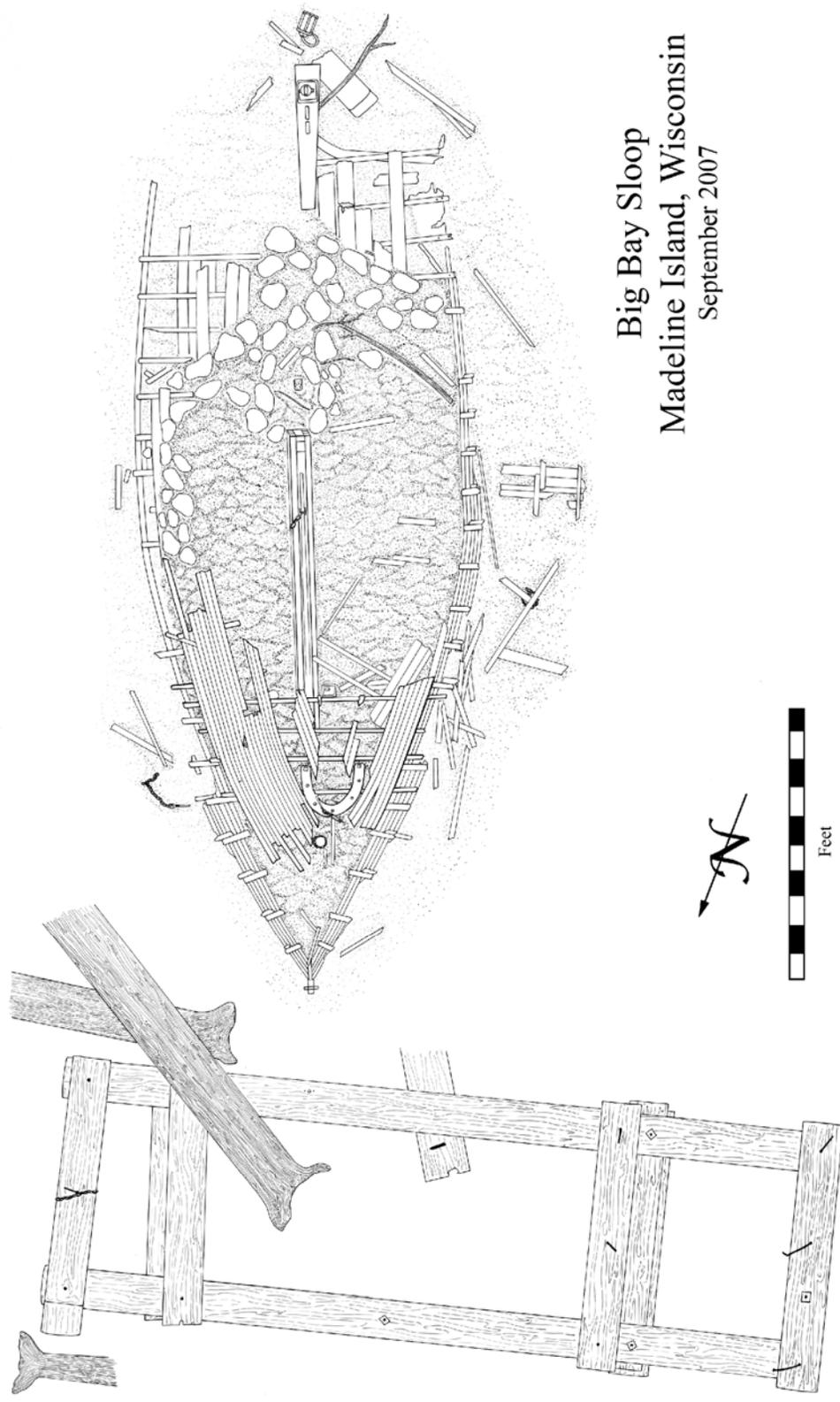
The vessel's bow is the most intact. The stem and much of the outer hull planking and frames are extant up to the deck level. A large section of the fore deck is extant, but has collapsed into the hull. Aft of the collapsed deck, the centerboard trunk is intact with the centerboard in a retracted position. The hull becomes more disarticulated aft of the centerboard trunk; only the lower hull below the turn of the bilge is extant between the centerboard trunk and the stern post. The lower hull is filled with rock and sand to a depth of a foot or more.

The stem is vertical and very thin for the vessel's size with a sided dimension of $3/4$ inch and a molded dimension of $6-5/8$ inches (Figure 4). The stem is rabbeted for the outer hull planks, and extends $4-3/4$ inches forward of the plank ends. The stem's leading edge is protected with a stem iron $1/4$ inch thick and $3/4$ inch wide that runs from the top of the stem to where it disappears into the lakebed.

The outer hull is carvel planked with $3/4$ inch thick planks cut from a soft, yellow wood that appears to be pine. The starboard bow retains the most intact planking, and is planked with three different plank widths. The upper three planks are each $3-3/8$ inches wide. The next four are each $1-7/8$ inches wide, and the lowest five planks that are visible above the lakebed are each $3-7/8$ inches wide. The planks are fastened to the stem with two square-headed nails on each of the narrowest planks and with three square-headed nails on each of the wider planks. Each outer hull plank is fastened to each frame with two nails, but some of the narrowest planks are only fastened with one nail to each frame. All nail heads are filled with either caulk or paint. Near the stern, visible outer hull planks are $3-5/8$ inches wide. There are no ceiling planks visible in the forward half of the vessel, but the aft half has ceiling planks $5-3/8$ inches wide. Ceiling planks appear to be made of the same wood as the outer hull planks.

Frames dimensions vary somewhat, but average $1-1/2$ inches molded by 3.0 inches sided. Frame spacing also varies, with sample spaces of $12-5/8$, $13-1/2$, $11-3/8$, $12-3/4$, and $12-5/8$ inches measured on the starboard side abeam of the centerboard trunk. Frames are constructed from two futtocks joined with lap scarpns with an overlap of 10.0 inches on the scarpn. The upper futtocks are lapped onto the aft face of the lower futtock and are fastened with square-headed nails. A section of covering board with a frame top-timber lies on the lakebed near the port side. The top-timber is mortised into the covering board.

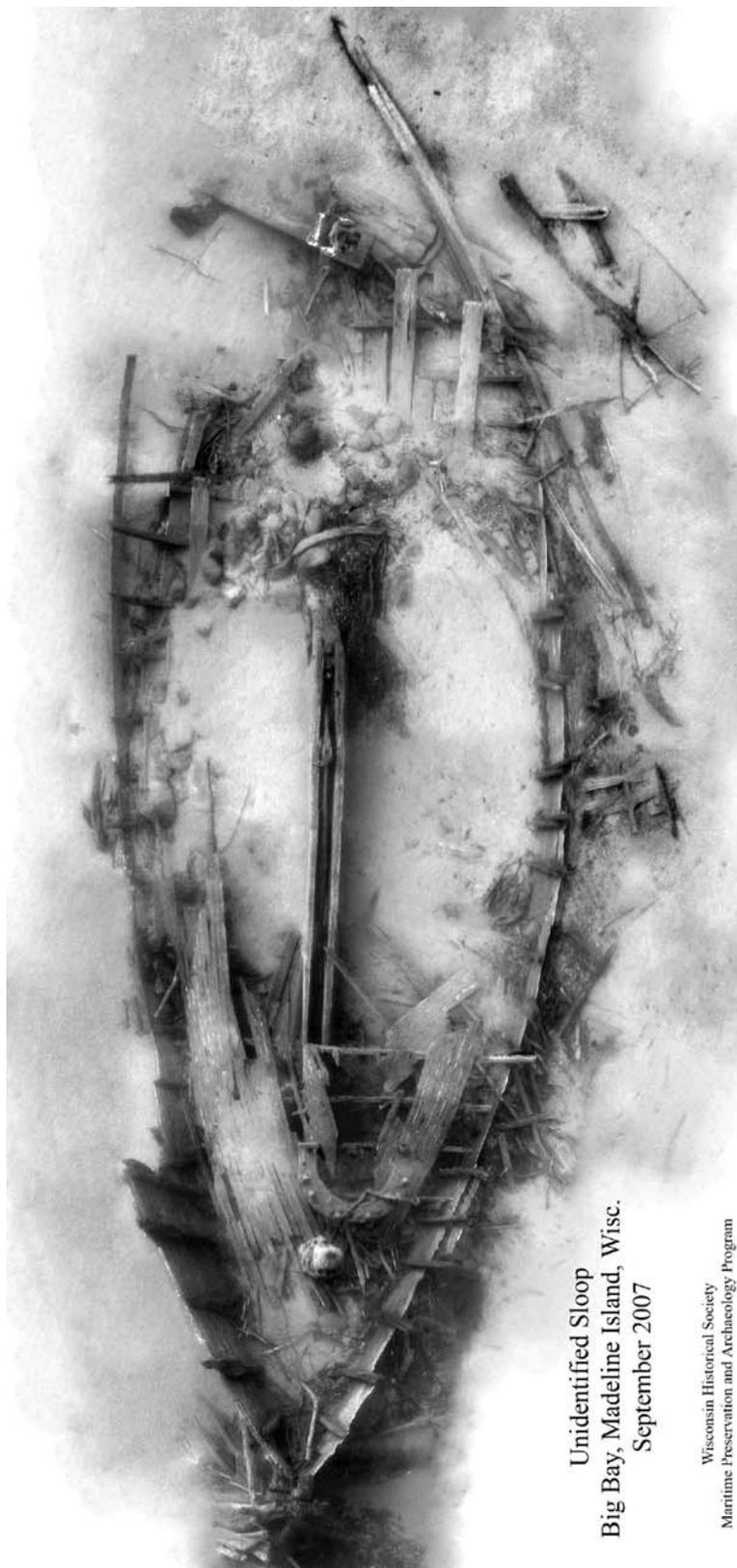
The forward half of the vessel was decked with planks $1-3/4$ inches wide and was caulked between planks (Figure 5). Deck beams are spaced at 12.0 inches on center. The deck beams currently rest atop the centerboard trunk, and it could not be determined if the deck beams were originally fastened to the top of the trunk or if there was a space between the deck beams and trunk.



Big Bay Sloop
Madeline Island, Wisconsin
September 2007

Wisconsin Historical Society
Maritime Preservation and Archaeology Program

Figure 2. Big Bay Sloop site plan.



Unidentified Sloop
Big Bay, Madeline Island, Wisc.
September 2007

Wisconsin Historical Society
Maritime Preservation and Archaeology Program

Figure 3. Big Bay Sloop photomosaic.



Figure 4. Starboard bow viewed from outboard. Stem, outer hull planks, bowsprit ring, frames, and samson post are visible. Log crib is visible forward of the stem.

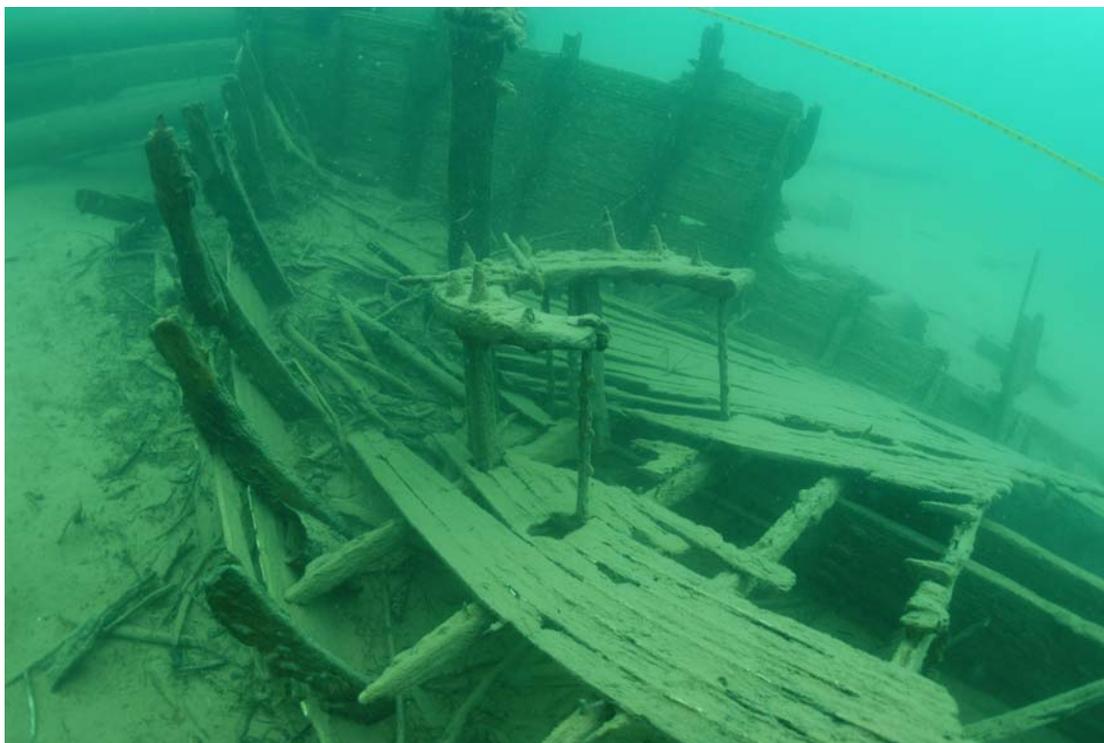


Figure 5. Collapsed deck with fife rail in forward half of vessel.

The hull has a pronounced run for the rudder that terminated in a transom stern. The last frame before the transom is broken and lies on the lakebed, but the second to last frame is intact to just above the turn of the bilge and extends 5.0 feet from the vessel's centerline, giving an approximate transom width of 10.0 feet. The futtocks of the aft-most frames are not lap scarphed as are the forward frames. Instead, they are butt scarphed at the turn of the bilge and fastened with a threaded bolt and square nut.

The sternpost is cut from the heartwood of a hardwood timber and shaped into an isosceles trapezoid (Figure 6). The sided dimension is 6-1/4 inches and the forward molded dimension is 3-5/8 inches with an aft molded dimension of 1-1/2 inches. The sternpost is rabbeted 2-5/8 inches for the outer hull planks. The top of the sternpost is cut at an angle that slopes toward the bow. The rudder and rudder post are intact and fastened to sternpost's aft end. The rudder is vertical with no noticeable rake, and the rudder blade protrudes 7.0 inches above the lakebed. The rudder is constructed from two timbers; the forward timber consists of the rudder post and the forward half of the blade. The rudder post extends 43.0 inches above the rudder blade and is 2 3/8 inches in diameter. The rudder post widens to 9-5/8 inches at the blade, and combined with the 7-3/4 inch aft timber produces a rudder blade 17-3/8 inches long and 2-3/8 inches wide. The rudder is square in profile with a rounded upper aft corner. The tiller is not extant, but the mortise for the tiller is 6.0 inches tall and 1-1/2 inches wide, located 5/8 of an inch below the top of the rudder post. The rudder post passes through a heavy timber that was formally part of the transom, indicating the vessel did not have an external rudder typical of Mackinaw and Huron boats.



Figure 6. The rudder, rudder post, sternpost, and outer hull planks viewed from the starboard quarter. Transom timber is removed to show detail.

The rudder's leading edge has a 2 inch bevel on each side, creating a knife edge on the front of the rudder. The pintle strap wraps around the front of the rudder and extends 13-3/4 inches along either side of the rudder blade, serving as a reinforcement for the blade as well as an attachment point to the sternpost. The pintle strap is constructed from an iron strap 1/4 inch thick and 1-1/2 inches wide, fastened to the rudder with iron bolts peened flush with the surface of the pintle. The gudgeon is constructed in a similar fashion, fastened to sternpost 9.0 inches below the top of the sternpost. The gudgeon strap is 5-3/8 inches long and is fastened to the sternpost with 2 iron bolts. The rudder is notched to accommodate the gudgeon, and there is a gap of 3/4 of an inch between the sternpost and rudder. A large wooden double sheave block lies aft of the rudder. The sheaves are 6.0 inches in diameter and a large iron hook is attached to block, making the block too large to have been part of the vessel's rigging.

The mast was stepped forward of the centerboard trunk and surrounded by a wooden fife rail fastened to the top of the deck (Figure 5). The U-shaped fife rail is open at the stern, 25.0 inches across, and is supported by six iron rods and two wooden stanchions. The fife rail is pierced with eight belaying pins that have largely eroded and now consist of only small lumps that protrude from the rail. The open ends of the fife rail are finished with a cap of beveled wood nailed to the ends of the rail.

The centerboard trunk is intact and extends from beneath the forward deck section (Figure 7). The aft end of the trunk is sloped, giving the trunk a length of 10.0 feet along the top and 11.0 feet along the bottom, measured along the top of the lakebed. The bottom of the trunk is buried in the sand and rock that fills the bottom of the hull. The visible portion of the trunk is 3.0 feet in height. The trunk is longitudinally planked with the two uppermost planks both 9-5/8 inches wide. A third plank is visible but mostly buried in the lakebed. The centerboard is fully retracted within the trunk, and the pivot pin is not visible above the lakebed. The centerboard was raised and lower with a chain, and a short section of the chain remains attached to an iron strap fastened to the centerboard a short distance from the centerboard's aft end.

The mast was rigged with four shrouds that connected to two chainplates on either side of the vessel (Figure 8). The chainplates are fastened inside the hull on the forward face of the eighth and ninth frames on either side. The chain plates are 1/2 inch thick iron straps that are 1.0 inch wide and 20-1/4 inches long, and are fastened to the frames with two threaded bolts spaced 4-1/5 inches apart and secured with square nuts. The shrouds were wire rope with wire-served eyes and were tensioned with turnbuckles.

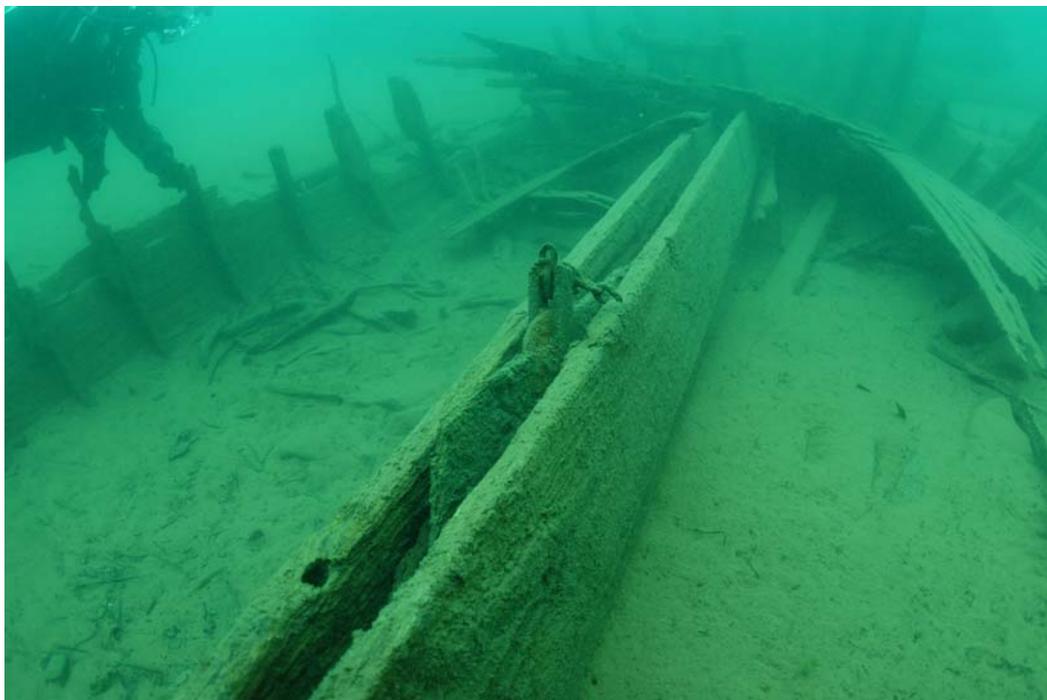


Figure 7. Centerboard trunk and centerboard. Looking forward on the starboard side.

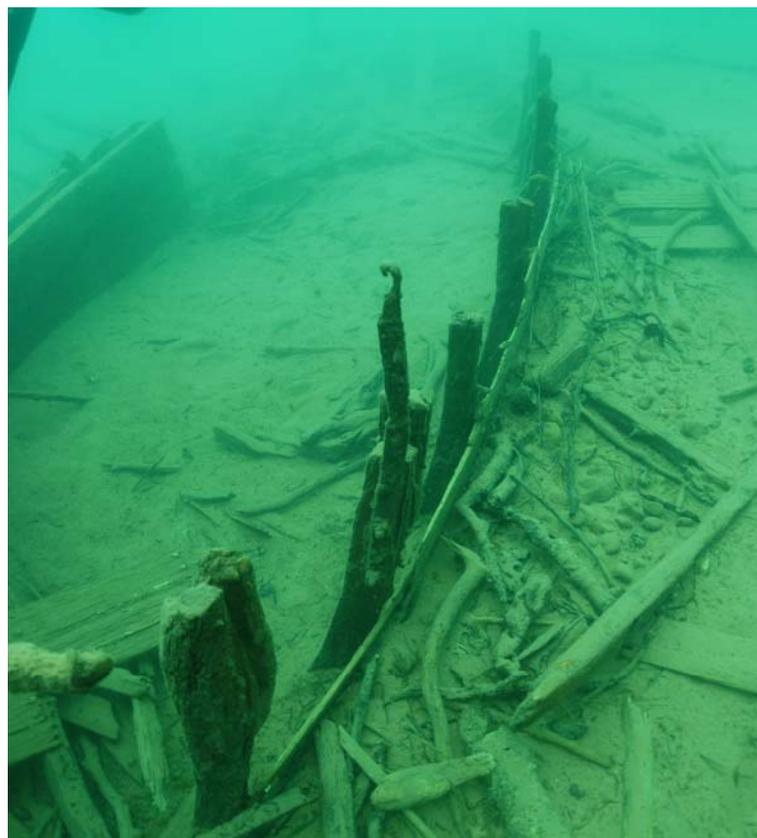


Figure 8. Port chainplate attached to frame, looking aft.

None of the vessel's spars were located. The only visible evidence of a spar's dimension was for the bowsprit, which passed through an iron ring fastened atop the stem (Figure 4). The ring was constructed from an iron strap 1-1/4 inches wide by 1/4 inch thick, formed into a loop 6.0 inches in diameter. The base of the bowsprit was fashioned into a tenon that fit into a mortise on the samson post. The samson post is extant forward of the fife rail. A length of chain is wrapped around the samson post overtop the norman pin, but the norman pin has eroded away and no longer protrudes beyond the chain. Below deck level, the samson post was square in section and measured 2-1/2 by 3.0 inches. Above deck level, the samson post was round in section with a diameter of 2-1/2 inches.

Much of the vessel's lower hull is filled with rock and sand. The sand was probed in several locations around the centerboard trunk, and in nearly all locations rock was discovered a few inches below the surface of the sand. A search of the lake bed, immediately around the hull and the wider area in general, did not locate any rock but only a barren sand bottom. This suggests the vessel was intentionally filled with rock at the time of its loss, either as cargo or ballast.

Although no evidence of a second mast was discovered, the aft end of the vessel, where the chainplates for a schooner's mainmast would have been located, was not extant. Likewise, the keelson assembly could not be inspected for the presence of a mainmast step. The location of the forward mast, however, suggests the vessel was indeed a sloop, as the location of the mast is too far aft for a two-masted vessel of its size - for either a schooner rig or the cat ketch rig that was common to Mackinaw boats.

A preliminary Phase I survey conducted in the early 1990s by Society archaeologists tentatively identified the vessel as a Huron boat, a transomed version of the double-ended Mackinaw boat that was once common to western Lake Superior. Diagnostic features discovered during the 2007 archaeological survey suggest the vessel was not a Huron boat, however, but rather a small vernacular sloop. The strongest evidence for this is the vessel's transom, which is approximately 10.0 feet in width. Huron boats were a relative (if not a derivative) of the Mackinaw boat and shared many of the same features as the Mackinaw. The most obvious distinction was the stern - Mackinaw boats were double-ended while Huron boats had a transom that was significantly narrower than the vessel's beam. The Big Bay Sloop's transom is approximately 10.0 feet in width, almost as wide as the vessel's 11.6-foot beam. Additionally, the Big Bay Sloop is ceiled aft of the fore deck, and there is an elaborate fife rail around the mast - traits that are not documented on Mackinaw or Huron style boats.

An intriguing feature of the Big Bay Sloop site is a large log crib, measuring nearly 9 feet wide by 23 feet in length, that lies immediately north of the vessel's bow. The crib logs are saddle-notched on their underside where they rest atop the lower log, and are fastened together with 3/4 inch iron rods that are driven through the lap joints. Several stumps and tree trunks have been caught by the crib and lie within and around the crib. A search of the surrounding area did not reveal any other features associated with a pier or breakwater, making the isolated crib an anomaly. Furthermore, the crib is not filled with rock, and no methods of anchoring the crib were visible.

The Big Bay Sloop is most likely a small vernacular sloop that was used for either pleasure or commercial purposes, or perhaps both at different stages of its life. The Apostle Island area developed as a popular vacation destination during the nineteenth century for wealthy persons wishing to spend hot summer days in the coolness of Lake Superior, making it possible that the Big Bay Sloop could have been built for pleasure purposes. Its association with an isolated, unfinished log crib, however, suggests the vessel was being used for commercial purposes at the time of its loss. A literature search did not turn up any references to small vessel losses in the vicinity of Big Bay.

CHAPTER FOUR THE GREEN BAY SLOOP

The Green Bay Sloop is an extremely well-preserved example of an exceptionally rare Great Lakes commercial freighting sloop. Designed specifically for commercial trade, her features mirror the much larger vessels that were sailing the lakes at the time, but on a much smaller scale. At 42.4 feet in length, she was dwarfed by most other Great Lakes vessels, yet she, and vessels like her, provided a vital and economical mode of transportation and income. Small craft like the Green Bay Sloop were frequently employed in supplying the specific transportation needs that were local to their owners' communities, but these vessels remained virtually undocumented during their use, and very little is known about them today. In the Green Bay Sloop's case, even a tentative identification has proved elusive, preventing any historic research into her role in the nineteenth-century Great Lakes landscape.

Due to a virtual absence of historic data on these vessels, archaeological sites like the Green Bay Sloop are the only record of these vessels that has survived, making the Green Bay Sloop site particularly significant in the study of Great Lakes maritime history. As an early sloop designed specifically for commercial trade, she is the only one of her type known to exist in Wisconsin waters. Furthermore, she (and many small craft like her), have seemingly avoided nearly all manner of documentation in the historic record. Despite extensive searches, no information has been uncovered as to the Green Bay Sloop's ownership, identification, or loss.

Despite an absence of historic data, however, several of the vessel's construction features indicate a construction date of the 1850s or earlier. The most significant feature pointing to this period is the vessel's bow knee. Bow knees were common on vessels built on the Great Lakes prior to 1850, but quickly fell out of style during the 1850s, and very few Great Lakes sailing vessels were constructed with a bow knee after that decade. The lack of a centerboard also suggests pre-1850 construction. Few fixed-keel sailing craft were constructed on the Great Lakes following the 1850s as the deeper draft of fixed keels prevented the vessels from entering the canal locks and made entering shallow river harbors a treacherous endeavor. The use of centerboards in Great Lakes small craft appears to have followed that of their larger counterparts, as two other small sailing craft documented in this report (the Big Bay Sloop and the schooner *Byron*) both have centerboards similar to larger vessels. The shallower draft of centerboard vessels was a distinct advantage over fixed keels on the Great Lakes, and in the latter half of the nineteenth century centerboards were quickly incorporated into nearly all Great Lakes sailing vessels and even some steam-powered, propeller driven vessels.

Finally, the simple fact that the vessel is a sloop may suggest a build date in the first half of the nineteenth century. Although few sloops are documented in either the historic or archaeological record of Green Bay and Lake Michigan, there was a trend during the second half of the century to add additional masts to sailing vessels in order to decrease the size of individual sails. Smaller sails were easier to handle by a fewer number of crew, increasing the vessels profit margin by reducing overhead costs. Although more research is needed to confirm that schooners were a preferred

rig over sloops on western Great Lakes small craft, this reason may account for the lack of sloops represented in the historic and archaeological record.

More research is also needed to elucidate how the evolution of larger commercial sailing vessels influenced the design of smaller commercial craft on the Great Lakes during the nineteenth century. It is possible that smaller, less modern shipyards – those that specialized in small craft - clung to more traditional hull designs longer than the larger, more progressive shipyards. There is some evidence, however, that small craft readily adopted the design features of larger vessels. Wisconsin's only other wreck site of a small commercial craft similar to the Green Bay Sloop, the schooner *Byron* (36.3 feet in length and constructed around 1849), does possess a centerboard, supporting the idea that at least some small craft shipyards readily adopted newer vessel designs.

Comparison of diagnostic site features with historic vessel losses in the area did not produce any close matches for identification purposes, but historic research did produce one vessel that could possibly be the Green Bay Sloop. A brief description was published in the *Green Bay Advocate* (1856) that stated the sloop *Etta* had foundered in 60 feet of water on 1 August 1856 off Sturgeon Bay Bluff while carrying a load of stone bound for C. Kitchen of Green Bay, with all hands saved. Although no cargo was found in the hold during the survey, archaeologists were surprised to find a single stone lying on the deck between the windlass and mast. This was surprising because the surrounding lakebed consisted of soft mud devoid of any rock structure, making the rock uniquely out of place and possibly a remnant of cargo. It is possible that a stone cargo could have jettisoned itself if the vessel had capsized but remained afloat for some time, or that the crew may have jettisoned the cargo themselves in an attempt to keep the vessel afloat. Unfortunately, this brief mention in the *Green Bay Advocate* (1856) is the only detail of the *Etta* that has been discovered, despite searching known databases and shipping records. If hull dimensions can be found for the *Etta* a tentative identification could be made, as the *Etta*'s date of loss is consistent with the Green Bay Sloop's estimated build date.

Site Description

A Phase II non-disturbance archaeological survey of the Green Bay Sloop site was conducted in June 2008. The Green Bay Sloop site lies in 85 feet of water in the Bay of Green Bay off the mouth of Sturgeon Bay (Figure 9). The vessel lies upright on the bottom with a 1 degree starboard list on a heading of 193 degrees. She is embedded nearly to her deck level in a soft mud bottom. Site conditions are invariably poor, rarely exceeding more than two feet of visibility with almost no ambient light. Due to the soft mud bottom, any movement around the site quickly obliterates visibility. The unusually poor site conditions precluded any on-site photography or the production of a site photomosaic.

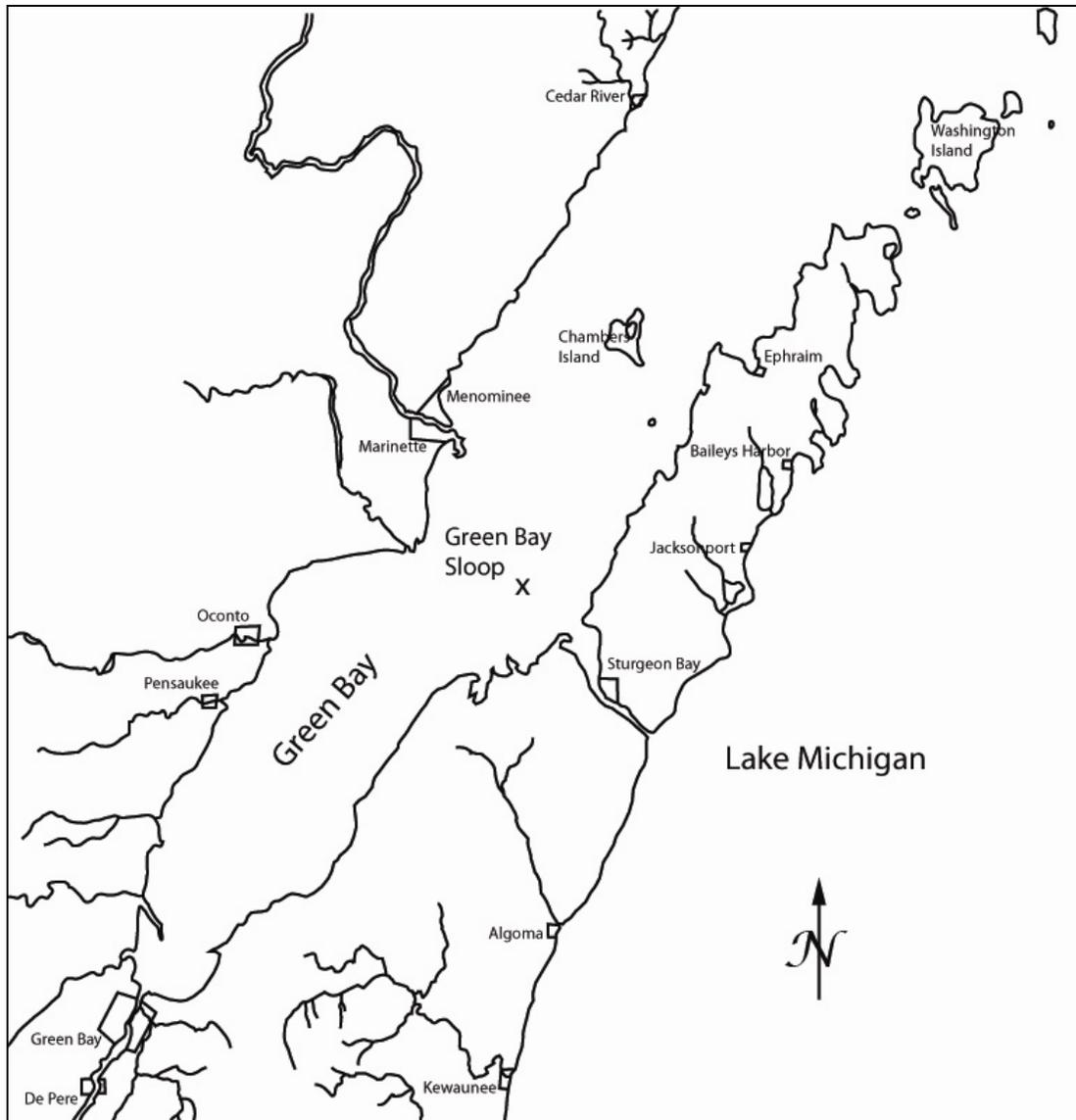
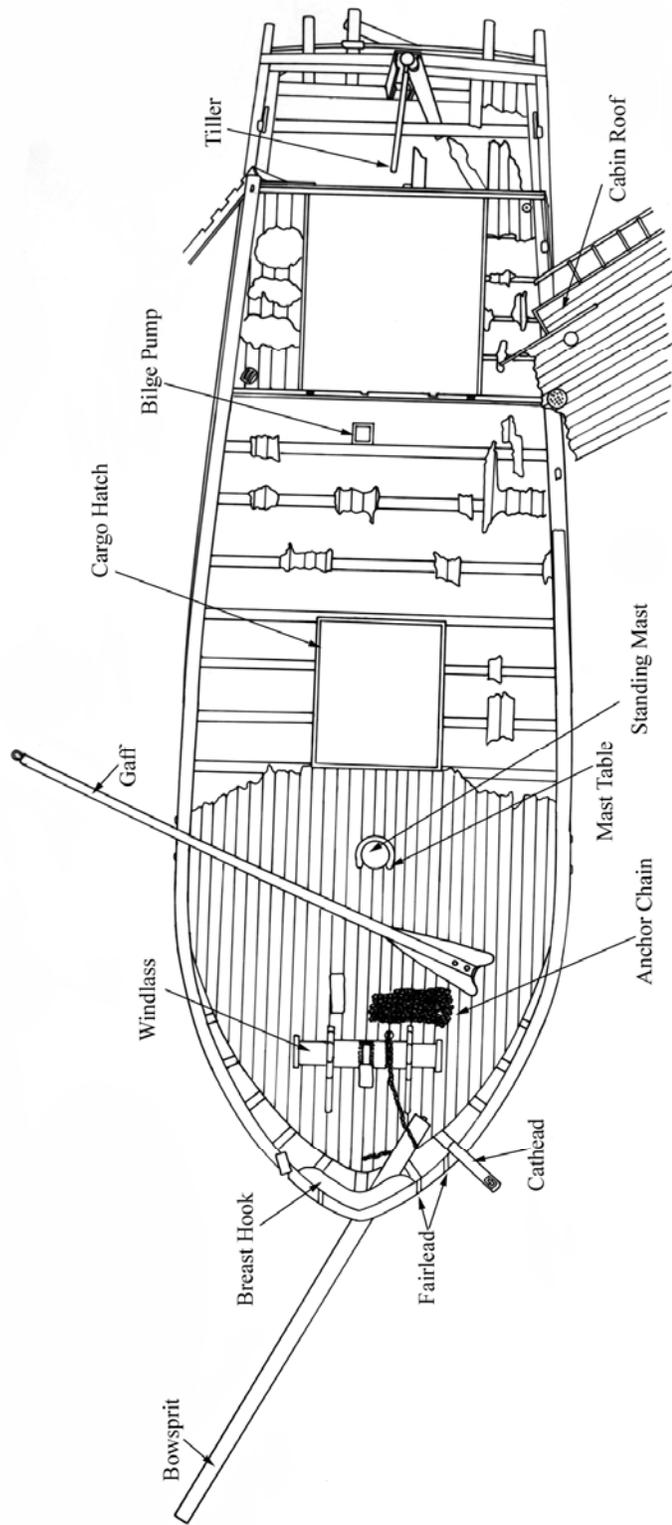


Figure 9. Location of the Green Bay Sloop.

The vessel is oriented in an 8 degree bow-down attitude, and her bow is partially buried in the bottom with several inches of mud covering the forward deck. Her deck is completely intact from amidships forward, and her single mast remains upright and stepped in the hull (Figure 10). From amidships aft, most deck planks are not extant to expose the deck beams, and the cabin roof has been dislodged and now leans against the hull outside the vessel's port quarter. The vessel is surprisingly intact given its relatively shallow depth, but the hull is very fragile. Due to the vessel's small size, many of the scantling dimensions are proportionately small and have been weakened due to waterlogging and degradation during more than 100 years submerged on the lakebed. Great care was taken throughout the survey to not inflict any damage to the vessel's structure.



Green Bay Sloop
Sturgeon Bay, Wisconsin
June 2008



Figure 10. The Green Bay Sloop site plan.

A temporary baseline was installed along the vessel's centerline from which all hull measurements were referenced. The baseline was a 100-foot fiberglass tape measure that was affixed to the rail above the stem with a small nail. The baseline then passed along the vessel's centerline, along the port side of the samson post, mast, and rudder post. The tape was draped over the transom and weighted with a 10 pound lead weight to maintain tension. Two small nails were used to hold the baseline in place on the transom. The nails were left in place when the baseline was removed at the end of the survey to allow archaeologists to return to the site and recreate the baseline at a later date if necessary.

The hull's overall length is 42.4 feet. The rudder penetrates the hull at the base of the transom, with the forward edge of the rudder post located at 40.6 feet on the baseline. The vessel's beam, measured amidships at 20.0 feet on the baseline, is 13.5 feet.

