Myths and Mysteries:
Underwater Archaeological Investigation of the Lumber Schooner *Rouse Simmons,* Christmas Tree Ship

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WISCONSIN HISTORICAL SOCIETY

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The *Rouse Simmons* was listed on the
National Register of Historic Places
on 21 March 2007.

Cover photo: The *Rouse Simmons*' port anchor, discovered by Tamara Thomsen and Keith Meverden on 21 July 2007. All photographs by Tamara Thomsen unless otherwise noted.

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CHAPTER ONE
INTRODUCTION

The Wisconsin Historical Society's *Rouse Simmons* archaeological survey was a joint effort between the Wisconsin Historical Society (WHS), Wisconsin Coastal Management Program, University of Wisconsin Sea Grant Institute, and the Rogers Street Fishing Village. The survey was funded by a grant from the Wisconsin Coastal Management Program, with additional material support from the University of Wisconsin Sea Grant Institute. Additional equipment, personnel, and logistical support were supplied by other participating organizations. The survey was organized by the WHS' State Maritime Preservation and Archaeology (SMPA) program staff and principally staffed by WHS volunteers and staff from the WHS and the University of South Florida. Survey work was conducted between 12 June 2006 and 18 August 2006.

The WHS 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 WHS 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 has provided Wisconsin with a more formalized and rational framework for underwater archaeological resource management. This legislation also authorizes the WHS 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 SMPA 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; Jensen 1992, 1993). The SMPA program is within the WHS 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 SMPA program 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 regions’, maritime heritage (Green and Green 2004).

The Maritime Trails initiative has become the WHS’ 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 heritage. 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 WHS maintains permanent moorings on 23 historic shipwrecks statewide. The 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 WHS has produced guides to 25 Wisconsin shipwrecks.

Public Presentations. Given at a variety of venues throughout the state, public presentations provide a direct, personal connection between the WHS and the general public. WHS underwater archaeologists and volunteers have reached over 29,000 people via public presentations since the Wisconsin’s Maritime Trails inception.

Interpretive signage and kiosks. As of March 2008, the WHS has installed shore-side informational markers for 27 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, and the WHS’ Madeline Island Museum. The kiosks reach an estimated 368,000 museum visitors yearly 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 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, Weblinks, and maps for historic maritime venues, as well as location and historic data for shipwrecks. Wisconsin's Great Lakes Shipwrecks (www.wisconsinshipwrecks.org) is a collaborative effort between the WHS 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 Wisconsin's Maritime Trails program partners with federal, state, and local agencies, chambers of commerce, private businesses, 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

Little is known about Great Lakes double centerboard schooners, or their role in the Lake Michigan lumber trade. During their heyday, most interest in Great Lakes shipping was devoted to advances in steam technology that was gaining ever-increasing shares of the Great Lakes tonnage. As steam technology gained control of larger shares of lake tonnage, the schooner received dwindling attention by contemporary journalists. As a result, much of what we will ever know about Great Lakes schooners is contained within the archaeological record of vessels that lies on the Great Lakes' bottomlands.

Field survey methods included a traditional baseline survey aided by digital photo and video documentation. Survey work was conducted along guidelines established by the Natural Park Service for submerged cultural resources survey and evaluation in determining site eligibility for the National Register of Historic Places. Survey research design was directed towards formulating site descriptions and archaeological assessments. The *Rouse Simmons* site was approached with a package of management questions, some specific to the site itself (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 (historical significance, archaeological potential, recreational potential, and management requirements). Research objectives had the following intents:

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 still photographs, underwater 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 scuba technology. Documentation included digital photo mosaics, measured sketches, construction schematics, digital still and video imagery, and 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 into 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
SCHOONERS AND THE LAKE MICHIGAN LUMBER INDUSTRY

Wood products were the backbone of the Lake Michigan 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. At the beginning of the twentieth 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.

Lake Michigan was ideally suited for a prolific lumber trade. Spanning over 300 miles north to south, the lake was a virtual water highway surrounded by everything necessary to produce one of the world's most profitable lumber industries. The lake's northern shore was surrounded by some of the largest stands of white pine in North America. Its southern shore possessed one of the busiest shipping ports in the world with an appetite for lumber equal to its shipping traffic - Chicago. This combination produced what would become one of America's most productive and profitable industries of the period. The total value of lumber harvested in the state of Michigan alone exceeded the value of gold mined in California by one billion dollars (Berton 1996:98).

Exploitation of the region's timber resources did not begin until well into the nineteenth century. Large scale settlement of the region west of Lake Michigan did not begin until the end of the Blackhawk War in 1832, which quelled the Native American threat. Soldiers returned eastward from the war carrying news of the Upper Midwest's vast fertile lands and forests that awaited settlement. The floodgates were opened, and waves of settlers began arriving almost daily. Milwaukee and Chicago quickly swelled with the influx of settlers, and their excess population quickly overflowed onto the treeless prairies with fertile lands ripe for agriculture. Unlike eastern regions, the prairie lands did not require the backbreaking work of tree clearing. The downside, however, was that the prairie lands did not provide the essential building material needed by the growing farmsteads and communities - lumber (Berton 1996:99).

Settlers did find a few stands of trees in the middle Mississippi valley when they arrived, but these stands were quickly exhausted by 1840. In order to fulfill the growing demand for lumber, the settlers began looking northward to one of America's greatest stands of timber in Wisconsin, Minnesota, and Michigan's Upper Peninsula. Settlers in these areas found forests so vast that they seemed inexhaustible, and even compelled one Wisconsin congressman to claim that the "interminable forests of pine [are] sufficient to supply all the wants of citizens….for all time to come" (Berton 1996:98). Although the bulky nature of lumber made it difficult and awkward to move, there was a key geographic feature that connected the timber lands to the north with the demand in the south – Lake Michigan – and the lake schooners quickly answered the call for lumber (Berton 1996:98; Fries 1951:5).

The lumber industry began on a small scale that only fulfilled local needs, but quickly grew into one of the nation's most productive lumber operations. By 1840, the value of Wisconsin's lumber industry exceeded fur trading and lead mining to become Wisconsin's leading commercial enterprise, and the growing lumber trade conveniently provided new employment opportunities for workers displaced from the declining fur and lead industries (Fries 1951:16; Kreisa 1992:8-1; Lusignan 1986:5-2).

Wood was to the nineteenth century what petroleum was to the twentieth. Every man, woman, and child used an average of 350 board feet per year, and almost every structure was built of wood (Berton 1996:99). White pine filled the vast majority of the lumber demand and was ideal for the needs of the day. It was light, strong, and durable, and it did not warp, crack, shrink, or splinter. Mature white pine trees grew to a height of 150 feet with trunks up to four feet in diameter. Its wood was largely free of knots, and most importantly it floated, which made for easy transportation to downriver mills (Berton 1996:102).

Wisconsin's river systems naturally divided the state into six lumbering districts: the Green Bay / Lakeshore and Wolf River districts to the northeast, and the Wisconsin, Black, Chippewa, and St. Croix River districts to the northwest (Fries 1951:7). The Wisconsin River valley became the state's first large scale lumber district due to its proximity to older settlements and the vast nature of its timber resources, which allowed the upper Wisconsin River valley to remain prosperous even while the rest of the country was struggling during the Panic of 1837. The Wisconsin River valley remained a productive lumber producer throughout much of the nineteenth century, and produced 200 million board feet annually by 1872 (Fries 1951:16-17).

Timber extraction quickly expanded into other districts. The Green Bay / Lakeshore district witnessed rapid growth that began in the late 1840s. In 1846, the only two mills of considerable size were at Green Bay and the mouth of the Menomonee River, with an additional four or five smaller mills scattered throughout the district. By 1854, however, the district's lumber output had reached 137 million board feet annually, and by 1865 annual shipments totaled 200 million board feet in addition to shingles and other wood products; by 1871, production had reached 300 million board feet (Fries 1951:18; Lusignan 1986:5-3). The cities of Muskegon, Manistee, Ludington, Peshtigo, Marinette, Menominee, and Manistique sprung up around the lakeshore, created and sustained almost entirely by the Lake Michigan lumber trade (Karamanski 2000:65).

The lumber industry witnessed its most expansive growth following the Civil War. Between 1840 and 1873 the Wisconsin lumber industry harvested a total of 20 billion board feet of pine, but tripled its production to 66 billion board feet between 1873 and 1898 (Grey 1998:43). This growth was spurred by advances in milling technology that replaced reciprocating band saws with steam-powered circular saws capable of cutting four to six boards at a time, greatly increasing mill output (Cooper 1987:51).