The deck rail runs the entire perimeter of the vessel with the top of the rail 1.55 feet above deck level. The rail itself is 0.4 feet wide by 0.05 feet thick and is supported by deck stanchions that are 0.2 feet molded by 0.3 feet sided near the bow. The deck stanchions nearer the stern are somewhat lighter at 0.1 feet molded by 0.2 feet sided, and all are spaced at 1.75 feet on center. A single bulwark plank 0.1 foot thick by 0.3 feet wide is fastened to the outside of the stanchions directly beneath the rail. The deck stanchions pass through a covering board that is 0.9 feet wide to where they are fastened to the aft side of the deck beams. The covering board extends to the outermost edge of the hull, covering the top of the sheer strake.

The bowsprit is extant, but has become unstepped from the samson post and lies slightly askew with its hounding lying to port and the housing lying to starboard. The hounding is square in section and measures 0.6 feet molded by 0.5 feet sided. A tenon is cut into the base of hounding to fit into a corresponding mortise in the samson post. The housing is round in section with a diameter of 0.76 feet, and extends 12.0 feet beyond the stem. The bowsprit was supported by a plain bow knee that is 0.15 feet wide and extends 1.8 feet from the stem. Although no scroll work or decorations of any were kind discovered on the bow knee, the top of the bow knee is cut into a decorative-style curve. A jibboom was not extant and no evidence of one having been fitted was discovered, but evidence of a jibboom could have been missed in the poor visibility and the fact that the bowsprit lies embedded in the mud bottom.

Two fairleads are fastened to the top of the rail on each side of the stem to handle lines for the head rigging. The fairleads are cut into a timber that is fastened to the top of the rail. There are two timbers, one on either side of the stem post, and there are two fairleads cut into each timber. The fairleads on either side of the stem are not symmetrical – the starboard fairleads are somewhat closer to the stem than those on the port side. On the port side, the fairleads are located at 2.3 feet and 3.6 feet from the center of the stem. On the starboard side, the first fairlead is located at 1.6 feet, but the timber is broken at the second starboard fairlead, making an accurate measurement impossible.

A cathead is extant outboard of the port fairlead, but a starboard cathead was not located. Due to the poor visibility it could not be determined whether a starboard cathead was originally installed but carried away in the sinking, or if the vessel was originally constructed with only a port cathead. The extant cathead is 0.3 feet wide

and extends 1.6 feet from the rail's outer edge, and a sheave is fastened in the end of the cathead.

The samson post rises 2.7 feet above the deck and is 0.8 feet molded by 0.45 feet sided. A standard wooden windlass is fastened to the aft side of the samson post that is 7.0 feet in length, 0.92 feet in diameter at the whelp drums, and 0.86 feet in diameter at the gypsy heads. There is a distance of 1.5 feet between the samson post and either carrick bitt. The carrick bitts are 0.2 feet wide, and the gypsy heads extend 1.0 foot beyond either carrick bitt. An anchor chain is extant on the port side only, with one turn taken around the windlass. The chain is heavily corroded, and each link measures $\frac{1}{4}$ inch thick by 2.25 inches long. Given that only a port side anchor chain is extant, combined with a cathead on the port side only, suggests the vessel carried only one anchor and chain for ground tackle.

From the turn around the windlass, the anchor chain passes overtop the bowsprit's hounding to where its bitter end lies beneath the bowsprit. Although two hawse pipes are extant on either side of the stem, the anchor chain does not pass through either of the hawse pipes, and no anchors were discovered anywhere on the site. A sweep was conducted for several feet around the outside of the hull in an attempt to locate an anchor, but given the poor visibility and mud bottom it is possible that an anchor does lay a short distance from the hull but was not located.

A large amount of anchor chain is faked on deck aft of the windlass on the port side and is jammed beneath the port windlass drum. The chain is heavily corroded and has turned into one large concretion. A wooden handle from an iron tool protrudes from the concretion of chain, but could not be identified due to the extent of the corrosion. There is a plank nailed to the deck just aft of the windlass and to starboard of the vessel's centerline. No forecastle hatch was located.

The vessel's single mast is upright and remains stepped within the hull. The center of the mast is located at 12.85 feet on the baseline and has a diameter of 1.0 foot immediately above the mast table, tapering to a diameter of .64 feet at the hounds. The bottom of the mast table is located 2.6 feet above the deck, and is 0.2 feet thick by 0.3 feet wide. It does not completely encircle the mast, but forms a U-shape with the open end on the forward side of the mast. The mast table is supported by wooden chocks that are fastened around the mast's circumference. The bottoms of the chocks are located 0.45 feet above the top of two wooden cleats that are fastened to either side of the mast between the deck and the mast table. Each cleat is 0.7 feet long, with the center of each cleat located 1.3 feet above the deck.

The top of the mast is located at a water depth of 49 feet, giving the masthead a height of 36 feet above the deck, measured by a digital depth gauge. The vessel was originally rigged with a topmast, but the topmast is no longer extant. The masthead measures 0.7 feet square. The trestle tree and tops are extant, but have come loose from the masthead and are swung 90 degrees so the tops now extend longitudinally along the vessel's length. The trestle trees are 1.8 feet from the top of the mast and are 0.4 feet tall, 0.1 foot thick, and 1.6 feet in length. The tops are fastened atop the trestle trees and consists of two scantlings 3.7 feet in length and 0.2 feet square. The tops are not planked over, but both sweep aft in a gradual arc with the forward top possessing a more severe arc than the aft. The mast cap is 0.15 feet tall and constructed from a simple iron band that wraps around the circumference of the mast

head and does not cover the top of the mast. The hole in the mast cap for the missing topmast is 0.35 feet in diameter.

The mast was formerly supported by two rope shrouds on either side of the hull. The chainplates are extant on either side, with iron thimbles that remain attached to the top of the chainplates. No deadeyes were located, suggesting the shrouds were fastened to the chainplates with spliced eyes instead of deadeyes. Each chainplate is 0.15 feet wide and spaced at 1.0 foot on center. A ring is fastened to the top of each chainplate that has an outside diameter of 0.4 feet and an inside diameter of 0.3 feet. The aft chainplate on the starboard side has fallen towards the stern.

The vessel was gaff rigged, and although the boom is not extant, an 18.0 foot gaff lies on deck forward of the mast and extends over the starboard rail. The gaff is very light and is easily moved about the deck. The gaff's wooden jaws are intact and measure 1.6 feet wide, 0.15 feet thick, and extend 0.4 feet past the end of the spar. A semicircular, wooden tumbler is extant between the jaws that prevented chaffing as the gaff was raised or lowered. A metal loop projects off the gaff's opposite end, where the spar itself is 0.3 feet in diameter.

Several panes of glass, presumably from the cabin windows, were discovered lying on deck between the windlass and cargo hatch. One of the panes was broken, but two were intact and measured 10.0 inches by 12.0 inches. One pane was located to starboard of the mast with the other pane immediately forward of that. The broken pane was located immediately forward of the mast.

Two iron eyes are located at either quarter that likely supported the topsail rigging. The eye on the starboard quarter is intact and rises 1.7 feet above the rail on an iron rod that protrudes from a bulwark stanchion. It could not be determined if the rod was fastened into the hull side or simply to the stanchion. The eye on the port quarter is extant, but was broken from the stanchion and lies on deck aft of the cabin.

A single cargo hatch penetrates the deck aft of the mast, with the forward headledge located at 16.0 feet on the baseline and the aft headledge located at 21.0 feet on the baseline. The aft headledge is fastened directly atop a deck beam, with no deck planks extant in this area. The hatch opening is 4.5 feet wide. The hull is filled nearly to the deck beams with mud, and gentle probing of the mud within the hold did not reveal any cargo. Depth of hold measurements were taken within the cargo hatch by inserting a rigid ruler into the mud to record the distance between the floors and the underside of the deck beams. These measurements revealed an approximate depth of hold of 3.4 feet. Probing of the cargo hold did not reveal a centerboard trunk, and no topside gear was discovered that would have been used to raise or lower a centerboard.

Most of the deck planks are not extant on either side of the cargo hatch and between the hatch and the stern cabin. Extant deck planks are 0.4 feet wide. Exposed deck beams are 0.3 feet square. Deck beam spacing varies somewhat, averaging 1.3 feet between beams, but varying between 1.1 feet and 1.5 feet. A beam-sized header frames the cargo hatch beneath the coamings. The headers are simply butt-joined with the deck beams with no other gusseting or visible reinforcement. On either side of the hull, the deck beams are not supported by either knees or a deck shelf. Instead, the deck beams simply pass through the ceiling and are presumably attached to the

frames (the actual construction technique could not be determined due to the integrity of the hull).

Because the hull is highly intact, the vessel's framing could not be viewed and the environmental conditions precluded examining fastening patterns in order to determine frame patterns. The outer hull planks remain tightly joined, rendering it difficult to distinguish plank seams in the poor visibility. Where outer hull plank width could be determined, the planks measured 0.4 feet wide.

A single-acting bilge pump is located between the cargo hatch and the cabin, offset 0.8 feet to starboard of the vessel's centerline. The bilge pump handle is not extant, but the pump box is constructed of planks 0.05 feet thick to create a pump box that is 0.6 feet square on the outside.

The stern cabin's opening is marked by a coaming that is 0.8 feet tall, 0.2 feet wide, and rises 0.1 foot above deck level. The cabin's forward headledge is located at 29.0 feet on the baseline; the aft headledge is located at 36.0 feet on the baseline. The cabin opening does not extend all the way to the bulwarks on either side, but has a 2.2 foot planked area on either side between the cabin and the bulwarks. Both the forward and aft headledges extend beyond the cabin opening to either bulwark, however, suggesting that the cabin roof may have extended the full beam of the vessel to allow a deck-level bunk or shelf on either side of the cabin.

The cabin's bulkheads and roof have separated from the hull and now lie off the port quarter, resting on the lakebed and leaning against the hull. The cabin bulkheads rose 1.7 feet above deck level. There is a slight camber to the cabin roof, which is covered with planks 0.4 feet wide by 0.1 foot thick. The cabin was entered via a hatch in the roof that could be closed via sliding hatch boards. The sliding boards are not extant, but the inboard hatch slider is, indicating that the cabin entrance was located at either the cabin's port quarter or starboard front (most likely the former, as larger vessels typically had their cabin entrance facing aft). The extant hatch slider is 4.0 feet long and 0.2 feet square with a rabbet for the hatch boards. A 0.4 foot diameter hole for the stove pipes penetrates the cabin roof 0.67 feet inboard of the hatch slider. A round copper grate 0.6 feet in diameter is installed in the cabin roof a short distance from the stove pipe hole. The stove is not extant within the hull and was allegedly looted soon after the vessel was discovered.

A small quarter deck allowed room for the helmsman to steer the vessel with a tiller. The curved tiller is extant and swung within a few inches of the cabin's aft bulkhead. The tiller is 4.0 feet long and 0.1 foot square, with the end of the tiller 3.0 feet above the deck. The tiller is reinforced where it joins the rudder post by an iron band that wraps around the rudder post and is fastened to either side of the tiller. An unidentified, single vertical plank stands directly in front of the tiller on the vessel's centerline that rises 3.0 feet above the deck and is 0.2 feet wide by 0.1 feet thick.

The center of the rudder post is located at 40.7 feet on the baseline. The top of the rudder post is 0.3 feet in diameter and mounted within a rudder box that penetrates the transom. The rudder box is rectangular in section and is 0.7 feet wide by 0.9 feet long and constructed of four planks 0.1 foot thick. The rudder post is 2.9 feet long from the top of the post to the top of the blade, and the post is squared on its aft surface to accept the timbers that form the blade. The forward end of the rudder post is rounded to fit into the aft side of the stern post. The rudder blade is 4.9 feet tall

and 1.7 feet long at its widest point. The uppermost pintle and gudgeon is broken, and the rudder wobbles freely within the rudder box.

The transom is 10.2 feet wide and is constructed at a 40 degree angle to the hull. The transom planks are no longer extant, but most of the stern timbers are intact. Extant stern timbers are 0.2 feet sided by 0.35 feet molded. The post timbers on either side of the rudder box rise 3.0 feet above deck level and extend 1.7 feet aft of the fashion timber. The stern transom timbers on either quarter extend only 1.1 feet aft of the fashion timber, giving the transom a slight counter. There is a space of 1.2 feet between stern timbers.

CHAPTER FIVE THE SCHOONER *GALLINIPPER*

The schooner *Gallinipper* was originally named the *Nancy Dousman* and was launched from the frontier shipyard of Augustus Jones and G.W. Cochran in Black River, Ohio, in 1833. Her initial enrollment listed her dimensions as 69 feet long, 20 feet 6 inches in beam, and 7 feet in depth of hold with a capacity of 85 and 56/95 gross tons. She had one deck, two masts, no gallery and a scroll head. Michael Dousman of Mackinac, Michigan Territory, entered the vessel's initial enrollment as the sole owner at the Port of Michilimackinac on 1 July 1833, naming the vessel in honor of his daughter Nancy (ACGNFPLL 2005f; Bureau of Navigation 1833).

Michael Dousman was an agent of John Jacob Astor's American Fur Company. Born in Pittsburgh, Pennsylvania, in 1771, Dousman arrived on Mackinac Island around 1786, soon after America took control of the island. On the island he worked in the fur trade and began purchasing several hundred acres of area farmland. He continued to purchase land throughout his tenure there, and by 1820 Dousman was the second largest property owner in Michilimackinac County (Gough 2006; Martin 1985).

As the War of 1812 approached Mackinac Island, Dousman warned the other island residents of the impending fighting, but was himself "captured" as British forces invaded the island that summer. Dousman remained on the island throughout the war and sold supplies to the British garrison during their occupation. Many of his neighbors had considered this an act of treason (Gough 2006; Martin 1985).

Dousman emerged from the war unscathed, and by 1833 he partnered with Morgan L. Martin, a land speculator and cousin to James Doty, and made significant land purchases in the Green Bay and Milwaukee areas. In Milwaukee, Dousman purchased several lots on which he planned to erect a warehouse, store, and several dwellings (Martin 1985). Morgan Martin had recognized Milwaukee's potential as a successful lake harbor, and in 1833 he was successful in securing an order for its survey from the Secretary of War, Lewis Cass (Kellogg 1918). Funding for the survey was secured in 1834 following a petition that was signed by Dousman and others (Martin 1985).

Michael Dousman operated several other vessels on the western Great Lakes prior to commissioning the *Nancy Dousman*. He purchased his first vessel in 1818, the schooner *Tiger* of Detroit, to transport furs from the frontier to eastern Great Lakes ports. Other vessels Dousman is known to have owned are the schooners *Minx*, *Mariner*, *Wave*, *Milwuakie* [sic], and the brig *Austerlitz* (Baillod 2003).

At the time of her construction, the *Nancy Dousman* was only the tenth vessel launched at Black River, Ohio, and only the fifth constructed by Augustus Jones (Wright 1916). Jones' vessels were generally described in *Early Days on the Lake*:

The vessels of Augustus Jones (and his counterpart at Black River, Capt. Fairbanks Church) bore a greater proportion of beam to the length of keel, and less depth in the hold, and being very broad on the transom, were enabled to carry sail as long as their canvas held together, which sometimes is very important when jammed upon a lea

[sic] shore. The vessels had a sort of swan-like appearance upon the water, that attracted attention, while at the same time they were simple in their rig--mostly fore-and-aft schooners, though in after years they built and put afloat quite a large number of brigs and steamboats. Capt. Jones was the most successful so far as sail vessels were concerned. His style of sparring vessels, cut and proportion of sails, etc., was quite different from any other before introduced upon the lakes. The foremast was stepped further forward, the mainmast further aft, giving greater spread to the foresail, which is an important item when hauled upon the wind. Capt. Jones's vessels were always known in the distance by their masts being wider apart, as well as their great length of gaffs, both fore and aft, a distinguishing feature which characterized them from other vessels of that day. (Walker 1902)

Captain James Sanderson became the *Nancy Dousman*'s first Master (Bureau of Navigation 1833). A native of Rhode Island, Captain Sanderson took up sailing on the ocean at an early age, but by 1830 he had made his way to the Great Lakes where he sailed as a lake captain out of Cleveland, Ohio. Sanderson was described as a "man noted for his marked peculiarities and eccentricities of character, as well as his somewhat remarkable...career" (Watrous 1909). As Master of the *Nancy Dousman*, Sanderson frequented the Port of "Milwaukie", and in 1836 he purchased forty acres of land in the town of Lake, where he built a frame house and barn (Watrous 1909).

Like his other vessels, Michael Dousman employed the *Nancy Dousman* in transporting passengers, furs, trade goods and freight around the Great Lakes (Draper 1876; Martin 1985). When John T. De LaRonde, a clerk for American Fur Company, came westward for the company, he made part of his passage aboard the *Nancy Dousman*. He described his passage aboard the vessel between Mackinac Island to Green Bay:

I remained a few weeks at that place [Mackinac]. Then I took my departure in the schooner *Nancy Dousman*. The passengers were Hercules Louis Dousman, clerk for the American Fur Company, Major De Coursolle, and myself. When we left Mackinaw, in the night, there was a very heavy wind- so strong and rough, that I believe I saw the bottom of Lake Michigan. We reached Green Bay about two hours before daylight and we were obliged to wait two days for the keel boats to come. (Draper 1876)

De LaRonde continued his journey up the Fox River to Portage, Wisconsin, and then on to Prairie du Chein, Wisconsin, while the *Nancy Dousman* returned east after loading cargo for the American Fur Company (Draper 1876). The *Nancy Dousman* turned a tidy profit for the company, and frequently carried highly valuable loads of fur. On 7 September 1833, the *Nancy Dousman* is documented as arriving in Buffalo, New York, with \$200,000 worth of furs for the American Fur Company (ACGNFPL 2005f).

The *Nancy Dousman* suffered her first accident in April 1834, which left her on the bottom of the harbor at Mackinac Island (ACGNFPL 2005f; Mansfield 1899a). Henry Schoolcraft (1851), a noted Indian agent stationed at Mackinac Island, made two entries into his diary describing the incident:

April 21, 1834- The schooner *Nancy Dousman* arrived in the morning from below. A change of weather supervened. Wind N.E., with snow. The ground is covered with it to the depth of one or two inches. Water frozen, giving a sad check to vegetation.

April 22, 1834- This morning develops a north-east storm, during which the *Nancy Dousman* is wrecked, but all the cargo saved; a proof that the harbor is no refuge from a north-easter. The wind abates in the evening.

Fortunately, the *Nancy Dousman*'s damage was not extensive and the vessel was repaired and put back into service within a few months (Mansfield 1899a). On 1 July 1834, the *Nancy Dousman* was reenrolled in the Michilimackinac District, this time under ownership of both Michael Dousman and Captain James Sanderson (ACGNFPL 2005f; Bureau of Navigation 1834). Other than the ownership change, all other entries on the new enrollment remained the same. Annual re-enrollment of vessels was required in the Michilimackinac District during this time period, and between the years of 1833-1839, between one and eight vessels were enrolled in the district for any given year, indicative of the small number of vessels that were operating on the upper lakes in the 1830s.

The *Nancy Dousman* sailed to ports all around the lakes and carried a variety of cargoes and passengers. In 1834, the *Nancy Dousman* called at Chicago four times, each time arriving with both lumber and passengers (Mansfield 1899b). Dr. James A. Marshall, a physician from Ogdensburg, New York, was aboard when she arrived at Chicago on 15 August 1834, having departed Green Bay, Wisconsin, ten days earlier. Dr. Marshall had been providing medical services at the fort at Navarino (Green Bay, Wisconsin) for the previous three months (Brown 1876). The *Nancy Dousman* cleared Chicago a few days later for Buffalo, New York, and arrived at that port in September 1834 with a cargo of furs valued at \$265,000 (Mansfield 1899a).

Lake Michigan lacked many safe harbors in the 1830s, and the vessels that sailed the lake during this time were constantly in danger from the frequent storms that swept the region. In November 1834, Michael Dousman joined a petition to the U.S. Congress, signed by Great Lakes vessel owners and captains, that complained of the difficulties of Lake Michigan navigation. The petitioners noted the extreme distances between safe harbors on the lake's western shore, and they estimated that one hundred and fifty vessels would sail Lake Michigan by the end of the 1835 shipping season. To aid the steadily increasing amount of merchant sail, the signers of the petition asked for funds to develop a harbor at the mouth of the Milwaukee River (Martin 1985).

Michael Dousman had a vested interest in constructing an improved harbor at Milwaukee. By 1835, he owned a sawmill and gristmill there, in addition to operating

a large farm in nearby Waukesha County. With his Milwaukee business interests growing, Dousman's sons, George and Talbot, moved to Milwaukee to join their father's business. Together, their business of buying, storing and shipping grain from Milwaukee earned George the acclimation of "leading forwarder of his day" (Martin 1985).

The 1835 shipping season found the *Nancy Dousman* under new ownership. The season's annual reenrollment, entered at Michilimackinac on 1 July 1835, indicated that James Sanderson sold his quarter share of the vessel to William Brewster, a merchant and agent for the American Fur Company's Detroit Office. Additionally, Pratt, Taylor & Co., forwarding and commission merchants from Buffalo that had previously acted as agents for the Ohio & Washington Line canal boats, had purchased an undisclosed share in the vessel (Baillod 2003; Bureau of Navigation 1835; Crary 1832). Captain James Shooks, of Buffalo, New York, took command, and he began sailing the *Nancy Dousman* primarily between Buffalo, Detroit, Mackinac, and western Lake Michigan ports (ACGNFPL 2005f; Atkins 1898; Baillod 2003; Smith 1884).

In 1835, unhappy with the irregular merchant vessel service to Chicago, Gurdon Hubbard of Hubbard & Co., a warehousing firm in Chicago, partnered with Pratt, Taylor & Co. to establish the Eagle Line of vessels and steamers. The Eagle Line was the first regularly scheduled shipping line at Chicago, servicing scheduled routes between Chicago and Buffalo and other ports around the Upper Lakes as needed. Under the Eagle Line, the *Nancy Dousman* became one of Chicago's premier packets (Hubbard 1911). Advertisements for the Eagle Line boasted their vessels to be "fitted and furnished with a view to accommodate passengers emigrating to Illinois, Indiana, and Michigan", and each vessel was capable of stowing from 1,500 to 2,500 barrels of bulk freight (*Buffalo Whig* 1835a). Their advertisements frequently appeared in eastern newspapers during the mid-1830s, and indicated that one of their twelve vessels was guaranteed to depart Buffalo every ten days between the opening of navigation to 15 October. Options were given to accommodate passengers and freight bound for Chicago, Michigan City, St. Joseph, and Kalamazoo. If required, the line could also service Mackinaw, Green Bay, or Sault St. Marie, although these ports were not part of the line's regular route (*Buffalo Whig* 1835a, 1835c).

Captain Shook and the *Nancy Dousman* primarily carried passengers and freight between Buffalo and Detroit during the 1835 season (*Buffalo Whig* 1835b). The *Nancy Dousman* made one trip from Buffalo to Green Bay with a cargo of "stuffs, pipe and shoes", departing Buffalo on 11 July 1835 and entering the Fox River at Green Bay on 26 July 1835 (BHCDPL 1835; Martin 1913). The *Nancy Dousman* only made one trip to Chicago during the 1835 season, arriving there on 16 August 1835 from Detroit (Mansfield 1899b).

The *Nancy Dousman*'s ownership remained unchanged for the 1836 season, but Captain Shook was replaced by Captain Richard Sutliff (Bureau of Navigation 1836). Although it is likely the *Nancy Dousman* made several voyages during the summer of 1836, the historic record reveals only that the *Nancy Dousman* arrived twice at Milwaukee with goods and supplies for Dousman's warehouse. On 28 April 1836, the *Nancy Dousman* arrived at Milwaukee from Detroit with bulk consignments for George and Michael Dousman, and on 28 October 1836 she again arrived from

Detroit with a cargo of sundries, articles, stoves, cows, a copper boiler, iron pots, and cittles [sic] consigned to Michael Dousman (BHCDPL 1836a; 1836b).

The *Nancy Dousman*'s ownership remained unchanged for both the 1837 and 1838 seasons, but Captain John McLane took command during the 1837 season and Captain William Dickson in 1838 (Bureau of Navigation 1837; 1838). No other record of the *Nancy Dousman*'s operations have been uncovered for these two seasons.

In May 1839, the *Cleveland Daily Herald & Gazette* (1839a;1839b) reported its concern regarding the whereabouts of the steamer *Pennsylvania*, as she was overdue at Chicago from Buffalo. The *Pennsylvania* had departed Buffalo on 10 May 1839, but had stranded for over 24 hours on a sand bar in Lake Erie. Following her release, she was delayed an additional 18 hours in a fruitless attempt to pull the *Nancy Dousman* free from the harbor at Mackinac, where the *Nancy Dousman* had run hard aground (*Cleveland Daily Herald & Gazette* 1839a; 1839b). The *Nancy Dousman* was eventually released and repaired, but no other record of this accident has been uncovered (1839a; 1839b). The *Nancy Dousman*'s stranding at Mackinac was the impetus for another petition for harbor improvements, this time for Michilimackinac harbor. Michael Dousman, J.M. Lewis (the *Nancy Dousman*'s master³), and a number of others signed a petition to Congress in 1839 for harbor improvements that included the construction of two piers to protect the Michilimackinac harbor (Martin 1985).

The following fall the *Nancy Dousman* was again damaged while riding out a gale in Cleveland, Ohio. During the two-day gale that lasted throughout Friday and Saturday, 2-3 October 1840, the schooner *Solomon Juneau* parted her lines and collided with both the schooners *Aurora Borealis* and *Nancy Dousman* in the Cleveland harbor. The *Nancy Dousman*'s stern was stove in, and the damage was estimated at \$600 (*Cleveland Daily Herald* 1840). This accident must have been the last straw for Michael Dousman and the *Nancy Dousman*, because on 16 October 1840, Dousman sold his share of the vessel to William Dickson of Black Rock, New York. Dickson had served as the *Nancy Dousman*'s captain for at least the 1839 season, if not well into 1840. Her enrollment was surrendered at Buffalo, and a new enrollment listed her new owners as William Dickson, William Brewster, and the Pratt, Taylor & Company. Captain John Browning took command as Master (Bureau of Navigation 1840). The 1840 enrollment acknowledged that the vessel had been raised during the 1840 season (ACGNFPL 2005f), but it is uncertain whether this raising was due to the events at Mackinaw in 1839 or from the more recent incident at Cleveland in 1840. We do know that following the Cleveland accident the *Nancy Dousman* was towed to Milwaukee, where she was repaired in 1841 (Bureau of Navigation 1846).

The *Nancy Dousman* did not reappear in the newspapers for several years. Her next mention in print comes on 11 August 1843, when Captain G.C.S. Vail, who had moved to Milwaukee from Milan, Michigan, bought the vessel from the Dickson, Brewster, Pratt, Taylor & Co. consortium. A new enrollment was entered at Detroit, but this enrollment described that Captain Vail had not purchased the *Nancy Dousman* as sole owner; instead the enrollment acknowledges a second owner

³ It is uncertain for what time period Captain Lewis commanded the *Nancy Dousman*, as his name does not appear on any enrollment documents. His name only appears on the petition as the vessel's master.

succinctly described as “someone unknown” (Bureau of Navigation 1843a). The *Nancy Dousman*’s home port was changed to Milwaukee, and Captain Vail was entered as the vessel’s new Master (ACGNFPL 2005f; Bureau of Navigation 1843a). The “someone unknown” was in fact George D. Dousman, Michael Dousman’s son, who intended to use the *Nancy Dousman* to transport grain from his Milwaukee warehouse (Baillod 2003).

A gale blew up on Lake Michigan on 17 March 1844 that damaged a number of vessels working the lake early that season, including the *Nancy Dousman*. The *Nancy Dousman* cleared Milwaukee that day for Grand Haven, Michigan, but she never arrived. It is unclear what happened to the vessel or her crew, as there is no mention in the press of her accident. All that is known of the incident comes from a brief mention in the *Buffalo Commercial Advertiser*’s (1845) wreck list for 1844, which states the *Nancy Dousman* went ashore on Lake Michigan during that storm (ACGNFPL 2005f; *Buffalo Commercial Advertiser* 1845). Another vessel lost in that same storm was the brig *Rosa* off St. Joseph, Michigan (*Buffalo Commercial Advertiser* 1844a, 1844b; *Detroit Daily Advertiser* 1844; *Detroit Free Press* 1844). Captain Whiting, of the *Rosa*, described in detail the lake conditions that day:

The brig *Rosa* left Chicago at 8 o'clock, on Saturday eve, with a fresh breeze from W. S. W. At daylight saw St. Joseph light, when the land was shut out by a thick snow storm, the wind suddenly veered to N. E., and blew a hard gale, splitting our jib, foretopmast staysail, and carrying away our main ----. At 10 A. M., the 17th, the wind hauled to the N. W. still blowing a hard gale accompanied with dense snow and sleet. At 3 P. M., the gale increased with clear weather, we saw St. Joseph about 10 miles under our lee. Our vessel being disabled and the crew having suffered severely from cold and ice which was constantly and rapidly making on our rigging, rendering everything, except our topsail useless. I deemed it most judicious for the safety of the lives on board to endeavor to enter the piers, and accordingly shaped a course for them. The sight near the piers was terrific, - one complete line of breakers extending across the mouth of the river. Near the piers, to add to other obstacles, we encountered an unusually strong current setting to the southward, which caught us on our larboard bow and whirled her rapidly among the breakers, and left us at the mercy of a tremendous sea. By the noble and untiring exertions of Capt. Napier, and his boat's crew, all were safely landed on the beach, the hospitable citizens of St. Joseph crowding around to minister to the comfort of the wet and half frozen crew and passengers. (*Buffalo Commercial Advertiser* 1844a)

Other vessels lost during the storm include the schooners *Jefferson* and *Ocean* off the mouth of the St. Joseph River, the schooner *Wave* off Saugatuck, Michigan, and the schooner *Victory*, lost with all hands (*Buffalo Commercial Advertiser* 1844a, 1844b; *Detroit Daily Advertiser* 1844; *Detroit Free Press* 1844).

It appears that the *Nancy Dousman* was out of service for some time following the storm, as she doesn't reappear in the historic record until February 1846, when Seaman Isaac Stephenson recalls:

Mr. [Jefferson] Sinclair purchased from George Dousman, the "forwarder and warehouse man" of Milwaukee, the schooner *Nancy Dousman* for use in connection with the [lumber] mill at Escanaba. The vessel, which I hauled out on the ways, was cut in two and lengthened twenty-five feet, rechristened the *Gallinipper* and placed under command of Captain George W. Ford. (Stephenson 1915)

According to her new enrollment, however, the *Nancy Dousman*, newly-christened as the *Gallinipper*, was now owned by John B. Smith of Milwaukee, not Sinclair (Bureau of Navigation 1846). The newly-reconstructed vessel was intended for use in the lumber trade, though as the newspapers explained, she was able to carry a "good cargo of wheat" (*Daily National Pilot* 1846a). The *Nancy Dousman* had been hauled out on the shipways nears Sweet's Warehouse in Milwaukee sometime during February 1846 to raise her decks and lengthen her hull by twenty-five feet (*Daily National Pilot* 1846a). Following three months of construction by Master Builder H. Gibson, the skeleton of the former *Nancy Dousman* was re-launched on Saturday, 9 May 1846 as the *Gallinipper*, named for a small biting fly (*Daily National Pilot* 1846b; *Milwaukee Sentinel* 1846). The total cost of the rebuild was \$7,000 (*Cleveland Weekly Herald* 1847).

The new enrollment following her rebuild was entered at Detroit on 26 May 1846 and indicated that the *Gallinipper* was inspected at Milwaukee on 21 May 1846 by Special Surveyor John White, who certified the vessel as having one deck, two masts, no gallery, and a scroll head. Her new dimensions were 95 feet long, 21 feet 8 inches in beam, and a depth of 7 feet 9 inches. The vessel's gross tonnage increased to 144 and 89/95 tons. The *Gallinipper*'s home port remained at Milwaukee, and Captain George W. Ford took command (ACGNFPL 2005f; *Buffalo Daily Courier & Pilot* 1846; Bureau of Navigation 1846).

At the time the *Gallinipper* was launched, the port of Milwaukee had grown to such an extent that the number of vessels that operated out of the frontier city was now considered formidable. Only nine years after Milwaukee's first vessel was launched, the 90-ton schooner *Solomon Juneau* in 1837, twenty-four schooners, two sloops and one steamboat were now home-ported at Milwaukee. Additionally, many of the large steamboats that regularly sailed to Chicago were also stopping at Milwaukee (*Daily National Pilot* 1845a).

The following season Captain John B. Smith acquired two additional partners in the *Gallinipper* - his brother Joseph Smith and Herman Barber - both from the Wisconsin Territory. Captain John Smith took over the role of Master, and a new enrollment was entered at Chicago on 27 August 1847 (ACGNFPL 2005f; Bureau of Navigation 1847a). Ownership soon changed again on 31 March 1848 at Chicago, but the new owners are unknown as the 1848 enrollment has not been located. The change in ownership is known only from the date of surrender marked on the 1847 enrollment (Bureau of Navigation 1847a).

On 7 July 1848, the *Gallinipper* was running light when she capsized off Beaver Island, Michigan. The propeller *Oneida* rescued her crew and managed to right the vessel and tow it into St. James Harbor on Beaver Island. Damage to the *Gallinipper* was estimated at \$3,300 (ACGNFPL 2005f; Mansfield 1899a; *Toronto Globe* 1848). Repairs were made and the *Gallinipper* returned to Milwaukee by late that August (*Buffalo Commercial Advertiser* 1848). On 26 October 1848, ownership changed once again, and a new enrollment was issued at Chicago to reflect that James Steward and Daniel Newhall now owned the *Gallinipper* and sailed her out of Chicago (ACGNFPL 2005f).

The *Gallinipper* only once made the press during the 1849 season when the *Buffalo Daily Courier* (1849) recorded the vessel's arrival at Buffalo on 5 October 1849 under the command of Captain Mosely. She had arrived from Milwaukee with 5,225 bushels of wheat consigned to E. Weed & Co.

At some point during the middle of the 1850 season, Steward and Newhall sold the *Gallinipper* to Nelson Ludington & Co., a lumber manufacturer and dealer in Chicago (ACGNFPL 2005f). Isaac Stephenson, who later became a manager for the N. Ludington & Co. firm, described a stormy trip aboard the *Gallinipper* in September 1850 that may hint at why the *Gallinipper* was now changing hands so frequently:

The first few trips were uneventful but in the early part of September 1850, while on our way to Escanaba, with the boat light, we ran into a storm. There were eight passengers aboard, a yawl in tow and a horse on deck all bound for Bailey's Harbor. The yawl could not be taken aboard because the schooner was very "crank" when unladen and had capsized two years before at Presque Isle on Lake Huron. A terrific gale came up and, while fighting the storm from Friday morning to Sunday afternoon, we drifted from what is now called Algoma, then known as Wolf River, twelve miles south of Sturgeon Bay, to a point ten miles south of Racine. The yawl parted its painter and went adrift to the east side of the lake; the horse died at midnight on Sunday when we were off Milwaukee harbor, and the passengers, who had despaired of ever seeing land again, were back where they had started. The storm which we had happily survived was said to be one of the most severe that ever swept Lake Michigan. (Stephenson 1915)

Following her rebuild, it seems that the *Gallinipper* handled rather poorly when sailing light, as indicated by her capsizing off Beaver Island and the account of Stephenson's stormy trip aboard her in September 1850.

Sometime later that fall, the *Gallinipper* went ashore at Milwaukee. Little information is available on this incident, but by 10 May 1851 the *Gallinipper* had stranded again and sank in the mouth of the Milwaukee harbor (ACGNFPL 2005f). This time she was refloated with relative ease, and the total damage amounted only to \$300 (*Buffalo Daily Courier* 1852).

On 5 July 1851, Isaac Stephenson, then Mate of the *Gallinipper*, purchased a half interest in the vessel from Nelson Ludington (Stephenson 1915). Fortuitously for

Stephenson, this transaction was never officially recorded, and it was believed that the *Gallinipper* was owned in equal shares by Captain Henderson and N. Ludington & Company (ACGNFPL 2005f; *Manitowoc Herald* 1851a). Two days later, on Monday, 7 July 1851, the *Gallinipper* cleared Milwaukee light, bound for Bay de Noque, Michigan, to load lumber. Late that afternoon the schooner was struck by a fast moving squall and capsized eight to ten miles offshore between Sheboygan and Manitowoc, Wisconsin. The squall laid the *Gallinipper* over on her side but she managed to righted herself, only to be knocked over again and this time she filled with water and sank. Fortunately the schooner *Cleopatra* was only a quarter mile away and sent a boat to rescue the *Gallinipper*'s two passengers, Captain Henderson, and the six-man crew (*Manitowoc Herald* 1851a).

On Wednesday, 9 July 1851, the schooner *Crook* reported spotting the capsized *Gallinipper* off Sheboygan, but left the vessel nearly underwater with only ten feet of her above the surface (*Milwaukee Sentinel* 1851a). That same day, Captain Joseph Edwards aboard the schooner *Convoy* reported that he found the *Gallinipper*'s hull floating ten miles south east by south of Manitowoc. After an unsuccessful attempt to right the vessel, Captain Edwards fastened a line to her but was equally unsuccessful in towing her. He was able to remove the *Gallinipper*'s mainsail, main boom, and the main gaff, however, which he delivered for storage at the Manitowoc merchant P.P. Smith. Captain Edwards reportedly left the *Gallinipper* in 40 fathoms of water with her taffrail and mainmast head exposed (*Manitowoc Herald* 1851b; 1851c; *Milwaukee Sentinel* 1851b). Hearing these reports, Captain Henderson began searching for his capsized vessel, but returned to Milwaukee on Tuesday, 15 July 1851 after an unsuccessful search. The *Milwaukee Sentinel* (1851b) surmised that the *Gallinipper* "has doubtless gone to the bottom".

Many years following her loss, Isaac Stephenson reminisced about his emotional and financial attachment to the *Gallinipper*:

After I had made a few trips on the *Gallinipper* as mate, the company commissioned me to buy horses, oxen and supplies...to divert my attention from sailing.... None the less I was still absorbed in it and during the following year, 1851, I purchased a half interest in the *Gallinipper* on July 5, when she was on her way to Escanaba. This was not a fortunate venture. On July 7, when off Sheboygan the vessel capsized and sank, a total loss although all of the crew were saved. The transaction not having been recorded with the underwriters, I saved my outlay for the purchase. (Stephenson 1915)

The schooner *Gallinipper* was listed as a total loss on the Lake Casualty Lists for 1851 (*Buffalo Daily Courier* 1852; Mansfield 1899a). She was valued at \$3,000 and insured by the Merchants Mutual Insurance Company for \$2,000 (*Buffalo Daily Courier* 1852; *Manitowoc Herald* 1851a).

Site Description

The shipwreck known as the *Gallinipper* lies in 210 feet of water 9.5 miles east of Cleveland, Wisconsin (Figure 11). The vessel is intact and upright on the lakebed on a heading of 165 degrees. She lists 20 degrees to starboard with her port rail at a water depth of 195 feet and her starboard rail at a water depth of 204 feet. Her stern has settled slightly lower than her bow, giving her deck a 2 degree upward angle at her bow. The hull is entirely intact with the exception of her standing rigging, which was damaged as a result of her accidental discovery by commercial fisherman Mike LeClair in May 1994, who snagged his net on the previously unknown wrecksite.

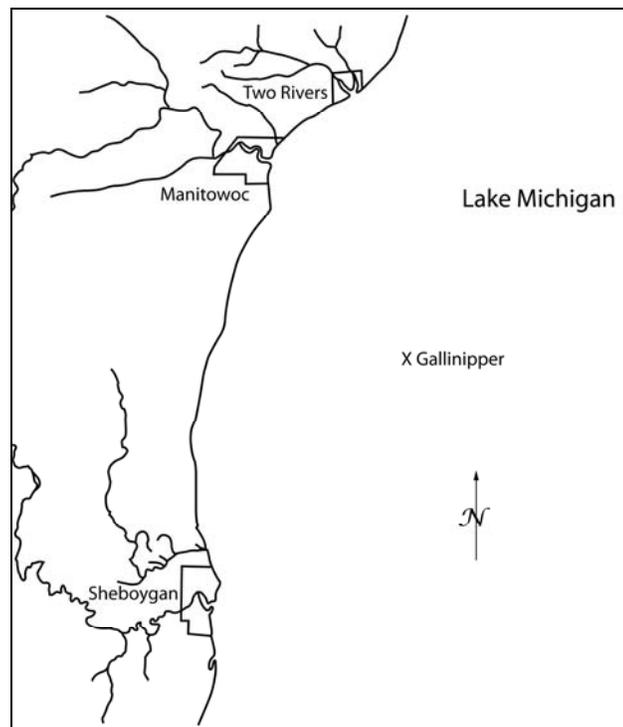


Figure 11. Location of the *Gallinipper* wreck site.

The ensuing efforts to free the net resulted in the vessel's foremast being pulled from the hull and brought to the surface, and is now on display at the Rogers Street Fishing Village in Two Rivers, Wisconsin. The mainmast was not pulled from the hull, but it was pulled from the mast step and toppled forward, and now rests at an angle over the vessel's bow (Figure 12). Much of the remaining rigging lies on the lakebed off the hull's starboard side, including a boom, gaff, topmasts, and two yards. A large amount of fish net remains on the site, wrapped around the stern and running along the lakebed on either side of the hull, in addition to sections of net that drape over the mainmast and forward deck.

Soon following its discovery in 1994, divers John Steele and Bob Duchrow made the first dives to the wreck and reported that it was a small schooner, but little other information came from the dives. Following these initial dives, the site was



Figure 12. Photomosaic of the schooner *Gallinipper*.

rarely visited by divers until 2002, when it was reported that the vessel's wheel had been looted. Since that time, an increasing number of divers visit the site each summer, and local divers maintain a mooring line on the site to facilitate diver access.

A Phase II archaeological survey was conducted by the Wisconsin Historical Society from 24-28 August 2009. During the survey it was discovered that more than just the wheel had been looted, as no portable artifacts were located anywhere onsite, and the vessel's scroll head was no longer extant – the tip of the bow knee now only possesses a vacant shelf where a fiddle- or billethead once proudly stood (Figure 13). A heavy layer of silt and mussels cover the hull. The layer of mussels approaches several inches in places, with the silt nearly as thick. Any diver movements near the hull quickly turns visibility to near zero, and unless the occasional current is running along the bottom, it can take quite some time for the visibility to improve.



Figure 13. View of the ornate bow from the port side. Note the empty ledge where the fiddle- or billethead once stood.

A fiberglass tape measure was installed along the vessel's centerline as a temporary baseline to which all hull measurements were referenced. The baseline began at the peak of the rail above the stem, passed to starboard of the samson post

and foremast, and was draped over the transom and weighted with a 10 pound weight to maintain tension. From the peak of the rail to aft end of the transom rail, the hull is 98.3 feet in length. The vessel's beam, measured to the outside edge of either rail at 30.0 feet on the baseline, is 22.7 feet. The transom is 14.8 feet wide, denoting a hull shape with much of the fullness far forward on the hull, typical of vessels built early in the nineteenth century.

Both the bowsprit and the jibboom are intact on the hull, although the jibboom's heel has unstepped from the heel chock and the entire jibboom has shifted to starboard. The jibboom now lies along the bowsprit's starboard side and the bowsprit cap has twisted and now rests at an approximately 60 degree angle off the vertical. The bowsprit rises at an angle of 16 degrees and extends 16.4 feet forward of the rail, including the wooden bowsprit cap that is .5 feet thick. The jibboom extends 35.5 feet forward of the stem. The bobstays are no longer attached to the bowsprit, but have been replaced by a tangle of fish net that hangs down to the lakebed to create the appearance that the bobstays remain affixed to the bowsprit. The net touches the lakebed beneath the bowsprit and then runs astern along the vessel's starboard side in a long trail of ghost net that is suspended a few feet off the bottom by aluminum net floats. The two chain bobstays are extant on the stem, however, fastened to the cutwater beneath the bow knee, from where they run off to the starboard side of the hull and disappear into the lakebed. A chain bowsprit guy is intact on either side of the bowsprit. The bowsprit guys are fastened to the hull just below where the trailboards fasten to the hull, their outboard ends affixed to the end of the bowsprit. Beneath the bowsprit, the bow knee extends 5.3 feet forward of the stem, and the shelf where the scroll head once stood is recessed 1.0 foot from the forward end of the knee.

A .7 foot wide fairlead plank is fastened to the top the rail on either side of the stem, fastened flush with the rail's forward edge. The fairleads are symmetrical on either side of the stem, with .2 foot wide fairleads located at 3.3 feet, 6.1 feet, and 7.8 feet from the center of the stem to the center of the fairlead. The fairlead plank extends 2.1 feet beyond the outboard fairlead and tapers the last .5 feet to terminate flush with the rail.

The samson post is 1.3 feet sided, 1.0 foot molded, and rises 3.9 feet above the deck; the center of the samson post is at 8.85 feet on the baseline (Figure 14). Two strongbacks are fastened to either side of the samson post at 9.3 feet on the baseline, and their dimensions are .2 feet wide by .3 feet tall. The strongbacks' outboard ends are fastened to the front of the carrick bits, each carrick bitt measuring .3 feet wide by 1.3 feet long. On the starboard side, the strongback extends beyond the carrick bitt to become the shaft for a small gypsy head that is 1.3 feet long and .5 feet in diameter. The port side does not have a similar gypsy head attached. The windlass barrel is 11.6 feet wide and its center is located at 10.0 feet on the baseline. On either end of the barrel, outboard of the carrick bits, gypsy heads extend 1.3 feet from the carrick bits and are 1.2 feet in diameter. The windlass pawl, 1.5 feet long, .8 feet wide and .3 feet thick, is frozen in an upward position, disengaged from the windlass pawls. The windlass does not have a pump brake system, but instead was revolved by the use of handspikes inserted into the windlass drum.



Figure 14. Windlass, bowsprit, and jibboom viewed from aft. The yard is visible lying across the windlass and the forecastle companionway.

The catheads are very short in length, rising up the inside of the bulwarks and passing through them directly beneath the rail to extend only a few inches outboard of the rail. A norman pin penetrates the cathead on the inside of the bulwark halfway between the deck and rail. Both of the vessel's anchors are extent, with a wood stock anchor on the port side and an iron stock anchor on starboard. The tip of the port anchor's fluke is hooked on the rail above the port cathead and the anchor hangs inverted outside the hull. The anchor's crown is very peaked, the arms forming a sharp V-shape that is more typical of eighteenth century anchors. The anchor was lashed to the cathead with a chain that remains attached to the norman pin and runs over the rail outboard the vessel, but the chain is no longer attached to the anchor - the port anchor hangs precariously only by the tip of its fluke. The starboard anchor lies on the lakebed beneath the rail, having broken the cathead from the hull. The starboard lashing chain remains fastened to the anchor's eye and extends from the eye over the rail to take a turn around the cathead's norman pin. The outboard end of the cathead, broken free from the hull, is entangled in the lashing chain just above the anchor's eye. The starboard anchor chain is stretched taught between the eye and the hawse pipe.

The bulwark rail is intact around the entire perimeter of the vessel with the exception of where lower foreyard fell and broke through the rail to starboard of the foremast. The rail is .7 feet wide by .3 feet thick, and rises 2.3 feet above the deck. At the bow, however, the rail's width increases to 1.8 feet as the rail curves inward toward the stem. The bulwark stanchions are .5 feet sided by .3 feet molded with a

space of 2.6 feet between stanchions. Only one of the outer bulwark planks is extant, a .6 foot wide bulwark plank that is fastened immediately above the covering board. Evidence of the remaining outer bulwark planks is visible where they were fastened to the bulwark stanchions, but very little of the other planks are extant. A single horizontal timber, .2 feet square, is fastened to the inside of the bulwark stanchions halfway between the deck and the rail.

The outer hull planking varies somewhat in width between .45 and .6 feet. The covering board is .2 feet thick by .6 feet wide, and is tapered in its inside edge to meet the reduced thickness of the deck planks. All of the deck planks are intact and measure .45 feet wide. The planks are fastened to deck beams that are .6 feet sided by .55 feet molded, spaced with a 2.2 foot berth. No hanging or lodging knees are present, but dagger knees are affixed to the forward side of the deck beams amidships. The dagger knees that are present are not shaped like a typical ship's knee, but instead form small equilateral triangles. Aft of the rear cargo hatch, few of the deck beams are reinforced with a dagger knee. On the vessel's centerline, the deck beams are supported by stanchions spaced with a 2.0 foot berth, but many of the deck stanchions amidships have been dislodged and lie askew in the hold, most likely due to the deck being wrenched with the toppling of the masts. The vessel carried no centerboard and is a standing keeler. The hold contains no cargo, but is filled with a heavy layer of silt, especially on the starboard side of the vessel that lies lower than the port side.

The forecastle was entered by a scuttle 4.0 feet long by 2.6 feet wide whose center is located at 14.1 feet on the baseline (Figure 14). The scuttle was protected by a companionway that rises 2.1 feet above the deck. Little of the companionway's planking is extant, but its framing stands intact over the scuttle, constructed from timbers .3 feet wide by .2 feet tall. A .1 foot wide notch is cut into either side of the upper companionway frames, likely for removable hatch boards used to seal the companionway from water. A coaming that is .3 feet wide and rises .7 feet above the deck is installed around the scuttle's perimeter to prevent water from entering the forecastle from the deck. Below deck, the forecastle is separated from the cargo hold by a wooden bulkhead aft of the scuttle, and this bulkhead remains intact with a large amount of white paint still extant on the bulkhead.

A single-acting bilge pump is located on deck immediately forward of the first cargo hatch, located at 26.5 feet on the baseline. The pump shaft is 1.0 foot in diameter and rises .9 feet above the deck. The pump rod is extant within the pump shaft and extends .6 feet above the top of the pump. The wooden pump handle is also extant and lies on deck next to the pump shaft. The handle is .2 wide, .3 feet tall, and 2.5 feet long.

The forward cargo hatch begins at 28.2 feet on the baseline and extends to 35.8 feet, giving the hatch opening a length of 7.0 feet with a width of 4.1 feet on the inside of the coaming. The coamings are .3 feet wide and 1.3 feet tall, rising .7 feet above the deck. The headledges are arched in the center and rise .2 higher than the coamings. The upper inside edge of both the coamings and headledges are notched .1 foot by .1 foot for the hatch cover, which is not extant. An iron ring is fastened to the front of the forward headledge.

The aft bilge pump is located at 52.1 feet on the baseline and, like the forward pump, is 1.0 foot in diameter and rises .9 feet above the deck. Neither the pump rod or handle is extant, but a .1 foot diameter hole is located on the top center of the pump through which the pump shaft formerly ran. The bilge pump body beneath the deck is readily visible through the aft cargo hatch, and is constructed of a large wooden cylinder that extends to the floor of the hold.

The aft cargo hatch begins at 63.2 feet on the baseline and ends at 70.1 feet, giving a length of 7.9 feet with a width of 4.1 feet between the coamings. The coamings are .3 feet wide by 1.4 feet tall and rise .7 feet above the deck. The headledges are arched in the center and rise .2 higher than the coamings. Like the forward cargo hatch, the inside, upper edge of both the headledges and coamings are notched .1 foot by .1 foot for the missing hatch cover.

The vessel has a stern cabin arrangement that is very unusual for Great Lakes vessels (Figure 15). Rather than a deck cabin situated above deck level, the cabin is constructed entirely below the weather deck. The only visible evidence of the cabin is the scuttle entrance and the remains of the companionway that protected scuttle from the weather. The scuttle's leading edge is located at 79.4 feet on the baseline with the aft edge at 86.3 feet, giving a length of 6.9 feet with a width of 3.6 feet. At deck level, the scuttle is protected a coaming that is .3 feet wide and rises .7 feet above deck, and has a .1 foot by .1 foot notch around the coaming's outside upper edge as a rabbit for the companionway planks. Only one of the companionway's frames is extant, located 2.8 feet aft of the scuttle's forward end. The frame is .25 feet sided by .15 foot molded and rises 2.0 feet above the deck. A cambered timber crosses between the upright frames, rising .3 feet higher in the middle than on the sides of the companionway. A portion of the companionway's roof lies on the deck to port of the scuttle. The extant section is 3.4 feet long by 2.4 feet wide and is covered with longitudinal planks that are .4 feet wide and less than .1 foot thick. The portion of roof is cambered to match the companionway frame.

A single bitt is located forward of either quarter at 90.7 feet on the baseline. Each bitt is .6 feet sided by .4 feet molded and rises 3.5 feet above the deck, .7 feet above the rail. The bitts do not penetrate the deck, but are simply attached to the bulwarks above deck level. Aft of the bitts, a fairlead is attached to the top of the rail at either quarter.

The vessel's wheel and drum were looted sometime around the year 2000, but the wooden wheel stand is extant aft of the cabin companionway. The wheel stand consists of two wishbone-shaped timbers that rise 3.0 feet above the deck at 88.4 feet and 90.4 feet on the baseline. Each stand timber is .4 feet at the top where the wheel was affixed and widens to 2.5 feet at the deck. The vertical stands are affixed atop a wooden pad that is 4.1 feet wide and construction from planks that are .4 feet wide by .5 feet thick. An athwartships plank that is .5 feet wide by .15 feet thick is fastened to the pad between the stands that most likely served as an anchor points for steering chain blocks directly beneath the wheel. The steering chain was attached to the rudder by means of a block and tackle system with a block attached at either corner of the transom, but neither of these blocks are extant.



Figure 15. Stern deck arrangement with below-deck cabin. Note missing wheel.

The rudder post is located immediately aft of the wheel stand at 94.4 feet on the baseline. The rudder post is .9 feet in diameter rises 2.0 feet above the deck. A wooden tiller extends 3.4 feet from the rudder post; .9 feet by .3 feet the rudder post, the tiller tapers to .5 feet by .3 feet at the end. The tiller's end is wrapped with a .2 foot wide iron band and a horizontal iron bolts that penetrates the iron band. The tiller is pointed towards the port side, and the rudder is visibly turned hard to starboard from outside the hull.

The transom is intact and angled at 38 degrees. A large wooden, horizontal cleat is fastened to the inside of the transom at 96.0 on the baseline. The cleat is 5.0 feet long and extends .5 feet from the transom. Above the cleat, an iron ring is affixed to the inside of the transom at 96.9 feet on the baseline. The ring's outside diameter is .5 feet, with a thickness .1 foot on the ring itself.

A wooden davit extends from either corner of the transom (Figure 16). Each davit is 5.0 feet in length, measured from the inside of the transom rail to the end of the davit. Both davits are .5 feet square at the rail and taper towards their ends, which are .4 feet square. Two fairleads are located on either side of the transom rail inboard of the davits. Both fairleads are cut into a wood plank and are .2 feet wide. The first fairlead is located 2.1 feet inboard of the davit, with the second fairlead at 4.6 feet. The fairleads are symmetrical on either side of the transom.



Figure 16. Stern davits, viewed from port side. Note single bitts at either quarter.

The foremast was pulled from the vessel by commercial fishing nets, but the mast hole is intact on deck with no sprung planks or partners. The center of the foremast was located at 20.4 feet on the baseline, and the diameter of the mast hole is 2.0 feet and is octagonal in shape. The partners are visible around the mast hole, rising approximately .1 foot above the level of the deck planks and readily visible through the heavy layer of silt and mussels that have collected on deck. The mast partners are .7 feet wide and circular on the outside perimeter. The foremast was supported by four shrouds on either side that attached to the chainplates via deadeyes. The forward chainplates are centered on the forward mast hole, indicating an upright, rather than raked foremast. The chainplates are .2 feet wide, 3.4 feet long from the chainplate cleat bolt to the rail, and equally spaced at 1.9 feet. The chainplate cleats are .5 feet long and .2 feet wide. The deadeyes were affixed to the chainplates so that the bottom of the deadeyes were flush with the top of the rail.

The center of the mainmast is located at 58.5 feet on the baseline, with a diameter of 1.7 feet. The mainmast was pulled from the maststep and fell forward on the vessel's centerline and now lies at a 20 degree angle over the bow (Figure 17). As the mainmast fell it dislodged the after partners and deck planking, which is sprung upward slightly aft of the mainmast. Despite its toppling, the mainmast is intact for its entire length, and the base of the mast is visible beneath the deck from the aft cargo hatch. The mainmast's housing is octagonal in section, and the tenon for the mast step is .5 feet wide by 1.4 feet long. The mainmast's housing is pressed against the underside of the deck beams adjacent to the aft bilge pump shaft. The mainmast rose 63.9 feet above deck level and tapered to a diameter of .9 feet at the masthead. A mast table is fastened 5.0 feet above the deck that is supported by vertical chocks .3 feet wide and .8 feet long. The chocks are .15 feet thick directly beneath the mast table

and taper towards the bottom to meet the mast. The trestle trees and tops are intact and fastened to the mast 55.2 feet above the deck. The trestle tree scantlings are .5 feet tall, and the two top scantlings curve aft in an arch. The trestle trees are not supported by separate cheeks fastened to the sides of the mainmast, but instead are supported by two shoulders carved out of the mast itself. Above the trestle trees, the masthead is shaved flat on either side with the fore and aft surfaces left rounded. The top of the mast is cut at an angle that slopes downward toward the fore end of the mast. The mainmast was supported by three shrouds on either side whose chainplates are centered on the mainmast at 58.2 feet on the baseline, indicating the mainmast was vertical and not raked. The mainmast chainplates are .2 feet wide, 4.3 feet long, and all equally spaced at 2.6 feet.



Figure 17. The mainmast has toppled forward with trestle trees and tops intact. Looking aft from above the bowsprit. Note tangle of fish net on either side of the hull.

The *Gallinipper* had an unusual spar arrangement for the Great Lakes. She carried at least one topgallant mast and at least two yards – both most likely on her foremast. The vessel was certainly rigged as a schooner and not a brig, however, as both her fore- and mainmasts have a mast table installed, which indicates that both masts were fore-and-aft rigged in a schooner configuration.

One of the vessel's topmasts lies on the lakebed, parallel with the hull on the starboard side (Figure 18). The mastcap from the lower mast – either the mainmast or foremast – remains around the topmast several feet above its base. The topmast's wooden fid, which supported the topmast's weight in the trestle trees of the mast below it, is extant within the topmast's base. This topmast also carries an upper trestle

tree, complete with tops for a topgallant mast, several feet below the masthead. The topgallant mast, however, has not been located or identified on the wrecksite.

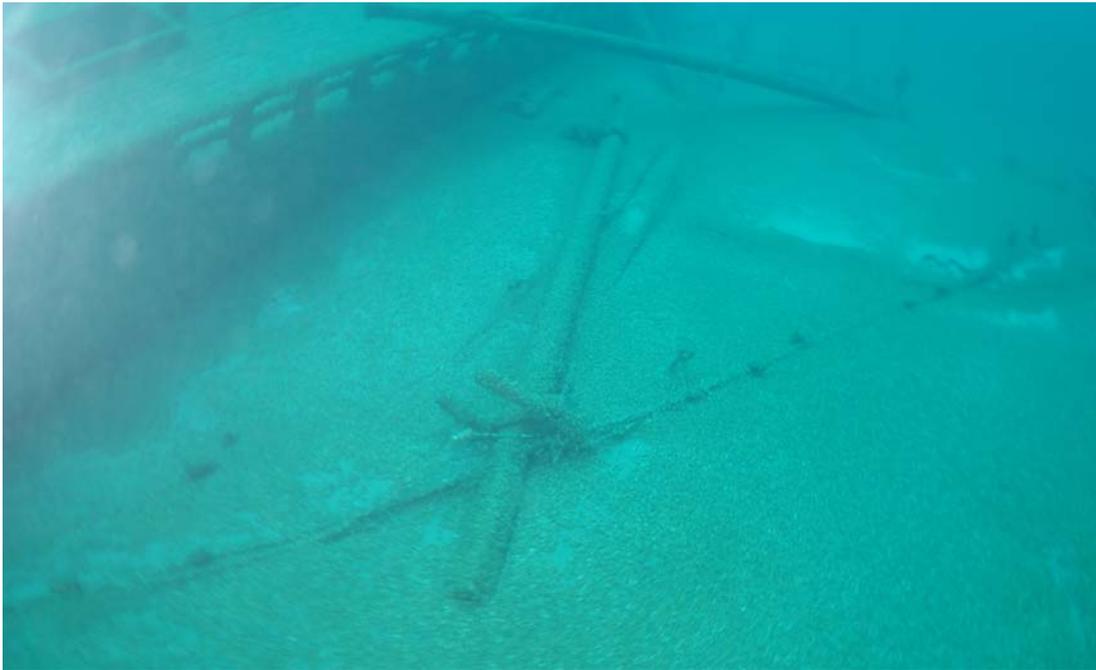


Figure 18. Topmast lying off starboard side, looking forward. Masthead is at the bottom of the photograph with the trestle trees and tops. A mastcap is extant on the topmast at the top of the image.

The vessel carried a large standing yard, 52.5 feet in length, on her foremast (Figure 14). The yard was fastened to the foremast with an iron truss and futtock band and fell from the foremast before the mast was carried away by fish nets. The yard now lies across the foredeck, running from the port cathead, across the windlass and forecastle companionway, to where it crosses the starboard covering board at 40.0 feet on the baseline with its starboard end lying on the lakebed off the hull's starboard side. A second, smaller yard lies on the lakebed off the bowsprit's starboard side, identified by the wooden batten affixed to the center of the yard that would fasten to either the topmast or topgallant mast. An eye is cut into either side of the batten for the necklace that passed around the mast to hold the yard in place. A third spar also lies off the starboard side, but this spar could not be positively identified.

One of the vessel's booms, 35.4 feet in length, lies across the starboard rail immediately aft of the mainmast (Figure 19). The boom jaws lie on the lakebed off the starboard side in a tangle of fish net. The boom's other end rests on the starboard rail and overhangs the deck. A wooden batten with two eyes is attached to the end of the boom, the center of the batten located 5.0 feet from the end of the boom. A 23.0 foot gaff lies parallel to the hull beneath the starboard rail near the bow. The jaws are intact on the forward end of the gaff with two peak halliard blocks attached to the aft end.



Figure 19. Many of the vessel's spars lie off the starboard side. The fore yard lies across the windlass, and a boom lies across the starboard rail. A topmast lies underneath the boom, with a gaff lying nearer the hull. A smaller yard is visible lying off the starboard bow. Most of the spars are tangled in fish net.

CHAPTER SIX THE SCHOONER *HOME*

Two schooners were built in the early 1840s on the lower Great Lakes named “*Home*”. In 1843, a vessel of 127 tons and 84 feet in length was constructed in Portland (now Sandusky), Ohio. The following year, a vessel of 92 tons and 68 feet in length was constructed at Oswego, New York. Both of these vessels received frequent mention in contemporary newspapers, making a difficult task to differentiate which vessel was which in historic accounts. The situation is aided, however, in that one of the vessels kept almost exclusively to Lake Ontario and the other to Lake Erie with only an occasional trip to the upper lakes during their early careers. By comparing the long trail of arrivals and clearings posted in early newspapers with ownership changes recorded in enrollment documents, it was possible to differentiate with a high degree of accuracy which vessel was which in historic documents, and only those believed to belong to the schooner *Home* sunk off Cleveland, Wisconsin, are included here⁴(ACGNFPL 2005h; 2005i).

The schooner *Home* was launched late in the summer of 1843 from William B. Redfield’s shipyard in Portland, Ohio (Everett 1882). At the time of her construction, the vessel was only the second vessel built on the Sandusky River and measured 84 feet 8 inches in length, 23 feet, 8 inches in beam, 7 foot, 4 inches in depth of hold, and had a rated capacity of 127 59/95 gross tons (ACGNFPL 2005h; Bureau of Navigation 1843b) She carried 2 masts with a square stern and scroll head, and it was estimated she could carry around eight to ten thousand bushels of wheat (Everett 1882). Her first enrollment was entered at Portland, Ohio, on 3 October 1843, and the 29 year-old Captain Harrison P. Sackett took the helm as her first Master (Bureau of Navigation 1843b; Everette 1882; United States Census Bureau 1850b).

The *Home*’s construction was commissioned by Captain Morris Tyler of Sandusky, Ohio, and Captain Tyler’s young son Charles was hired to help build the vessel at a rate of seventy-five cents per day (Everett 1882; United States Census Bureau 1850a). Morris Tyler was born in 1797 in Cayuga County, New York, and moved with his family to Detroit around 1810, where his father, John Tyler, served in the American Army at Fort Detroit during the War of 1812. Morris Tyler, then 15 years old, also served as a dispatcher for General Harrison. Following the end of the war in February 1816, the entire Tyler family moved again via horse and sleigh over the ice to Lower Sandusky, Ohio, where Morris Tyler began his maritime career (Atkins 1898; Keeler 1905; Little 1913). Prior to commissioning the *Home*, Morris Taylor had served as Master of the schooner *Cincinnati* from 1828-1829, the side-wheeler *Ohio* from 1830-1834, and the side-wheeler *Daniel Webster* from 1835-1837 (Everett 1882; Mansfield 1899b). In addition to the *Home*, Morris Tyler also

⁴ The smaller schooner, *Home* of Detroit, was constructed in 1844 at Oswego, New York. Also a two-masted schooner, this vessel was slightly smaller at 68 feet, 3 inches in length, 18 feet, 9 inches in beam, 8 feet, 3 inches in depth of hold, and 92 71/95 gross tons. This vessel was lost on Lake Erie on 3 November 1851. This document only reports what has been definitively assigned to the larger *Home* of Sandusky, Ohio (ACGNFPL 2005h; 2005i).

commissioned the construction of the vessels *Buckeye* and the *Ohio* at Lower Sandusky, as well as running a general supply store with his brother John that conducted a large percentage of their trade with the native peoples of the area (Everett 1882).

The *Home*'s sailing career is well documented in both the *Buffalo Morning Express* and *Chicago Tribune*. During her early years under the ownership of Captain Tyler, the *Home* most frequently transported trade goods between Lower Sandusky (Fremont), Ohio, and Buffalo, New York, with occasional stops at ports in between and even an occasional trip to the upper lakes (Everette 1882). The *Home*'s first documented trip was between Lower Sandusky and Buffalo in September 1843, a month prior to her first enrollment being entered the following month at the Port of Portland (Sandusky), Ohio (*Buffalo Morning Express* 1843a). The *Home* arrived at Buffalo on 11 September 1843 on her maiden voyage with cargo of 3,027 bushels of wheat for Captain Morris, and 290 barrels of flour, 4 sacks of wool, and 2 casks of ashes consigned to George W. Tift of Tift & Co., merchants at 36 Prime Street, Buffalo (*Buffalo Morning Express* 1843a; Walker 1844). The *Home* departed Buffalo seven days later with 459 barrels of salt bound for Lower Sandusky (*Buffalo Morning Express* 1843b).

The *Home* made three additional trips between Lower Sandusky to Buffalo in 1843 carrying a variety of items for various consignees. On 6 October 1843, Captain Sackett arrived at Buffalo with 1,464 bushels of wheat consigned to Daw & DeLong, forwarders and commercial merchants at 38 Prime Street, Buffalo; 1,343 bushels of wheat, 8 casks of seed, and 5 casks of ashes for John Fleeharty & Company, 40 Prime Street, Buffalo; 24 casks of ashes for Captain Morris Tyler; 500 barrels of flour and 64 casks of seed for Kinne Davis & Company (*Buffalo Morning Express* 1843c; Walker 1844). On 29 October 1843, the *Home* arrived at Buffalo with 906 barrels of flour, 1 bag of wax, and 12 rolls of leather consigned to freight forwarders Hawley & Cobb; 7 barrels of seed for Daw & DeLong; 167 barrels of flour, 10 casks of ashes, 2 barrels of seed, and 1 box of wax for Alonzo and Malthus Johnson of Johnson & Company, merchants at 40 Prime Street, Buffalo; and 12 kegs of lard and 6 barrels of seed for Tift & Company (*Buffalo Morning Express* 1843d; Walker 1844). Finally, on 17 November 1843, the *Home* arrived at Buffalo on her last trip into Buffalo for the 1843 season carrying 727 barrels of flour, 3 barrels of pork, 2 casks of ashes, and 3 barrels of seed for Hawley & Cobb, and 1,434 bushels of wheat, 3 barrels of seed, and 1 cask ashes for Captain Morris Tyler (*Buffalo Morning Express* 1843f). After unloading at Buffalo each trip, the *Home* loaded cargoes of general merchandise and salt bound for Sandusky (*Buffalo Morning Express* 1843e, 1843g).

Captain Sackett remained at the *Home*'s helm for the 1844 season. The *Home* made only one trip to Buffalo in April 1844, arriving on 18 April from Sandusky with 600 bushels of wheat, 150 barrels of flour, 23 barrels of pork, 16 barrels of lard and hams, and 6 casks of ashes consigned to J. Mottley & Company; 590 bushels of wheat, 26 casks of ashes, 195 barrels of flour, 10 casks of seeds for Fleeharty & Company; 18 casks of ashes for Kinne & Co.; and 434 barrels of pork and 36 barrels of lard for Mr. Hawley. She returned to Sandusky on 22 April in ballast (*Buffalo Morning Express* 1844a; 1844b).

Although there is no mention in the *Buffalo Morning Express* of the *Home's* next trip from Sandusky to Buffalo, the 5 May 1844 edition of the *Buffalo Morning Express* (1844c) notes the *Home's* departure from Buffalo bound for Michigan City, Indiana. No cargo was listed in her departure, so it is uncertain if she was in ballast or loaded. The *Home's* round trip through Lakes Erie, Huron, and Michigan took a little over a month, returning to Buffalo from Michigan City on 16 June 1844 with 4,949 bushels of wheat, 303 barrels of flour, and 47 barrels of pork consigned to Murray & Company, the forwarding and commercial merchants at 4 Prime Street, Buffalo (*Buffalo Morning Express* 1844d; 1844e; Walker 1844).

For the rest of the 1844 season, the *Home* ferried cargoes between Buffalo and Sandusky. The *Buffalo Morning Express* documented the *Home* clearing Buffalo on 26 June, 15 July, 2 August and 14 August 1844, all with loads of general merchandise and salt bound for Sandusky (*Buffalo Morning Express* 1844f, 1844g, 1844i, 1844j). The only arrival mentioned during this period was on 29 July 1844, when Captain Sackett arrived at Buffalo from Sandusky with 18 casks of ashes for Mr. Cowen; 60 barrels of flour consigned to Johnson & Company; 70 barrels of flour for M.S. Hawley; and her first cargo of lumber products - 15 m feet for Mr. Bagbee and 12 m feet for John S. Harbeck and Company, a barrel stave dealer at 103 Ohio Street, Buffalo (*Buffalo Morning Express* 1844h; Walker 1844). The *Home* arrived again at Buffalo on 27 August 1844 with 314 barrels of flour and 1,282 bushels of wheat for Mr. Hawley; 2,067 bushels of wheat and 2 casks of ashes for Daw & DeLong, and cleared Buffalo on 10 September 1844 for Sandusky with a cargo of salt, castings, and merchandise (*Buffalo Morning Express* 1844k; 1844l). The vessel did not return to Buffalo for another month, when on 8 October 1844 she arrived from Sandusky with 2,060 bushels of wheat consigned to Daw & DeLong; 24 casks of ashes, 62 barrels of flour, 15 kegs of butter, and 882 bushels of wheat for Johnson & Company; 700 bushels of wheat, and 17 barrels of flour for M.S. Hawley (*Buffalo Morning Express* 1844m).

A drought over the summer of 1844 left the water level in the Buffalo harbor so low that many vessels grounded, having to unload offshore and lighter their cargoes into Buffalo Harbor. On 29 October 1844, the *Home* grounded off the end of the Buffalo pier and it took nearly two days to liter the vessel and pull her free (*Buffalo Morning Express* 1844n). Her arrival was officially recorded as entering Buffalo on 31 October 1844 with 36 sacks of rags, 43 sacks of feathers, 4 casks of ashes, and 8 casks of seed for Mr. Cobb; 284 barrels of flour, 700 bushels of wheat consigned to M.S. Hawley; 74 barrels of flour, 42 casks of ashes, and 3 barrels of pork for Johnson & Co.; 2,460 bushels of wheat, 40 barrels of flour, and 6 casks of ashes for Daw & DeLong (*Buffalo Morning Express* 1844o).

The *Home* remained in Buffalo for six days before departing for her home port of Sandusky loaded with general merchandise (*Buffalo Morning Express* 1844p). The *Home* was able to complete one more trip for the 1844 season, arriving at Buffalo on 22 November 1844 with 644 barrels of flour, 25 hides, 9 bundles of rags, 9 casks of seed, 5 casks of ashes, 1 box of wax, and 1,522 bushels of wheat for Mr. Hawley; 16 casks ashes for Johnson & Company; and 140 barrels of flour for Mr. Cobb (*Buffalo Morning Express* 1844q). The *Home* departed Buffalo on 26 November 1844

with a load of salt bound for Sandusky. On her arrival she was laid up for the winter (*Buffalo Morning Express* 1844r).

The *Home* escaped any mention in the press during the 1845 season with the exception of one account of an incident on Lake Erie on 19 August 1845. Although this incident cannot be positively associated with the *Home* of Sandusky, it can neither be positively associated with any of the other *Homes* sailing in 1845. About 2:00 AM that Tuesday, a vessel named *Home* was off Sturgeon Point in Lake Erie when the black cook, Harrison Steward, was lost overboard. Captain Chadwick lowered a boat and searched for the lost cook, but he could not be found. Captain Chadwick's is not associated with the enrollment documents of the *Home* of Sandusky, but it is possible there may have been an undocumented change of Masters during the 1845 season (*Daily National Pilot* 1845b).

A new Master came aboard the *Home* for the 1846 season - Captain Baxter of Buffalo, New York. The *Home*'s first voyage of the year brought her into Buffalo on 22 April 1846 with 1,600 bushels of wheat consigned to Mr. O. Lee, and 412 barrels of flour and 57 casks of ashes for French Mearch & Company (*Buffalo Morning Express* 1846a). It is uncertain how long the *Home* remained in Buffalo, but she must have departed rather quickly for an early season trip to Chicago that took approximately one month to complete. Captain Baxter was not new to sailing on the Upper Lakes, as he first arrived in Chicago over a decade earlier when he arrived on 27 September 1834 with the schooner *New Connecticut* (Mansfield 1899b).

The *Home* returned to Buffalo on 24 May 1846 from Chicago with 5,912 bushels of wheat consigned to Sears & Griffith (*Buffalo Morning Express* 1846b). Remaining in Buffalo for only 5 days, she cleared on 29 May 1846 bound for Sandusky with no cargo listed (*Buffalo Morning Express* 1846c). On 20 June 1846 Captain Baxter arrived again at Buffalo with 267 barrels of flour, 44 casks of ashes, 2 casks of seeds, 4 casks of furs, 1 box of wax, 4 rolls of leather, 10 kegs of lard, 2 kegs of butter, and 1 cask ashes for an undocumented consignee (*Buffalo Morning Express* 1846d). The *Home* unloaded and cleared for a return trip to Sandusky on 23 June 1846 (*Buffalo Morning Express* 1846e). The *Home* again returned to Buffalo on 9 July 1846 from Lower Sandusky with 5 casks of ashes, 13,000 bundles of rags, and 396 bundles of feathers for M.S. Hawley; 1,800 bushels of wheat, 600 bushels of corn, 24 cask of ashes, 40 kegs of butter, 1 box of glass for Mr. Wilson; 22 rolls of leather, 63 barrels of pork, 5 kegs of butter for J.H. Hooker; 56 casks of ashes for Sears & Griffith; and 14 m staves for Mr. Sherman (*Buffalo Morning Express* 1846f). The *Home* cleared Buffalo on 14 July 1846 for Lower Sandusky with no documented cargo, and returned to Buffalo on 25 July with 26 m staves for Mr. Sigerman (*Buffalo Morning Express* 1846g, 1846h).

The *Home* remained in Buffalo for the next eleven days, departing on 5 August 1846 bound for a town named Luck with 55 cords of tanbark (*Buffalo Morning Express* 1846i). It is uncertain where Luck is located, but undoubtedly it was a smaller port somewhere on Lake Erie because on 10 August 1846 Captain Baxter arrived back at Buffalo from Sandusky with 23 m barrel staves for Mr. Harbeck, and 15 casks of ashes for Alonzo W. Johnson, a freight forwarder and commercial merchant at 44 Prime Street in Buffalo (*Buffalo Morning Express* 1846j; Walker 1844). She unloaded quickly and returned to Lower Sandusky on 14 August 1846.

Captain Baxter turned the vessel around relatively quickly, returning again to Buffalo on 31 August 1846 with an additional 12 m barrel staves for Mr. Harbeck, in addition to 26 casks of lard, 11 casks of ashes, and 2,500 bushels of wheat for R.H. Haywood (*Buffalo Morning Express* 1846k; 1846l). The *Home* stayed in port only 4 days, departing on 3 September 1846 for Lower Sandusky, this time carrying 100 barrels of salt (*Buffalo Morning Express* 1846m). Captain Baxter steered the *Home* into to Buffalo's harbor again on 16 September 1846 with 4,060 bushels of wheat as well as the ship's owner, Captain Morris Tyler, aboard (*Buffalo Morning Express* 1846n). The *Home* remained in Buffalo for 4 days, clearing the harbor on 20 September 1846 bound for Lower Sandusky with 50 barrels of salt (*Buffalo Morning Express* 1846o). The *Buffalo Morning Express* (1846p; 1846q) documents only one trip in October 1846, when the *Home* arrived at Buffalo on 7 October 1846 with 5,500 bushels of wheat consigned to G.W. Tift and 10 m barrel staves for Mr. Harbeck. She cleared for Lower Sandusky on 9 October (*Buffalo Morning Express* 1846p; 1846q). Captain Morris Tyler died later that month on 23 October 1846 at 49 years of age, but the enrollments do not indicate a change in ownership for several more years (Keeler 1905).