The harvest of timber was a seasonally cyclic process. The felling of trees and milling of lumber products most often took place during winter months. Snow cover and frozen ground made skidding large logs through the forests much easier with horses and sleds. Once received and processed at the mill, mountains of lumber products would be piled along the shoreline to await the receding of the lake ice with the warmer spring temperatures that marked the opening of the shipping season. As soon as Lake Michigan was cleared of ice there would be several vessels lying at anchor off the northern lumber towns, waiting their turn to load a cargo of lumber. The lumberjacks, having retreated from the forests with the melting snow, now loaded the waiting ships with lumber produced from the trees they had felled the previous winter (Fries 1951:70; Lusignan 1986:5-6).

During the nineteenth century the cities of Milwaukee and Chicago had an enormous appetite for building materials and played an important role in the growth of the lumber industry (Kreisa 1992:8-1). In 1860 alone, Milwaukee received 30 billion board feet of lumber, increasing its consumption to 150 billion board feet by 1897 (Kreisa 1992:8-3). Chicago eclipsed Milwaukee’s consumption, and white pine quickly became the mainstay of Chicago’s shipping trade (Karamanski 2000:65). Chicago’s location was key to its prosperity as a lumber wholesaling district. The opening of the Illinois and Michigan Canal in 1848 made the city well-connected with the western prairie lands, and the opening of a rail system one year later gave Chicago an unrivaled ability to move lumber west and south at low cost. The increase in lumber shipments westward from Chicago was fueled by the successful grain trade of the 1850’s and 1860’s. The fertile prairies lured settlers to the west and created an ever-increasing demand for lumber to build houses, barns, and fences. Railcars and barges arrived at Chicago filled with wheat and corn from the prairies, and returned loaded with pine lumber. By 1856, Chicago had become the world’s largest lumber market with 12 miles of Chicago waterfront devoted to lumber docks, and by 1860 had become the world’s busiest shipping port (Berton 1996:102; Cooper 1987:51; Fries 1951:81; Karamanski 2000:65-66).

The lumber industry employed a great number of people throughout the region, and the industry’s success was in part due to skilled labor supplied by immigrants (Fries 1951:13). Many of the lumberjacks had emigrated from Ireland, Scandinavia, Germany, and Quebec, and many others came from the eastern lumber industries in Maine, New York, New Hampshire, and Pennsylvania. Published advertisements and newspaper articles enticed workers with their descriptions of the “rare chance” opportunities that abounded in the Wisconsin woodlands (Fries 1951:14). The work, however, was laborious and wrought with hardships, with procurement of supplies being one of the greater hardships. Many of the lumbering communities were in hinterland areas where few agricultural settlers had yet arrived, requiring nearly all supplies to be transported in from distant locations. The high cost of transporting goods resulted in many lumbermen purchasing ships and entering into the freighting business themselves and opening their own mercantile stores (Fries 1951:15). As the lake schooners carried lumber to the southern markets and returned with supplies, many of the remote lumber settlements developed into lakeshore cities that survive today. There were many other smaller, temporary lakeshore lumber ports that were little more than improvised terminals. A minimum of capital was invested in the temporary terminals, often just enough to keep them profitable for their short lives. Instead of building piers or harbors in these locations, ships would anchor a short distance offshore and the lumber would be lightered out, or carried in small skiffs or scows out to the waiting vessels (Karamanski 2000:66-67).

The first shipboard cargo of lumber entered Chicago in 1833, when a load of "white wood" arrived from St. Joseph, Michigan, and the Lake Michigan lumber trade grew steadily from there (Karamanski 2000:65). By 1840, fifty vessels were employed carrying lumber, and by 1885 this number had grown to over 500 vessels that carried over 8,000 cargoes annually (Kreisa 1992:8-3). Lake Michigan lumber schooners varied in size and could carry between 250,000 - 1,500,000 board feet of lumber depending on the vessel size (Lusignan 1986:5-11). The majority of Lake Michigan lumber schooners operated out of Milwaukee or Chicago, but nearly every coastal town around the lake could claim at least one or two vessels that hailed from its port (Karamanski 2000:75). As the nineteenth century wore on, an increasing number of steam vessels were built for the lumber trade, but the majority of the lumber vessels remained sail powered. Due to the lumber fleet's heavy dependence on wind, the trade was often unpredictable and unfavorable winds would often leave the southern city markets wanting for lumber:

> "After a long spell of prevailing southerly winds, the port of Chicago was most likely to be empty of lumber cargoes until the wind changed, when the Chicago River would again become choked with lumber ships all the way from the Lake Street to the Clark Street Bridge (Fries 1951:70).

Due to the often unpredictable nature of wind propulsion coupled with advances in steam technology, a greater number of steam vessels were built solely for the lumber trade. Beginning about 1860, with the increased use of steam barges to transport lumber, the industry saw a region-wide shift from self-propelled schooners to the schooner barge. Shorn of much of their rigging, schooner barges were often dilapidated schooners that were converted to be towed behind the steam barges. As many as six or more schooner barges would be tied in a long chain behind a steamer, sometimes resulting in a long unwieldy tow that could stretch as far as a mile. Consorts of this type could carry over three hundred thousand board feet of lumber and a quantity of smaller products like lath (Fries 1951:70). The success of the consort system in the lumber industry did not go unnoticed by the other trades, and soon the grain, iron ore, and other trades began utilizing the consort system (Cooper 1987:49; Mansfield 1899:518,520). Despite the success of the consort system, not all schooners were cut down into barges. A large number of diehard sailors clung to the old ways of sailing and many self-propelled schooners sailed well into the twentieth century.

Despite beliefs that the northern pine forests were inexhaustible, the explosive growth of the lumber industry quickly decimated the resource. In 1869, 2.75 billion board feet of pine was produced each year in states bordering Lake Michigan. Over the next 20 years production more than doubled, swelling to 7 billion board feet annually by 1889. These twenty years proved to be the heyday of the Lake Michigan lumber industry, and production quickly dropped off after the 1889 peak. By 1897, much of the accessible pine forests surrounding Lake Michigan were logged out, and a seemingly inexhaustible resource was destroyed in a little over 50 years (Berton 1996:98-103; Cooper 1987:51; Mansfield 1899:514; Rector 1953:57-60).

The decline of the lumber industry was also the passing of the golden age of sail on the Great Lakes (Cooper 1987:52). At the beginning of the nineteenth century the Lake Michigan region was a wilderness frontier populated by a handful of hardy European fur traders. By the century’s close, however, Lake Michigan boasted one of the busiest shipping ports in the world with as many as 12,000 vessels arriving annually at Chicago by 1872 (Karamanski 2000:69). More than 9,000 of these vessels were loaded with lumber, and the majority of those were schooners. The latter half of the nineteenth century brought rapid technological change to the Great Lakes. The introduction and advancement of steam propulsion made rapid inroads into markets previously dominated by sail. Steam power was not subject to the unpredictable nature of wind propulsion and was able to maintain fast and predictable shipping schedules. Without the need to set and adjust large unwieldy sails and rigging, steam powered vessels were able to operate with fewer crew, thus reducing overhead costs. Despite this competition, however, the venerable lake schooner continued to sail well into the twentieth century – long after steam power had rendered merchant sail obsolete. The lumber trade played no small role in the lake schooner’s ability to remain a viable occupation for many diehard sailors. In the schooner’s twilight years, lumber was largely the only viable cargo for the old, leaking vessels. 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 *ROUSE SIMMONS*' OPERATIONAL HISTORY

The *Rouse Simmons*, official number 110087, was built in 1868 at the Allen McClelland and Company shipyard in Milwaukee, Wisconsin. Built for Royal B. Towslee of Kenosha, Wisconsin, the *Rouse Simmons*' first enrollment was entered on 27 August 1868 at the Port of Milwaukee. From the outside, the *Rouse Simmons* appeared to be similar to many other three-masted schooners that sailed the Great Lakes, but she was markedly different than most in that she carried two centerboards rather than the more typical single centerboard of most lake sailing vessels (Figure 1). Her two centerboards were fitted within wooden trunks on the vessel's centerline. The forward trunk was fitted immediately aft of the foremast, and the aft trunk was fitted between the main and mizzen masts. In order to accommodate as much lumber as possible in her hold, she lacked any hanging knees that would produce a dead space where her deck joined the hull. She was fitted with three masts, fore-and-aft rigged, with a square head and a scroll stern. Her registered dimensions were 124.2 feet in length, 27.6 feet in breadth, and 10.1 feet in depth of hold. Her total tonnage was 244.28 with a capacity of 232.30 tons under her deck (Bureau of Navigation 1868).