It is uncertain if the *Home* laid up for the winter season early in 1846 or remained in service throughout the month of November. On 30 November 1846, the *Buffalo Morning Express* (1846r) reported on the status of several breaches in the Welland Canal and indicated that a schooner *Home* was detained by one of the breaks above St. Catharines, Canada West (Ontario). It is uncertain if this refers to the schooner *Home* of Sandusky, or the schooner *Home* of Detroit.

On 4 May 1847 Captain Baxter departed Sandusky for Buffalo for the *Home*'s first trip of the season with 1,100 bushels of wheat for Sears & Griffith, and 800 barrels of flour, 55 barrels of pork, 16 casks of ashes, 87 rolls of leather, and 23 barrels of seeds consigned to S.S. Meech (*Buffalo Morning Express* 1847a). The *Home* returned to Sandusky on 7 May 1847 with a new Master - Captain Ormsby (*Buffalo Morning Express* 1847b). Captain Ormsby returned the vessel to Buffalo on 20 May 1847 with 500 bushels of wheat, 400 barrels of flour, 11 casks of ashes and 9 barrels of pork for S.L. Meech & Company, as well as 5,000 barrel staves for Mr. Harbeck (*Buffalo Morning Express* 1847c). The *Home* remained in Buffalo for only four days, departing for Toledo, Ohio, on 24 May 1847 (*Buffalo Morning Express* 1847d). The schooner returned to Buffalo on 7 June 1847 with 2,518 bushels of corn chard; 3,775 bushels corn for Gelston & Evans; and 80 barrels of whisky for H.E. Howard (*Buffalo Morning Express* 1847e). She remained in Buffalo for three days, returning to Sandusky on 10 June 1847 (*Buffalo Morning Express* 1847f). Captain Ormsby returned to Buffalo again on 27 June 1847 with 1,000 bushels of corn for W.O. Brown; 1,680 bushels of corn for A. Davidson; and 2,500 bushels of wheat for Elias Weed, a merchant in Buffalo (*Buffalo Morning Express* 1847g; United States Census Bureau 1850c).

A new enrollment was entered on 5 July 1847 for a change in ownership that recorded Daniel McKeral, Pitt Cook & Company, and William M. Buell as the *Home*'s new owners. Captain McKeral replaced Captain Ormsby as the *Home*'s Master, but her home port remained at Sandusky (Bureau of Navigation 1847b). On 18 July 1847 Captain McKeral brought the *Home* into Buffalo from Sandusky with

1,767 bushels of corn, 2,258 bushels of rye, 138 barrels of flour, 16 casks of ashes, and 14 bales of wool for Mr. A. Davidson (*Buffalo Morning Express* 1847h). The *Buffalo Morning Express* recorded three arrivals into Buffalo during August 1847. She arrived on 2 August 1847 with 1,818 bushels of corn for R.H. Heywood; 23 casks of ashes and 6 bales of wool for Alonzo W. Johnson; 20 casks seed and 1 cask wax for Mr. Babcock; 16 barrels and 1 cask of rye for Sears & Griffith; 78 casks of butter and 25 bales of wool for Mr. A. Davidson; and 8,000 barrel staves for Mr. Harbeck (*Buffalo Morning Express* 1847i). She also arrived on 15 August 1847 with 1,400 bushels of oats for W.O. Brown; 672 bushels of oats, 1,070 bushels of corn, 60 sacks corn, 18 barrels of rye, 5 kegs of butter, 1 barrel of pork, 3 casks of ashes, and 322 barrels of flour for Gelston & Evans; 271 barrels of flour, 31 kegs of butter, and 12 casks ashes for E.D. Robinson (*Buffalo Morning Express* 1847k). On 30 August 1847 the *Home* arrived with 1,378 bushels of corn, 2 kegs of butter, 1 keg of lard, 13 casks of rye, 2 barrels of flax seed, 6 barrels of timothy, 5 kegs of butter, 10 casks of ashes, 2 casks of lard consigned to R.P. Wilkens; 200 bushels of corn for Gelston & Evans; and 10 m barrel staves and 2,722 bushels of corn for Mr. Sherman (*Buffalo Morning Express* 1847m). For each August trip, the *Home* remained in Buffalo for only two days before clearing for a return trip to Sandusky (*Buffalo Morning Express* 1847j; 1847l; 1847n).

The *Home* made Buffalo only once the following month on 13 September 1847 with 3,654 bushels of wheat for John Hollister; 1,303 bushels of wheat for Cuttler & Forlett; 75 kegs of butter for Robinson & Brothers; 775 bushels of wheat, 25 barrels of flour, 11 sacks of corn for Gelston & Evans. The *Home* cleared Buffalo on a return trip to Sandusky that same day with an acting master, Captain Gebhard, at the helm (*Buffalo Morning Express* 1847o). On 10 October 1847, the *Home* again arrived at Buffalo from Sandusky under the command of Captain McKeral with 2,982 bushels of wheat, 1,000 bushels of corn, 11 kegs of butter, and 4 casks of ashes for Gelston & Evans; 846 bushels of corn, 37 kegs of butter, 11 barrels of rye, 21 barrels of seed, 4 casks of ashes, 3 rolls of leather, 26 packages of oil cake, 8 barrels of cranberries, and 3 sacks of feathers for R.P. Wilkins; and 6 barrels of flour for Bayden & Flagg (*Buffalo Morning Express* 1847p). She cleared Buffalo four days later on 14 October 1847 for a late fall trip to Chicago with 200 barrels of salt (*Buffalo Morning Express* 1847q). After unloading the salt at Chicago, the *Home* loaded 6,002 bushels of wheat and 50 barrels of flour at Racine, Wisconsin, consigned to Dean Richmond of Buffalo. She arrived and unloaded at Buffalo on 23 November 1847 and immediately loaded 200 barrels of salt for Sandusky, where she laid up for the winter upon her arrival (*Buffalo Morning Express* 1847r; 1847s).

The *Home* opened up the 1848 season with a new Master, 38-year old Irish Captain James Nugent. The *Home* was honored by the *Buffalo Morning Express* for being the first vessel out for the 1848 shipping season. She entered Buffalo and cleared again for Sandusky on 8 April 1848, but the newspaper failed to mention any cargoes (*Buffalo Morning Express* 1848a, 1848b; United States Census Bureau 1850d).

Captain Nugent again sailed the *Home* from Sandusky to Buffalo on 17 April 1848 with 954 barrels of flour and pork product for Mr. A. Davidson (*Buffalo*

Morning Express 1848b). On his return trip to Sandusky, Captain Nugent was praised for his fast return trip in the *Sandusky Clarion* (1848):

The schooner *Home*, Capt. Nugent, arrived at this place on Wednesday at 12 o'clock, M. from Buffalo, whence she sailed at 6 o'clock Tuesday evening, making the distance from Buffalo to Sandusky in 18 hours. This beats anything in the shape of sailing we have heard of lately. Capt. Nugent reports the steamboat *Oregon* at the time he passed as going into Cleveland, with both pipes blown down, and upper decks stove in.

The *Home* arrived again at Buffalo on 26 April 1848 from Sandusky with 1,267 barrels of flour, 50 barrels of pork, 3 barrels of bacon, 1 toc of bacon, 20 barrels and 1 toc of lard, 18 kegs of lard, and 1 barrel of clover seed consigned to R.P. Wilkins. Three days later, on 29 April 1848, the *Home* cleared Buffalo for Sandusky with a cargo mentioned (*Buffalo Morning Express* 1848c; 1848d). Following these mentions in late April 1848, the *Home* disappears from the historical record for several months.

Not entirely surprising, as Captain James Nugent was a known abolitionist and collaborator on the Underground Railroad (Siebert 1898). In the 1840s and 1850s Sandusky was an important terminus on the Underground Railroad and the city was included in Harriet Beecher Stowe's (1852) *Uncle Tom's Cabin*, where runaway slaves, piloted by railroad conductors, arrived at Sandusky to flee to Canada via lake boats. Moreover, the Fugitive Slave Bill of 1850 made it dangerous for runaway slaves to remain in the northern United States than to continue onward to Canada. Many of Sandusky's officials, lawyers, socialites, businessmen, vessel masters, as well as many quiet, lower-profile people were involved in the city's anti-slavery movement. Lake boat like the *Arrow*, *United States*, *Mayflower*, and *Bay City* were known to help escaped slaves reach Canada, but these vessels are known to be associated with the Underground Railroad because of their failed attempts to transport escaped slaves northward. It is impossible to confirm successful vessels associated with the Underground Railroad simply because they were successful, or in other words – never caught. Likewise, it cannot be confirmed that the schooner *Home* was involved in this movement simply because the vessel was never caught with fugitive slaves aboard. However, it is known that several of the people associated with the *Home* were also associated with the Underground Railroad, making it quite likely that the *Home* was indeed involved with the Underground Railroad in some capacity (Firelands Historical Society 1876; Peeke 1916).

Captain Nugent's involvement in the Underground Railroad was confirmed several years later in an incident that occurred on 20 October 1852, when seven runaway slaves from Kentucky were detained in Sandusky while attempting to board a ship bound for Detroit, Michigan. The runaways were taken to the mayor's office in Sandusky where Attorney Rush R. Sloane was able to secure their release. That night the runaways were placed aboard a boat and taken onto Lake Erie by an unnamed Underground Railroad conductor where they were received by the yawl boat of an unnamed vessel commanded by Captain James Nugent. Captain Nugent secreted the

runaways aboard his vessel and landed them safely in Canada two days later (Firelands Historical Society 1876; Peeke 1916).

Many of the merchants that consigned shipments aboard the *Home* were also known anti-slavery sympathizers. Oran Follett, owner of O & JE Follett who consigned shipments of merchandise aboard the *Home* in 1851 and 1852, was known to house, feed, and clothe many escaped slaves. His wife Eliza is credited with saying “Husband, there is a higher law”, when he approached her with his concern over breaking the law by aiding and abetting runaway slaves (Peeke 1916; Siebert 1951).

A new enrollment was entered on 26 August 1848 at Sandusky for a change in ownership that documented William Buell from Carey, Ohio, as the *Home*'s new managing owner in partnership with Daniel McKeral of Sandusky, the pair having bought out their partner Pitt Cook & Co. The new partnership intended to engage the vessel in trade between Sandusky, Buffalo, and Detroit with McKeral was entered as the vessel's master (Bureau of Navigation 1847b; 1848; Everett 1882).

Despite the documentation noting Captain McKeral's as the *Home*'s master, Captain Nugent actually remained at the helm following the ownership change. The *Buffalo Morning Express* reported that the *Home* arrived at Buffalo on 19 September 1848 from Sandusky with 6,009 bushels of wheat for R.P. Wilkins (*Buffalo Morning Express* 1848e). The *Home* returned to Buffalo again on 13 October 1848 with 5,700 bushels of wheat for Philips & Abora, and cleared Buffalo the next day with 213 barrels of salt bound for Sandusky (*Buffalo Morning Express* 1848f; 1848g).

Any documentation of the *Home*'s operation for the 1849 shipping season has eluded researchers with the exception of one arrival at Sandusky from Oswego, New York, with 984 packages of goods and 230 barrels of salt for an unmentioned consignee under the command of a Captain Wilson (*Sandusky Clarion* 1849). No other documentation appears for the *Home* until a new enrollment is entered early the following season on 3 April 1850 at the Port of Sandusky, Ohio, for a change in ownership that documents D. C. Henderson of Sandusky as the vessel's sole owner. Captain Docter A. Klumph was hired as the vessel's new Master. A native of Portland Township, New York, Captain Klumph moved to Ashtabula County, Ohio, in his teens where he became a Great Lakes sailor as did his brothers Alexis, Jacob, and Cornelius (Bureau of Navigation 1850; Klumph 1960; United States Census Bureau 1850f; Upton 1910).

Captain Klumph arrived at Buffalo on 13 April 1850 on his first trip of the season after a winter layover in Sandusky with 193 barrels of pork, 123 barrels of ham & shoulders, 15 barrels of necks and rumps, 50 barrels of flour, 23 barrels of whisky, 54 barrels of grease, 10 barrels of tallow, 39 barrels of lard, 10 barrels and 12 half barrels of pigs feet, 1 keg of butter, 24 casks saleraids [sic], and 262 live hogs consigned to Elias Weed & Company; 24 barrels of pork, 5 barrels of ham, 9 casks of ashes, and 150 hides for Gelston & Evans; 8 barrels of tongues for H.F. Howard; 400 barrels of pork, 7 barrels of lard, 1 box of wax for Cobb & Company; and 9 barrels of seed, 2 barrels of beef, and 8 kegs of lard for the vessels' owner, D. C. Henderson (*Buffalo Morning Express* 1850a). The *Home* cleared Buffalo on 16 April 1850 to return to Sandusky (*Buffalo Morning Express* 1850b). Eight days later, on 24 April 1850, the *Home* again arrived at Buffalo with 6,000 bushels of corn for Wicke, Darrow & Company, and 30 barrels of whisky for Elias Weed & Company. She

cleared the same day to return to Sandusky (*Buffalo Morning Express* 1850c). On 5 May 1850 the *Home* arrived at Buffalo from Sandusky with 3,000 bushels of corn, 5 barrels of seed, and 4 barrels of sundries consigned to Elias Weed & Company; 545 barrels of flour for M.S. Hawley; and 24 casks of ashes and 1 box of goods for Gelston & Evans. As before, the *Home* was unloaded and cleared for Sandusky the same day (*Buffalo Morning Express* 1850d). Returning once again to Buffalo on 20 May 1850 from Sandusky, the *Home* carried 4,440 bushels of corn for Walker Darrow & Company; 2,000 bushels of corn and 4 bales of pelts for Jason Parker; and 6 casks of ashes for Gelston & Evans (*Buffalo Morning Express* 1850e). Captain Klumph cleared Buffalo on 21 May 1850 for Port Burwell, Canada West (Ontario) (*Buffalo Morning Express* 1850f).

It is uncertain what business was conducted at Port Burwell, but sometime during this trip Captain Gordon S. Wilson took command from Captain Klumph, and the change in command was documented at Sandusky on 31 May 1850 (Bureau of Navigation 1850). Captain Wilson then sailed the *Home* to Buffalo, arriving on 4 June 1850 with 5,800 bushels of wheat and 41 barrels of pork for Elias Weed & Company (*Buffalo Morning Express* 1850g). The *Home* cleared Buffalo on 6 June 1850 for a return trip to Sandusky (*Buffalo Morning Express* 1850h). The *Home* was back in Buffalo on 13 June 1850 with 6,000 bushels of corn for Holley & Johnson, and 6 casks of ashes for Gelston & Evans (*Buffalo Morning Express* 1850i). The *Buffalo Morning Express* (1850j) didn't report the *Home* leaving Buffalo until 30 June 1850, and it was nearly another month, 28 July 1850, before the vessel arrived back in Buffalo with 2,228 bushels of corn for Walker Darrow & Company; 1,614 bushels of corn for Cobb & Co.; 368 barrels of flour for Mr. Drulliard; and 16,798 feet of lumber for J.J. Hollister & Company (*Buffalo Morning Express* 1850k). She cleared Buffalo four days later for Cleveland (*Buffalo Morning Express* 1850l).

The *Home* again arrived at Buffalo from Sandusky on 22 August 1850, this time under command of a Captain Gordon. It is presumed that this is not a new master but in fact a reporting of the Captain Wilson's first name, Gordon, rather than his surname (*Buffalo Morning Express* 1850m). The schooner *Home* arrived with 4,000 bushels of wheat for Cutter & Coye; 2,000 bushels of wheat for Holley & Johnson; 6 bushels of wheat and 4 casks of ashes for Gelston & Evans. She cleared Buffalo three days later for Sandusky with Captain Wilson reported at the helm (*Buffalo Morning Express* 1850m; 1850n). The *Home* then disappears from the historic record for the rest of August and all of September 1850, with the exception of Captain Jefferson Jeffords taking command from Captain Gordon Wilson on 25 September 1850 (Bureau of Navigation 1850). Captain Jefferson Jeffords was a well known mariner from the Village of Saybrook, Ohio, and remained at the *Home's* helm for the remainder of the 1850 shipping season (United States Census Bureau 1850e).

Captain Jeffords arrived at Buffalo aboard the *Home* on 5 October 1850 from Fremont (Lower Sandusky), Ohio, with 3,500 bushels of wheat for Cutter & Coye, and 2,398 bushels of wheat and 7 casks of ashes for E. Weed & Company (*Buffalo Morning Express* 1850o). The *Home* cleared Buffalo for Sandusky two days later with no cargo mentioned (*Buffalo Morning Express* 1850p). Captain Jeffords did a quick turn around at Sandusky, arriving back at Buffalo on 12 October 1850 with

6,000 bushels of wheat for E. Weed & Company (*Buffalo Morning Express* 1850q). Captain Jeffords was able to get in one more trip to Buffalo on 15 November 1850 with 2,022 bushels of corn and 24 barrels of nuts for Cutter & Coye; 538 barrels of flour for M.S. Hawley; 40 barrels of nuts, 1 box of sundried, 9 kegs of butter for Gelston & Evans; 34 toc and 40 barrels of beef for Waller Darrow & Company; 2 casks of ashes for Reynolds & Deshler; 34 barrels of flour and 81 hides for E.H. Pratt; and 1,500 hoop poles for Mr. Beecher (*Buffalo Morning Express* 1850r).

The *Home* opened the 1851 shipping season early, arriving at Buffalo from Sandusky with Captain Jeffords at the helm on 3 April 1851 with 6,086 bushels of corn for E. Weed & Company, and 13 casks of ashes for an unnamed consignee (*Buffalo Morning Express* 1851a). The *Home* unloaded and cleared Buffalo for Sandusky three days later (*Buffalo Morning Express* 1851b). Another trip was made, arriving at Buffalo on 20 April 1851 with 186 barrels of pork for O. & J.E. Follette; 6 barrels of eggs for Cutter & Coye; 2 casks of ashes for Gelston & Evans; 850 barrels of flour and 1,463 bushels of oats for E. Weed & Company; and 70 barrels of eggs for Fleeharty & Effner (*Buffalo Morning Express* 1851c). She cleared Buffalo for Sandusky on 24 April 1851 (*Buffalo Morning Express* 1851d).

During both May and June 1851, only one trip each month was made from Sandusky to Buffalo. The first trip arrived at Buffalo on 9 May 1851 with 600 bushels of oats, 88 barrels of pork, 22 packages of plaster, 2 barrels and 6 kegs of lard, 16 casks of ashes, 2 barrels of oil, and 25 barrels of tallow for Cutter & Coye; and 81 barrels of flour for E. Weed & Company (*Buffalo Morning Express* 1851e). She cleared Buffalo on 11 May 1850 Sandusky, returning to Buffalo on 19 June 1850 with 3,747 bushels of wheat and 9 barrels of whisky for Cutter & Coye; 268 barrels of flour for P.S. Marsh; 60 barrels of flour for Buckingham & Guthrie; 48 barrels of flour for Reynolds & Deshler; 18 barrels of whiskey for Worthington & Smith; 48 barrels of flour, 32 barrels of whiskey for Cobb & Company; and 56 barrels of flour for Fleeharty & Effner (*Buffalo Morning Express* 1851f ; 1851g). She cleared Buffalo for Sandusky on 24 June 1851 (*Buffalo Morning Express* 1851h).

The *Home* arrived again at Buffalo on 3 July 1851 from Sandusky with 6,431 bushels of wheat and 2 barrels of pork for M.S. Hawley & Company; 2 casks of hams, 5 casks of ashes, and 2 casks of tobacco for E. Savage & Company (*Buffalo Morning Express* 1851i). Her clearing from Buffalo went unnoticed, but she arrived back at Buffalo on 21 July 1851 carrying 50 m feet of lumber for Mr. Petrie along with 20 m staves for Mr. Frink (*Buffalo Morning Express* 1851j). The *Home* unloaded and cleared two days later to return to Sandusky (*Buffalo Morning Express* 1851k). Captain Jeffords arrived at Buffalo again on 4 August 1851 with 90 m feet of lumber from Ashtabula, Ohio, consigned to Mr. Booth (*Buffalo Morning Express* 1851l). Again her clearing went undocumented, but on 14 August 1851 the *Home* arrived back at Buffalo from Sandusky carrying 6,000 bushels of wheat and 29 barrels of whiskey for E. Weed & Company (*Buffalo Morning Express* 1851m). The *Home* unloaded and remained in Buffalo waiting on a cargo until 23 August 1851, when she cleared for a return trip to Sandusky (*Buffalo Morning Express* 1851n). In Sandusky, she loaded 6,000 bushels of corn for E. Weed & Company, and 60 barrels of whiskey for Cobb & Company, arriving at Buffalo on 31 August 1851 (*Buffalo Morning Express* 1851o). On 9 September 1851 Captain Jeffords again arrived at Buffalo from

Sandusky with 5,916 bushels of corn for E. Weed & Company; 3 casks of ashes for Gelston & Evans; and 48 barrels of whisky for Cobb & Company (*Buffalo Morning Express* 1851p). The *Home* is not documented as arriving back into Buffalo until 3 October 1851, when she arrived with 5,830 bushels of wheat for W.G. Brown, clearing the next day for Sandusky (*Buffalo Morning Express* 1851q; 1851r).

On Saturday, 11 October 1851, Captain Napier cleared Buffalo in ballast aboard the brig *Chicago* bound for Chicago. About 4:00 AM on 13 October, the two-masted brig was off Long Point in Lake Erie when she was hit by a sudden squall. The storm capsized the 276 gross-ton vessel in less than five minutes, stranding her crew in the middle of the lake where they were unable to launch their yawl boat or right the capsized *Chicago*. First Mate John Tulock, Second Mate William L. Reed, and Seaman John Carver were lost, but Captain Napier and three surviving crew members climbed onto the vessel's inverted keel using clothing they had knotted together to construct a line and floated with the vessel until around 10:00 AM, when Captain Jeffords came alongside in the *Home* to rescue them (ACGNFPL 2005c; *Buffalo Morning Express* 1851s; *British Whig* 1851; *New York Times* 1851). The *Home* arrived at Buffalo on 14 October 1851 with the *Chicago*'s shipwrecked crew and his cargo of 133 barrels of whiskey for Cobb & Company; 6 casks of ashes for Fox & Bruce; 18 m barrel staves for Mr. Hale; 5 m barrel staves for Mr. Frink (*Buffalo Morning Express* 1851s).

On 7 November 1851 the *Home* again arrived at Buffalo from Sandusky with 179 barrels of flour and 28 barrels of whiskey for Cobb & Company; and 773 barrels of flour for Buckingham & Guthrie (*Buffalo Morning Express* 1851t). She cleared Buffalo for Sandusky on 11 November 1851, returning again to Buffalo on 17 November 1851 for her last trip of the season with 785 barrels of flour for P.S. Marsh; 2 barrels of eggs for Davis & Sutton; 112 barrels of whiskey for O. & J.E. Follett; and 10 m board feet of lumber for Mr. Campbell. The *Home* was not documented at clearing Buffalo, so it is unknown if she wintered over that city or in her usual Sandusky (*Buffalo Morning Express* 1851u; 1851v).

A new enrollment was entered at Sandusky on 23 April 1852 for a change in ownership to D.C. Henderson and William Pettibone, both of Sandusky (Bureau of Navigation 1852a). With this new enrollment, the *Home* also received a new Master, Captain M. Wright. On 9 May 1852 the *Home* arrived at Buffalo from Sandusky in ballast on her first trip of the season (*Buffalo Morning Express* 1852a). It is uncertain what cargoes she loaded at Buffalo and when and where she departed for, but it was noted that she again arrived at Buffalo on 2 June 1852 from Sandusky with 6,300 bushels of wheat consigned to E. Weed & Company (*Buffalo Morning Express* 1852b). The schooner remained in Buffalo for a week before returning to Sandusky with no mentioned cargo (*Buffalo Morning Express* 1852c).

On 17 June 1852 the *Home* again arrived at Buffalo from Sandusky with 6,400 bushels of wheat for I. H. Pratt (*Buffalo Morning Express* 1852d). The *Home* unloaded and cleared for Sandusky two days later, returning to Buffalo on 26 June 1852 with another 6,400 bushels of wheat, this time consigned to E. Weed & Company (*Buffalo Morning Express* 1852e; 1852f). The vessel cleared Buffalo on 29 June 1852 for Sandusky and again returned to Buffalo on 6 July 1852 with 5,400 bushels of wheat for O.W. Rogers, and 286 barrels of flour for J. Parker (*Buffalo*

Morning Express 1852g; 1852h). Clearing 3 days later for Sandusky, the *Home* loaded in Sandusky and arrived again at Buffalo on 23 July 1852 with 3,000 bushels of wheat for E. Weed & Company; 2,004 bushels of wheat for Judson Parker; and 18 barrels of whiskey for Cobb & Company (*Buffalo Morning Express* 1852i; 1852j).

The *Home*'s next arrival at Buffalo came from Clinton, New York, on 29 July 1852 carrying 2,400 bushels of wheat for Reynolds & Dishler, and 10 m barrel staves for Mr. Hale (*Buffalo Morning Express* 1852k). She cleared Buffalo four days later bound for Sandusky (*Buffalo Morning Express* 1852l). The *Home* returned to Buffalo from Sandusky on 9 August 1852 with 6,300 bushels of wheat for O. & J.E. Follett, and cleared Buffalo two days later to return to Sandusky (*Buffalo Morning Express* 1852m; 1852n). On 6 September 1852 the *Home* again arrived at Buffalo with 6,300 bushels of wheat for Buckingham & Guthrie (*Buffalo Morning Express* 1852o).

On 14 October 1852 a new enrollment was entered at Sandusky yet another change in ownership to D. C. Henderson as sole owner; Captain M. Wright remained as the vessel's master (Bureau of Navigation 1852b). On 20 October 1852 the schooner *Home* cleared Buffalo for Monroe, Michigan, where she loaded 3,016 bushels of wheat and 20 barrels of flour for E. Weed & Company, in addition to 15 tons of ships knees for Sternberg & Company (*Buffalo Morning Express* 1852p; 1852q).

On 8 November 1852 a new enrollment was entered at Buffalo for another change in owners and Master. Elias and William W. Weed of Buffalo, New York, were listed as the *Home*'s new owners, each owning an equal share of the vessel with Elias Weed entered as Master. The enrollment states that the Weeds were "partners in trade" under the name E. Weed & Co., and the vessel's home port was changed to Buffalo, New York (Bureau of Navigation 1852c). Although Elias Weed is documented on the enrollment as the vessel's Master, Captain Wright is recorded as arriving at Buffalo from Sandusky aboard the *Home* on 9 November 1852 with 6,200 bushels of wheat consigned to Buckingham & Guthrie (*Buffalo Morning Express* 1852r).

On 3 December 1852, the *Buffalo Morning Express* reported that the schooner *Home* went ashore at Kelley's Island, Ohio, in the southwestern part of Lake Erie. Her damage was estimated at \$1,200. It was reported that she was pulled free and repaired near Milan, Ohio (*Buffalo Morning Express* 1852s). It is uncertain when the repairs were completed, but it may have been over the winter of 1852-53 and finished in time to launch the vessel for the start of the 1853 season.

Although the 1852 enrollment listed Elias Weed as Master, the 1853 season finds Captain Gates commanding the *Home*. On 27 April 1853, the *Home* arrived at Buffalo from Monroe, Michigan, with 500 barrels of flour for Holly & Johnson; 340 barrels of flour, 143 ships knees, 28 rolls of leather, 13 bundles of pelts, 19 barrels of seed, 19 barrels of pork, 24 barrels of whiskey, and 15 pieces of furniture for Niles & Wheeler (*Buffalo Morning Express* 1853a). Her clearing was not noted, but the *Home* returned to Buffalo from Monroe, Michigan, on 10 May 1853 with 1,979 bushels of wheat, 629 barrels of flour, 4 casks of ashes, and 1 box of furniture for E. Weed & Company; and 258 ships knees for Niles & Wheeler (*Buffalo Morning Express* 1853b). The vessel unloaded and cleared Buffalo for another run to Monroe on 14 May 1853 (*Buffalo Morning Express* 1853c).

On 6 June 1853 the *Home* arrived at Buffalo from Monroe with 756 bushels of wheat for M.H. Hawley; 2,523 bushels of wheat, 1,362 bushels of corn, 189 barrels of flour, 12 casks of ashes, and a half barrel of wine for E. Weed & Company; 21 rolls of leather for Niles & Wheeler; 1 cask of ham for A.D.A. Miller; 225 bushels of corn for W. Frost & Company; and 10 m feet of lumber for Mr. Booth (*Buffalo Morning Express* 1853d). She unloaded and cleared for Monroe on 9 June 1853 (*Buffalo Morning Express* 1853e). On 20 June 1853, Captain Gates brought the *Home* into Buffalo from Monroe with 3,403 bushels of wheat, 1,548 bushels of corn, 207 barrels of flour for E. Weed & Company; and 10 m feet of lumber for Mr. Booth (*Buffalo Morning Express* 1853f). She cleared Buffalo on 24 June 1853 again for Monroe, and again returned to Buffalo on 6 July 1853 with 125 m feet of lumber for Mr. Booth (*Buffalo Morning Express* 1853g; 1853h). She cleared Buffalo five days later for Gibraltar, Michigan (*Buffalo Morning Express* 1853i). At Gibraltar, the *Home* loaded 35 m barrel staves for Mr. Fitch and arrived at Buffalo on 23 July 1853 (*Buffalo Morning Express* 1853j). Five day later she again cleared for Monroe (*Buffalo Morning Express* 1853k). The *Home* returned to Buffalo on 8 August 1853, this time with a new Master, Captain McEwen, although this change in Masters is not reflected in the enrollment documents. She arrived with 2,168 bushels of wheat for E. Weed & Company; and 65 m feet of lumber for Mr. Booth (*Buffalo Morning Express* 1853l). The *Home* unloaded in four days and cleared Buffalo with yet another new, undocumented Master, Captain Hanscome (*Buffalo Morning Express* 1853m). The *Home* returned to Buffalo from Monroe on 6 September 1853 with 6,285 bushels of wheat for William Foot & Company (*Buffalo Morning Express* 1853n). She unloaded in two days and cleared for a return trip to Monroe (*Buffalo Morning Express* 1853o). On 9 October 1853, the again *Home* arrived at Buffalo with 1,311 bushels of wheat for E. Weed & Company; 1804 bushels of wheat for Jason Parker, 3,076 bushels of corn for Mann Voight & Company (*Buffalo Morning Express* 1853p). There is no record of her clearing, but on 25 October 1853 Captain Hanscome again arrived at Buffalo from Monroe with 5,704 bushels of wheat for A. Williams, and 416 bushel of wheat for Mann Voight & Company (*Buffalo Morning Express* 1853q). There is no record of the *Home* clearing Buffalo, but she again returns on 4 November 1853 from Monroe with 6,002 bushels of wheat for E. Weed & Company (*Buffalo Morning Express* 1853r). The *Home* remained at Buffalo for a little over two weeks before clearing for Monroe (*Buffalo Morning Express* 1853s).

A gale blew across Lake Erie on 24 November 1853 that resulted in a small amount of damage to the *Home*'s rigging and cargo. At the time of the storm she was carrying 1,222 bushels of wheat and 54 barrels of flour for A. Williams; 349 bushels of wheat and 704 barrels of flour for E. Weed & Company; and 20,852 feet of lumber for Mr. Booth. The extent and cost of the damage to vessel and cargo remains unknown, but the *Home* did not arrive at Buffalo until 29 November 1853 (*Buffalo Morning Express* 1853t, 1853u; *Chicago Daily Tribune* 1853).

A new enrollment was entered at Buffalo, New York, on 25 January 1854 for a change in owners and Master to Robert Duncan of Buffalo, New York, who became the *Home*'s sole owner and Master. The vessel's home port remained at Buffalo, New York (Bureau of Navigation 1854a). Other than this enrollment, no other records of the *Home*'s operation has been uncovered for the early part of 1854.

Another enrollment was entered for the schooner *Home* at Chicago, Illinois, on 17 May 1854. Robert Duncan had moved to Chicago but remained the vessel's sole owner, and Captain William White took command of the *Home*, whose home port was also changed to Chicago (Bureau of Navigation 1854b). Captain White, a 34-year old Irish immigrant from Chicago, was a seasoned Great Lakes sailor, and although the enrollments document him as taking command in 1854, newspaper records do not list Captain White aboard the *Home* until April 1856 (United States Census Bureau 1850e).

On 3 June 1854, the *Chicago Daily Tribune* (1854a) reported the *Home's* arrival at Chicago from Grand River, Michigan, with 95 m board feet of lumber with Captain Mason in command. She cleared the same day for a return trip to Grand River, and again arrived at Chicago on 12 June 1854 with an additional 94 m feet of lumber (*Chicago Daily Tribune* 1854b). The *Home* then disappears from the newspapers until an arrival at Chicago on 5 September 1854 under the command of Captain Hasker, with 80 cords of wood that was loaded at Amsterdam, Wisconsin (*Chicago Daily Tribune* 1854c). She made two additional trips from Amsterdam in September 1854, arriving at Chicago on 13 September and 21 September, each time loaded with 80 cords of wood (*Chicago Daily Tribune* 1854d; 1854e). On 12 December 1854, the *Chicago Daily Tribune* (1854f) reported that the Port of Chicago was closed to navigation due to winter weather and that most of the vessels were being prepared for winter lay up. The *Home* was included amongst the many vessels wintering over at Chicago.

The *Home* began the 1855 season in April, making her first arrival at Chicago on 24 April 1855 from Grand Haven, Michigan, with 110 m feet of lumber and 20 m lath. Her Master was reported as Captain Moore, but this change in Masters is not reflected in her enrollment documents (*Chicago Daily Tribune* 1855a). The *Chicago Daily Tribune* (1855b; 1855c) reported two addition arrivals at Chicago in 1855. The first was on 25 May from Grand River with 95 m feet of lumber and 10 m lath, and again on 15 June from Grand River with 100 m feet of lumber. The next time the *Home* made the newspapers was when she went ashore at Grand Haven on the night of 12 August 1855, where she was left hard aground on a sand bottom in eighteen inches of water (*Buffalo Daily Republic* 1855; *Chicago Daily Tribune* 1855d). The schooner was removed from the bar sometime during the fall of 1855, suffering \$500 in damages (*Buffalo Morning Express* 1856). The damages to the schooner keep her out of service until the following spring, when she returned to making monthly trips between Grand River and Chicago at the start of the 1856 season under command of Captain William White. The *Chicago Tribune* (1856a; 1856b) documented the *Home's* arrivals at Chicago on 17 April 1856 with 95 m feet of lumber and again on 16 May 1856 with 100 m feet of lumber.

On 7 August 1856 a new enrollment was entered at Chicago for a change of owners. Captain William White purchased the vessel from Robert Duncan and became the *Home's* sole owner and Master (Bureau of Navigation 1856). The *Chicago Tribune* (1856c) reported that Captain White brought the *Home* into Chicago from Grand River on 16 August with 58 cords of wood, and again from Green Bay on 16 September with 100 cords of posts. She then unloaded and cleared for a return to

Green Bay that same day. It is uncertain what cargo was loaded in Green Bay or her destination after loading (*Chicago Tribune* 1856d).

On 4 May 1857 the *Home* cleared Chicago for her first trip of the 1857 season, bound for Grand River (*Chicago Tribune* 1857a). She returned to Chicago on 30 May 1857 with 900 m shingles that were quickly unloaded and she cleared for Grand River that same day (*Chicago Tribune* 1857b). During the 1857 season, the *Home* arrived at Chicago from Point Sable, Michigan, on 24 June with 86 cords of shingle bolts; on 7 July with 85 cords of shingle bolts and 15 ½ barrels of fish; on 28 July with 45 barrels of fish, and on 17 August with 85 cords of shingle bolts, unloading and clearing the same day for Big Sable, Michigan (*Chicago Tribune* 1857c; 1857d; 1857e; 1857f).

When the *Home* arrived at Chicago on 2 October 1857 from Point Water, Michigan, Captain Harris was at the helm. His time aboard the *Home* is undocumented in the vessels' enrollments. The schooner arrived carrying 40 cords of wood and 50 m barrel staves (*Chicago Tribune* 1857g). She unloaded and cleared Chicago on 3 October 1857 for a return to Point Water (*Chicago Tribune* 1857h). With Captain White back at the helm, the *Home* returned to Chicago on 20 October 1857 from Amsterdam, Wisconsin, with 83 cords of wood (*Chicago Tribune* 1857i).

Captain White sold the *Home* on 22 March 1858 to Captain Thomas Jones of Chicago. A new enrollment was entered at Chicago that listed Captain Jones as the vessel's sole owner and Master (Bureau of Navigation 1858a). The following month, the *Home* was at St. Helena Island, Michigan, loading her first cargo of the season - 34 cords of wood. She also loaded the rigging and spars from the *Leander*, a Canadian two-masted schooner that was lost in a late season gale on 17 November 1857 when she stranded and broke up on the reef at Gros Cap in northern Lake Michigan (ACGNFPL 2005j). The *Home* arrived at Chicago on 7 April 1858 with her cargo of wood and rigging with Captain Wilson at the helm, a change in Masters that is not reflected in the vessel's enrollments. It is uncertain if this is Captain Gordon Wilson, that had previously commanded the *Home* during the 1850 season (*Chicago Tribune* 1858a; 1858b).

On 13 April 1858, the *Home* cleared Chicago for Baileys Harbor, Wisconsin and arrived back at Chicago on 1 May 1858 with a cargo from Sturgeon Bay, Wisconsin (*Chicago Tribune* 1858c; 1858d). The *Home* unloaded and cleared Chicago on 5 May 1858 for Buffalo in ballast (*Chicago Tribune* 1858e). The vessels' destination must have been reported in error, because on 11 May 1858 the *Home* returned to Chicago from Muskegon, Michigan, with 75 m feet of lumber and 11 m lath (*Chicago Tribune* 1858f). A new enrollment was also entered at Chicago on 11 May 1858 that documented a change in owners and Master to Captain W. D. Winslow owning ¼ share, Robert White owning ¼ share, and Thomas Jones owing ½ share, with W. D. Wilson entered as the vessel's Master (Bureau of Navigation 1858b). Captain Wilson continued in command of the vessel for the remainder of the 1858 season.

The *Home* arrived at Chicago from Grand Haven on 26 May with 105 m feet of lumber; from Grand River on 6 July with 100 m feet of lumber and cleared the same day for Grand Haven; from Grand Haven on 12 July with 103 m feet of lumber, clearing the same day for Muskegon, Michigan (*Chicago Tribune* 1858g; 1858h;

1858i). On 19 July 1858 Captain Wilson brought the *Home* in to Chicago from Muskegon with 95 m feet of lumber (*Chicago Tribune* 1858j). The *Home* then made several trips from Centerville, Michigan, arriving at Chicago on 30 August with 87 cords of wood; on 6 September with 74 cords of wood; and on 15 September with 85 cords of wood (*Chicago Tribune* 1858k; 1858l; 1858m). Captain White then made another trip to Muskegon, returning to Chicago on 5 October 1858 with 100 m feet of lumber (*Chicago Tribune* 1858n).