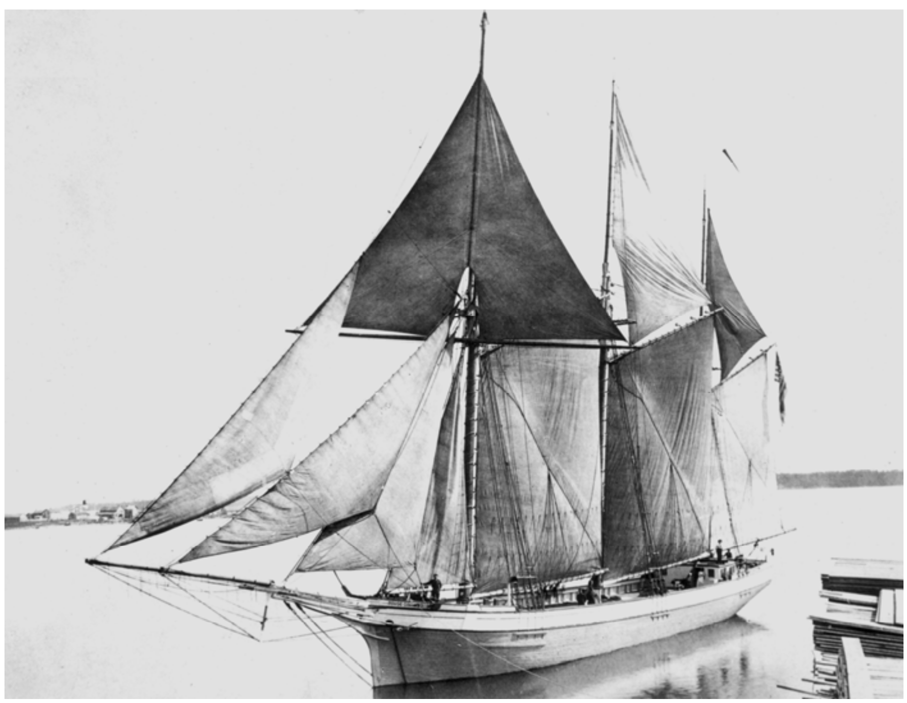


Figure 1. The *Rouse Simmons*. Date is unknown, but likely circa 1890. Historical Collections of the Great Lakes, Bowling Green State University.

The *Rouse Simmons* was named for a wealthy 34-year old Kenosha grocery merchant, whose older brother Zalmon Simmons is better known today as the founder of the Simmons Company, manufacturer of fine mattresses. Rouse Simmons' connection with his namesake vessel is unknown. Modern authors claim that Rouse Simmons financed the vessel's construction, but a search of historic documents failed to confirm this relationship (United States Census Bureau 1860a, 1870b, Western Historical Company 1879). Born in 1816 in Vermont, Royal B. Towslee came to Kenosha, Wisconsin, on 6 August 1839 where he began a mercantile business buying and selling grain and lumber (WSGS 1982; Western Historical Company 1879). A successful businessman, by 1860, he had acquired a personal wealth of $2,100 divided between $1,500 in real estate and $600 in personal assets (United States Census Bureau 1860b). At the age of 53, Royal Towslee broadened his business holdings and ventured into Great Lakes vessel ownership with the purchase of the *Rouse Simmons* in 1868.

Captain Alfred Ackerman became the *Rouse Simmons*' first master. He was born on 8 August 1826 in Brownville Township, New York. On 11 January 1855 he married Jane C. Adams in Brownville, and one year later they moved to Kenosha where they took up residence until 1900 (United States Census Bureau 1860a; 1870a; 1880; 1900; Sives 2000).

The *Rouse Simmons* worked in the Lake Michigan lumber trade and had a rather uneventful early career, as there is little mention of her in contemporary newspapers. On 21 June 1870 she was readmeasured and assigned a somewhat smaller registered tonnage. Her new dimensions were reduced to 123.5 feet length and 8.4 feet in depth, reducing her total tonnage to 205.26. Her description also changed somewhat and she was now listed as having a square stern and plain head (Bureau of Navigation 1870).

In 1873, five years after her launch, the *Rouse Simmons* was sold to the Hackley family of Muskegon, Michigan. The lumber magnate Charles Hackley became one-half owner of the vessel along with Joseph Hackley and Porter Hackley, who each took possession of one-quarter shares (Bureau of Navigation 1873). With the sale, Captain Ackerman left the *Rouse Simmons* to command railroad car ferries on Lake Michigan, and Captain Seth Lee became the *Rouse Simmons*' new master (United States Census Bureau 1880; 1910; Sives 2000). The *Rouse Simmons*' new home port became Muskegon, Michigan, and a new enrollment was entered at Grand Haven on 15 March 1873 (Bureau of Navigation 1873). Under her new ownership, the *Rouse Simmons* began transporting lumber products to market for the firm of Hackley and Sons, making almost weekly runs from Grand Haven to Chicago (Harms 1989; Longacre 2006).

Over the next few years a succession of captains took their turns aboard the *Rouse Simmons*. Seth Lee was replaced by Captain W.C. Rothwell at Chicago on 28 June 1873, but one month later Lee resumed command at Muskegon on 14 July. The two traded the command several more times over the next three seasons, reverting to Rothwell in Muskegon on 23 September 1873, to Lee on 6 October 1873, to Rothwell on 6 April 1875, and again back to Lee on 19 June 1875. This pattern was broken on 14 August 1875 when the twenty-six year old British-born Captain Alex Cleghorn stepped aboard the *Rouse Simmons* for the first time at Chicago.

Under Captain Cleghorn's command the *Rouse Simmons* experienced her first accident. On 20 October 1875 the *Rouse Simmons* was being towed down the Milwaukee River by the tug *Dexter*. The propeller *Commodore* had run aground in the river, and the *Dexter* was attempting to maneuver around the stranded steamer with the *Rouse Simmons* in tow. The tug lost control of the *Rouse Simmons* and she collided with propeller *Scotia*, breaking the *Rouse Simmons*' jib boom. The *Scotia* received the worst damage, losing her chainplates, weatherboard, and part of the rail near the pilothouse (*The Buffalo Express* 1875). Despite the incident, the *Rouse Simmons* was repaired and Captain Cleghorn continued to sail her until 27 November 1875 when Captain Jno A. Reid took command (Bureau of Navigation 1873).

In April 1876, a change in vessel ownership occurred that mirrored a shift in the lumber firm's corporate holdings. Charles Hackley's share in ownership was reduced to three-eighths and James McGordon of Muskegon replaced Joseph Hackley with the purchase of a three-eighths share while Porter Hackley retained his one-quarter share (Bureau of Navigation 1876). With the addition of James McGordon as a partner in the Hackley family business, the Hackley and Sons company was renamed C.H. Hackley and Company and a new enrollment was entered at Grand Haven on 13 April 1876 (Bureau of Navigation 1876; Harms 1989). Captain William Miller was assigned as the *Rouse Simmons*' new master and served for an undetermined amount of time before he was replaced by Captain E.G. Kohner. Kohner commanded the *Rouse Simmons* until 8 September 1880 when he was relieved by Captain Chas Eggert at Manitowoc, Wisconsin. Captain Eggert sailed the *Rouse Simmons* until the middle of the following season, when Charles Hackley was entered as the vessel's new master at Manitowoc on 18 June 1881 (Bureau of Navigation 1876).

C.H. Hackley and Company underwent a change in ownership again in 1881, and the *Rouse Simmons* ownership changed as well. Charles Hackley regained a one-half share and Porter Hackley retained his one-quarter share. Muskegon lumberman Thomas Hume bought out James McGordon to gain a one-quarter share interest in the vessel. A new enrollment was entered at Grand Haven and Charles Hackley retained his position as master and Muskegon, Michigan, remained the vessel's home port (Bureau of Navigation 1881). Thomas Hume had worked as a bookkeeper for the Hackleys, and with his purchase a new company was formed: the Hackley and Hume Company. The successful Hackley and Hume Company soon became one of the largest firms in the United States, and over its thirteen years of operation the business produced a yearly average of 30 million board feet of lumber in addition to 8 million pieces of lath (Harms 1989).

On 18 June 1881 Captain Kohner resumed his role as the *Rouse Simmons*' master at Muskegon, a position he would retain for the next several years. On 22 June 1883, the *Rouse Simmons* was again readmeasured and assigned a new net tonnage of 195.00 after a deduction of 10.26 tons under the new rules. On 14 April 1886 Charles Hackley bought out his brother Porter to take possession of a three-quarter share of the *Rouse Simmons*. Thomas Hume retained his one-quarter share, and Charles Hackley was again listed as master until 18 July 1886, when the forty-one year old Captain William Frazee took command at Chicago (Bureau of Navigation 1881).

The next decade was rather uneventful for the *Rouse Simmons* with only on occasional mention in historic newspapers. On 4 July 1890, the *Rouse Simmons* was outbound from Chicago when she lost her jib boom and forward running gear in a storm and had to return to Chicago (*Oswego Daily Times* 1890). She again made the newspapers on 28 September 1895 when she and four other lumber schooners, the *Apprentice Boy*, *Stafford*, *L. B. Shepard*, and *Maggie Dall*, were wind bound in Sturgeon Bay from 19-23 September while enroute to Chicago. On the afternoon of 23 September, the tug *Crosby* took all five schooners in tow and sailed to Manitowoc, where the lumber schooners *Butcher Boy*, *Clara*, and *S. A. Wood* were added to the tow line. The tow was then handed over to the tug *Welcome*, who the towed the long line of eight schooners all the way to Chicago (*Door County Advocate* 1895).

Captain John Leonard of Chicago relieved Captain Frazee of command on 19 May 1898 in Muskegon, Michigan. A few days later, on 23 May 1898, John Leonard completed the purchase of the vessel and became the *Rouse Simmons*' sole owner and master. He changed the vessel's home port to Chicago, and customs duties were collected by the *Rouse Simmons'* former master, Seth Lee, who was now working as the Deputy Collector of Customs for the Port of Muskegon (Bureau of Navigation 1886; 1898). Captain Leonard's first two seasons aboard the *Rouse Simmons* were largely unremarkable. She was mentioned in the *Door County Advocate* (1899a) on 20 June 1899 when she was towed into Sturgeon Bay from Lake Michigan by the tug *Rich R. Endress* and was left at anchor at the mouth of the bay. Captain Leonard's luck ran out in late November 1899 when he struck a bridge in the Chicago River and lost the jib boom and foremast (*Door County Advocate* 1899b).

Much of the 1900 shipping season passed before the *Rouse Simmons* again made the *Door County Advocate*. The first was rather benign and simply stated the tug *Nelson* towed the *Rouse Simmons*, loaded with lumber, out to the lake on 3 September 1900 (*Door County Advocate* 1900a). The second mention was more serious, however, and reported that the *Rouse Simmons*, again loaded with lumber, had collided with the Dearborn Street Bridge in Chicago, this time carrying away her bowsprit and jib boom (*Door County Advocate* 1900b). Early the following season, the tug *Nelson* again towed the *Rouse Simmons*, along with the *Julia B. Merrill*, into Sturgeon Bay from Green Bay, landing the two at the merchant's dock on 23 May 1901 (*Door County Advocate* 1901).

Captain John Leonard continued as the *Rouse Simmons*' sole owner and master until 20 May 1904 when Mannus J. Bonner, proprietor of the Beaver Hotel in St. James, Michigan, purchased the *Rouse Simmons* in equal shares with lumberman Gus Kitzinger of Manistee, Michigan. The vessel's home port was changed to St. James, and a new enrollment was entered at Grand Haven on 20 May 1904 with Mannus Bonner entered as master (Bureau of Navigation 1904; Collar 2008). Earlier that year, Bonner became associated with the newly chartered Beaver Island Lumber Company, and the *Rouse Simmons* was purchased haul lumber for the business. The forty-five year old Bonner had been commanding ships since the age of twenty when he succeeded his father as master of the schooner *Sophia Bonner* in 1879. Between 1893 and his purchase of the *Rouse Simmons* in 1904, Bonner had jointly owned and sailed several ships with his younger brother Captain John W. Bonner. Mannus Bonner sailed the *Rouse Simmons* until 8 July 1904 when his brother John W. Bonner took over command at Milwaukee (Bureau of Navigation 1904; Collar 2008). John and Mannus Bonner both took turns sailing the *Rouse Simmons* throughout 1904 until Mannus finished out the season after taking command on 9 November 1904 at Milwaukee, and continued at the helm of the *Rouse Simmons* into the 1905 season until he was relieved by Captain Olaf Christenson at Milwaukee on 15 July. Captain Christenson sailed the *Rouse Simmons* throughout the summer until Mannus Bonner again took command to finish out the season on 9 October 1905. Soon after his return, on 19 October, Captain Bonner had the most hazardous experience of his lake career while underway from Beaver Island to Milwaukee with a load of slab wood. In a fierce storm fifteen miles off Two Rivers Point the *Rouse Simmons*' deck load was washed overboard and she was dismasted. Only the mainmast remained standing, but without any stays the mast threatened to come down, potentially holing the ship and endangering the crew. Captain Bonner ordered the mainmast cut down and the remaining deck load jettisoned. Without any means of propulsion the vessel drifted in storm and by two o'clock that afternoon had drifted clear across Lake Michigan to Little Point Au Sable. The crew fought for twelve hours to keep the vessel afloat and had nearly given up hope when they sighted the car ferry *Grand Haven* and managed to attract her attention with torches at two o'clock the following morning. The *Grand Haven* took the *Rouse Simmons* in tow and arrived at Milwaukee at 11:00 A.M. on 21 October. Captain Bonner estimated the loss at $3,000 (*Milwaukee Sentinel* 1905).

Captain Ed Carlsen took command of the *Rouse Simmons* the following season on 6 July 1906 at Milwaukee (Bureau of Navigation 1904). Under his command, the *Rouse Simmons* was departing Milwaukee harbor on 24 September 1906 when she ran into the south end of the breakwater and stove in several planks on her starboard bow. Towed back into Milwaukee by a tug, the vessel was put into drydock for repairs (*Door County Advocate* 1906a). Captain Carlsen continued as master after her release from drydock until 12 October 1906 when Mannus Bonner resumed command in Milwaukee (Bureau of Navigation 1904). Captain Bonner finished out the rest of the 1906 shipping season and made his last trip in early December during a snow storm that caused him to seek shelter in the Sturgeon Bay Canal on 6 December 1906. The storm quickly abated, and he continued southward on the morning of 7 December (*Door County Advocate* 1906b).

Captain Mannus Bonner began the 1907 season aboard the *Rouse Simmons*, but Captain Carlsen returned on 9 August 1907 at Milwaukee. Captain Carlson didn't have much luck aboard the *Rouse Simmons* and again ran into trouble as he entered Beaver Island harbor on the night of 7 October 1907. The schooner *Minnie Mueller* was lying at anchor within the harbor as the *Rouse Simmons* entered. Captain Carlson mistook the *Minnie Mueller*'s lights for those on shore, and the *Rouse Simmons* sailed under full headway directly into the *Minnie Mueller*. The *Rouse Simmons* sustained little damage, but damages to the *Mueller* were estimated at $300. Upon his return to Milwaukee, Captain Carlson was relieved of command by Captain August Larson of Sheboygan on 22 October 1907 (Bureau of Navigation 1904; *Door County Advocate* 1907).

The following month Captain Larson bought out half of Mannus Bonner's interest in the *Rouse Simmons* on 19 November 1907. Gus Kitzinger retained his half share, and Captains Bonner and Larson now owned one-quarter share each. Captain Larson continued to sail as the vessel's master through the following year, relinquishing his command on 27 November 1908 to Mannus Bonner at Charlevoix, Michigan. Captain Bonner shared command with Captain Carl Hansen over the next several years, with Captain Bonner sailing the *Rouse Simmons* between 24 July 1909 and 28 June 1910, and again from 27 July 1910 onward (Bureau of Navigation 1907).

The *Rouse Simmons* began the 1908 season in late April, and the *Door County Advocate* (1908a) reported that she passed through Sturgeon Bay on 1 May 2007 on her first trip of the season. She made several trips through Door County that year, and on 19 October 1908 the *Rouse Simmons* and *C. H. Hackley* took shelter at Baileys Harbor while southbound with lumber (*Door County Advocate* 1908b). On 3 December 1908 the *Rouse Simmons* was again sheltering in Door County, this time at Sturgeon Bay as she waited out a southwesterly gale during a trip from Beaver Island to Sheboygan with a load of tan bark and slabs. Captain Larson expressed that this would be the last trip of the season and the *Rouse Simmons* would lie up for the winter in Sheboygan (*Door County Advocate* 1908c).

The 1909 season was a quiet one for the *Rouse Simmons*, as she only made the newspapers once that year, although for an unusual incident. The schooner's cook, Torwald Bygorgy, had leapt overboard on 19 September "during a fit of mental aberration" while sailing 15 miles northwest of Frankfort, Michigan. The crew was unable to rescue him and his body was never recovered (*Door County Advocate* 1909).