On 7 October 1858 the *Home* cleared Chicago with 3 tons of merchandise consigned to a Manitowoc merchant (*Chicago Tribune* 1858o). With the merchandise unloaded, a cargo of wood and cedar posts was loaded at Manitowoc, and the *Home* cleared for Chicago sometime around 19 October 1858⁵. Around 4:00AM the morning of 19 October, the *Home* collided with the schooner *William Fiske* in a dense fog southeast of Manitowoc. The *William Fiske* was loaded with wheat from Chicago bound for Buffalo, and both vessels were said to be traveling around 10 miles an hour at the time of the collision. The collision stove in the *Home*'s side and toppled her masts, but the *William Fiske* was undamaged and took Captain White and the *Home*'s crew aboard and laid to until daylight. At the time of her loss, the *Home* was valued at \$1,200, and her cargo valued at \$500 (*Chicago Tribune* 1858p; 1858q; Mansfield 1899a; *Milwaukee Sentinel* 1858).

The accident was erroneously reported in several newspapers as taking place "Near the Manitou's" on either 16 or 17 October 1858 (*Buffalo Commercial Advertiser* 1859; *Buffalo Daily Courier* 1858; *Chicago Tribune* 1858q). The *Home*'s wrecksite was discovered 11 miles southeast of Manitowoc in 170 feet of water in April 1981 by Steve Radovan (Radovan pers.com. 2008).

Site Description

The shipwreck known as the *Home* was discovered by Sheboygan wreck hunter and diver Steve Radovan on 25 April 1981 (Radovan 1981). The vessel was first dived by Jim Brotz, John Steele, and Steve Radovan on 2 May 1981. Radovan's logbook entry from that date describes a small, two-masted schooner with one of the masts broken off at deck level and the other laying across the rail. Despite searching, no name boards or other forms of identifying the vessel were located. Although many artifacts were subsequently salvaged, Mr. Radovan kept a detailed log of all artifacts recovered, and many of those artifacts are now curated at the Wisconsin Maritime Museum in Manitowoc, Wisconsin. Although a positive identification of the vessel was never made, Mr. Radovan, on the basis of his historic research, concluded that the wreck was that of the schooner *Home*, built in 1843 in Black River, Ohio, and lost in a collision with the *William Fisk* on 17 October 1858 (Steve Radovan 2008 pers. comm.).

The *Home* lies upright and intact in 173 feet of water nine miles northeast of Cleveland, Wisconsin, in Lake Michigan (Figure 20). The vessel lies on a heading of 030 degrees with less than a one degree port list and a 4 degree bow-down attitude.

⁵ The *Door County Advocate* (1896) reports a contradictory (and erroneous) story where the *Home* departed from Leland, Michigan, loaded with shingle bolts bound for Racine, Wisconsin, and was run down by the *William Fisk* [sic] on 15 September 1856 fifteen miles southeast of Mud Bay, and indicated the wreckage that was ashore at Lily Bay was that of the *Home*.

The vessel's overall length is 98.0 feet, with a beam of 23.7 feet. The hull is almost entirely intact with the exception of collision damage at the starboard bow and the missing stern cabin (Figures 21 and 22).

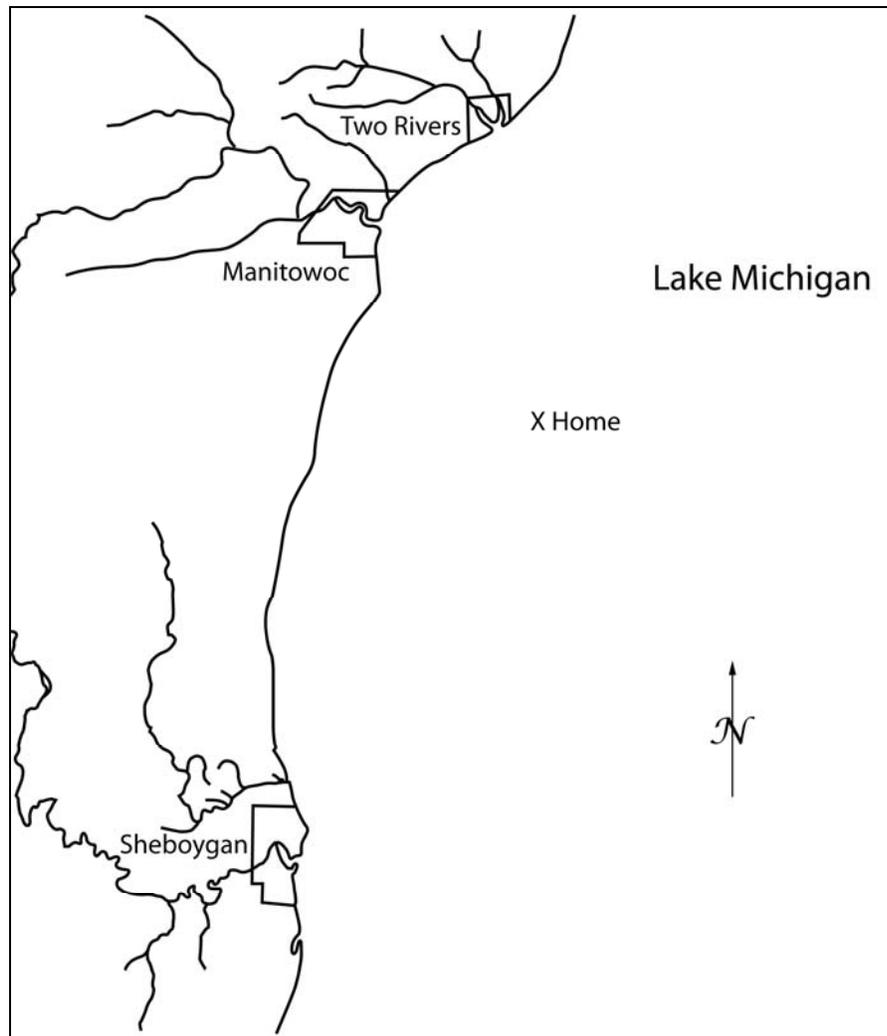


Figure 20. Location of the *Home* wreck site.

The foremast was broken at deck level, pulled to the surface in commercial fishing nets, and is now on display at the Rogers Street Fishing Village in Two Rivers, Wisconsin. The mainmast remains intact in the hull, but has been unstepped from the keelson and toppled towards the port quarter and now lies at an angle, resting on the port rail with the mast's base beneath the deck on the starboard side of the centerboard trunk. Several of the deck planks and mast partners were sprung around the mast hole when it toppled.

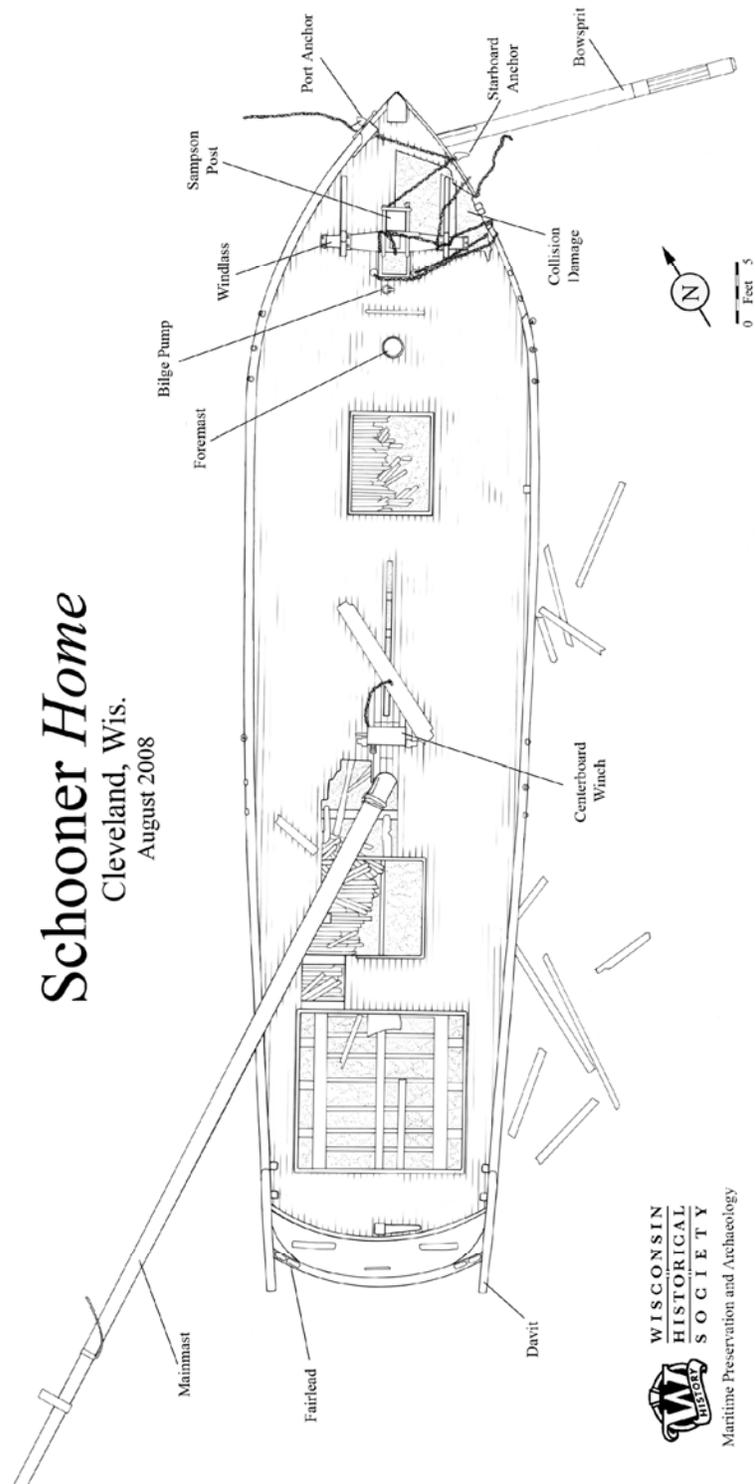


Figure 21. The *Home* site plan.

Schooner Home
June 2008

Wisconsin Historical Society
Maritime Preservation and Archaeology Program

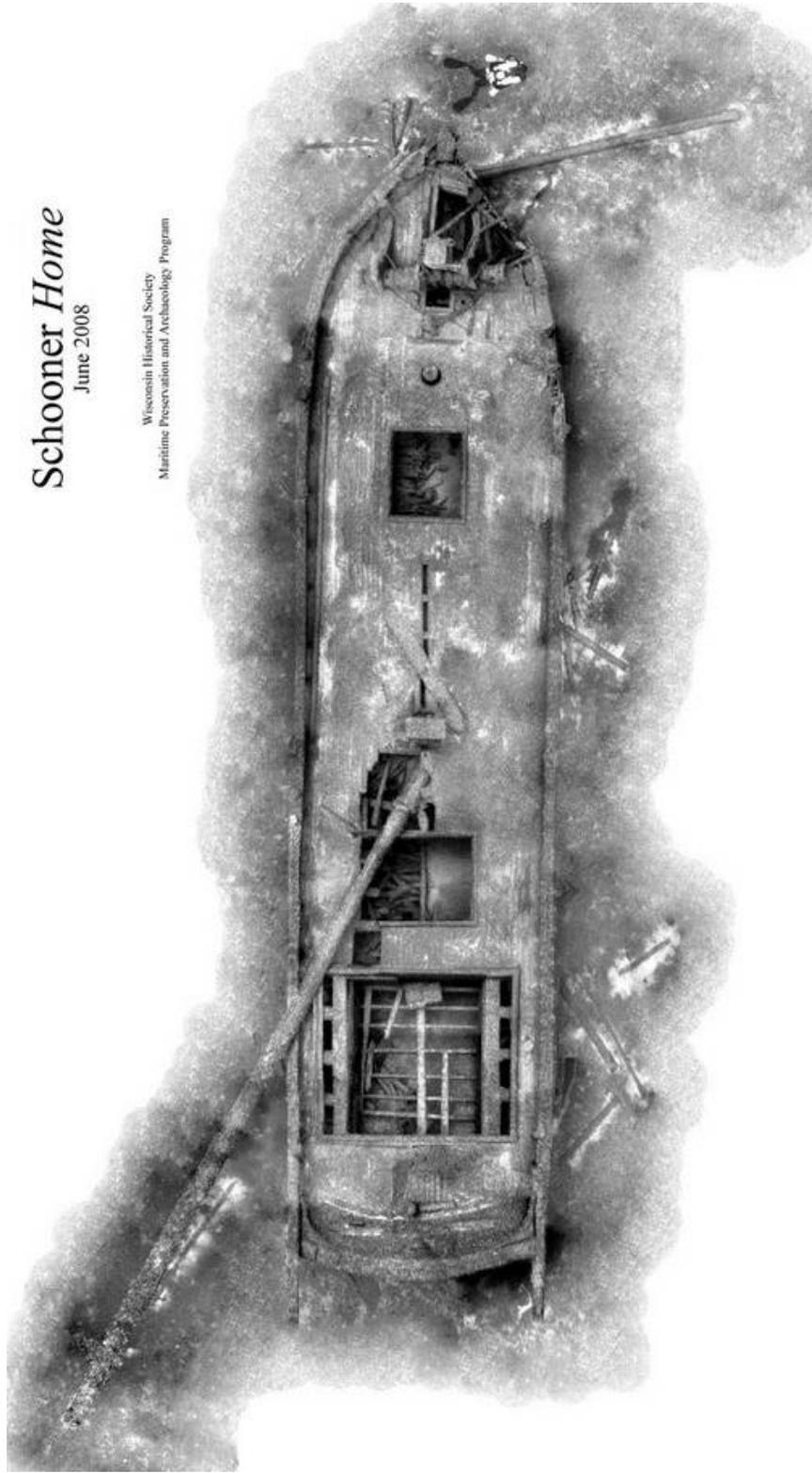


Figure 22. The *Home* photomosaic.

The jibboom is not extant, and the bowsprit has been dislodged from the hull and lies on the lakebed beneath the bow at a nearly 90 degree angle to the hull. The bowsprit is 26.6 feet in length and 1.2 feet in diameter. The bowsprit's base lies away from the hull and the bowsprit's head nearly touches the hull to starboard of the stem. The bowsprit's hounding is octagonal in section with the exception of the first 1.3 feet above the tenon that is square in section, along with the bed, located between 7.6 feet and 8.8 feet. Outboard of the bed, the housing is round in section with the exception of two sets of fairleads that are located on either side of the bowsprit. The first set of fairleads is located at the end of the bowsprit and are 4.55 feet in length; the second set of fairleads are located approximately halfway between the head and bed. It appears that the fairleads are carved from the bowsprit timber rather than constructed separately and attached to it, as there are no seams or fasteners visible. The bowsprit's head is also square in section for the last .45 feet where the bowsprit cap was fitted. The bowsprit was supported by rope bowsprit guys eye spliced to iron thimbles on iron eyes fastened to either side of the hull aft of the stem. No turnbuckles or other evidence of bobstays was visible on the underside of the bowsprit.

The stem is raked forward at 24 degrees and has a stem iron that protects the forefoot that terminates approximately 18 inches above the lakebed, where it is fastened to the stem with an iron bolt. A single chain bobstay is fastened to the front of the stem, and just below the bobstay an iron bolt penetrates the stem athwart ships and fastens two other chains on either side of the stem. These two chains, along with the bobstay, run aft along the starboard side of the hull and are tangled in the starboard anchor and anchor chain that lie in a tangle beneath the hull.

A heavy amount of damage is located on the starboard bow that is consistent with collision damage (Figure 23). Outboard of the windlass, the hull is stove in to form a V-shape that extends 3.6 feet below deck, and the deck planks forward of the windlass are not extant on the starboard side. The starboard rail and bulwark stanchions were carried away from the foremast chainplates forward, along with the starboard cathead and hawse block. The starboard cathead now lies in a tangle of anchor chain and rigging that lies on the lakebed beneath the collision damage.

The port cathead is not extant, but what appears to be a section of the port cathead lies on deck just aft of its former location. The cathead supported an iron folding stock anchor that has fallen to the lakebed directly beneath where the port cathead was fastened; the anchor stands upright on its crown, supported by its anchor chain that runs from the eye straight up to the port hawse pipe. Each chain link is .275 feet long, .25 feet wide, with a link diameter of .5 feet. The chain is attached to the anchor via an iron ring that is 1.2 feet in diameter. The anchor's shank is 5.9 feet long with arms that measure 4.2 feet from the bill to bill, and each palm measures 1.1 feet in width.



Figure 23. Damage on starboard side bow. Bowsprit and anchor fluke are visible on the lakebed near the stem.

There is a large bight of anchor chain that extends approximately 75 feet off the vessel's port bow. The chain runs out from beneath the hull with approximately 200 feet of chain laying on the lakebed in a large loop. This chain appears to have spilled from the chain locker through the collision damage as the vessel descended, as several strands of anchor chain pass through the collision damage and under the hull, in addition to a large tangle of anchor chain that lies on the lakebed below the collision damage. It also appears that the starboard anchor impacted the lakebed prior to the hull, as only a fluke and part of the iron stock are visible protruding from beneath the hull. The starboard cathead lies on the lakebed immediately aft of the anchor.

The outer hull and ceiling planks are all intact with the exception of the collision damage on the starboard bow. Ceiling planks are .6 feet in width, and a bilge strake is fastened inside the hull that is .9 feet tall and is .3 feet thicker than the adjacent ceiling planks. Outer hull planks are .5 feet wide by .3 feet thick. A rubbing strake begins just aft of the stem post and runs the entire length of the ship, also serving as a chainwale where it passes over the chainplates. This rubbing strake is .5 feet tall, .3 feet thick, and is fastened 3.45 feet below the top of the rail. The covering board is 1.2 feet wide by .3 feet thick and abuts deck planks that are .5 feet wide by .1 foot thick.

Due to the hull's integrity, the only accessible frames are cant frames located within the collision damaged area, which consist of double frames constructed from futtocks .4 feet sided by .5 feet molded and a space of 1.0 foot between frames. The bulwark stanchions do not appear to be frame top timbers, but instead appear to be separate timbers that attach to the frames and extend 2 to 3 feet below the covering

board. Bulwark stanchions are evenly spaced at 4.6 feet between stanchions. The bulwark stanchions are .6 feet sided by .25 feet molded and support a rail .7 feet wide by .3 feet thick. All three outer bulwark planks are .1 foot thick and decrease in width from .67 feet, .57 feet, and .47 feet from the rail to the covering board, respectively. Caulking is visible between the bulwark planks. Rectangular scuppers are cut into the lowest bulwark plank that are .65 feet long, .25 feet tall, and spaced at 4.2 feet on center. A single plank, .35 feet tall by .1 foot thick, is fastened to the inside of the bulwark stanchions halfway between the rail and the covering board.

The deck beams are .6 feet sided by .5 feet molded and spaced at 2.7 feet between beams. The deck beams are supported solely by a deck clamp .15 feet wide by 1.3 feet tall. The deck clamp is not notched but fits flush to the underside of the deck beams. The clamp is fastened to the side of the hull with iron through bolts, but it could not be determined if roves were used due to the large amount of corrosion that surrounded each bolt head. There are no knees fastened beneath the deck, but a chock is fitted between deck beams to fill the space above the deck clamp. Likewise, no deck stanchions were found within the hold, the center of the deck was supported solely by the centerboard trunk amidships.

The samson post's forward edge is located at 9.6 feet on the baseline, and the mortise for the bowsprit is visible on its forward surface. The samson post is 1.3 feet square and rises 4.55 feet above the deck. The windlass is a Patent system with an iron crosshead fastened to the forward surface of the samson post that connects to two purchase arms that extend forward of the windlass barrel.

A forecastle scuttle is located immediately aft of the windlass with the scuttle's forward headledge located at 12.0 feet on the baseline and the aft headledge located at 14.7 feet on the baseline, measured to the outer edge of the headledges (Figure 24). The scuttle's headledges and coamings are 1.6 feet tall, rise .5 feet above deck level, and are .35 feet thick, giving a scuttle opening of 2.0 feet square inside the coaming. A notch runs the entire circumference of the coaming's outer edge that is .05 deep. There is no visible evidence of a companionway that fastened overtop the forecastle scuttle.

A single-acting bilge pump is located immediately aft of the forecastle scuttle at 16.4 feet on the baseline, offset a few inches to the port side of the vessel's centerline. The mount for the pump handle is extant and rises above the pump shaft and forms a U-shape at the top to accept the pump handle, which is not extant. No other bilge pumps were visible on deck.

The forward cargo hatch is 8.0 feet long by 6.3 feet wide with the forward headledge located at 26.2 feet on the baseline. The hatch coaming is 1.1 feet tall by .2 feet thick and rises .6 feet above deck level. The inside edge of the cargo hatch has a notch that is .1 foot square. Additionally, each coaming is notched for hatch strongbacks. A single bitt is located abeam of the forward cargo hatch on the starboard side; there is no adjacent bitt extant on the port side. The aft cargo hatch is 6.2 feet wide by 8.0 feet long with the forward headledge located at 62.7 feet on the baseline (Figure 25). Like the forward cargo hatch, the coaming is 1.1 feet tall by .2 feet thick and rises .6 feet above the deck, but the port side coaming and header was broken away by the fallen mainmast. The inside edge of the cargo hatch has a notch that is .1 foot square. Additionally, each coaming is notched for hatch strongbacks.



Figure 24. Windlass viewed from starboard aft. Forecastle hatch is visible beneath windlass, and the bilge pump and foremast aft of that.



Figure 25. Aft cargo hatch and mainmast. Cargo is visible on port side of hold.

The cargo consists of split cordwood that still has the bark attached. Each piece of cordwood is between 3 to 5 feet in length and is stacked athwartships in the hold. Curiously, only the port side of the hold is stacked with wood up to the underside of the deck. No cargo is visible on the starboard side of the hold, but only a uniform layer of silt that fills the hold to approximately halfway between the floors and deck, providing enough room for a diver to swim through the hold from bow to stern without disturbing the silt. A wooden bulkhead separated the hold from the forecastle, but much of the bulkhead has collapsed and the bulkhead planks now lie around the forecastle and forward hold.

The centerboard is located on the vessel's centerline, and the trunk begins at 34.2 feet on the baseline; its forward edge is flush with the aft headledge of the forward cargo hatch. The centerboard trunk is 19.6 feet long and terminates at 53.8 feet on the baseline. The centerboard trunk is filled with silt that obscures the centerboard within, and it could not be determined if the centerboard is deployed or stowed. The centerboard winch is extant on deck above the aft end of centerboard trunk, the winch's leading edge located at 52.0 feet on the baseline (Figure 26). The winch is constructed from wood and has a reduction gear with two warping heads extending from either side of the winch, and the winch chain is intact between the winch and the centerboard. A single deck plank immediately above the centerboard trunk is not extant, exposing nearly the entire length of the trunk. A large plank lies across this opening that is 12.9 feet long by 1.2 feet wide. A short length of heavy chain is attached to the plank, with its bitter end attached to a cleat on the deck immediately forward of the centerboard winch. This plank is movable about the deck, and may have been used to secure the foremast sheet above a deck cargo.

The stern cabin's bulkheads were carried away in the sinking, but the remaining cabin opening is 13.8 feet wide and 13.0 feet in length (Figure 27). The cabin's leading edge is located at 75.2 feet on the baseline. A coaming extends around the entire perimeter of the opening that is .8 feet tall, .2 feet thick, and rises .6 feet above deck level. There is a .1 foot square notch around the outside perimeter of the coaming. The cabin sole is supported by eight athwartships beams that are spaced 2.0 feet on center and are .2 feet sided by .6 feet molded, and are 3.2 feet below the top of the coaming. There is a 2.6 foot-wide passageway on either side of the cabin between the coaming and the bulwarks.

The center of the rudder post is located at 93.0 feet on the baseline. The rudder post is .8 feet in diameter and rises 1.6 feet above the deck. A tiller is attached to the rudder post that is 2.7 feet long and .4 feet square. The tiller extends from the rudder post 180 degrees from the rudder blade and is reinforced by an iron strap fastened between the tiller and the rudder post on either side. The vessel was steered with a wheel that was mounted to the aft deck and connected to the tiller via lines or chains that ran to blocks anchored at each quarter, and then on to the tiller. The steering mechanism was not extant at the time the vessel was discovered (Steve Radovan 2008 pers. comm.).



Figure 26. Centerboard winch, looking aft. The missing deck plank over the centerboard trunk is visible, as is the loose plank with chain attached.



Figure 27. Cabin opening, viewed from astern.

The rudder is turned hard to port, and is at almost a 90 degree angle to the keel (Figure 28). The rudder blade is 9.5 feet tall, .64 feet thick, and extends 3.1 feet aft of the rudder post at its widest part. The blade is constructed from three vertical timbers attached to the rudder post. No preventers are extant. The rudder angle may coincide with the collision damage, indicating the crew was attempting a hard turn to port in an attempt to avoid colliding with the *William Fisk*.



Figure 28. The stern viewed from the port quarter.

A set of double bits are located just forward of the transom on either side. Wooden davits are extant at each quarter; extending 4.0 feet beyond the transom and both are .55 feet square. Four vertical holes penetrate the end of each davit, and green paint is still visible on the davit.

The transom rail is 1.2 feet wide, and vessel's overall length is 97.9 feet. The transom is angled at 41 degrees and is 18.2 feet wide at the rail and 16.6 feet wide at the bottom. The transom is 6.7 feet tall in the center and 6.0 feet tall on either side, curving with a radius of 1.8 feet. The outside of the transom is unadorned and absent of any port lights.

The foremast broke at deck level, and the base of the foremast remains stepped in the hull. The foremast has a diameter of 1.2 feet, and its center is located at 20.6 feet on the baseline. The upper section of the foremast was pulled to the surface by commercial fishermen and is now on display at the Rogers Street Fishing Village in Two Rivers, Wisconsin.

The mainmast is intact from base to head, but has been unstepped from the keelson and toppled toward the port quarter and now lies at an angle across the port rail. When standing upright, the center of the mainmast was located at 56.8 feet on the baseline, with a diameter of 1.6 feet at deck level. The mainmast rose 67.6 feet above the deck, and a mast table is fastened to the mast 3.7 feet above the deck. A single wooden sail hoop remains intact on the mast. The trestle trees are extant at the hounds, 8.2 feet below the masthead. The aft top is extant on the mainmast's port side, but it is broken off flush with the starboard side trestle tree; the extant section of the top is 4.8 feet long, .6 feet wide, and .3 feet tall, and extends 2.9 feet beyond the port side trestle tree. The iron futtock band is extant below the trestle tree along with three 5.8 foot-long iron futtock shrouds, one of which remains attached to the top.

Both masts were supported by three shrouds on either side, and all chainplates are extant except for the forward chainplate on the starboard foremast, which is mangled from the collision damage. The chainplates are 4.8 feet long and .15 feet wide. The foremast chainplates are spaced at 2.9 feet between the fore and middle chainplates, and 2.6 feet between the middle and aft chainplates. The forwardmost foremast chainplate is abeam of the foremast with the remaining two chainplates fastened aft of the foremast. The mainmast chainplates are spaced 2.5 feet between the middle and fore chainplates, and 3.8 feet between the middle and aft chainplates. Unlike the foremast, the mainmast chainplates are centered on the mainmast.

An unidentified spar, 32.4 feet in length, lies on the deck along the port bulwarks near the bow. The spar's only distinguishing feature is an iron ring fastened to an iron eye on the spar's aft end. A large number of artifacts are extant around the site including shoes, glass bottle fragments, a ceramic creamer, a small wooden bucket, concretions of iron artifacts, and several intact stoneware jugs (Figure 29). One of the jugs retains excellent markings that include a cobalt blue numeral 2 and the maker's stamp, "J. R. Maxfield, Milwaukee". An identical jug is curated at the Kenosha public museum, and research has shown this jug was manufactured between the years 1855 and 1858 in Milwaukee, Wisconsin (Dearolf 1986).



Figure 29. Two stoneware jugs that remain on site. The one on the right is marked “J. R. Maxfield, Milwaukee”.

CHAPTER SEVEN THE SCHOONER *BYRON*

The *Byron* is an elusive vessel. She was undocumented, which eliminates one of the best historic resources available – registration documents. With the exception of the collision that sent her to the bottom, she was rarely mentioned in the newspapers. At 36 feet in length, she was dwarfed by most other Great Lakes craft, yet she and many vessels like her provided a vital, yet economical, mode of transportation and income. Small craft like the *Byron* were frequently employed in supplying the specific transportation needs that were local to their owners' communities, and sometimes were only a component of a larger business plan – such as supplying an owner's store with goods and merchandise from around the Great Lakes region.

In the absence of official vessel documents, the context in which these small craft operated can be fleshed out by researching the lives and businesses of the people who owned and worked them. Learning about the role these vessels played in small business goes far in elucidating their use in the nineteenth century and how they helped shape Lake Michigan communities. In the *Byron*'s case, there is so little documentation regarding this vessel that in order gain any understanding of how she was utilized it is necessary to look to similar vessels that served in the same role – other vessels utilized by the Burmeister family to supply their small grocery businesses. The *Byron* was one of the Burmeister's first vessels and helped establish their business, and by studying how they used subsequent vessels – vessels similar in size to the *Byron* – we can learn more about how the *Byron* fit into the maritime landscape of nineteenth-century Lake Michigan.

The *Byron* appears to have been built around 1849, but resources are uncertain regarding the exact build date. Additionally, little is known about how the *Byron* was operated in her early years other than she spent time sailing lumber products between Manistee, Michigan, and Milwaukee, Wisconsin (Alpena County George N. Fletcher Public Library (ACGNFPL 2005b).

The *Byron*'s construction was likely commissioned by William Burmeister of Manitowoc, Wisconsin. William Burmeister came to the United States from Hamburg, Germany, in 1844, and moved to Manitowoc County in 1846 where he established a farm in the town of Mishicot (*Der Nord-Western* 1899). The Burmeister family does not appear in the census records until 1860, however, when William is listed as a 38 year-old chair maker who lived with his family in the Second Ward of Two Rivers with his 27 year-old wife Eliza. Eliza had emigrated from Lubeck, Germany, and the two had four children: Byron (8), Emma (7), Charles (5), and Clara (3). The Burmeisters were wealthy enough to support a 19 year-old Prussian servant, Gertrude Pluckman, who lived with them in their home (United States Census Bureau 1860d).

It is uncertain if the *Byron* is named after William Burmeister's first-born son or another family member of the same name, but if named after his son, the vessel's construction date may be later than 1849 as Byron Burmeister was not born until 1852. Regardless, William Burmeister sailed Lake Michigan as the *Byron*'s Master and introduced his son Byron to lake sailing aboard the craft. At thirteen years of age,

Byron began accompanying his father, learning the tricks of sailing the Great Lakes (Powers 1912). Throughout this time, the *Byron* received surprisingly little mention in the newspapers, and it was not until 1866 that she first made print when the *Manitowoc Pilot* (1866) noted that although the navigation season had not yet closed by 7 December 1866, the *Byron* was amongst several vessels that were already laid up for the winter in Manitowoc Harbor.

The *Byron*'s second appearance in the newspapers occurred the following spring when she was run down south of Sheboygan, Wisconsin. On the evening of 8 May 1867, the *Byron* was underway to Manitowoc from Milwaukee when she encountered the up-bound schooner *Canton* four miles off Amsterdam, Wisconsin, about 12 miles south of Sheboygan. Captain Burmeister was running the *Byron* before the wind when he sighted the *Canton* running by the wind. The navigation rules required Burmeister to keep clear of the *Canton* while the *Canton* was required to maintain her course and speed until after the vessel passed. As the two vessels closed, however, the *Canton* unexpectedly changed her course and turned directly into the *Byron*, who was dwarfed by the *Canton*'s 219-ton hull. The *Canton*'s bow struck the tiny *Byron* and began rolling her over under her momentum. Acting quickly, Captain Burmeister, his son Byron, and passenger W.G. Luvell jumped into the *Canton*'s head chains and climbed aboard the *Canton*'s deck as the *Byron* capsized (*Manitowoc Pilot* 1867a; *Manitowoc Tribune* 1867).

The *Byron* remained inverted for a few minutes before she rolled onto her side. William Burmeister, safely aboard the *Canton*, requested that the crew bring the *Canton* alongside the *Byron* and attempt to right her, which Burmeister claimed could easily have been done. The *Canton*'s crew refused to do so and even found it quite funny that they had capsized the little boat. After lying on her side for approximately 15 minutes the *Byron* slipped beneath the surface. Adding further insult to injury, the *Canton*'s crew put the Burmeisters and Mr. Luvell into the *Canton*'s yawl and rowed them ashore near where the accident occurred. The three then walked the beach in the dark for over ten miles until they reached Sheboygan, where they boarded a vessel for the remainder of their journey to Manitowoc (*Manitowoc Pilot* 1867a).

At the time of her loss the *Byron* was valued at about \$1,000 and her cargo at \$400, but Burmeister did not have insurance on either the vessel or its cargo. The cargo was consigned to two stores in Manitowoc – a general merchandise store owned by Charles Korten and Peter J. Blesch, and a dry goods store that carried crockery, boots, and shoes owned by John A. Koehler. Additionally, Burmeister lost 50 barrels of his own salt (Bond & Smithing 1880; *Manitowoc Pilot* 1867a; *Manitowoc Tribune* 1867; Richard Edwards & Company 1868).

In commenting on the accident, the *Manitowoc Pilot* (1867a) wrote that William Burmeister was “a steady, industrious, clever gentleman”, and they hoped that it would be a short time before he replaced the property so “ruthlessly destroyed” by the *Canton*. Two months later, the *Manitowoc Pilot* (1867b) reported that Captain Burmeister was indeed having a new schooner built at DePere. The name of the vessel that Burmeister commissioned at DePere the summer he lost the *Byron* is unknown, but presumably it was another vessel similar to the *Byron* that was too small to document or draw much attention by contemporary newspapers. No other references to the replacement vessel have been located.

In 1868, William Burmeister was listed only as a lake captain in the Manitowoc city directory, but he had bigger plans for himself and his little boat (Richard Edwards & Company 1868). Sometime between 1868 and 1870, he opened a store front in Manitowoc that specialized in fresh fruit from around Lake Michigan, carried to Manitowoc aboard his vessel. Burmeister divided his time between the store and the boat and his wife and children provided help with the store in his absence. Sometime before 1870, however, Eliza Burmeister died from an unknown cause, leaving William to run the business and raise their four children (United States Census Bureau 1870).

Other than the vessel commissioned at DePere to replace the *Byron* in 1867, it is uncertain how many vessels William Burmeister owned in the succeeding years. It is probable that he owned at least one vessel during this time, but this has not yet been confirmed by historic documents. Throughout this time, however, William's son Byron continued learning the sailor's trade and on 11 August 1875, at the age of 23, he made his first official foray into vessel ownership when he purchased the two-masted schooner *Alice*. The *Alice* was a 12.69 gross-ton vessel not much larger than the *Byron* at 39 feet in length, 12.4 feet in beam, and 5.0 feet in depth. She was constructed by an unknown builder at Chambers Island in 1869 and was registered with an official number of 105294 (ACGNFPL 2005a; Powers 1912).

Byron quickly outgrew the *Alice*, however, and the following April he sold her after purchasing a larger schooner named *Eliza*. The *Eliza* was built by H. C. Pierson in Spring Lake, Michigan, in 1868 or 1869. She was 30.03 gross-tons with dimensions of 53.2 feet in length, 14.9 feet in beam, and 6.0 feet in depth. With the purchase of the *Eliza* completed on 5 April 1876, Byron sold the *Alice* to A.N. Anderson of Manitowoc on 19 April 1876 (ACGNFPL 2005a). It is noteworthy that the new vessel carried the name of Byron's late mother, but more research is required to determine if the *Eliza*'s construction was originally commissioned by the Burmeisters and named in her honor.

Under Captain Anderson's ownership, the little *Alice* continued to sail for the Burmeisters, carrying Michigan produce to their Manitowoc store. On 10 December 1876, Charles Burmeister wrote a concerned letter to the Chicago newspaper *Inter-Ocean* (1876) regarding the *Alice*'s whereabouts:

Will you please try and find out through your marine columns the whereabouts of the small schooner Alice of Manitowoc. She left St. Joseph, Michigan on Nov. 29, bound for this place; since that time nothing has been heard of her. She has a cargo of apples for Messrs. Burmeister & Co. She has a crew of two men, Captain A. N. Anderson and Frank Jakobs. Much anxiety is felt for her safety. It is supposed she has gone down.

The inquiry was followed by a brief explanation that "there need be no further anxiety in regard to the vessel or her crew" as the *Alice* had arrived at Chicago late on Tuesday night and all those aboard were safe (*Inter-Ocean* 1876).

Before the close of the 1876 season, Byron sold the *Eliza* to a Mr. Kirk from Waukegan, Illinois. The amount she was sold for is unknown, but at the time of the

sale she was rated B-1 and valued at \$1,500 (ACGNFPL 2005d; Wisconsin Historical Society 1996a). The *Eliza*'s sale follows a poorly-understood pattern that is common to small sailing vessels during the nineteenth century – frequent change of ownership. For reasons unknown, many small Great Lakes sailing craft changed hands frequently, often between relatives or friends. It is not uncommon to find owners purchasing and selling the same craft more than once, and more research is needed to better understand the reasons behind this practice.

The *Alice* continued hauling fruit to the Burmeister store during the 1877 season, but on 9 October 1877, while moored at Manitowoc, she parted her lines during a storm and was badly damaged as she pounded against the dock. The next day she was towed up the Manitowoc River and allowed to sink. This was apparently the *Alice*'s final resting place, as she does not again appear in the newspaper or in enrollments (ACGNFPL 2005a; *Manitowoc Tribune* 1877). Fortunately for the Burmeisters, other small vessels continued to supply their store with fresh Michigan fruit. On 22 November 1877, the *Manitowoc Pilot* (1877) reported that the schooner *Eliza*, captained by one of the Burmeisters – presumably Byron – had arrived in port a few days earlier with a cargo of select winter apples. The newspaper commented that “we have experienced them and can testify to their [sic] being top notch”.

Byron Burmeister continued sailing the *Eliza* under Kirk's ownership and eventually bought the boat back in 1879. By this time her insurance rating had been reduced to B2 and her hull value had decreased to \$800. With the *Eliza* back in Burmeister hands she spent a week in Manitowoc where she received a new coat of paint before she resumed hauling fruit across Lake Michigan for the remainder of the 1879 season (*Manitowoc Pilot* 1879a; 1879b; Wisconsin Historical Society 1996a). Byron continued sailing the *Eliza* until 1882, when he sold her to an unknown party in Muskegon, Michigan. The *Eliza* continued sailing Lake Michigan under a number of different owners until she went missing on 1 July 1890 under the ownership of John Hanson of Chicago, Illinois (ACGNFPL 2005d; Wisconsin Historical Society 1996a).