On 15 September 1910, Captain Larsen sold out his share of the *Rouse Simmons* to Herman Schuenemann and Martin Matheson of Chicago, who each purchased a one-eighth share of the vessel. Mannes Bonner retained his one-quarter share and Gus Kitzinger retained his one-half share, and a new enrollment was entered at Grand Haven. The vessel's home port remained at St. James, and Mannes Bonner once again took command (Bureau of Navigation 1910). Soon after the purchase, the *Rouse Simmons* had her second fatality, barely a year after her cook jumped overboard. Prior to the northbound trip from Chicago to Manistique for a load of Christmas trees, John J. Olson, a forty-eight year old sailor, had signed aboard at Chicago. Suffering from rheumatism of the heart, he had complained of discomfort for most of the trip northward before he died on 5 October 1910 while underway. The *Rouse Simmons* made a brief stop at the Sturgeon Bay Life-Saving Station where his body was taken off the vessel before it continued northward (*Door County Advocate* 1910a). Arriving at Manistique, the crew spent two months cutting and loading evergreen trees for the Chicago holiday market. Sailing in late November, the *Rouse Simmons* arrived at Chicago around 1 December and moored at the Clark Street Bridge. The arrival of Schuenemann's Christmas ship was reported as far north as Sturgeon Bay, and it was said that all Captain Schuenemann's "friends trust that good results may be realized from the venture" (*Door County Advocate* 1910b).

The following April Martin Matheson sold his one-eighth share of the *Rouse Simmons* to Charles C. Nelson of Chicago. All other shares remained the same, and a new enrollment was entered at Grand Haven on 18 April 1911 with Mannes Bonner entered as the managing owner and Captain Charles Nelson as the vessel's new master (Bureau of Navigation 1911). Little of the 1911 season was mentioned in the newspapers, and it wasn't until the fall's annual trip north to load evergreen trees that the *Rouse Simmons* first appeared. While underway to Thompson, Michigan, the vessel stopped at Sturgeon Bay to have her bottom recaulked. While in port, Captain Schuenemann spoke of the trip northward, stating "we left port during Tuesday [3

October] with the storm signals flying, but as the wind was favorable we headed down the lake. When off Two Rivers Point it hauled into the northwest as we sought shelter on the south side, where we remained until Thursday [5 October] afternoon, when we decided to run for the canal, which we reached all right [sic] although we were pretty close-hauled”. The *Rouse Simmons* entered the dry dock on 7 October 1911 and was released that same evening. Under the command of Captain Charles Nelson, with Captain Schuenemann aboard, the *Rouse Simmons* resumed her trip northward the following morning (*Door County Advocate* 1911a; 1911b).

At the beginning of the 1912, season Mannes Bonner bought out Gus Kitzinger’s share of the *Rouse Simmons*. Bonner now owned a three-quarter share of the vessel in addition to being the managing owner. Herman Schuenemann and Charles Nelson both retained their one-eighth shares, Charles Nelson remained as the vessel’s master, and her home port remained at St. James, Michigan. Much of the 1912 shipping season was quiet for the *Rouse Simmons*, and she largely absent from the newspapers. That fall she spent several weeks in Thompson, Michigan, loading evergreen trees for her annual trip to Chicago, and she got underway from Thompson on 22 November 1912. It wasn’t until she failed to arrive at Chicago that she made the newspapers that season. Several months passed without a trace of the *Rouse Simmons* or her crew. Her final enrollment was surrendered on 28 March 1913 at Grand Haven, with the *Rouse Simmons* listed as “Foundered in Lake Michigan, possibly off Two Rivers, Wisconsin about Nov. 23, 1912. Total Loss” (Bureau of Navigation 1913).

CHAPTER FOUR
DESCRIPTION OF FIELD RESEARCH AND FINDINGS

The *Rouse Simmons* project was designed as a Phase II archaeological survey of a shipwreck lying six miles northeast of Rawley Point in Manitowoc County, Wisconsin, at 44º 16.640’ N, 087º 24.863’ W (Figure 2). Phase II archaeological surveys document a site as it lies without excavation or artifact removal. Diagnostic artifacts that may indicate the site’s age or identification are measured, sketched, photographed, and left in place. Phase II nondisturbance surveys have very little site impact, and are relatively inexpensive compared to Phase III excavations. The *Rouse Simmons* site was selected for survey for the information it could provide on Great Lakes double centerboard schooners and the Lake Michigan lumber trade, as well as provide archaeological documentation of what is arguably Lake Michigan’s most celebrated shipwreck for nomination to the National Register of Historic Places.

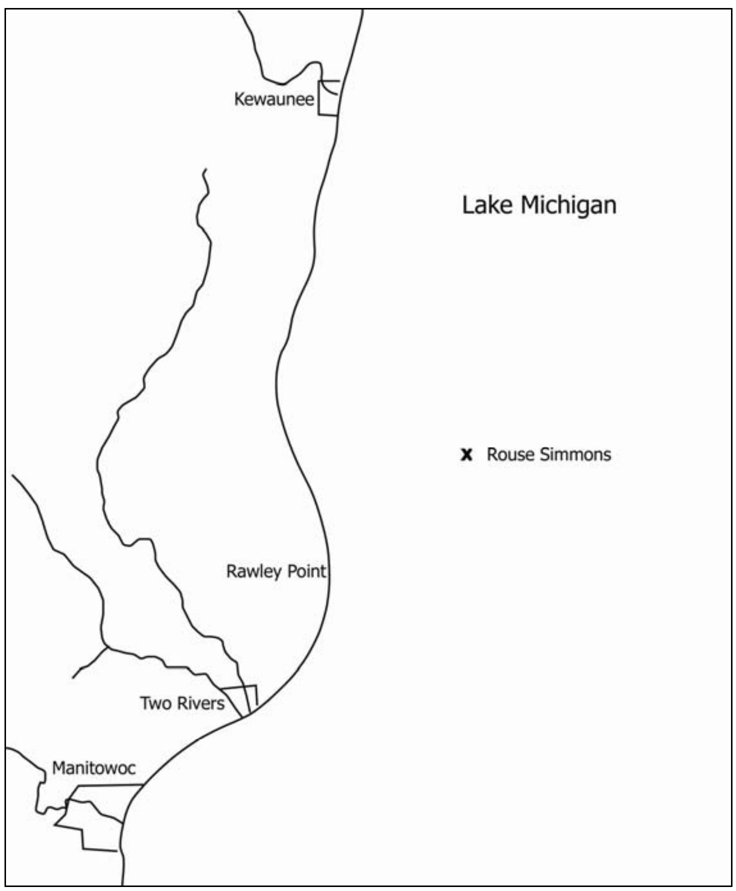


Figure 2. Location of the *Rouse Simmons* wreck site.

The *Rouse Simmons* lies in 165 feet of water with year-round bottom temperatures ranging from 32 to 44 degrees Fahrenheit. Underwater visibility ranges from as little as 30 to more than 100 feet. Survey divers utilized both Open-Circuit (OC) scuba and Closed-Circuit Rebreathers (CCR), and all divers used a trimix breathing gas while working on the bottom. All OC divers breathed a trimix bottom gas comprised of 23% oxygen, 36% helium, and 41% nitrogen with two decompression gases of 50% oxygen and 100% oxygen. All CCR divers used a trimix diluent comprised of 18% oxygen, 36% helium, and 46% nitrogen with a maximum bottom set point of 1.2 ppO2, increased to 1.3 ppO2 during decompression. Two OC bailout gases were carried by each CCR diver - a trimix comprised of 23% oxygen, 36% helium, and 41% nitrogen (same as the OC bottom gas) and a nitrox decompression gas of 70% oxygen. One dive was conducted per day with a maximum bottom time of 45 minutes with an additional decompression time of approximately 45 minutes.

On 6 June 2006, WHS archaeologists and volunteers video-recorded the site to gather digital images used in constructing a photo mosaic of the wreck site. Digital video was recorded with a Sony 3 CCD Megapixel Handycam MiniDV recorder in a Light & Motion Bluefin underwater housing. The video camera was attached to the front of a Silent Submersion UV-26 Diver Propulsion Vehicle (DPV) (Figure 3). With the DPV in a horizontal position the video camera was aimed directly at the bottom. A bubble level mounted on the camera housing aided the diver piloting the DPV in keeping the camera at right angles to the bottom at all times. In this manner, the DPV and video camera were “flown” in lanes over the *Rouse Simmons* site approximately 25 feet above the lake bottom while continuously recording video. Lanes were close enough to allow several feet of overlapping video footage that ensured the entire wreck site was recorded without gaps.

Figure 3. Capturing digital video for the *Rouse Simmons* photo mosaic with DPV.

After the entire wreck site was video-recorded, 242 successive, overlapping digital still images were captured from the video. The overlapping images were then hand-assembled in Adobe Photoshop 7.0 and printed in a scale of one inch equals four feet (1 inch = 4 feet) (Figures 4 and 5).

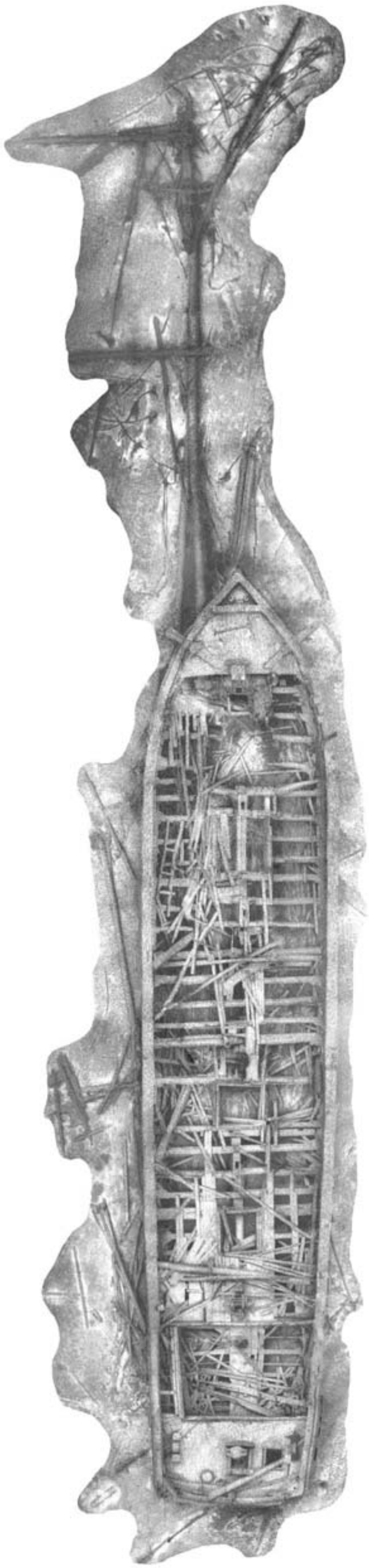


Figure 4. *Rouse Simmons* plan view photo mosaic.

Figure 5. *Rouse Simmons* profile view photo mosaic.

Photo mosaics are a powerful graphic tool for interpreting deep water sites, but several problems are encountered when using a digital photo mosaic in lieu of a measured, hand-sketched site plan. Scale errors can be introduced into the mosaic by variations in site relief that result in changing lens-to-wreck distances, and parallax errors can be introduced around the lens' periphery. Additionally, when hand-assembling a mosaic from a large number of images, the person assembling the mosaic automatically adds his or her own bias into the production, essentially creating an interpretation of how he or she thinks the site should appear. In extreme cases, entire hull sections or features may be excluded (Labadie 2005). These errors must be corrected if the goal is to produce an accurate, scaled site plan from a photo mosaic. This involves cross-checking hull structures and site components of the mosaic against the actual site for accuracy and correcting any errors that are discovered. In the case of the *Rouse Simmons*, several wreck features were missing or blurred in the mosaic that required additional on-site documentation.

To correct the *Rouse Simmons'* photo mosaic, the printed mosaic was overlaid with graph paper and traced with pencil atop a lighted table. This produced a preliminary site plan with gross site features visible. Project divers were then assigned sections of the site plan which were then traced onto waterproof Mylar film. Attached to a waterproof slate, the Mylar film allowed divers to take an exact copy of their assigned site plan section with them to the wreck site. Divers were instructed to compare the section of the site plan with wreck site features to identify and correct any errors within their assigned sections. They were additionally tasked with recording measurements and construction details within their assigned section. This process focused diver effort on specific data-gathering tasks and eliminated time spent hand-sketching gross wreck features while on the bottom. All measurements were recorded in tenths of a foot. The Phase II survey allowed archaeologists to identify and record in plan view the overall underwater site while recording hull structure detail for archaeological interpretation (Figure 6).

The *Rouse Simmons* survey was designed to answer several questions as part of an overall research design. The primary objective was to document double centerboard lumber schooner construction. A second objective was to determine why and how the *Rouse Simmons* sank. A third objective was to document the wreck site to the level necessary to nominate it to the National Register of Historic Places.

The *Rouse Simmons* lies on the lakebed on a heading of 330 degrees and is remarkably intact after sailing 44 years on the Great Lakes with an additional 94 years lying submerged on the Lake Michigan bottom. Despite being subjected to heavy salvage by recreational divers since its discovery in 1971, the *Rouse Simmons* site retains a wealth of information regarding double centerboard schooners specifically and nineteenth-century Great Lakes sailing vessels in general. Additionally, the site retains important clues about what happened during the *Rouse Simmons*' final moments.

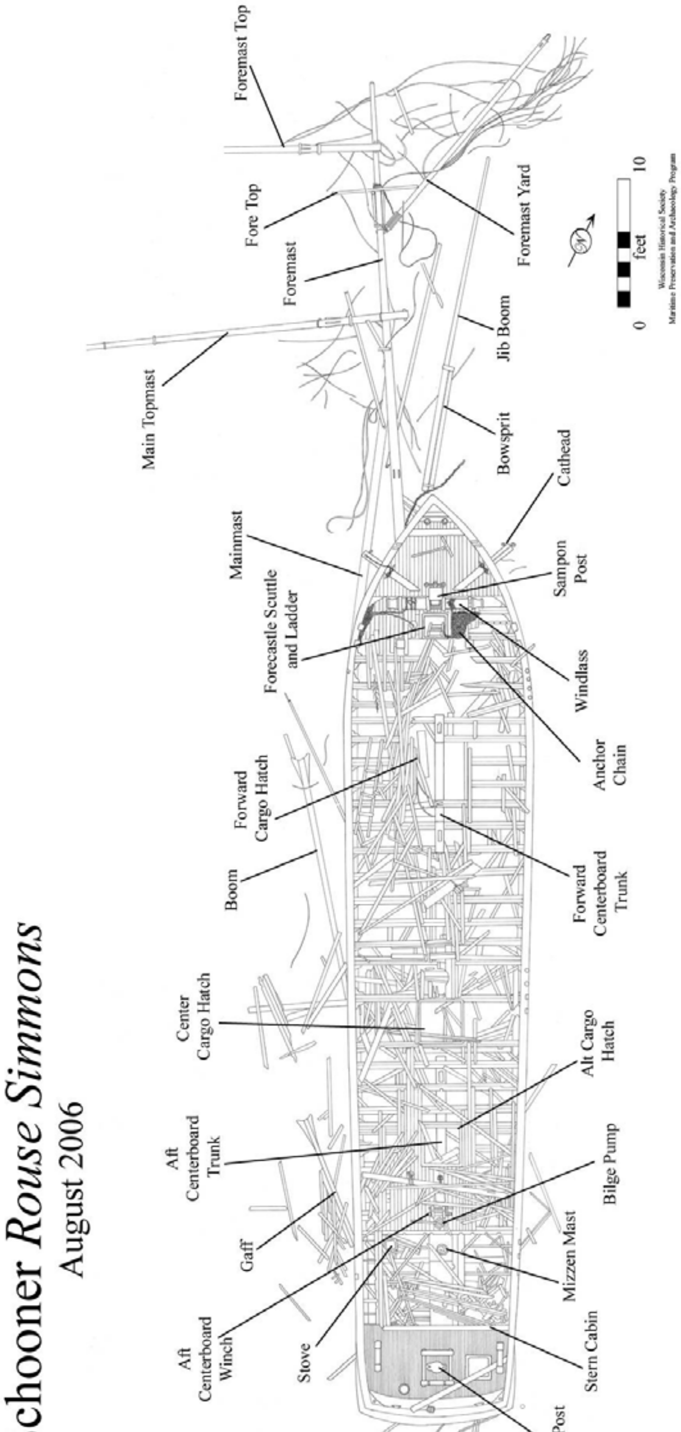


Figure 6. *Rouse Simmons* site plan.

The *Rouse Simmons* lies on a mostly even keel, embedded in the lakebed to nearly her light load line with her weather deck resting at a depth of 153 feet. Most of the *Rouse Simmons*' hull is covered by zebra or quagga mussels that have colonized the wreck to a depth of approximately one inch. Few areas of the hull have not been colonized by the invasive mussels. The stern cabin is not extant and much of the deck planking had been dislodged, but nearly all other hull structures and rigging are either intact or present. The *Rouse Simmons*' cargo of evergreen trees remains in her hold and rises to within a few feet of the deck beams. All but the uppermost trees are buried by a dense layer of silt. The uppermost trees have lost all their needles, but trees more deeply buried in the silt still retain their needles. The wooden hull is largely devoid of paint with the exception of small patches in areas that have not yet been colonized by invasive mussels. On either side of the stem, small patches of green paint are visible with smaller traces of blue paint on top of the green, indicating the formerly green hull was repainted blue at some point before her loss. Following several survey dives, two divers discovered traces of bright yellow paint on their dive gear without a reason for its presence. While no containers of yellow paint were recorded during the survey dives, the divers who discovered paint on their gear were working beneath the deck near the forecastle.