In the spring of 1878, the Burmeisters expanded their operation to both sides of Lake Michigan when William Burmeister's son Charles opened a store in Frankfort, Michigan, to sell provisions, feed, and confectionaries in a building across from the Frankfort Express newspaper office (*Frankfort Express* 1878). William and Charles now operated store fronts on either side of the lake, and Byron provided the transportation between them. With the Burmeister business expanding, Byron purchased a second schooner in October 1879, the *Ellen G. Cochrane* from Grand Haven, Michigan. The vessel made her first appearance in Manitowoc with a load of fruit on 15 October 1879 (*Manitowoc Pilot* 1879c). The *Ellen G. Cochrane* was a 2-masted schooner built in Muskegon, Michigan, in 1878. She was registered at 32.02 gross-tons with dimensions of 55.7 feet in length, 16.1 feet in width, and 5.4 feet in depth (ACGNFPL 2005e). As with earlier vessels, the *Ellen G. Cochrane* was in need of some repair at the time she was purchased, and she received the work over the winter of 1879/1880. In early April 1880, the *Manitowoc Pilot* (1880) reported that the *Ellen G. Cochrane* was completed and the vessel was launched on Saturday, 3 April 1880. It is uncertain how long Byron owned the *Ellen G. Cochrane*, as there is no other mention of the vessel until 29 June 1883 when she is renamed the *Antelope*,

and again in 1885 when her home port was changed to Chicago. She met her fate on 15 November 1894 when she capsized on Lake Michigan near the mouth of Grand River under unknown owners (ACGNFPL 2005e).

By 1880, the 58-year-old William Burmeister had remarried to a 38-year-old home maker named Louise from Lubeck, Germany, the same place as William's first wife, Eliza. Byron Burmeister, now 28 years old, still lived with his father and step mother when he wasn't sailing the lake. Census records note that Byron was unemployed for 5 months of the year, presumably during the winter lay-up when the navigation season was closed. Twenty-two year-old Clara also lived at home, as well as a new daughter Lizzy, who was 5 years old (United States Census Bureau 1880).

In 1880, the Burmeisters added another small schooner to their fleet, the *Gertie Wing*. The *Gertie Wing* was commissioned by William and Byron Burmeister and constructed by Patrick Moran and Jeremiah Daniels in Manistee, Michigan. The little schooner was 16.99 gross tons and measured 41.4 feet in length, 12.8 feet in beam, and 5.6 feet deep. The Burmeisters owned the *Gertie Wing* for her entire career, and sailed her until she was lost near Port Washington in 1887 (ACGNFPL 2005g; Wisconsin Historical Society 1996b).

Although William Burmeister was getting on in years he had not forsaken the call of the deep and continued sailing. In early September 1881, a local German newspaper reported that Captain William Burmeister had his foot crushed in an accident in Chicago on 24 August 1881 and had been taken to St. Lucas Hospital where he reported himself to be "a model patient". His wife Louise went to Chicago to be with him (*Der Nord-Western* 1881).

The next two vessels owned by the Burmeisters appear to be the same boat that was rebuilt, renamed, and issued a new enrollment number, but it has not been confirmed that the scows *W. B. Sloan* and the *Mishicott* were one and the same. On 14 May 1879 William Burmeister entered a new enrollment for the scow *W. B. Sloan*. She was a 2-masted schooner of 72.25 gross tons and measured 74.6 feet in length, 19.2 feet in width, and 4.9 feet in depth. She was built at Oak Harbor, Ohio, in 1871, and was the largest vessel purchased by the Burmeisters to date. Sometime during 1879 the Burmeisters sold the *W. B. Sloan* to a Mr. Crawford of Port Clinton, Michigan, but on 13 April 1881 Charles Burmeister purchased the vessel back from Crawford and sent her to Manitowoc for repairs the following winter. In early May 1882, the *Manitowoc Pilot* (1882a) reported that Byron and Charles Burmeister had the *W. B. Sloan* rebuilt over the winter and would launch her with a new name on 13 May 1882, but the newspaper failed to mention what the vessel's new name would be (ACGNFPL 2005n; *Manitowoc Pilot* 1882a). One week later, the *Manitowoc Pilot* (1882b) announced that the "new scow built for Byron Burmeister by Madison Ornes, was launched yesterday and called *Mishicott*". The *Mishicott* was a 2-masted scow schooner built by ship carpenters Madison Ornes and Gunder Jorgenson in Manitowoc, and she was just slightly larger than the *W. B. Sloan* at 76.54 gross tons, 79.2 feet in length, 21.5 feet in width, and 6.1 feet in depth. The *Mishicott's* first enrollment was entered at Milwaukee on 15 May 1882 with Byron and Charles Burmeister listed as owners, living in Manitowoc, Wisconsin, and Frankfort, Michigan, respectively. Her official number was 91439 (ACGNFPL 2005n; Bond & Smithing 1880; Bowling Green State University 2008).

In 1884, the Burmeisters published an advertisement in the Manitowoc City Directory for their business, Burmeister & Son (Wright & Hogg 1884). Their storefront specialized as a wholesale and retail dealer for Michigan fruits and potatoes and was run by William and Byron at 105 South 8th Street in Manitowoc. William's daughter, Clara, worked as a clerk in the store. Clara and Byron, as well as Lizzie, all still lived with their father south of the city limits on South Main.

With stores on both sides of Lake Michigan and their own boats to supply them, business was going well and the Burmeisters expanded into the ice business. On 7 February 1884 they took out an ad in the *Manitowoc Pilot* (1884) that announced the start of the Burmeister's Ice House:

I desire to notify the public that I have leased the large ice houses of Mr. F. Schadewald and will engage permanently, in the business of supplying ice. Orders will be taken for the coming season at Burmeister's Fruit Store near 8th St. Bridge- Byron Burmeister.

The ice business had an uncertain performance, however, as the Burmeister's ice house was not one of the listed ice suppliers in the 1894 city directory (Brandt Printing and Binding 1894).

On 6 September 1885 the Burmeister's schooner *Gertie Wing* arrived at Manitowoc with a cargo of Michigan fruit, and a few days later, on 9 September 1885, Byron Burmeister wed Mary Falge of Manitowoc, Wisconsin. Mary was born in Austria, Hungary, on 22 October 1866. She came to America with her mother at the age of three, and at the time of her marriage was a school teacher in Manitowoc. The *Manitowoc Pilot* (1885) described Byron as "an industrious enterprising young man who has built up a first class business and knows how to take care of it" and Mary as "a young woman of superior mental powers and unusual force of character", and wished the couple a happy future. For a honeymoon trip, the couple boarded the scow *Mishicott* and sailed to Sturgeon Bay to visit friends (*Door County Advocate* 1896; Powers 1912; United States Census Bureau 1910).

Following the honeymoon, Byron and Mary followed Charles across Lake Michigan and on 20 November 1885 they established a home in Onekama, Michigan. With the move to Onekama, Byron became the sole owner of the *Gertie Wing* when he bought out his father's share of the vessel and established his own store that sold general merchandise and produce purchased from local farmers. In addition to the storefront, Byron remained heavily involved in lake transportation with the Burmeister fleet, hauling tan bark, cordwood, and agricultural products to ports around the lake, becoming one of the largest shippers of these products from that part of Michigan. It appears, however, that Byron now participated in the shipping trade mostly from the comfort of his store by owning vessels and brokering cargoes rather than sailing the lake himself (ACGNFPL 2005g; Grossnickle 2008; Powers 1912).

On 14 April 1886 Byron transferred his share of the *Mishicott* to his wife Mary. Charles Burmeister retained his share of the vessel in partnership with Mary until 7 September 1889 when Mary became sole owner. Mary remained the *Mishicott*'s sole owner until she sold it on 2 May 1892 to Soren Christiansen of Onekama, Michigan. Under Captain Kristiansen's ownership, the *Mishicott* continued

to haul occasional cargoes for the Burmeisters, including tan bark and merchandise (ACGNFPL 2005k; Kristiansen 1981).

The Burmeisters lost the *Gertie Wing* to an accident in May 1887, but little is known about the accident other than she stranded with a load of apples one-half mile north of Port Washington and was declared a total loss. It is unknown whose command the vessel was under or the circumstances of the accident, but apparently no lives were lost (ACGNFPL 2005g; Wisconsin Historical Society 1996b).

On 7 May 1890 Charles Burmeister suffered a hemorrhage that debilitated him so badly that he was forced to sell his business and move his family back to Manitowoc that fall. He died the following year on 4 July 1891 at his father-in-law's home after a prolonged struggle with pneumonia (*Der Nord-Western* 1891). Byron remained in Onekama and became an active member of the community, helping Onekama become incorporated in 1891 and holding many village offices, including village president. On 1 October 1891, however, Byron lost his business in a fire that raged through the village of Onekama and destroyed more than 13 buildings. Captain Soren Kristiansen was sleeping aboard the *Mishicott* in the harbor when he was awakened at 2:00 in the morning. Seeing flames from his cabin, he rushed downtown to find the Burmeister's store and the opera house nearly burned down. A good portion of the Burmeister's merchandise had already been piled on the piers, saved from the flames. Lacking any sort of fire pumps, the village was largely helpless against the flames, but Captain Kristiansen helped pass buckets of water to save what buildings they could. After the fire burned itself out, Captain Kristiansen helped Byron move the goods that survived the fire into the vacant Jenkin's building, and helped the Burmeister family move their possessions into the upstairs, where they lived for immediate future. Fortunately, Byron had insurance on his property and quickly began construction on a new building, reopening his business on 10 December that year (Kristiansen 1981; Powers 1912).

The opening of the Manistee and North Eastern Railroad around 1893 linked Onekama with outlying areas, and the Burmeister's purchasing area was greatly expanded. Byron expanded his business by establishing branch stores in Tannerville and Nessen City, Michigan. Although he began moving larger quantities of his goods via the railroad, he also remained active in the lake trade (Grossnickle 2008). On 12 May 1896, Byron purchased the schooner *Waneetee*. Built in Sodus, New York, in 1871, the vessel was 116.53 gross tons with dimensions of 88.7 feet in length, 22.5 feet in beam, and 8.6 feet in depth. This aged vessel only served the Burmeister store for four years, however, and she was abandoned off Pentwater, Michigan in 1900 (ACGNFPL 2005o). It appears that the abandonment of the *Waneetee* signaled the end of Byron Burmeister's involvement with merchant sail.

The 1897-98 Manitowoc City Directory lists William Burmeister as a dealer in apples and cider at 820 South Main, and he was again listed as a fruit dealer in the 1899-1900 directory (Schmidt & Zorn 1898; Wright 1897). On 11 May 1899, however, William Burmeister died at the age of 77 after a long struggle with illness. The *Der Nord-Western* (1899) described him as an eminent resident of Manitowoc who left his widow Louisa and three children. With William's death it appears that the Burmeister store in Manitowoc closed, as there is no mention of the store in subsequent city directories.

Despite his father's death and the apparent loss of the Wisconsin-based business, Byron Burmeister continued expanding his operation with an increased use of rail transportation by opening buying stations at eight locations along the Manistee and North Eastern Railroad and the Arcadia and Betsy River Railroad (Grossnickle 2008). By 1910, the 57 year-old Byron was still working as a grocery merchant in Onkama, now assisted by his 23 year-old daughter Alberta who had graduated from the University of Michigan two years prior (Powers 1912; United States Census Bureau 1910).

In August 1918, Byron Burmeister was visiting Sturgeon Bay when he took time to talk with the *Door County Advocate* (1918) and recounted stories of his sailing days. The *Door County Advocate* wrote that there were "few sailing craft that could show their stern to the *Mishicott* when sailed by Capt. Burmeister, who had few equals when it came to sailing". Byron was still operating as a wholesaler of farm products in 1920, but by this time his wife Mary had passed away and he lived with all three of his children. His daughter Alberta had left the store for a position at the post office (United States Census Bureau 1920).

The little schooner *Byron* played an important role in William Burmeister establishing himself as a merchant in the Manitowoc area, and with the use of other vessels similar to the *Byron*, the Burmeister business expanded to both sides of Lake Michigan and throughout northwestern Michigan. The *Byron* was instrumental in teaching Byron Burmeister about the lake trade and helped his later businesses succeed due to effective use of the small, inexpensive vessels. Small lake craft's niche market was fruit and produce, with cargoes of general merchandise, tanbark, and other wood products providing income when fruit and vegetables were not in season. Small sailing craft appear to have dominated the fruit and vegetable trade on Lake Michigan, but this trade was not well-documented and today there is a very poor understanding of how it operated and the vessels that participated in it. Only through researching the scattered information we have on vessels like the *Byron* will we be able to shed more light on this small, but important, component of Great Lakes history. By examining the business practices and movements of other vessels within the trade, a better understanding can be gained of how the *Byron* may have been used and operated.

Site Description

The *Byron* lies in 135 feet of water 12 miles southeast of Sheboygan, Wisconsin (Figure 30). She was discovered in May 1977 when commercial fisherman Danny Burnette snagged the wreck with a trawl net from the fish tug *Art Swaer 7* and brought up one of the wreck's anchors in their net. Word got out of a new shipwreck site and divers quickly relocated the site. The first divers to visit site were John Steele, Steve Radovan, Jim Brotz, and Bill Coors, and John Steel captured three minutes of video on one of the first dives in 1977. In the years following the wreck's discovery, much of the vessel's cargo and equipment were recovered by recreational divers. Some of the items that were salvaged include a second anchor, the compass, yellowware bowls, porcelain plates, and a small porcelain cup on which was written "A Present for a Good Girl" (James Brotz 2008, pers. comm.).

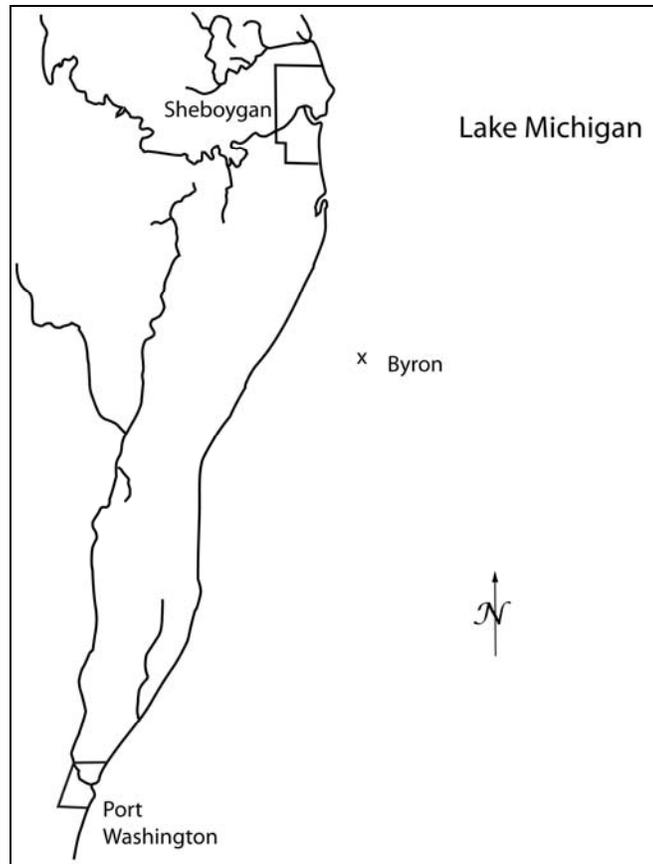


Figure 30. Location of the *Byron* wreck site.

The video captured by John Steele details much of what the wreck looked like when it was first discovered (Steele 1977). In the video, the vessel does not have a bowsprit, but a single bobstay plate is visible fastened to the stem, indicating that she had a bowsprit that was either carried away in the sinking or during its encounter with the trawl net. There is no evidence of a windlass or capstan, but the vessel's deck is completely intact. The hatch cover is missing, but its coaming is intact. Through the hatch the centerboard trunk is clearly visible, and a wooden barrel of nails lies in the hold. The staves of the barrel are no longer intact, but the corroded mass of nails retains the barrel's shape.

Moving aft, the camera records an unidentified spar lying across the deck that hangs into the cabin and a bilge pump shaft protrudes from the deck immediately forward of the cabin. The single pump shaft is square, framed by wooden planks. As the camera pans over the cabin the port and stern cabin bulkheads are still standing, constructed of horizontal planks fastened to vertical frames. The cabin roof is dislodged and lies over the starboard quarter, where the starboard cabin bulkhead has collapsed. Within the cabin a small stove is visible in the forward port corner, and several porcelain plates lay about the cabin aft of the stove, as well as what appears to be the stove's chimney.

Next the camera pans over the stern, showing the rudder post and tiller, which is put over hard to starboard. The cabin roof is dislodged and lies over the starboard

quarter. The vessel appears to have had a very low transom (which is now absent), but the transom's features are obscured by a section of trawl net that is draped over the stern. Swimming up the side, a very low bulwark is visible that appears to be less than one foot tall, and an iron lifeline runs along the hull above the bulwark. The iron lifeline rises approximately 18 inches above the bulwark and is suspended between iron stanchions. A rubbing strake runs the length of the vessel that also serves as a chainwale.

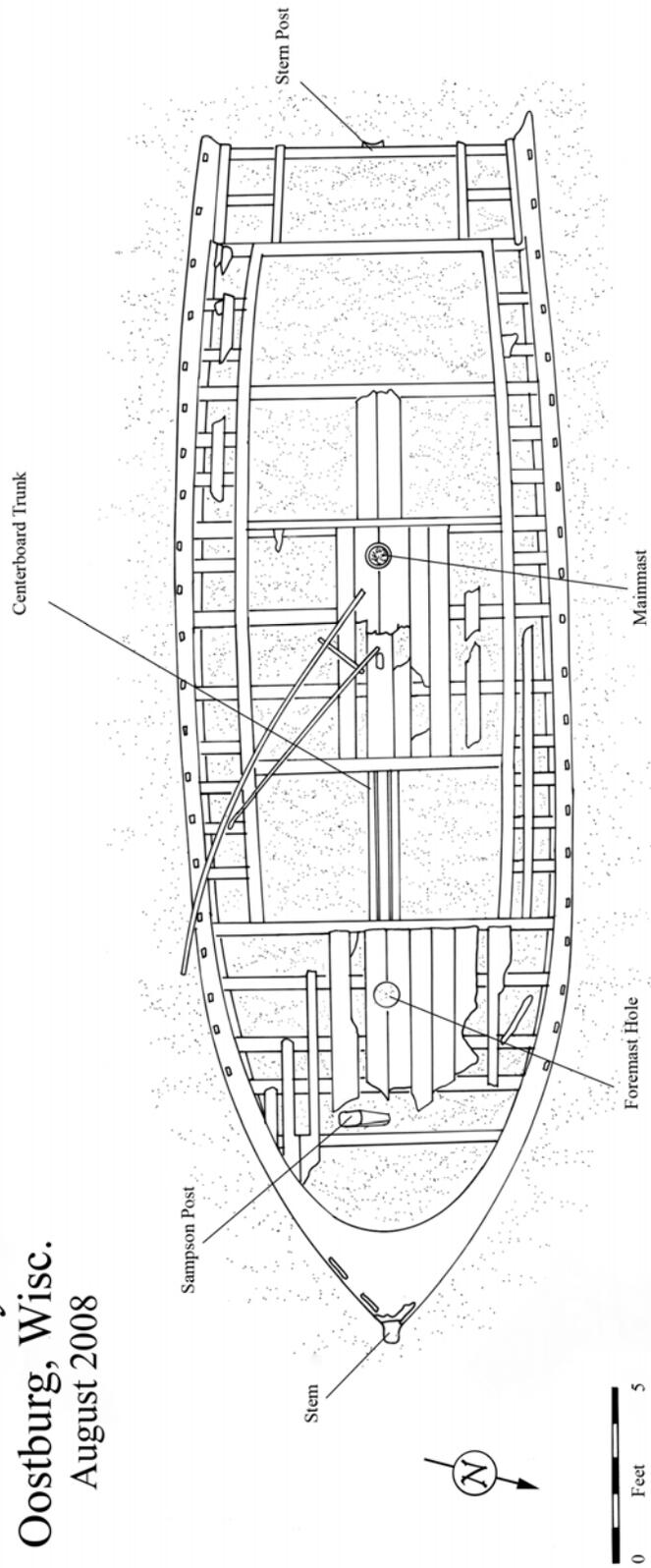
Today, the *Byron* is almost completely covered with a layer of zebra and quagga mussels, lying on heading of 075 degrees with an 11 degree list to port (Figures 31 and 32). The vessel's bow is pitched slightly downward at an angle of 2 degrees. Most of the outer hull planks are intact with the exception of the starboard turn of the bilge where a few planks are missing. Few deck planks are extant except for two small areas immediately around either mast, but all of the deck beams, hatch coamings, and cabin coamings remain intact. Although the vessel was reportedly filled with cargo when it was discovered (James Brotz 2008, pers. comm.), today there is no visible cargo or artifacts of any kind remaining on site. The hull is very lightly built - much lighter than expected for a commercial freight vessel. Due to its light construction, combined with over 140 years of lying on the lakebed, the hull is extremely fragile. Many of the extant deck planks are of such a thin nature that accurate measurements proved difficult.

The vessel's overall length is 36.3 feet, measured from the stem's leading edge to the aft edge of the stern post, which is external to the transom. The vessel's beam is 12.0 feet at its widest point, which is located which is located 17.0 feet aft of the bow. The stem measures .5 feet molded by .3 feet sided, and is raked forward at 28 degrees. The sternpost is .35 feet molded by .45 feet sided and rakes aft at 3 degrees. The sternpost is fastened externally to the transom, which measures 9.3 feet wide and .25 feet thick (Figure 33). Above deck level the transom is not extant. The rudder was fastened to the aft end of the stern post, but is not extant.

There are no visible remains of a windlass, ground tackle, or catheads, and it is reported that the vessel had no windlass or capstan at the time of its discovery (Steve Radovan 2008, pers. comm.). A vertical post is located in the areas where a samson post would be expected, but it terminates at deck level. It cannot be determined if this post originally extended above the deck and was broken off, or if it terminated at deck level.

The vessel's hull is filled with silt to a depth of approximately 1 foot that makes accessing the keelson assembly impossible without excavation. Hand probing of the silt failed to locate a keelson, but probing with a wooden rule recorded a depth of hold of 4.0 feet, measured between the deepest point along the vessel's centerline and the underside of the deck beams.

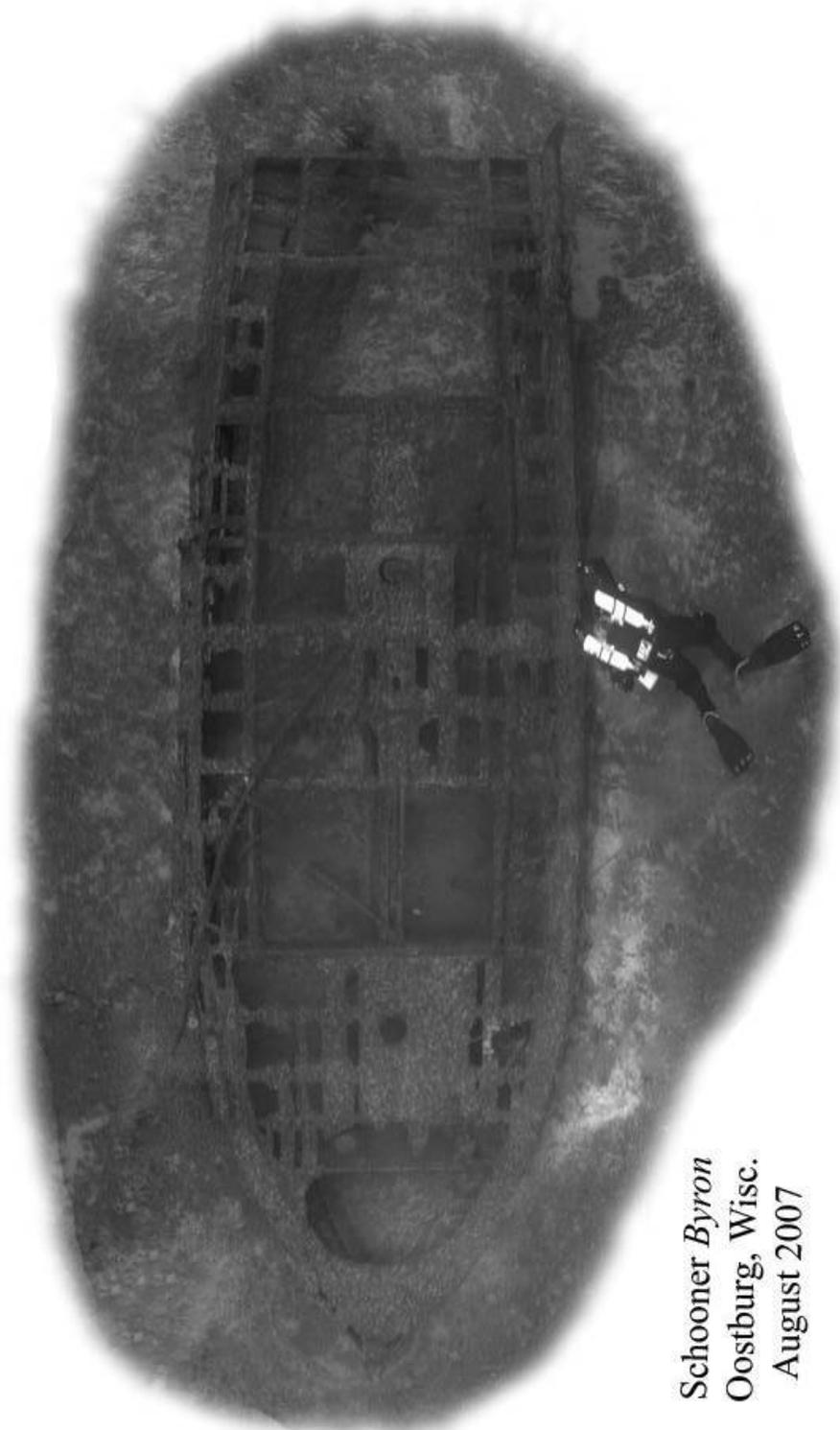
Schooner Byron
Oostburg, Wisc.
August 2008



WISCONSIN
HISTORICAL
SOCIETY

Maritime Preservation and Archaeology Program

Figure 31. The *Byron* site plan.



Schooner *Byron*
Oostburg, Wisc.
August 2007

Wisconsin Historical Society
Maritime Preservation and Archaeology Program

Figure 32. The *Byron* photomosaic.



Figure 33. The stern post.

The vessel's single frames are .13 feet square, surprisingly light for a carvel-planked vessel (Figure 34). The frame spacing varies somewhat, but the frames measured near the starboard beam have a space of .95 feet between frames. The hull is ceiled, but several ceiling planks are missing on the starboard side. Extant ceiling planks on the starboard side are .6 feet wide and .08 feet thick. The outer hull planks remain intact with the exception of a few missing planks on the starboard beam at the turn of the bilge. Intact planks still have caulking visible in the seams. Outer hull plank widths vary: the sheer strake is .33 feet wide, the next lower is .35 feet wide, and the remaining planks to just below the turn of the bilge vary between .5 and .7 feet wide. Outer hull plank thickness is .08 feet. There are no wale strakes, but there is a small rubbing strake fastened to the outside edge of the covering board.

Extant deck planks are .48 feet wide and .05 feet thick, but most are in a very poor condition that makes accurate measurements difficult (Figure 35). Deck beams vary in dimension between .20 and .23 feet square, and their spacing varies between 1.5 to 1.7 feet between beams. The deck beams are fastened atop a deck shelf that is .8 feet wide by .15 thick. A covering board, .8 feet wide and approximately .05 feet thick, is fastened to the top of the deck beams. The covering board is mortised for bulwark stanchions that are spaced 1.7 feet on center. All of the bulwark stanchions are broken off, but many of the stanchions on either side of the hull rise several inches above the covering board (Figure 36). The stanchions are .1 foot square and extend .25 feet below the covering board with a tapered foot that is fastened to the inside of the sheer strake. The bulwark stanchion's spacing differs from the deck beam spacing, causing some of the stanchions to be also fastened to the sides of the frames while other are simply fastened to the sheer strake. A disarticulated section of the iron lifeline lies on the deck near the bow. It is uncertain whether the lifeline completely encircled the vessel's deck; it is possible the lifeline only protected areas where the crew worked on deck and were in danger of falling overboard, such as near the bow.



Figure 34. Frames and ceiling planks visible through cabin opening.



Figure 35. Deck beams and planks.



Figure 36. Broken bulwark stanchions on the starboard side, looking forward.

The centerboard and trunk are upright and intact within the hull, and both are constructed of light timber consistent with the rest of the vessel (Figure 37). The trunk is located on the vessel's centerline. The trunk's covering board is not extant, exposing the centerboard which is fully retracted within the trunk and measures .15 feet thick. The centerboard trunk begins 12.8 feet from the bow and terminates 21.8 feet from the bow, giving a length of 9.0 feet and a width of .55 feet. The trunk is horizontally planked with planks .15 feet thick. Three feet of the trunk is visible between the deck beams and the silt that fills the hold. The trunk obstructs the vessel's only cargo hatch, whose forward headledge is located directly atop the front of the centerboard trunk at 12.8 feet. The cargo hatch's aft headledge is located 17.1 feet, giving a length of 4.3 feet and a width of 6.8 feet.

The cabin's bulkheads are no longer extant, but its forward bulkhead was located 27.4 feet from the bow with the aft bulkhead at 32.0 feet, giving cabin dimensions of 4.6 feet in length and a width of 5.8 feet. There is 1.9 feet between where the cabin's side bulkheads stood and the bulwarks on either side. The cabin roof now lies on the lakebed off the vessel's starboard quarter, somewhat buried in the bottom but identified by the hole for the stove pipe (Figure 38). This roof section is 4.95 feet in length by 2.4 feet wide and is constructed of planks over frames. The planks are .5 feet wide and .25 feet thick, fastened to frames that are .15 feet molded, .1 feet sided, and spaced 1.4 and 1.6 feet between beams. The stove pipe hole is .7 feet in diameter and is located .45 feet from the nearest edge.



Figure 37. Centerboard and trunk visible through the cargo hatch.

There is no visible evidence of a bowsprit with the exception of the bobstay plate in the Steele film, which is not extant today (Figure 39). With the exception of the chainplates and the base of the mainmast, none of the standing or running rigging is extant. The deck hole for the foremast is located 10.0 feet from the bow and has a diameter of 1.0 foot. The mainmast is located 22.9 feet from the bow and is broken at deck level with the base of the mast still stepped in the hull. The mainmast diameter is .7 feet. Both the foremast and mainmast were supported by four chainplates each, two on either side. One of the starboard foremast chainplates is missing, but all other chainplates are extant. The chainplates are fastened to the hull with a single bolt that penetrates the hull below the sheer strake. The shrouds were made from natural fibers and were fastened to the chainplates with eyes spliced around iron thimbles. The thimbles are still attached to the chainplate eyes.

There are no signs of collision damage on the hull. Without official registration documents to which hull dimensions can be compared any vessel identification is tentative, but the vessel's identification as the *Byron* is reasonably certain. There are no historic records of similar vessels having been lost in the vicinity, and the identification as the *Byron* is the most plausible given research conducted to date (Brendon Baillod, Steve Radovan, pers. comm. 2008).



Figure 38. Cabin roof lying on the lakebed off the starboard quarter.



Figure 39. No evidence of a bowsprit, windlass, or collision damage is found on the hull.

CHAPTER EIGHT THE SCHOONER *NORTHERNER*

The schooner *Northerner* was launched from the John Oades shipyard in Clayton, New York, in early 1850 (ACGNFPL 2005l). Her first enrollment was entered on 12 March 1850 at French Creek, New York, and she was described as having one deck, two masts, no gallery, no figurehead, and a square stern, with measurements of 79 feet in length, 18 feet 9 inches in beam, 6 feet 8 inches in depth of hold, and a capacity of 92 20/95th gross tons. Assigned the official number 18176, she was commanded by Captain Nicholas Smith for owners John Oades, Henry Oades, and John Gould, all ship carpenters from Clayton, New York (Milwaukee Public Library 1959).

Little is known of Henry Oades and John Gould, but John Oades was a noteworthy shipwright who came from a shipbuilding family. His father had been a shipbuilder for the British government for many years, and his service to the government was rewarded with a land grant in Canada. When John Oades was seven years old, his father moved the family to Oswego, New York. Soon after, however, John's father drowned in a tragic accident. While still quite young, John Oades took work in an Oswego shipyard that belonged to a relative named Collins, and here the young Oades learned the shipbuilding trade. Some years later, Oades established his own shipyard at Clayton, New York, where he built a large number of steamboats and sailing vessels for service on Lake Ontario. Contemporary authors remarked that John Oades' knowledge of shipbuilding was unsurpassed by any of his competitors (Mansfield 1899b).

Little has been uncovered of the *Northerner's* early career under the ownership of Oades and Gould, but she sailed in the local trades on Lake Ontario until she was sold on 23 April 1852 (ACGNFPL 2005m; Bureau of Navigation 1852d). Henry T. Bacon, an Ogdensburg merchant, purchased the *Northerner* in equal shares with partners Russell Disbrow and Hiram Rumville, both Ogdensburg mariners. A new enrollment was entered that listed Captain Disbrow as the vessel's new Master and her home port was changed to Ogdensburg, New York (Milwaukee Public Library 1959).

Although little is known of managing owner Henry T. Bacon's mercantile business, he is listed as serving on the town board of Oswegatchie, New York, as early as 1845, as well as a village trustee of Ogdensburg in the 1860s. In the 1850 census, Bacon is recorded as owning \$2,200 in real estate, and by 1860 he was living in the 1st Ward of Ogdensburg with his wife, five children, and two Icelandic domestic servants. His wealth had also increased, and he was now recorded as a merchant with a value of \$7,000 in real estate and \$15,000 in personal assets (*Daily Times and Express* 1883; United States Census Bureau 1850f; 1860a).

Born in 1816 in St. Lawrence County, New York, Captain Russell Disbrow was already a hardened lake sailor by the time he became co-owner of the *Northerner*. Although Disbrow is known to have commanded at least two other vessels - the schooner *S.P. Johnson* in 1849 and the schooner *Volunteer*, it appears that the *Northerner* may have been Disbrow's first and only venture into vessel ownership (*The Daily Journal* 1869a; 1869b; 1869c; 1869d). Disbrow's share in the

Northerner allowed him to accumulate a modest amount of wealth, as the 1860 census records Disbrow as living in the 1st Ward of Ogdensburg with his wife, mother, and four children and possessing real estate valued at \$1,000 and \$1,500 in personal assets (United States Census Bureau 1860a). Following his ownership of the *Northerner*, Disbrow went on to command the schooner *Volunteer*, and was carrying a cargo of apples during a violent Lake Ontario storm on 17 November 1869. That evening Captain Disbrow's granddaughter awoke her mother around midnight and asked to have a lamp lighted because she had seen "grandfather captain" standing beside her bedside. The following day the *Volunteer* washed ashore at Port Ontario, New York, with no one on board (*The Daily Journal* 1869a; 1869b; 1869c; 1869d; *Oswego Daily Commercial Times* 1849; Ratigan 1977).

There were no changes in ownership or the vessel's description in the following year's re-enrollment at the Port of Ogdensburg (Bureau of Navigation 1853). The following year, however, when Russell Disbrow renewed the *Northerner's* enrollment on 12 April 1854, it was documented that Henry T. Bacon had bought out Rumville and now owned 2/3 of the vessel with Disbrow remaining as 1/3 owner (ACGNFPL 2005m; Bureau of Navigation 1854c). This arrangement of 2/3rds Bacon - 1/3rd Disbrow ownership continued into the 1863 season, and Captain Disbrow remained in command of the vessel as it ran between Oswego, Ogdensburg, and down the St. Lawrence River, trading at ports on both the American and Canadian shores. During the 1856 and part of the 1857 season, Andrew Peters came aboard as the *Northerner's* Mate, but did not serve out the entire 1857 season and instead moved on to work as a seaman on the *Flying Cloud* out of Clayton, New York. Peters was aboard the *Flying Cloud* when it wrecked in October 1857 (ACGNFPL 2005m; Mansfield 1899b).

By the close of the 1858 season, the *Northerner* was beginning to show some wear, due in part to Captain Disbrow's pride in maintaining schedules by sailing through late season storms on Lake Ontario, and over the winter of 1858-59 the *Northerner* was rebuilt at Wells Island, New York (*The Daily Journal* 1859). Master builder G.W. Pearson oversaw the rebuild, and a new enrollment was entered at Ogdensburg, New York, on 20 April 1859. The new enrollment indicated that the *Northerner* now measured 81 feet in length, 18 feet 6 inches in beam, 7 feet 6 inches depth of hold, and 102 and 86/95ths gross tons. This minor increase in dimensions is more likely a result of a change in rules regarding how vessels were measured and not due to an actual change in length during the rebuild (Bureau of Navigation 1859).

Three days later, on Saturday, 23 April 1859, the *Northerner* departed Ogdensburg and cleared the St. Lawrence River early in the morning bound for the Genesee River in New York. Only a few hours after entering the lake a heavy snow began falling, and by 2:00 P.M. the winds were blowing at gale force. Waves began breaking over the vessel with such violence that her deck load of barrel hoops was washed overboard. At 6:00 P.M., the vessel was nearly driven ashore at Pultneyville, New York. Narrowly avoiding disaster, Captain Disbrow ordered the remainder of his deck cargo thrown overboard. The gale continued, and Disbrow was unable to continue his westerly course or clear the land, so he turned the *Northerner* to run with the wind and sailed back down lake rather than chance wrecking his vessel. At around 10:00 P.M. the standing jib was split and torn to pieces by the force of the wind. The

trip to the Genesee River was normally only a day trip, but by 4:30 A.M. Sunday morning the *Northerner* had only made Oswego. It was noted that it was likely due to the recent improvements to the vessel that the *Northerner* was able to survive the storm at all (*Oswego Commercial Times* 1859; *Oswego Palladium* 1859).

There is no other mention of the *Northerner* in the newspapers from 1859-1863, and on 16 April 1863 Bacon and Disbrow sold the thirteen-year-old vessel to Chicago interests. With her career carrying general merchandise on Lake Ontario now over, the *Northerner* headed west to work Lake Michigan's booming lumber trade. Her enrollment was surrendered at Ogdensburg, where Asa E. Thomas acquired a temporary enrollment to bring the vessel to her new home port and new owner, Charles J. McGill, at Chicago (Bureau of Navigation 1863a).

Asa Thomas was a sailor out of Morristown, New York, and appears to have been hired solely to bring the *Northerner* from Lake Ontario to Chicago (United States Census Bureau 1860b). On her temporary enrollment, the *Northerner* is mistakenly listed as being rebuilt at Wells Island in 1857, rather than 1859, but all other measurements remain the same with the exception of her tonnage, which increased to 102 gross tons (Bureau of Navigation 1863a). The *Northerner's* temporary enrollment was surrendered on her arrival at Chicago on 15 May 1863, and her newly issued permanent enrollment listed Captain N. C. Stalker as her new Master. The permanent enrollment correctly listed the *Northerner* as rebuilt at Wells Island in 1859, and this is also the first enrollment that documents her scroll head (Bureau of Navigation 1863b).

Charles McGill operated the *Northerner* for only two seasons. On 29 March 1865, McGill sold the *Northerner* to W. A. Parker and D. G. Parker of Chicago. The two purchased equal halves of the vessel, and Captain Frank Shofflin was hired as her Master. Readmeasured under the rules of 6 May 1864, the new enrollment now documented the *Northerner* at 81 and 13/100 feet in length, 18 and 6/10 feet in beam, and 7 and 6/10 feet in depth with a gross tonnage of 77 and 33/100 tons minus a capacity of 3 and 28/100 tons of enclosures on her upper deck. Additionally, this enrollment now describes the vessel as having an oval cutwater head (Bureau of Navigation 1863b;1865a).

The Parkers only owned the *Northerner* for a partial season – they surrendered her enrollment at Milwaukee on 15 September 1865 when they sold the vessel to Nicholas Ronk and Nicholas Cauten of Ronksville, Wisconsin. Both were listed as equal owners on the new enrollment, and her home port was changed to Milwaukee, with Captain Fred Edmonds taking command (Bureau of Navigation 1865b).

Born in 1818 in Holland, Nicholas Ronk was a dealer in cut wood and lived in Ronksville, Wisconsin, outside the town of Belgium, with his wife Maria, two older daughters, and newborn fraternal twins. The 1860 census recorded Ronk's assets at \$3,000 in real estate and \$300 in personal assets (United States Census Bureau 1860c). Little is known of the business or personal life of Ronk's partner, Nicholas Cauten. Ronk and Cauten's business relationship lasted a bit more than a season, but by 7 December 1866 Ronk bought out his partner and became the *Northerner's* sole owner (Bureau of Navigation 1866).

Ronk spent the winter shopping for business partners and a new captain. On 22 May 1867 a new enrollment was entered at Milwaukee that documented Anders

Ryerson of Milwaukee as owning 1/3 share and Nicholas Ronk owning 2/3 of the vessel. Captain Markers Gunnerson took command as Master (Bureau of Navigation 1867). Ronk's new partner was a lake captain and commanded the schooner *Guido* during the 1867 season while he was part owner of the *Northerner*, and Ryerson was reported to have also spent time at the *Northerner's* wheel during the 1867 season (Gjerset 1979). By 23 May 1868, Ryerson left the *Guido* to become Master solely of the *Northerner* (Bureau of Navigation 1867; 1868).

While loading wood at the Amsterdam pier on Saturday, 28 November 1868, the *Northerner* pounded heavily on the bottom. Once loaded and out on the lake, it was discovered that the hull was leaking badly. Unable to keep her free of water, Captain Ryerson brought the *Northerner* alongside the pier at Port Washington where her deck load was offloaded to lighten the hull. With her deck load off but her hold still full, the propeller *Cuyahoga* was hired to tow the *Northerner* to Milwaukee. Shortly after departing Port Washington, however, the *Northerner* filled with water and capsized off Port Ulao. The *Northerner's* crew made it safely aboard the *Cuyahoga*, but the capsized schooner was abandoned and the *Cuyahoga* returned to Port Washington (*Milwaukee Sentinel* 1868a; 1868b).

The tug *Tift* was hired to locate the *Northerner's* hull the following day on 29 November 1868, but rough weather prevented the tug from searching for the *Northerner* for several days and it is not known if the *Tift* ever left port to search for the capsized *Northerner* (*Milwaukee Sentinel* 1868a; 1868b). The *Milwaukee Sentinel* (1868c) feared that the *Northerner* had been driven ashore where she was expected to break up as she was "quite old". Shore searches for the *Northerner's* wreckage did not begin until Wednesday, 2 December 1868, and these were unsuccessful in finding any evidence of the craft. The newspaper's last mention of the *Northerner* came in a listing of vessel losses for the 1868 season: "Schooner *Northerner* - wood laden, waterlogged and capsized off Port Ulao, Lake Michigan" (*Milwaukee Sentinel* 1868d).

Site Description

The shipwreck *Northerner* lies five miles southeast of Port Washington, Wisconsin, upright and intact in 130 feet of water (Figure 40). The vessel was positively identified by a rigging block marked "Northerner" that was removed from the site by local diver Butch Klop. The *Northerner* site has been subjected to a large amount of diver salvage since its discovery in the early 1970s, and no portable artifacts remain on the site. Despite this damage, however, many of the *Northerner's* major components are intact, especially the bow knee and billethead that were common to early vessels on the Great Lakes but quickly fell out of favor after 1850 (Figure 41). The *Northerner's* extremely well-preserved bow is the only intact example of a billethead known to exist in Wisconsin waters, and one of only three known vessels with a bow knee in Wisconsin (only two of these vessels are intact). The *Northerner* site is a significant component to Wisconsin's world-renown collection of historic wooden vessels and provides important insights into Great Lakes schooner construction and use during the mid-nineteenth century.

The wooden hull is amazingly intact for having spent 142 years on the lake bottom. Nearly all outer hull and deck planks remain intact, including many of the

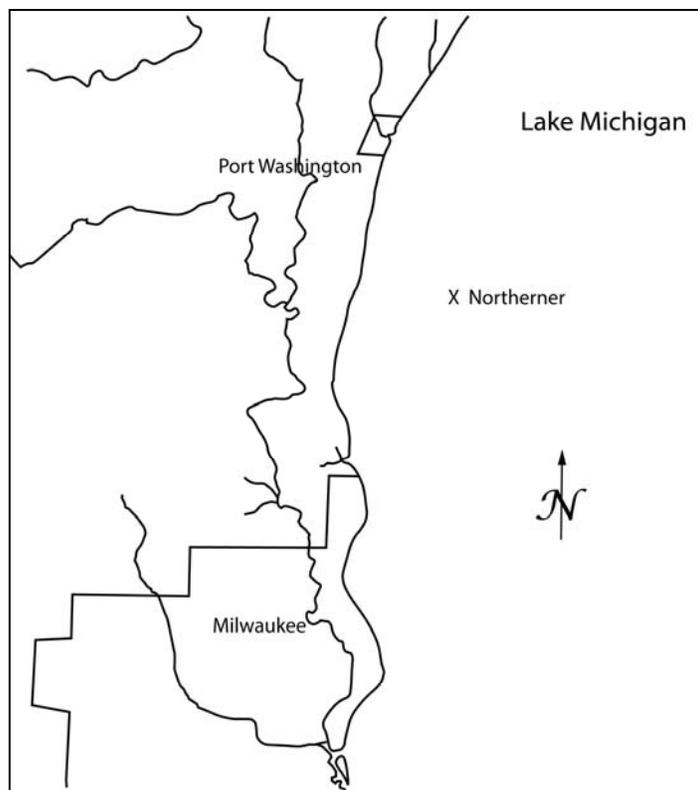


Figure 40. Location of *Northerner* wreck site.



Figure 41. A rare billethead remains intact on the *Northerner*'s bow knee.

stern cabin's frames – highly unusual on the Great Lakes, as the superstructure of most wooden vessels did not survive their sinking events (Figures 42 and 43). The level of the *Northerner's* hull integrity is a testament to the superb construction and carpentry used throughout the vessel. The hull is 84.6 feet in length and 18.0 feet in beam, and lies upright on a heading of 140 degrees on a sand bottom. There is a slight twist to the vessel's hull, as the stern exhibits zero list but the forward half of the hull leans slightly to starboard with a 4.0 degree starboard list at the stem.

Major components of the vessel's standing rigging are extant, including the foremast, a topmast, bowsprit and jibboom. The jibboom, 32.2 feet in length, has been dislodged from atop the bowsprit and now lies on the lakebed off the vessel's starboard bow. The bowsprit cap remains attached to the jibboom 8.5 feet from the jibboom's base. The tip of the bowsprit was broken away with the jibboom cap and remains affixed to the cap. An iron eye is fastened to the jibboom 25.7 feet from its base.

The bowsprit is stepped in the hull at an angle of 10.5 degrees. The bowsprit is octagonal in section from the base to the billethead, and is round in section from the billethead forward. The bowsprit was rigged with two chain bobstays that were tensioned with an iron turnbuckle fastened to the underside of the bowsprit, one of which remains attached near the bowsprit's tip. There are small strips of grey cotton cloth wrapped around the top of the turnbuckle – possibly chaffing gear that has been preserved by the impregnation of iron oxide from the turnbuckle. The lower ends of the bobstays were fastened to two iron eyes on the cutwater. A short section of the inner bobstay remains attached to the upper eye, but none of the outer bobstay is extant as the eye is broken on the cutwater.

The stem is .4 feet sided and reinforced by a stem iron that terminates one inch below the gripe's upper edge. The stem iron is highly corroded, precluding a thickness measurement, but the stem iron's width is the same as the stem. The stem is raked at an angle of 13 degrees, measured immediately above the bobstays. As the stem rises toward the bowsprit it gradually curves into the bow knee.

Both anchors have been removed by divers, who apparently cut the anchor chains between the windlass and the hawse pipes as no anchor chain protrudes from either hawse pipe outside the hull. Both catheads were apparently removed along with the anchors, for neither cathead is extant and only a gap in the rail marks where the catheads were originally fastened. The hawse pipes are installed in wooden hawse blocks that abut the stem on either side and are trapezoidal in shape when viewed from above. The hawse blocks' inboard length is 2.9 feet and the outboard length is 1.4 feet. Both hawse blocks are 1.1 feet tall and .62 feet thick. The hawse pipes' diameter is .4 feet, its center located 1.15 feet from the stem and .75 feet from the top of the hawse block.

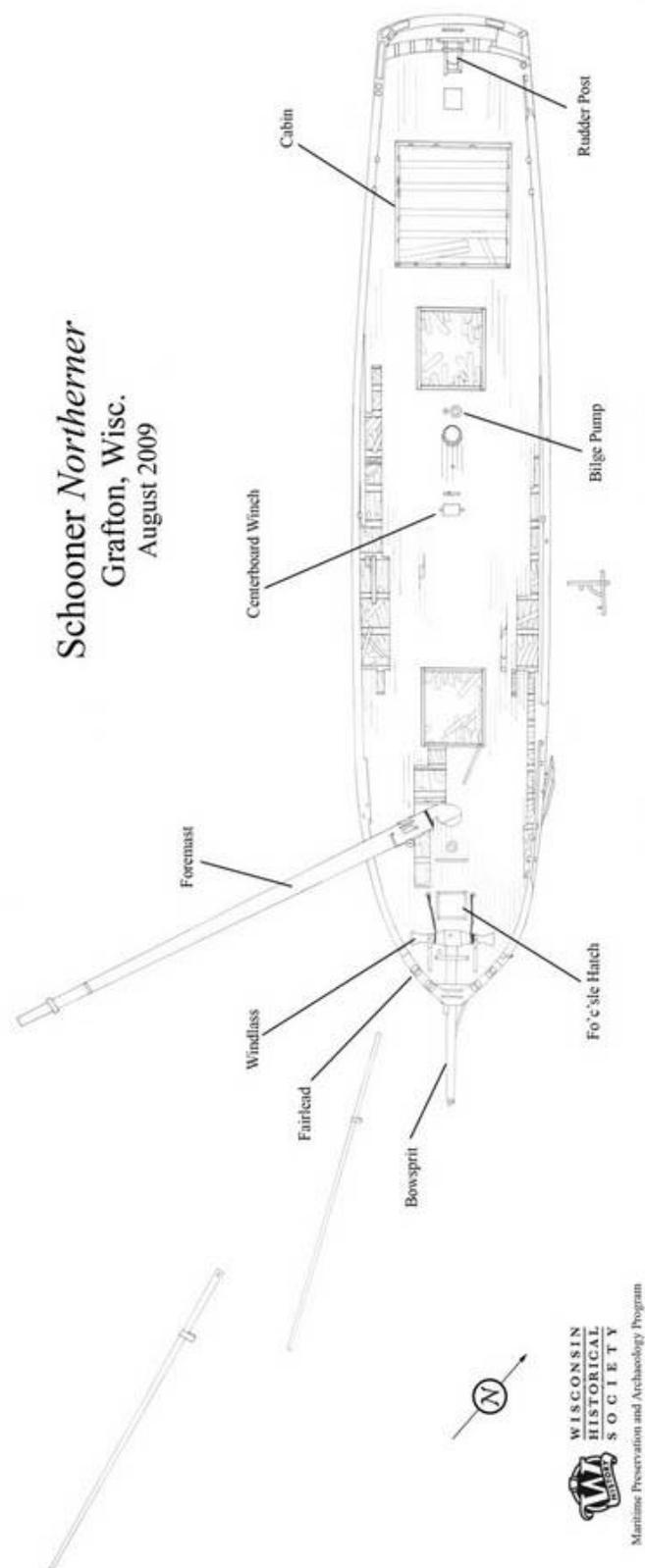
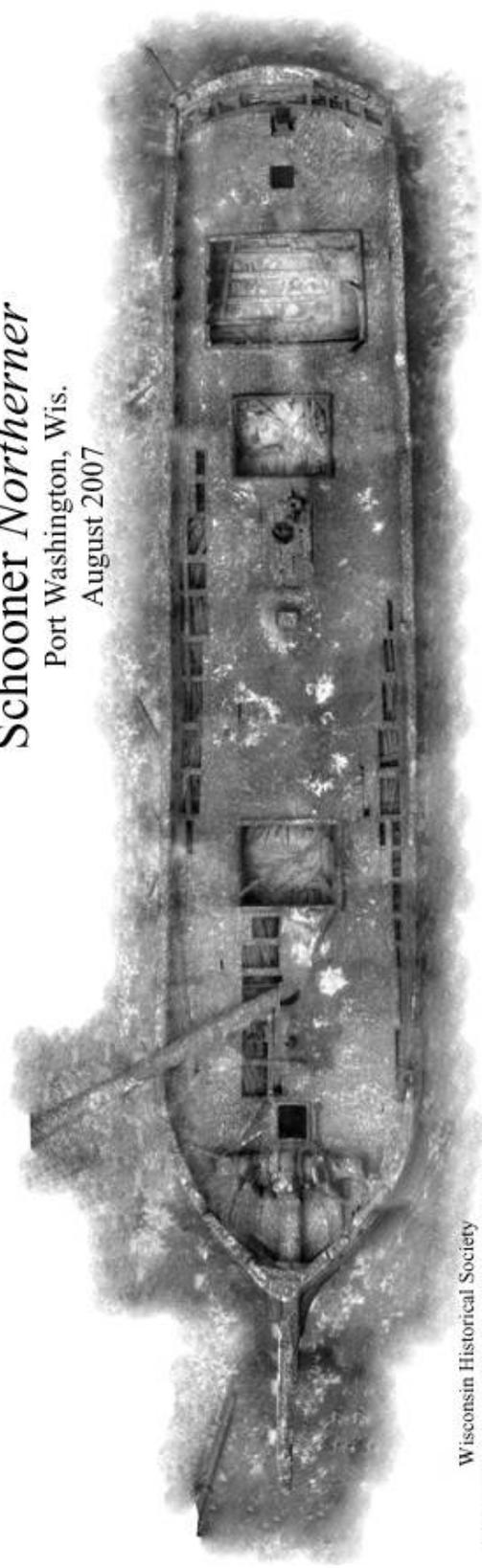


Figure 42. The *Northerner* site plan.

Schooner Northerner
Port Washington, Wis.
August 2007



Wisconsin Historical Society
Maritime Preservation and Archaeology Program

Figure 43. The *Northerner* photomosaic.

Despite having been cut forward of the windlass, both anchor chains remain bent around the windlass (Figure 44). From the windlass, the port anchor chain passes through deck pipe aft of the windlass to the chain locker. The starboard anchor chain takes several turns around the both the windlass drum and the gypsy head, and a small amount of the chain is piled on deck along the starboard bulwark near the windlass before it passes through the deck pipe and into the chain locker. The patent windlass itself is very well preserved, with large gypsy heads on either end of the windlass that are 1.4 feet in diameter. The wooden windlass pawl, 1.1 feet long by 1.65 feet wide, is weighted by a circular iron weight on the end that is .35 feet in diameter.

The rail is intact for nearly the entire perimeter of the deck, with the exception of a short section missing above the port foremast chainplates. The rail is .7 feet wide, .25 feet thick, and rises 2.5 feet above the covering board. The rail is supported by bulwark stanchions .3 feet square with a space of 1.75 feet between stanchions. Few remnants of the outer bulwark planks are extant, but a single inner bulwark plank is fastened to the stanchions directly beneath the rail. This inner plank is intact wherever the rail is extant and measures .4 feet tall by .1 foot thick.

To facilitate cargo handling, there are gaps in the bulwark stanchions to either side of both cargo hatches (Figure 45). The forward cargo hatch has a gap of 5.3 feet between bulwark stanchions immediately to port and starboard of the cargo hatch, and the aft cargo hatch has a gap of 4.6 feet on either side. The rail is continuous over these gaps and there is no evidence of the rail being hinged for opening. Scarphs are visible in the rail over the gaps on either side of the aft cargo hatch. It could not be determined how the outer bulwark planks were fitted over the gaps in the stanchions, but the inner bulwark plank terminates flush with the inner edge of the bulwark stanchion on either end of the gap. The mainmast chain plates are immediately forward of the gaps for the aft cargo hatch, and the clamp that holds the chain plates to the rail extends slightly into the gap in the stanchions.

The covering board is .5 feet thick by 1.15 feet wide and tapers on its inside edge to meet the deck planks. The covering board is constructed from two separate timbers that clamp around the bulwark stanchions. The .5 foot outer covering board timber is notched to fit around the bulwark stanchions and ends flush with the inboard edge of the stanchions. The .6 foot inner covering board timber is not notched and simply abuts the outer timber to clamp the bulwark stanchions in place. Deck planks directly abut the covering board.

A rubbing strake .2 feet thick by .3 feet tall is fastened flush with the top of sheer strake outside the vessel. This rubbing strake doubles as a chainwale where it is notched to pass overtop both the fore and aft chain plates on either side. The rubbing strake terminates at the transom, but at the bow it curves upward onto the bow knee where it becomes the upper rail for the trail board. A second rubbing strake is fastened 2.0 feet below the top of the covering board that is .25 feet thick and .3 feet tall. Like the upper rubbing strake, the lower strake terminates at the transom, and forward it curves gracefully upward on the bow knee to form the lower rail of the trail board, terminating at the base of the billethead.



Figure 44. The windlass viewed from astern, with forecastle scuttle and deck pipes visible.

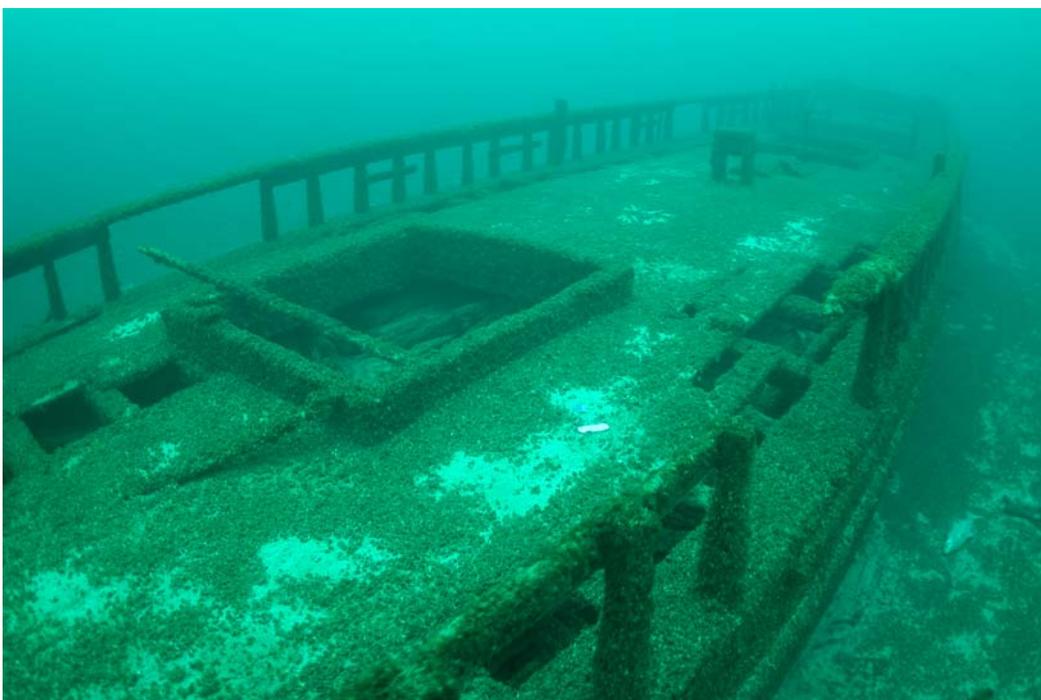


Figure 45. The forward cargo hatch, looking aft from the port side. Gaps in the bulwark stanchions are visible on either side of the hatch. The starboard gap on the aft cargo hatch is also visible.

With the exception of a few missing planks along either bulwark and near the foremast, the deck is exceptionally intact. The deck planks vary in width between .4 to .55 feet, with most planks averaging .5 feet. Aft of the stern cabin, the deck planks become narrower, with many planks around .3 feet in width, but the planks remain very tightly caulked and distinguishing individual planks proves difficult.

Deck beams are .45 feet sided by .4 feet molded, and the space between the beams varies between 2.1 and 2.8 feet. There are no knees installed beneath the deck beams, instead the beams are simply supported by a horizontal deck shelf 1.15 feet wide by .3 feet thick. In some locations a wood chock is fastened between the deck beams to fill the space created between the beams and the shelf, but in most cases this chock is not installed, leaving open the space between beams. The deck beams do not appear to abut any of the deck stanchions, but rather have random spaces between the deck beams and stanchions. At least two iron tie rods connect the hull sides together immediately under the deck; one is installed just aft of foremast and the other just forward of the mainmast.

There are three mooring bitts installed on either side of the deck – a set of double bitts at both the bow and stern, and a single bitt amidships. The bow bitts are located forward of the fore chainplates, the amidship bitt is located outboard of the centerboard winch, and the stern bitts are located aft of the stern cabin. All of the bitts are fastened to the inside of bulwark stanchions, and all of the double bitts have a horizontal timber mortised through the center of the bitts to act as a cleat for lines. Each bitt is .45 thick, .35 feet wide, and rises 3.2 feet above deck level. The double bitts are spaced 1.7 feet apart and a wood chock is fastened to the deck between the bitts that is 1.7 feet wide by .5 feet thick. A .8 foot-wide by .3 foot-high oval hole is cut into the center of the chocks for passing mooring lines through the bulwarks. At the starboard bow, the foremast has fallen atop the mooring bitts and the forward bitt of the pair has been broken away, leaving only a notch in the rail to indicate its former location.

Two cargo hatches allow access to the cargo hold, which remains neatly stacked with a wood cargo. The forward hatch coaming is protected against chaffing by iron flat stock that is fastened around the top of the coaming's perimeter. The aft hatch coaming does not have the iron chaffing gear installed, and the coaming edges are visibly worn compared to the forward coaming.

Two single-acting bilge pumps are located on deck, one forward of the foremast and the other aft of the mainmast. The bilge pump shafts are cylindrical and made of wood, and the iron fulcrum for the pump handle is intact on the aft pump.

The vessel carried a single centerboard located on the vessel's centerline, and the forward end of the centerboard trunk is flush with the aft end of the forward cargo hatch. The centerboard chain is visible, lying in the centerboard trunk through a slot in the deck beneath the centerboard winch that is .35 feet wide by 1.3 feet long. The centerboard itself is not visible within the trunk due to the accumulation of silt and mussel shells within the trunk. The centerboard winch is extant on deck above the deck slot, and the winch's drum appears full with chain - indicating the centerboard is retracted within the trunk (Figure 46). The winch does not have any reduction gears to aid in raising or lowering the centerboard, but is simply a drum fastened on a shaft.

The ends of the shafts are square, requiring a winch handle to be installed in order to raise or lower the centerboard.



Figure 46. Centerboard winch and chain slot through deck, looking aft. The aft bilge pump is visible forward of the cargo hatch, as are the aft bulwark gaps on either side of the cargo hatch.

The hold is filled with a wood cargo that rises to within a foot of the deck beams, making visible only those deck stanchions directly beneath the cargo hatches. The forward cargo hatch has a deck stanchion directly beneath the forward headledge, while the aft headledge is supported by the centerboard trunk. On the aft cargo hatch, a stanchion is located beneath the aft headledge only. One additional deck stanchion is visible between the forward cargo hatch and the foremast where the deck planks are not extant.

The stern cabin is readily discernable on deck, marked by the cabin's coaming as well as several frames that supported the cabin's above-deck bulkheads (Figure 47). The coaming is 1.5 feet tall, .3 feet thick, and rises .75 feet above deck level. There is a passage of 2.6 feet on either side between the cabin and the bulwarks. The frames that formed the cabin's bulkheads are saddle notched into the inside of the coaming and rise 3.0 feet above the deck. The frames are .15 feet square and irregularly spaced between 1.4 and 1.9 feet. The cabin was planked on the outside of the frames with planks .4 feet tall. Little of the planking is extant, but remnants of the planking remains nailed to the outside of the frames. This planking is in such a fragile state that the plank's thickness could not be measured. A scuttle to the lazarette is located just forward of the rudder post with coamings that rise .65 from above the deck.



Figure 47. The cabin opening, looking forward. Frames for the cabin bulkheads are extant, and the wood cargo is visible, neatly stacked in the hold.

A bulkhead separates the forecabin from the cargo hold. The bulkhead is located directly beneath the aft headledge of the forecabin scuttle and extends the entire width of the hull. The bulkhead's planks are intact, but the bulkhead has partially collapsed on the port side.

The outer hull planks are in excellent condition with the exception of a few planks missing from the bottom of the transom and a few planks on either quarter below the lower rubbing strake. At the starboard foremast chain plates, the sheer plank is 1.25 feet wide, and the remaining planks, from the sheer downward, measure .55 feet, .45 feet, .5 feet, .5 feet, .3 feet, .25 feet, .25 feet, .35 feet, .7 feet, and .55 feet at the turn of the bilge. The outer hull planks are .13 feet thick, measured at the starboard quarter where several of the outer hull planks are not extant. The ceiling planks in this area are .2 feet thick.

The starboard quarter possesses a rectangular tin patch that is nailed overtop the outer hull planks beneath the waterline. The tin patch is fastened with a large number of nails around its perimeter that are so close the heads of the nails are nearly touching. The patch itself consists of several overlapping pieces of tin nailed to the outer hull planks. The overall dimensions of the tin patch is .6 feet wide by 2.8 feet long and runs lengthwise along the outer hull planks.

The sternpost is raked aft nine degrees, is .7 feet sided by .6 feet molded, and is concave on the aft edge to accept the rudder post. The entire rudder assembly is not extant, having been removed by divers and currently marks the end of a local resident's driveway. Only a few of the transom's planks remain intact along the top of the transom, exposing the stern, post, and fashion timbers. The stern timbers are .35

feet sided by .25 feet molded and equally spaced at 1.15 feet. The post timbers have a space of 1.0 foot. The transom is raked aft at 34 degrees and the fashion timber is rather flat, exhibiting very little curve. A wooden fairlead is attached to the top of the rail on either side of the transom, and the mainsheet traveler is intact on the inside of the transom with the ring and iron thimble from the mainsheet block extant.

The foremast remains intact in the hull, but has toppled toward the starboard bow and now lies across the starboard rail at an angle of 23 degrees with the masthead at a water depth of 104 feet (Figure 48). The foremast rose 46.2 feet above deck level. The foremast tapers slightly to a diameter of .92 feet just below the masthead. Two iron futtock shrouds remain attached to the foremast 9.2 feet below the masthead. Evidence of cutting is present on the foremast just above deck level. A large V-shaped cut extends approximately one-third of the way through the mast on its upper surface. The cut is not consistent with wear from a mooring line or chain, as it is on the upper surface of the mast and not on the underside as would be expected with a mooring. The cut is most likely an abandoned attempt by divers at removing the mast from the vessel.

The iron traveler for the foresheet is intact and fastened to the deck immediately aft of the centerboard winch. An iron ring remains attached to the traveler, with an iron thimble attached to the ring that was used to lash the foresheet block to the traveler.

The base of the mainmast is extant and remains stepped in the hull, having broken at deck level with the base remaining visible through the mast partners. Both the fore- and mainmasts were supported by three shrouds on either side. The vessel was apparently rope rigged, as no evidence of wire rigging was located. The chainplates are constructed from iron round stock, but none of the extant chain plates rise above the rail, apparently the result of divers cutting the chain plates in order to remove the deadeyes as souvenirs. Each chainplate is affixed to the hull via a chain plate cleat fastened at the bottom of the chainplates with a large iron bolt serving at a pivot 1.3 feet below the top of the covering board. At the rail, the chain plates did not penetrate the rail but were instead clamped to the rail's outer edge with a scantling the same thickness as the rail.

The foremast's starboard chainplates are in quite a state of disarray. The forward-most chainplate was wrenched toward the stern and now lies nearly horizontal to the hull, having dislodged the rubbing strake as it was pulled aft. The center and aft chainplates are broken off and not extant. The foremast's port chainplates are also in disarray – the forward-most chainplate is not extant above the chainplate cleat, and the center chainplate has been cut halfway up the bulwark. The aft chainplate is intact and remains clamped to the rail, but the section of rail to which it is clamped has been pulled outboard from the bulwark stanchions, bending the chain plate in an arc towards the lake bed. The rail at the foremast chainplates has an additional .3 foot-wide timber affixed to the inside of the rail, expanding the rail's width to accommodate anchors for the forward running rigging.



Figure 48. The foremast lies at an angle across the starboard rail.

The mainmast's chainplates are in not much better condition than the foremast's. On the port side, the forward and aft chainplates are broken above the chainplate cleat, and the center chainplate is cut halfway up the bulwark. On the starboard side, the forward-most chainplate is not extant above the cleat. The center chainplate rises to just above the rail and remains clamped to it, but the aft chainplate is cut just below the rail. The mainmast chainplates do not have an additional timber clamped to the inside of the rail as with the foremast.

One of the vessel's topmasts lies on the lake bed just north of the jibboom. The base of the topmast lies nearest the hull, identified by the mortise for the fid that held the topmast in the trestle trees. The fid is not extant. An iron mastcap is extant around the topmast 6.7 feet above the base. The topmast is 33.0 feet long with a diameter of .3 feet at the top and a diameter of .64 feet at the base. The topmast is round in section except where it is mortised for the fid – here the spar is square in section.

CHAPTER NINE CONCLUSIONS AND RECOMENDATIONS

This report is a component of ongoing research to document Wisconsin's smaller historic sailing vessels. Combined with earlier field work conducted on the scows *Iris*, *Ocean Wave*, and *Tennie and Laura*, this document adds to a growing body of knowledge regarding the smaller vessels that worked Wisconsin waters during the eighteenth and nineteenth centuries as lakeshorers and traders.

Lakeshoring is relatively easy to define – vessels that traveled between the upper and lower Great Lakes to service the frontier lakeshore settlements prior to the existence of improved harbors. A rather treacherous trade, loading and unloading on Lake Michigan required anchoring offshore in unprotected waters or dangerous attempts to cross a sand bar that invariably blocked the river mouths. Their cargoes included package goods and passengers more frequently than bulk cargoes.

As the Upper Midwest transformed from frontier to an industrial powerhouse during the nineteenth century, however, the schooner's role in lake commerce rapidly changed. As the settlements surrounding Lake Michigan grew into cities, an increasing number of smaller sailing vessels stopped sailing interlake routes and instead began servicing Lake Michigan ports exclusively. This trade came to be known as "trading", and while many vessels were labeled as "trading vessels" in contemporary literature, the term was never defined nor the trade described.

Through researching the careers of those vessel's described historically as traders, it becomes obvious that the only defining feature of trading vessels was that they sailed solely on Lake Michigan and rarely, if ever, ventured onto other lakes⁶. Many trading vessels were owned and operated by local businessmen who's primary occupation was not sailing, but who used the smaller vessels as a means to serve their businesses, such as the Burmeisters. Other trading vessels were owned and operated by those for whom sailing was their primary occupation, but these vessels tended to primarily service their owner's local communities and the transportation needs of the local businesses. The cargoes of trading vessels varied with the season and market prices of transportable goods, but their operation focused on supporting local economies and markets.

Although lakeshoring and trading occurred at different time periods, the vessels that operated in both trades were similar in size. The smaller size of lakeshoring vessels was an artifact of merchant trade on the Great Lakes when much of the region remained an uninhabited frontier – the small amount of goods being moved and the lack of deepwater channels and harbors precluded the construction of large, deep draft vessels. As the Great Lakes region became industrialized and vessel size rapidly increased, smaller craft remained the most economically viable vessels for those with less capitol to invest in vessel ownership or for those with small businesses that required economical transportation of smaller cargoes. For these reasons, smaller sailing vessels were still operating on the Great Lakes long after the golden age of sail had ended. If a vessel survived long enough, it was possible that it

⁶ Trading was not exclusive to Lake Michigan. All of the Great Lakes had their own trading fleet, but the definition of trading used here refers to those vessels that operated within Lake Michigan.

sailed in both trades as the century progressed and the smaller vessels adapted to the rapidly changing economic patterns.

Our understanding of the trading vessel's role in nineteenth-century commerce largely comes from tracing the operational history of these vessels in historic documents. Two of the vessels included in this report, however, have no historic record to elucidate their roles – the Big Bay Sloop and the Green Bay Sloop. The sloop's evolution and role on the Great Lakes is poorly understood today, and because they were poorly documented in contemporary literature they are one of the least understood vessel types in the Great Lakes region today. Due to a virtual absence of historic data on these vessels, archaeological sites are particularly significant in the study of the sloop's role in Great Lakes maritime history. The two sloops documented in this report are examples to two different hull types used in Wisconsin waters, and today these two archaeological examples are the only ones of their type known to exist. For these reasons, both sloop sites were a priority for listing on the National Register of Historic Places, and both vessels were listed in 2009.

Neither of the sloop sites should be promoted as recreational dive sites. The environmental conditions at the Green Bay Sloop site make it unsuitable as a recreational dive site due to the depth, virtual absence of underwater visibility, and an extremely soft bottom that prevents the safe installation of an appropriate permanent mooring. Both sloop sites are extremely fragile and would be quickly destroyed if a dive vessel attempted to anchor into the sites. During the archaeological survey dives a shot line was dropped and a diver was sent down to tie the shot line into a structure substantial enough to withstand a mooring. If the lake conditions were at all rough, the survey dives were not conducted to prevent the survey vessel from pulling the mooring free and damaging the site. Any vessel that attempts to “hook in” to either of the sloop sites by dragging an anchor will undoubtedly cause significant site damage. Additionally, neither site will tolerate heavy diver traffic. If promoted as recreational dives, the sloop sites would certainly be lost as archaeological resources. As both sites are now listed on the National Register of Historic Places, both sites should be regularly monitored for damage and appropriate actions taken for those intentionally damaging the sites through looting or inappropriate anchoring techniques.

The *Byron*'s hull is also rather fragile, but the *Byron* site will better tolerate diver traffic than either of the sloop sites. Visibility on the site is frequently in excess of 50 feet, making it a good recreational dive for advanced-level divers. As the site has been completely stripped of all artifacts and ship's equipment, the site faces no threat of further looting. The largest threat to the site is inappropriate anchoring by recreational dive vessels. Due to the *Byron*'s small size, the site can be difficult to locate by recreational dive vessels, and most vessels attempt to locate the site by dragging an anchor along the bottom. It is obvious this is happening on a regular basis as the lakebed surrounding the site is crisscrossed with anchor drag marks. The *Byron*'s site does not receive a large amount of diver traffic due to its small size and rather long distance from the nearest harbor, and therefore does not warrant the installation of a permanent mooring buoy at this time. Instead, those visiting the *Byron* site should refrain from dragging an anchor into the site and instead employ a shot line to mark the site and send divers down the shot line to either dive the site without anchoring the dive vessel, or to hand-emplace the anchor in an appropriate

location that will not cause further site damage. The *Byron* site was listed on the National Register of Historic Places in 2009, and the site should be regularly monitored and appropriate action taken for those causing intentional site damage.

The *Northerner* site is far more robust than the sloop sites or the *Byron* site, but because the *Northerner* site receives a large amount of recreational diver traffic each season the site should receive a permanent mooring buoy to facilitate diver access and to prevent damage from the inappropriate anchoring or mooring of dive vessels. The *Northerner* is one of Wisconsin's older known shipwreck sites and is a rare example of early Great Lakes construction techniques that incorporated a bow knee and scroll head. This bow style quickly fell out of favor after 1850 on the Great Lakes, and relatively few examples of this hull type exist today. The *Northerner* site possesses the only known bilgehead on an intact hull in Wisconsin waters, and for these reasons it is a prime candidate for listing on the National Register of Historic Places, and a nomination has been submitted for its inclusion on the Register. Further research on the *Northerner* should include documentation of artifacts that have been recovered from the site, many of which currently remain in a private collection in Port Washington, Wisconsin.

The *Gallinipper* is currently Wisconsin's oldest known shipwreck site. Although a positive identification has not been made, all site features point to a vessel constructed in the early nineteenth century, including the bow knee, early-style wood stock anchor, lack of a centerboard, below-deck stern cabin, and an early rigging style that utilized a topgallant mast and multiple yards. These features, combined with the vessel's hull dimensions and the fact that she was running light when she was lost, support the vessel's identification as the *Gallinipper*. Unfortunately, the *Gallinipper* site has been irrevocably damaged by looters who have taken the ship's wheel, scroll head, and many portable artifacts from the deck that were visible in site photographs taken in 2000. The site needs to be continually monitored and any further looting reported to the Wisconsin Department of Natural Resources. The *Gallinipper* site is one of the Great Lakes' most significant shipwreck sites due to its early construction date and the highly intact nature of its hull. The site is a prime candidate for listing on the National Register of Historic Places, and a nomination has been submitted for its inclusion on the Register.

The *Home* is currently Wisconsin's second oldest known shipwreck site, constructed in 1843 and lost in 1858. The *Home*, however, may be one of Wisconsin's more significant wreck sites due to more than her age. The *Home's* construction date falls between that of the *Gallinipper* and *Northerner*, but her hull style is significantly different than either of these two vessels as she does not possess the bow knee and scroll head that was typical of the period. The *Home's* hull style is markedly different than most vessels of that time period. So much so, that the authors originally undertook the survey with the assumption that the *Home* was an incorrect identification and the vessel was in fact a more modern vessel. The archaeological survey, however, did not reveal any conclusive proof that the vessel was constructed later than 1850. Instead, evidence found at site supported the identification as the *Home*, specifically the damage to the starboard bow that is consistent with the *Home's* collision with the *William Fiske*, and the manufacture date of the stoneware jug that is consistent with the *Home's* date of loss. If this vessel is indeed the *Home*

(as it seems it is), the hull style appears much more modern than other vessels of the period, suggesting that the *Home* was a very advanced vessel for her time and her builder was at the cutting edge of Great Lakes ship construction methods. Only further historic research will determine exactly why the *Home*'s hull style appears more modern than her counterparts. Due to the *Home*'s early age, her role in Wisconsin's early economy, and her unique and seemingly advanced hull style, the *Home* site is a prime candidate for listing on the National Register of Historic Places, and a nomination has been submitted for its inclusion on the Register.