The *Rouse Simmons*' intact condition presented several challenges for a Phase II archaeological survey aimed at documenting nineteenth-century ship construction techniques. There were obvious obstacles to examining inner construction details such as framing, and the *Rouse Simmons*' intact cargo precluded access to the ceiling and keelson assembly without significant excavation and subsequent site destruction. Despite these challenges, the *Rouse Simmons* survey yielded much information regarding nineteenth-century ship construction, Great Lakes schooner rigging, and methods of handling ground tackle.

The *Rouse Simmons*' overall hull length is 131.8 feet, measured from the peak of the main rail at the bow to the aft edge the main rail centered on the transom. The vessel's beam, measured at the mainmast, is 26.8 feet. The hull lists slightly to starboard, but the degree of list varies along the hull and results in a slightly warped and twisted appearance. At the forecastle the hull lists 4 degrees to starboard and increases to 5 degrees at the forward centerboard trunk. The aft centerboard trunk has a reduced starboard list at 2.5 degrees. The stern cabin's forward bulkhead lists 1 degree to starboard, but the aft bulkhead lists 1 degree to port.

The keelson is inaccessible without excavation, but the keel's extreme forward end is visible from a large depression several feet deep that surrounds the *Rouse Simmons*' bow and leaves the vessel's forefoot unsupported (Figure 7). The forward 2.0 feet of keel is exposed, revealing a sided dimension of .5 feet. The gripe was broken away with the vessel's impact with the bottom and is not extant, but the iron bolts that fastened the gripe to the stem remain. The gripe was 3 feet in length and was butt-scarphed to the false stem, reinforced with an iron strap that wrapped around the face of the gripe and fastened to both the false stem and keel. The reinforcing strap remains attached to the keel, but was pulled free of the false stem when the gripe was carried away and now hangs downward from the keel. The false stem is .9 feet molded and .5 feet sided, and continues upward from the gripe to the stem head, which was carried away with the bowsprit. The stem is intact behind the false stem and is 10.7 feet in length and .5 feet sided. The molded dimension could not be determined due to the intact outer hull planks. Draft markings are visible on both sides of the stem, consisting of carved roman numerals that are painted white to contrast with the blue hull. Two trailboards remain affixed to the port side.

Figure 7. Bow with missing gripe. Iron reinforcing band, encrusted with mussels, is visible hanging below the bobstay plate. Large patches of blue and green hull paint are visible on the stem and outer hull planks.

The bowsprit severed at the top of the stem and the hounding (from the stem forward) now lies on the lakebed forward of the hull (Figure 8). The hounding is 18.2 feet long and fitted with an iron cap, but the martingale is not extant. The jib boom remains attached to the top of the hounding and is 48 feet in length. The jib boom's heel is cut into a tenon and is fitted into a mortised block fastened to the top of the hounding. The bowsprit's housing (the section between the samson post and the stem) remains fitted beneath the forecastle deck, mortised into the samson post and penetrating the hull between the stem and rail. The housing is 7.0 feet in length from the samson post to the inside of the stem and measures 1.2 feet square.

The bowsprit carried chain inner and outer bobstays. The inner bobstay plate is extant above the missing forefoot with the bobstay chain still attached (Figure 7). The outer bobstay plate was carried away with the forefoot and only its fasteners remain. The martingale backstays were also chain, and according to historic images, attached to the outer hull just below and forward of either cathead with a double sheave block. Neither martingale backstay is extant, but the starboard double sheave block remains stropped to an iron eye fastened to the hull. On the port side only the iron eye is extant.

Figure 8. The bowsprit hounding and jib boom lies on the lakebed at the *Rouse Simmons*' bow. A chain bowsprit guy remains attached to the starboard bow. The eye for the inner bobstay is visible beneath the bowsprit guy. Note the large depression in the lakebed around the bow.

The port and starboard bowsprit guys were also chain and fastened to iron eyes on either side of the bow immediately below and slightly aft of the martingale backstays. Unlike the martingale backstays, the bowsprit guys were fastened directly to an iron eye without a block. Both the port and starboard side bowsprit guys are extant. The port guy is attached to the hull only, and hangs down into the lakebed. The starboard guy is intact and remains attached to both the hull and the bowsprit (Figure 8).

The *Rouse Simmons* carried wire rope inner and outer jib stays. The stays attached to iron eyes on either side of the stem, just below the rail. According to historic images, the inner jib-stay was attached to the port side of the hull, but is no longer extant. The outer jib-stay remains attached to the starboard side and hangs down to the lakebed. Examination of historic images reveal at least one jib boom guy that attached to the forward surface of the cathead. These guys are no longer extant on the hull, but the port cathead retains two small deadeyes on its forward surface; one is anchored directly to the cathead and the other mounted on the end of a .4 foot iron strap fastened inboard of the other deadeye. The starboard cathead retains one deadeye fastened at the end of a .4 foot iron strap, with visual evidence of a second deadeye that was either carried away during the wrecking event or removed by divers. There are also two .5 foot diameter deadeyes attached to the bitter end of each cathead.

The forestays were anchored at the forepeak by two hearts attached to the top the forecastle deck. The hearts are .6 feet in diameter with a .3 foot hole that is offset to the lower side of the heart. The hearts are fastened to an athwartship timber that is constructed of four planks .7 feet wide and rises .2 feet above the forecastle deck. Aft of the hearts is a pin rack that runs between the rails and measures 6.2 feet in length and .7 feet in width, with two iron pins extant in the rack (Figure 9). Two open chocks are fastened to the top of the rail on either side of the bow 1 foot aft of the pin rack. The chocks are cast iron and .2 feet wide by .2 feet tall and .5 feet long.

Figure 9. Forecastle deck with pin rack, catheads, samson post, and cross head visible.

Both port and starboard catheads extend 3.0 feet outboard from the bulwarks and measure 1.0 foot square. The catheads pass beneath the rail to extend 4.9 feet from the inside of the bulwarks, and both taper towards the foot to reduce their profile on top of the forecastle deck. The catheads are fastened to the top of the forecastle deck with two iron drift bolts. The drift bolts are fastened to wooden clamps beneath the forecastle deck beams that are .7 feet wide by .4 feet thick. An iron belaying pin passes through each cathead just inside the bulwark. The belaying pins are at a slight angle to the cathead, rather than perpendicular. On the starboard side, the forward end of the pin is .5 feet from the bulwark while the aft end is only .4 feet. The port side is the opposite, with the forward end of the pin .6 feet from the bulwark while the aft end is .8 feet. Both port and starboard belaying pins have a small diameter chain figure-eighted around them. The chain on the port side cathead runs from the belaying pin to the end of the cathead where it terminates, but the starboard chain does not run off from the belaying pin. A small channel .3 feet wide is cut lengthwise into the top of each cathead beneath the run of chain.

The forecastle deck is intact between the stem and samson post (Figure 10A). The top of the forecastle deck is 3.0 feet above the weather deck and supported by four athwartship beams. The aft-most beam, immediately above the windlass, is the largest of the forecastle deck beams at .5 feet square. This beam is braced to the bulwarks on either side with a small knee that measures .4 feet thick, 3.2 feet from toe to toe, 2.4 feet along the forecastle deck, 3.0 feet along the bulwarks, and 1.0 foot at the throat. Forward of the aft beam, the next beam measures .4 feet sided by .2 feet molded, with a berth of 3.5 feet between the two beams. The two forward-most beams could not be measured, but are square and slightly smaller in dimension than the aft two beams.

One of the windlass hand levers lies on the forecastle deck forward of the samson post. The lever is 4.3 feet long and has a round shank .2 feet in diameter. The iron handle is 2.6 feet wide and .2 feet in diameter. A small kedge anchor is stowed on the weather deck beneath the forecastle deck with the crown near the port bulwark and the eye beneath the bowsprit (Figure 10B). The anchor flukes are 1.1 feet in length and .6 feet wide at the widest point. The shank is 4.0 feet in length with a circumference of .8 feet. The stock is not visible and is either missing or folded along the shank, but could not be determined due to the very limited working space beneath the forecastle deck. A large iron hook, fastened to an 8.0 foot length of wire rope with a small spliced eye on the opposite end, lies next to the port bulwark beneath the forecastle deck. This hook was likely used to handle the anchors between the deck and waterline.