The archaeological surveys and historic research included in this report have significantly added to documentation of the operation and use of small sailing vessels in Wisconsin waters. Specifically, this research has helped narrow the definitions of lakeshoring and trading, terms that are often used interchangeably today but historically appear to have described significantly different trades. Further research is needed, however, to further understand the construction and use of small sailing craft in Wisconsin waters, and specifically small craft less than 65 feet in length. Small commercial craft were once common on Wisconsin waters, but today no historic documentation has been uncovered regarding their construction and use, and few archaeological examples have been located. Additional research is needed to define the role and evolution of sloops on the Great Lakes. This vessel type effectively escaped documentation during the nineteenth century, and today we know very little about Great Lakes sloops outside the fact that were used on Wisconsin waters and archaeological examples do exist. It is hoped that further historic research will eventually uncover the identification of the two unknown sloops in this report.

Additional research is also needed to determine if the evolution of larger commercial sailing vessels may have influenced the design and construction of smaller commercial craft on the Great Lakes. It is possible that smaller, less modern shipyards, like those that specialized in the construction of small craft, clung to more traditional hull designs and construction techniques longer than the larger, more progressive shipyards. There were many historic shipyards in Wisconsin that constructed small craft, like the DePere and Chambers Island yards that constructed the Burmeister's boats, but these smaller shipyards have escaped documentation. Research into these shipyards and their operation would significantly add to the understanding of maritime commerce in early Wisconsin.

REFERENCES

- Alford, Michael B.
1990 *Traditional Work Boats of North Carolina*. North Carolina Maritime Museum, Beaufort, NC.
- Alpena County George N. Fletcher Public Library [ACGNFPL]
- [2005]a *Alice*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, MI.
<<http://www.greatlakesships.org/vesselview.aspx?id=7176>>. Accessed 6 October 2008.
- [2005]b *Byron*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, MI.
<<http://www.greatlakesships.org/vesselview.aspx?id=27268>>. Accessed 5 October 2008.
- [2005]c *Chicago*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, Michigan.
<<http://www.greatlakesships.org/vesselview.aspx?id=30100>>
- [2005]d *Eliza*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, MI.
<<http://www.greatlakesships.org/vesselview.aspx?id=47939>>. Accessed 9 October 2008.
- [2005]e *Ellen G. Cocheran*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, MI.
<<http://www.greatlakesships.org/vesselview.aspx?id=35840>>. Accessed 9 October 2008.
- [2005]f *Gallinipper*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, Michigan.
<<http://www.greatlakesships.org/vesselview.aspx?id=45028>>
- [2005]g *Gertie Wing*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, MI.
<<http://www.greatlakesships.org/vesselview.aspx?id=159598>>. Accessed 3 November 2008.
- [2005]h *Home*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, Michigan.
<<http://www.greatlakesships.org/vesselview.aspx?id=68452>>
- [2005]i *Home* (of Detroit). Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, Michigan.
<<http://www.greatlakesships.org/vesselview.aspx?id=68466>>
- [2005]j *Leander*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, Michigan.
<<http://www.greatlakesships.org/vesselview.aspx?id=77285>>
- [2005]k *Mishicott*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, MI.
<<http://www.greatlakesships.org/vesselview.aspx?id=93127>>. Accessed 10 October 2008.

- [2005]l *Northerner*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, Michigan.
<<http://www.greatlakesships.org/vesselview.aspx?id=100808>>
- [2005]m *Northerner*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, Michigan.
<<http://www.greatlakesships.org/vesselview.aspx?id=100752>>
- [2005]n *W. B. Sloan*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, MI.
<<http://www.greatlakesships.org/vesselview.aspx?id=130795>>. Accessed 10 October 2008.
- [2005]o *Waneetee*. Great Lakes Maritime Database, Alpena County George N. Fletcher Public Library, Alpena, MI.
<<http://www.greatlakesships.org/vesselview.aspx?id=159598>>. Accessed 3 November 2008.

Andrews, Isreal D.

- 1852 *Andrews Report on Colonial and Lake Trade*. Report to the U.S. Senate, Washington D.C.

Atkins, Barton

- 1898 *Modern Antiquities: Comprising Sketches of Early Buffalo and the Great Lakes*. The Courier Company, Printers. Buffalo, NY.

Baillod, Brendon

- 2003 *A Ghost at 40 Fathoms*, *Inland Seas*. Issue 59, Fall, pg. 183–90.

Barkhausen, Henry N.

- 1990 *Focusing on the Centerboard*. Unpublished manuscript, Wisconsin Maritime Museum, Manitowoc, WI.

Bogue, Margaret Beattie

- 2000 *Fishing the Great Lakes: An Environmental History, 1783-1933*. University of Wisconsin Press, Madison, WI.

Bond & Smithing

- 1880 *Manitowoc City Directory for 1880*. Bond & Smithing Printers, Manitowoc, WI.

Bowling Green State University

- [2008] *Mishicott*. Great Lakes Vessels Online Index, Bowling Green, OH.
<<http://ul.bgsu.edu/cgi-bin/xvsl2.cgi>>. Accessed 31 October 2008.

Brandt Printing and Binding

- 1894 *Manitowoc City Directory*, Brandt Printing and Binding Company, Manitowoc, WI.

Brown, Henry Esq.

- 1876 *The Present and Future Prospects of Chicago: An Address Delivered before the Chicago Lyceum- January 20, 1846.* Fergus Printing Co., Chicago, IL.

Buffalo Commercial Advertiser

- 1844a *Buffalo Commercial Advertiser*, 5 April.
 1844b *Buffalo Commercial Advertiser*, 6 April.
 1845 *Buffalo Commercial Advertiser*, 8 February.
 1848 *Buffalo Commercial Advertiser*, 21 August.
 1859 *Buffalo Commercial Advertiser*, 15 January.

Buffalo Daily Courier

- 1849 *Buffalo Daily Courier*, 6 October.
 1852 *Buffalo Daily Courier*, 5 January.
 1858 *Buffalo Daily Courier*, 25 October.

Buffalo Daily Courier & Pilot

- 1846 *Buffalo Daily Courier & Pilot*, 18 December.

Buffalo Daily Republic

- 1855 *Buffalo Daily Republic*, 3 August.

Buffalo Morning Express

- 1843a *Buffalo Morning Express*, 11 September.
 1843b *Buffalo Morning Express*, 18 September.
 1843c *Buffalo Morning Express*, 6 October.
 1843d *Buffalo Morning Express*, 29 October.
 1843e *Buffalo Morning Express*, 1 November.
 1843f *Buffalo Morning Express*, 17 November.
 1843g *Buffalo Morning Express*, 21 November.
 1844a *Buffalo Morning Express*, 18 April.
 1844b *Buffalo Morning Express*, 22 April.
 1844c *Buffalo Morning Express*, 5 May.
 1844d *Buffalo Morning Express*, 16 June.
 1844e *Buffalo Morning Express*, 17 June.
 1844f *Buffalo Morning Express*, 26 June.
 1844g *Buffalo Morning Express*, 15 July.
 1844h *Buffalo Morning Express*, 29 July.
 1844i *Buffalo Morning Express*, 2 August.
 1844j *Buffalo Morning Express*, 14 August.
 1844k *Buffalo Morning Express*, 27 August.
 1844l *Buffalo Morning Express*, 10 September.
 1844m *Buffalo Morning Express*, 8 October.
 1844n *Buffalo Morning Express*, 29 October.
 1844o *Buffalo Morning Express*, 31 October.

- 1844p *Buffalo Morning Express*, 6 November.
1844q *Buffalo Morning Express*, 22 November.
1844r *Buffalo Morning Express*, 26 November.
1846a *Buffalo Morning Express*, 22 April.
1846b *Buffalo Morning Express*, 25 May.
1846c *Buffalo Morning Express*, 29 May.
1846d *Buffalo Morning Express*, 20 June.
1846e *Buffalo Morning Express*, 23 June.
1846f *Buffalo Morning Express*, 9 July.
1846g *Buffalo Morning Express*, 14 July.
1846h *Buffalo Morning Express*, 25 July.
1846i *Buffalo Morning Express*, 5 August.
1846j *Buffalo Morning Express*, 10 August.
1846k *Buffalo Morning Express*, 14 August.
1846l *Buffalo Morning Express*, 31 August.
1846m *Buffalo Morning Express*, 3 September.
1846n *Buffalo Morning Express*, 16 September.
1846o *Buffalo Morning Express*, 20 September.
1846p *Buffalo Morning Express*, 7 October.
1846q *Buffalo Morning Express*, 9 October.
1846r *Buffalo Morning Express*, 30 November.
1847a *Buffalo Morning Express*, 4 May.
1847b *Buffalo Morning Express*, 7 May.
1847c *Buffalo Morning Express*, 20 May.
1847d *Buffalo Morning Express*, 24 May.
1847e *Buffalo Morning Express*, 7 June.
1847f *Buffalo Morning Express*, 10 June.
1847g *Buffalo Morning Express*, 27 June.
1847h *Buffalo Morning Express*, 18 July.
1847i *Buffalo Morning Express*, 2 August.
1847j *Buffalo Morning Express*, 4 August.
1847k *Buffalo Morning Express*, 15 August.
1847l *Buffalo Morning Express*, 17 August.
1847m *Buffalo Morning Express*, 30 August.
1847n *Buffalo Morning Express*, 2 September.
1847o *Buffalo Morning Express*, 13 September.
1847p *Buffalo Morning Express*, 10 October.
1847q *Buffalo Morning Express*, 14 October.
1847r *Buffalo Morning Express*, 23 November.
1847s *Buffalo Morning Express*, 27 November.
1848a *Buffalo Morning Express*, 8 April.
1848b *Buffalo Morning Express*, 17 April.
1848c *Buffalo Morning Express*, 26 April.
1848d *Buffalo Morning Express*, 29 April.
1848e *Buffalo Morning Express*, 19 September.
1848f *Buffalo Morning Express*, 13 October.

- 1848g *Buffalo Morning Express*, 14 October.
1850a *Buffalo Morning Express*, 13 April.
1850b *Buffalo Morning Express*, 16 April.
1850c *Buffalo Morning Express*, 24 April.
1850d *Buffalo Morning Express*, 5 May.
1850e *Buffalo Morning Express*, 20 May.
1850f *Buffalo Morning Express*, 21 May.
1850g *Buffalo Morning Express*, 4 June.
1850h *Buffalo Morning Express*, 6 June.
1850i *Buffalo Morning Express*, 13 June.
1850j *Buffalo Morning Express*, 30 June.
1850k *Buffalo Morning Express*, 28 July.
1850l *Buffalo Morning Express*, 2 August.
1850m *Buffalo Morning Express*, 22 August.
1850n *Buffalo Morning Express*, 25 August.
1850o *Buffalo Morning Express*, 5 October.
1850p *Buffalo Morning Express*, 7 October.
1850q *Buffalo Morning Express*, 12 October.
1850r *Buffalo Morning Express*, 15 November.
1851a *Buffalo Morning Express*, 3 April.
1851b *Buffalo Morning Express*, 6 April.
1851c *Buffalo Morning Express*, 20 April.
1851d *Buffalo Morning Express*, 24 April.
1851e *Buffalo Morning Express*, 9 May.
1851f *Buffalo Morning Express*, 11 May.
1851g *Buffalo Morning Express*, 19 June.
1851h *Buffalo Morning Express*, 24 June.
1851i *Buffalo Morning Express*, 3 July.
1851j *Buffalo Morning Express*, 21 July.
1851k *Buffalo Morning Express*, 23 July.
1851l *Buffalo Morning Express*, 4 August.
1851m *Buffalo Morning Express*, 14 August.
1851n *Buffalo Morning Express*, 23 August.
1851o *Buffalo Morning Express*, 31 August.
1851p *Buffalo Morning Express*, 9 September.
1851q *Buffalo Morning Express*, 3 October.
1851r *Buffalo Morning Express*, 4 October.
1851s *Buffalo Morning Express*, 14 October.
1851t *Buffalo Morning Express*, 7 November.
1851u *Buffalo Morning Express*, 11 November.
1851v *Buffalo Morning Express*, 17 November.
1852a *Buffalo Morning Express*, 9 May.
1852b *Buffalo Morning Express*, 2 June.
1852c *Buffalo Morning Express*, 9 June.
1852d *Buffalo Morning Express*, 17 June.
1852e *Buffalo Morning Express*, 19 June.

- 1852f *Buffalo Morning Express*, 26 June.
1852g *Buffalo Morning Express*, 29 June.
1852h *Buffalo Morning Express*, 6 July.
1852i *Buffalo Morning Express*, 9 July.
1852j *Buffalo Morning Express*, 23 July.
1852k *Buffalo Morning Express*, 29 July.
1852l *Buffalo Morning Express*, 12 August.
1852m *Buffalo Morning Express*, 9 August.
1852n *Buffalo Morning Express*, 11 August.
1852o *Buffalo Morning Express*, 6 September.
1852p *Buffalo Morning Express*, 20 October.
1852q *Buffalo Morning Express*, 1 November.
1852r *Buffalo Morning Express*, 9 November.
1852s *Buffalo Morning Express*, 25 December.
1853a *Buffalo Morning Express*, 27 April.
1853b *Buffalo Morning Express*, 10 May.
1853c *Buffalo Morning Express*, 14 May.
1853d *Buffalo Morning Express*, 6 June.
1853e *Buffalo Morning Express*, 9 June.
1853f *Buffalo Morning Express*, 20 June.
1853g *Buffalo Morning Express*, 24 June.
1853h *Buffalo Morning Express*, 6 July.
1853i *Buffalo Morning Express*, 11 July.
1853j *Buffalo Morning Express*, 23 July.
1853k *Buffalo Morning Express*, 28 July.
1853l *Buffalo Morning Express*, 18 August.
1853m *Buffalo Morning Express*, 12 August.
1853n *Buffalo Morning Express*, 6 September.
1853o *Buffalo Morning Express*, 8 September.
1853p *Buffalo Morning Express*, 9 October.
1853q *Buffalo Morning Express*, 25 October.
1853r *Buffalo Morning Express*, 4 November.
1853s *Buffalo Morning Express*, 17 November.
1853t *Buffalo Morning Express*, 24 November.
1853u *Buffalo Morning Express*, 28 November.
1856 *Buffalo Morning Express*, 11 January.

British Whig [Kingston, Ontario]

- 1835a *British Whig*, 15 April.
1835b *British Whig*, 20 May.
1835c *British Whig*, 1 July.
1851 *British Whig*, 18 October.

Bureau of Navigation

- 1833 *Nancy Dousman* Permanent Certificate of Enrollment No. [illegible], Port of Michilimackinac, Record Group 41, U.S. National Archives. Washington D.C.
- 1834 *Nancy Dousman* Permanent Certificate of Enrollment No.2, Port of Michilimackinac, Collection of Colonial Michilimackinac State Park, Michigan State Parks, Mackinaw City, MI.
- 1835 *Nancy Dousman* Permanent Certificate of Enrollment No.2, Port of Michilimackinac, Collection of Colonial Michilimackinac State Park, Michigan State Parks, Mackinaw City, MI.
- 1836 *Nancy Dousman* Permanent Certificate of Enrollment No.3, Port of Michilimackinac, Collection of Colonial Michilimackinac State Park, Michigan State Parks, Mackinaw City, MI.
- 1837 *Nancy Dousman* Permanent Certificate of Enrollment No.3, Port of Michilimackinac, Collection of Colonial Michilimackinac State Park, Michigan State Parks, Mackinaw City, MI.
- 1838 *Nancy Dousman* Permanent Certificate of Enrollment No.7, Port of Michilimackinac, Collection of Colonial Michilimackinac State Park, Michigan State Parks, Mackinaw City, MI.
- 1840 *Nancy Dousman* Permanent Certificate of Enrollment No.42, Port of Buffalo, Buffalo Customs District, Great Lakes Marine Historical Society Collection, Milwaukee Public Library. Milwaukee, WI.
- 1843a *Nancy Dousman* Permanent Certificate of Enrollment No.27, Port of Detroit, Detroit Customs District, Great Lakes Marine Historical Society Collection, Milwaukee Public Library. Milwaukee, WI.
- 1843b *Home* Permanent Certificate of Enrollment No.15, Port of Portland, Ohio, Record Group 41, U.S. National Archives. Washington D.C.
- 1846 *Gallinipper* Permanent Certificate of Enrollment No.37, Port of Detroit, Detroit Customs District, Record Group 41, U.S. National Archives. Washington D.C.
- 1847a *Gallinipper* Permanent Certificate of Enrollment No.53, Port of Chicago, Chicago Customs District, Record Group 41, U.S. National Archives. Washington D.C.
- 1847b *Home* Permanent Certificate of Enrollment No. 25, Port of Sandusky, Ohio, Record Group 41, U.S. National Archives. Washington D.C.
- 1848 *Home* Permanent Certificate of Enrollment No. 20, Port of Sandusky, Ohio, Record Group 41, U.S. National Archives. Washington D.C.
- 1850 *Home* Permanent Certificate of Enrollment No. 8, Port of Sandusky, Ohio, Record Group 41, U.S. National Archives. Washington D.C.
- 1852a *Home* Permanent Certificate of Enrollment No. 11, Port of Sandusky, Ohio, Record Group 41, U.S. National Archives. Washington D.C.
- 1852b *Home* Permanent Certificate of Enrollment No. 3, Port of Sandusky, Ohio, Record Group 41, U.S. National Archives. Washington D.C.
- 1852c *Home* Permanent Certificate of Enrollment No. 128, Port of Buffalo, New York, Record Group 41, U.S. National Archives. Washington D.C.

- 1852d *Northerner* Permanent Certificate of Enrollment No. 3, Port of Ogdensburgh, Great Lakes Marine Historical Society Collection, Milwaukee Public Library. Milwaukee, WI.
- 1853 *Northerner* Permanent Certificate of Enrollment No. 2, Port of Ogdensburgh, Great Lakes Marine Historical Society Collection, Milwaukee Public Library. Milwaukee, WI.
- 1854a *Home* Permanent Certificate of Enrollment No. 3, Port of Buffalo, New York, Record Group 41, U.S. National Archives. Washington D.C.
- 1854b *Home* Permanent Certificate of Enrollment No. 54, Port of Chicago, Illinois, Record Group 41, U.S. National Archives. Washington D.C.
- 1854c *Northerner* Permanent Certificate of Enrollment No. 2, Port of Ogdensburgh, Great Lakes Marine Historical Society Collection, Milwaukee Public Library. Milwaukee, WI.
- 1856 *Home* Permanent Certificate of Enrollment No. 92, Port of Chicago, Illinois, Record Group 41, U.S. National Archives. Washington D.C.
- 1858a *Home* Permanent Certificate of Enrollment No. 2, Port of Chicago, Illinois, Record Group 41, U.S. National Archives. Washington D.C.
- 1858b *Home* Permanent Certificate of Enrollment No. 25, Port of Chicago, Illinois, Record Group 41, U.S. National Archives. Washington D.C.
- 1859 *Northerner* Permanent Certificate of Enrollment No. illegible, Port of Ogdensburgh, Record Group 41, U.S. National Archives. Washington D.C.
- 1863a *Northerner* Temporary Certificate of Enrollment No. 8, Port of Ogdensburgh, Record Group 41, U.S. National Archives. Washington D.C.
- 1863b *Northerner* Permanent Certificate of Enrollment No. 133, Port of Chicago, Record Group 41, U.S. National Archives. Washington D.C.
- 1865a *Northerner* Temporary Certificate of Enrollment No. 69, Port of Chicago, Record Group 41, U.S. National Archives. Washington D.C.
- 1865b *Northerner* Permanent Certificate of Enrollment No. 119, Port of Milwaukee, Great Lakes Marine Historical Society Collection, Milwaukee Public Library. Milwaukee, WI.
- 1866 *Northerner* Permanent Certificate of Enrollment No. 37, Port of Milwaukee, Great Lakes Marine Historical Society Collection, Milwaukee Public Library. Milwaukee, WI.
- 1867 *Northerner* Permanent Certificate of Enrollment No. 127, Port of Milwaukee, Record Group 41, U.S. National Archives. Washington D.C.
- 1868 *Northerner* Permanent Certificate of Enrollment No. 188, Port of Milwaukee, Great Lakes Marine Historical Society Collection, Milwaukee Public Library. Milwaukee, WI.
- Burton Historical Collection Detroit Public Library [BHCDPL]
- 1835 Port of Mackinac Customs House Manifests, 11 July.
- 1836a Port of Mackinac Customs House Manifests, 28 April.
- 1836b Port of Mackinac Customs House Manifests, 28 October.

Chapelle, Howard I.

- 1935 *The History of American Sailing Ships*. Bonanza Books, New York, NY.
 1951 *American Small Sailing Craft: Their Design, Development, and Construction*. W. W. Norton and Company, New York, NY.
 1967 *The Search for Speed Under Sail: 1700-1855*. Conway Maritime Press, London.

Chicago Daily Tribune

- 1853 *Chicago Daily Tribune*, 3 December.
 1854a *Chicago Daily Tribune*, 3 June.
 1854b *Chicago Daily Tribune*, 12 June.
 1854c *Chicago Daily Tribune*, 5 September.
 1854d *Chicago Daily Tribune*, 13 September.
 1854e *Chicago Daily Tribune*, 21 September.
 1854f *Chicago Daily Tribune*, 12 December.
 1855a *Chicago Daily Tribune*, 24 April.
 1855b *Chicago Daily Tribune*, 25 May.
 1855c *Chicago Daily Tribune*, 15 June.
 1855d *Chicago Daily Tribune*, 14 August.

Chicago Tribune

- 1856a *Chicago Tribune*, 17 April.
 1856b *Chicago Tribune*, 16 May.
 1856c *Chicago Tribune*, 6 August.
 1856d *Chicago Tribune*, 16 September.
 1857a *Chicago Tribune*, 4 May.
 1857b *Chicago Tribune*, 30 May.
 1857c *Chicago Tribune*, 24 June.
 1857d *Chicago Tribune*, 7 July.
 1857e *Chicago Tribune*, 28 July.
 1857f *Chicago Tribune*, 17 August.
 1857g *Chicago Tribune*, 2 October.
 1857h *Chicago Tribune*, 3 October.
 1857i *Chicago Tribune*, 20 October.
 1858a *Chicago Tribune*, 7 April.
 1858b *Chicago Tribune*, 8 April.
 1858c *Chicago Tribune*, 13 April.
 1858d *Chicago Tribune*, 1 May.
 1858e *Chicago Tribune*, 5 May.
 1858f *Chicago Tribune*, 11 May.
 1858g *Chicago Tribune*, 26 May.
 1858h *Chicago Tribune*, 6 July.
 1858i *Chicago Tribune*, 12 July.
 1858j *Chicago Tribune*, 19 July.
 1858k *Chicago Tribune*, 30 August.
 1858l *Chicago Tribune*, 6 September.

- 1858m *Chicago Tribune*, 15 September.
 1858n *Chicago Tribune*, 5 October.
 1858o *Chicago Tribune*, 7 October.
 1858p *Chicago Tribune*, 22 October.
 1858q *Chicago Tribune*, 27 October.

Cleveland Daily Herald

- 1840 *Cleveland Daily Herald*, 6 October.

Cleveland Daily Herald & Gazette

- 1839a *Cleveland Daily Herald & Gazette*, 8 May.
 1839b *Cleveland Daily Herald & Gazette*, 25 May.

Cleveland Weekly Herald

- 1847 *Cleveland Weekly Herald*, 13 January.

Cochrane, Timothy, and Hawk Tolson

- 2002 *A Good Boat Speaks for Itself*. University of Minnesota Press, Minneapolis, MN.

Cooper, David J.

- 1987 1986-1987 Archaeological Survey of the Schooner *Fleetwing* Site 47 DR168, Garrett Bay Wisconsin. Master's Thesis, Department of History, East Carolina University, Greenville, NC.
 1992 Wisconsin Underwater Archaeology: An Introduction. *The Wisconsin Archaeologist*, 73(1-2):1-6, Madison, WI.
 1993 Synthesizing the Archaeological and Historical Record of Great Lakes Maritime Transportation. *Underwater Archaeology Proceedings from the Society for Historical Archaeology Conference: 7-12*. Society for Historical Archaeology, Kansas City, MO.

Cooper, David J. and Paul P. Kriesa

- 1992 Great Lake Shipwrecks of Wisconsin. National Park Service National Register of Historic Places Multiple Property Documentation Form. Division of Historic Preservation – Public History. Wisconsin Historical Society. Madison, WI.

Crary, L.P (editor)

- 1832 *Directory for the City of Buffalo*. Steele & Faxon Printer, Buffalo, NY.

Cuthbertson, George A.

- 1931 *Freshwater: A History and Narrative of the Great Lakes*. MacMillan Company, Toronto, ON.

Daily Journal, The [Ogdensburgh, NY]

- 1859 *The Daily Journal*, 19 April.

- 1869a *The Daily Journal*, 23 Nov.
 1869b *The Daily Journal*, 25 Nov.
 1869c *The Daily Journal*, 29 Nov.
 1869d *The Daily Journal*, 1 Dec.

Daily National Pilot [Buffalo, NY]

- 1845a *Daily National Pilot*, 7 July.
 1845b *Daily National Pilot*, 19 August.
 1846a *Daily National Pilot*, 20 March.
 1846b *Daily National Pilot*, 19 May.

Daily Times and Express [Ogdensburgh, NY]

- 1883 *Daily Times and Express*, 1 March.

Dearolf, Kenneth

- 1986 *Wisconsin Folk Pottery in the Collection of the Kenosha Public Museum*.
 Kenosha Public Museum, Kenosha, WI.

Der Nord-Western [Manitowoc, WI]

- 1881 *Der Nord-Western*, 1 September.
 1891 *Der Nord-Western*, 9 July.
 1899 *Der Nord-Western*, 18 May.

Detroit Daily Advertiser

- 1844 *Detroit Daily Advertiser*, 4 April.

Detroit Free Press

- 1844 *Detroit Free Press*, 6 April.

Door County Advocate [Sturgeon Bay, WI]

- 1896 *Door County Advocate*, 14 March.
 1918 *Door County Advocate*, 9 August.

Draper, L.C. (editor)

- 1876 *John T. De La Ronde Personal Narrative*. Collections of the State Historical
 Society of Wisconsin. Democratic Printing Co., Madison, WI.

Everett, Homer, Esq.

- 1882 *History of Sandusky County, Ohio*. H.Z. Williams & Bros., Publishers.
 Cleveland, OH.

Firelands Historical Society

- 1878 *The Firelands Pioneer*. Firelands Historical Society, Norwalk, OH.

Fleetwood, Rusty

1995 *Tidecraft: The Boats of South Carolina, Georgia, and Northeastern Florida, 1550-1950*. WBG Marine Press, Tybee Island, GA.

Frankfort Express

1878 *Frankfort Express*, 3 April.

Gjerset, Kurt.

1979 *Norwegian Sailors on the Great Lakes*. Ayer Co. Pub. Manchester, NH.

Gough, Barry

2006 *Through Water, Ice and Fire: The Schooner Nancy of the War of 1812*. Dundurn Press Ltd., Toronto, ON.

Green, Russ, and Cathy Green

2004 Wisconsin's Maritime Trails. *Wisconsin Great Lakes Chronicle*, pp. 12-13. Wisconsin Coastal Management Program, Madison, WI.

Green Bay Advocate

1856 *Green Bay Advocate*. 7 August.

Greenhill, Basil

1988a *The Evolution of the Wooden Ship*. Facts on File, Inc. New York, NY.

1988b *The Merchant Schooners*. Naval Institute Press, Annapolis, MD.

Grossnickle, Mary Alice

[2008] *The History of the Sorenson Station*.

<<http://www.arcadiami.com/OralHistories/sorrens.htm#MarysMemories>>. Accessed 3 November 2008.

Hall, Henry

1884 Ship-Building in the United States. *Census Report for 1884*, pp.137-174. Washington D.C.

Hirthe, Walter M. and Mary K. Hirthe

1986 *Schooner Days in Door County*. Voyageur Press, Minneapolis, MN.

Hubbard, Gurdon

1911 *The Autobiography of Gurdon Saltonstall Hubbard*. The Lakeside Press, RR Donnelley & Sons Co. Chicago, IL.

Inter-Ocean [Chicago, IL]

1876 *Inter Ocean*, 10 December.

- Karamanski, Theodore J.
2000 *Schooner Passage: Sailing Ships and the Lake Michigan Frontier*. Wayne State University Press, Detroit, MI.
- Keeler, Lucy Elliot
1905 *A Guide to the Local History of Fremont, Ohio, Prior to 1860*. F.J. Heer Publisher. Columbus, OH.
- Kellogg, Louise
1918 *Historical Fragments*. Wisconsin Magazine of History 1917-1918. State Historical Society of Wisconsin, Madison, WI.
- Klumph, Richard A.
1960 *Klumph Genealogy and Early Klumph History*. Self-published. Kalamazoo, MI.
- Kristiansen, Soren
1981 *Diary of Captain Soren Kristiansen, Lake Michigan Schooner Captain 1891-1893*. Mid-Peninsula Library Cooperative, Iron Mountain, MI.
- Lenihan, Daniel J.
1994 *Shipwrecks of Isle Royale National Park: The Archaeological Survey*. Lake Superior Port Cities, Inc., Duluth, MN.
- Little, Richard
1913 *Yearbook of the Sandusky county Pioneer and Historical Association*. Ohio Historical Society. Columbus, OH.
- MacGregor, David R.
1982 *Schooners in Four Centuries*. Naval Institute Press, Annapolis, MD.
1984 *Merchant Sailing Ships 1850-1875: Heyday of Sail*. Naval Institute Press, Annapolis, MD.
1997 *The Schooner: Its Design and Development from 1600 to the Present*. Naval Institute Press, Annapolis, MD.
- Manitowoc Herald*
1851a *Manitowoc Herald*, 7 July.
1851b *Manitowoc Herald*, 12 July.
1851c *Manitowoc Herald*, 21 July.
- Manitowoc Pilot*
1866 *Manitowoc Pilot*, 7 December.
1867a *Manitowoc Pilot*, 10 May.
1867b *Manitowoc Pilot*, 12 July.
1877 *Manitowoc Pilot*, 22 November.
1879a *Manitowoc Pilot*, 21 August.

- 1879b *Manitowoc Pilot*, 28 August.
 1879c *Manitowoc Pilot*, 16 October.
 1880 *Manitowoc Pilot*, 8 April.
 1882a *Manitowoc Pilot*, 11 May.
 1882b *Manitowoc Pilot*, 18 May.
 1884 *Manitowoc Pilot*, 7 February.
 1885 *Manitowoc Pilot*, 9 September.

Manitowoc Tribune

- 1867 *Manitowoc Tribune*, 9 May.
 1877 *Manitowoc Tribune*, 11 October.

Mansfield, J.B.

- 1899a *History of the Great Lakes*. Volume I. Chicago: J.H. Beers & Co.
 1899b *History of the Great Lakes*. Volume II. Chicago: J.H. Beers & Co.

Martin, Deborah

- 1913 *History of Brown County, Wisconsin*. S.J. Clarke Publishing, Chicago, IL.

Martin, Jay C.

- 1995 *Sailing the Freshwater Seas: A Social History of Life Aboard the Commercial Sailing Vessels of the United States and Canada on the Great Lakes, 1815-1930*. Unpublished Dissertation, Bowling Green State University, Bowling Green, OH.

Martin, Patrick E.

- 1985 *Mill Creek Site and Pattern Recognition in Historical Archaeology*-Archaeological Completion Report Series, Number 10, Mackinac Island State Park Commission, Mackinac Island, MI.

Meverden, Keith N. and Tamara Thomsen

- 2006 *Wisconsin's Cross-Planked Mosquito Fleet: Underwater Archaeological Investigation of the Scow Schooners Iris, Ocean Wave, and Tennie and Laura*. *State Archaeology and Maritime Preservation Program Technical Report Series #06-001*. Wisconsin Historical Society, Madison, WI.

Mills, James Cook

- 1910 *Our Inland Seas: Their Shipping & Commerce for Three Centuries*. A. C. McClurg and Company, Chicago, IL. Reprinted 1976, Freshwater Press, Inc., Cleveland, OH.

Milner, James W.

- 1872 *Report on the Fisheries of the Great Lakes: The Result of Inquiries Prosecuted in 1871 and 1872*. *United States Commission of Fish and Fisheries Report, 1872-1873*. Washington, DC.

Milwaukee Advertiser

1836 *Milwaukee Advertiser*, 20 October.

Milwaukee Public Library

1959 *Northerner* Great Lakes Ship Files (formerly the Runge Collection), Milwaukee Public Library. Milwaukee, WI.

Milwaukee Sentinel

1846 *Milwaukee Sentinel*, 11 May.
 1851a *Milwaukee Sentinel*, 9 July.
 1851b *Milwaukee Sentinel*, 16 July.
 1858 *Milwaukee Sentinel*, 23 October.
 1868a *Milwaukee Sentinel*, 30 Nov.
 1868b *Milwaukee Sentinel*, 2 Dec.
 1868c *Milwaukee Sentinel*, 4 Dec.
 1868d *Milwaukee Sentinel*, 12 Dec.

Morris, Paul C.

1973 *American Sailing Coasters of the North Atlantic*. Bloch and Osborn Publishing, Chardon, Ohio.

New York Times, The

1851 *The New York Times*, 25 October.

Oswego Daily Commercial Times

1849 *Oswego Daily Commercial Times*, 13 April.

Oswego Commercial Times

1859 *Oswego Commercial Times*, 25 April.

Oswego Palladium

1859 *Oswego Palladium*, 25 April.

Peeke, Hewson L.

1916 *A Standard History of Erie County, Ohio*. The Lewis Publishing Company, Chicago, IL.

Powers, Perry Francis

1912 *A History of Northern Michigan and its People*. The Lewis Publishing Co., Chicago, IL.

Quaife, Milo M.

1944 *Lake Michigan: The American Lake Series*. Bobbs – Merrill Company, Indianapolis, IN.

Radovan, Steve

1981 *Lake Diver Log Book*, 24 April 1981. Radovan Archives, Sheboygan, WI.

Ratigan, William,

1977 *Great Lakes Shipwrecks & Survivals*. Wm. B. Erdmans Publishing, Grand Rapids, MI.

Richard Edwards & Company

1868 *Edward's Annual Directory of the Inhabitants, Institutions, Incorporated Companies, Manufacturing Establishments, Business, Business Firms, Etc., Etc., in the Village of Manitowoc, for 1868-69*. Richard Edwards & Co. Publishers. Manitowoc, WI.

Sandusky Clarion

1848 *Sandusky Clarion*, 25 April.

1849 *Sandusky Clarion*, 23 September.

Siebert, Wilbur H.

1898 *Underground Railroad from Slavery to Freedom*. The MacMillan Company, New York, NY.

1951 *The Mysteries of Ohio's Underground Railroads*. Long's College Book Company, Columbus, OH.

Schmidt & Zorn

1898 *Schmidt's Directory of the City and County of Manitowoc 1899-1900*. Schmidt & Zorn Publishers, Manitowoc, WI.

Schoolcraft, Henry

1851 *Personal Memoirs of a Residence of Thirty Years with the Indian Tribes on the American Frontiers: With Brief Notices of Passing Events, Facts and Opinions, A.D. 1812 to A.D. 1842*. Lippincott, Grambo & Co., Philadelphia, PA.

Smith, H. Perry (editor)

1884 *History of the City of Buffalo and Erie County*. D. Mason & Co. Publishers, Syracuse, NY.

Steele, John

1977 Underwater footage of shipwreck *Byron*. Film. Steve Radovan Collection, Sheboygan, WI.

Stephenson, Isaac

1915 *Recollection of a Long Life, 1829-1915*. Privately Printed, Chicago, IL.

Stowe, Harriet Beecher

1852 *Uncle Tom's Cabin*. John P. Jewett & Company, Boston, MS.

Swanson, Roger C.

- 1982 Edith Jane: A Search for the Real Mackinaw Boat. *Wooden Boat*
(45):100-106.

Toronto Globe

- 1848 *Toronto Globe*, 13 September.

United States Census Bureau

- 1850a Town of Eden, Erie County, New York. U.S. Department of the Interior,
Government Printing Office. Washington D.C.
- 1850b Portland Township, Erie County, Ohio. U.S. Department of the Interior,
Government Printing Office. Washington D.C.
- 1850c 5th Ward of the City of Buffalo, Erie County, Ohio. U.S. Department of
the Interior, Government Printing Office. Washington D.C.
- 1850d Village of Saybrook, Ashtabula County, Ohio. U.S. Department of the
Interior, Government Printing Office. Washington D.C.
- 1850e 9th Ward Chicago, Cook County, Illinois. U.S. Department of the Interior,
Government Printing Office. Washington D.C.
- 1850f Oswegatchie, St. Lawrence County, New York. U.S. Department of the
Interior, Government Printing Office. Washington D.C.
- 1860a 1st Ward Village of Ogdensburgh, St. Lawrence County, New York. U.S.
Department of the Interior, Government Printing Office. Washington D.C.
- 1860b Morristown, St. Lawrence County, New York. U.S. Department of the
Interior, Government Printing Office. Washington, D.C.
- 1860c Town of Belgium, Ozaukee County, Wisconsin. U.S. Department of the
Interior, Government Printing Office. Washington, D.C.
- 1860d City of Two Rivers Second Ward, Manitowoc County, Wisconsin. U.S.
Department of the Interior, Government Printing Office, Washington, DC.
- 1870 City of Manitowoc Second Ward, Manitowoc County, Wisconsin. U.S.
Department of the Interior, Government Printing Office, Washington, DC.
- 1880 Town of Manitowoc, Manitowoc County, Wisconsin. U.S. Department of
the Interior, Government Printing Office, Washington, DC.
- 1910 Township of Onekama, South Half, Village of Onekama, Manistee
County, Michigan. U.S. Department of the Interior, Government Printing
Office, Washington, DC.
- 1920 Onekama Township, Village of Onekama, Manistee County, Michigan.
U.S. Department of the Interior, Government Printing Office, Washington,
DC.

Upton, Harriet Taylor.

- 1910 *History of the Western Reserve*. The Lewis Publishing Company: Chicago,
IL.

Watts, Peter, and Tracy Marsh

1997 *W. Watts & Sons Boat Builders: Canadian Designs for Work and Pleasure 1842 – 1946*. Mackinaw Productions, Oshawa, ON.

Wisconsin Historical Society

[1996]a Ship Information and Data Record, *Eliza*. Wisconsin Historical Society, Madison, WI.

[1996]b Ship Information and Data Record, *Gertie Wing*. Wisconsin Historical Society, Madison, WI.

Walker, Augustus

1902 Early Days on the Lakes, with an Account of the Cholera Visitation of 1832. In *Publications of the Buffalo Historical Society*. Buffalo, NY.

Walker, Horatio N.

1844 *Walker's Buffalo City Directory*. Lee & Thorp's Press: Buffalo, NY.

Watrous, Lieut. Col. Jerome A. (editor)

1909 *Memoirs of Milwaukee County*. Western Historical Association, Madison, WI.

Wright, A.G.

1897 *Wright's Directory of Manitowoc for 1897-98*. A.G. Wright, Milwaukee, WI.

Wright, George

1916 *A Standard History of Lorain County Ohio*. Lewis Publishing, Chicago, IL.

Wright & Hogg

1884 *Manitowoc City Directory*, Wright & Hogg, Milwaukee, WI.