The samson post rises 2.2 feet above the forecastle deck and is 1.4 feet square. The crosshead for the pump-brake windlass is fastened to the front of the samson post and is 2.4 feet long. Two purchase rods pass from the crosshead through holes in the forecastle deck to the windlass purchase arms, which are .4 feet in width. The windlass' overall length is 11.2 feet (Figure 11). The pawl rim is 1.3 feet wide, and the wooden pawl is 1.2 feet long, .7 feet wide, and .2 feet thick. There is no chafing gear where the pawl contacts the pawl rim, but a U-shaped iron rod is affixed to the top of the pawl immediately above the windlass. This iron rod is .2 feet in diameter and fastened .1 foot from the pawl's edge, and appears to be a simple deadweight to hold the pawl in place while operating the windlass. The windlass whelps are embedded iron and are each 2.9 feet long. The windlass' circumference around the whelps is 5.0 feet. The carrick bitts are .5 feet sided by 1.1 feet molded, located 2.7 feet inboard from the bulwarks. The gypsy heads on either end of the windlass are 1.3 feet long and 1.3 feet in diameter at their ends. A .2 foot-wide iron reinforcing band is fastened around the end of each gypsy head.

Examination of the windlass revealed that the crew was preparing to set the port anchor prior to the vessel sinking. The turns of the anchor chain around the starboard side of the windlass have been loosened and tied to allow the windlass to revolve without working the starboard anchor chain (Figure 12). The strongback to which the chain was tied is no longer extant, but the anchor chain has rusted into place and portions of the natural fiber line that tied the chain to the strongback remain attached to the anchor chain. The gap between the raised links and the windlass drum is large enough to allow a diver to pass his hand between them.

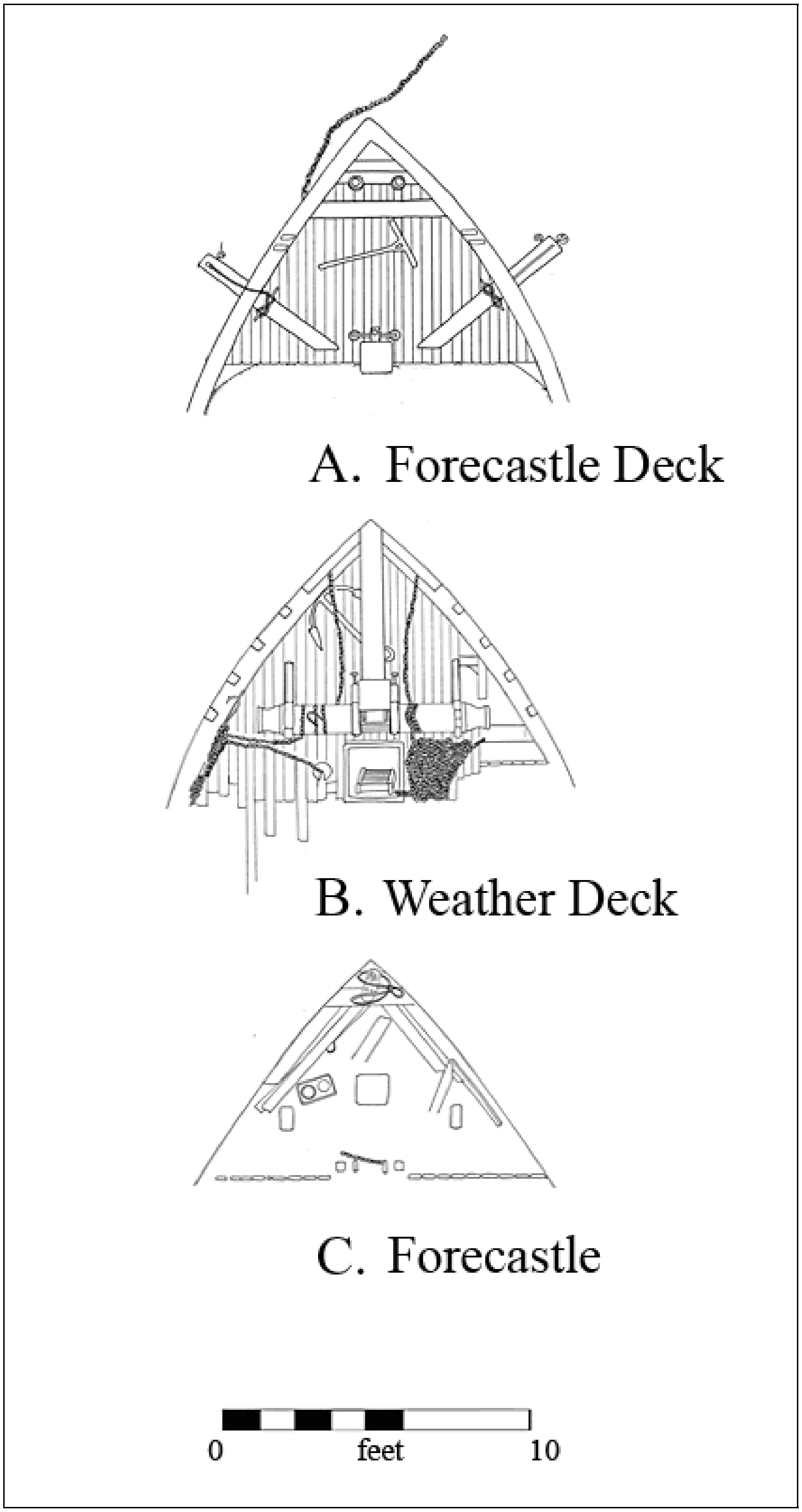


Figure 10. Plan view of deck levels at the bow.

Figure 11. View of the windlass from the port side. Note starboard anchor chain piled on deck below diver.

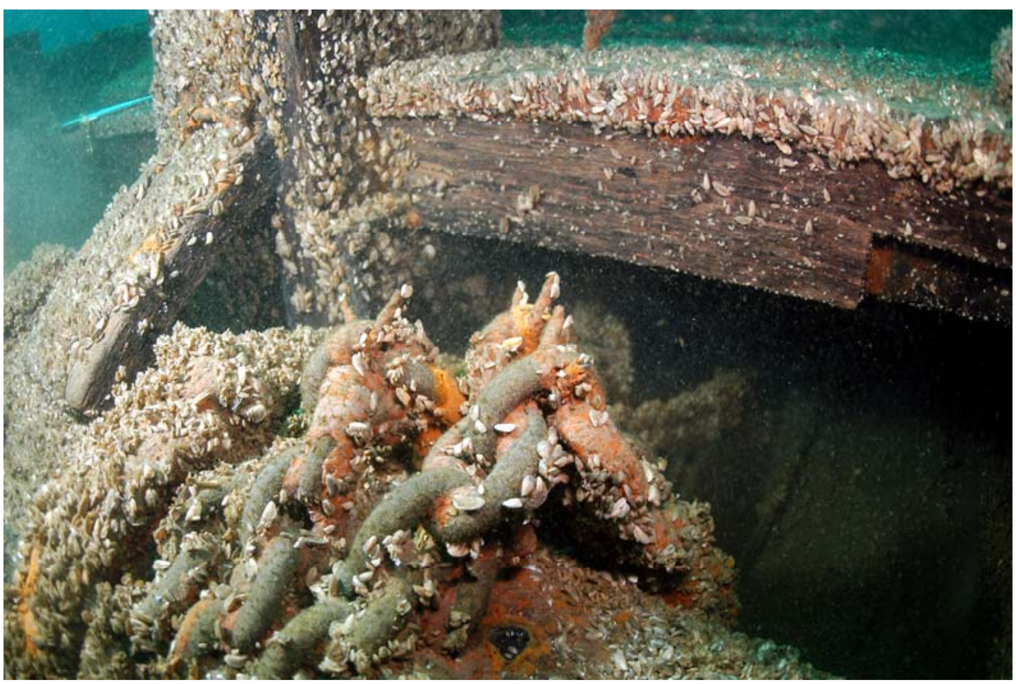


Figure 12. Starboard side of windlass with turns of the anchor chain loosened and tied to allow the windlass to revolve without working the starboard anchor chain. Note the remnants of line protruding from the upper chain links.

Figure 13. Port side of windlass with norman pin. Note notch in forecastle deck beam. An identical notch is also cut into the beam on the starboard side (see Figure 12).

The windlass' port side has a norman pin, or a large iron staple, embedded in the windlass around the middle turn of the anchor chain (Figure 13). The norman pin, an early form of chain stopper, was driven into the windlass once the anchor was set to lock down the chain and prevent it from running out under strain (Wilson 1928). The aftmost beam of the forecastle deck is notched; apparently to allow for clearance of the norman pin should the windlass revolve with the norman pin in place.

The anchor chain is standard link without studs; each link is .5 feet long and 5/8 inches in circumference. Nearly all of chain on both the port and starboard sides has been heaved from the chain locker and lies in two large piles on the weather deck. The port anchor chain runs from the windlass to a large pile of chain along the port bulwark beneath the mooring bitts and then continues to the port deck pipe and into the chain locker. The port deck pipe is covered with an iron plate 1.0 foot in diameter that is slotted to slide around a chain link. The starboard anchor chain runs from the windlass to a large pile of chain immediately aft of the windlass drum. This pile of chain rests directly over the starboard deck pipe, and some of the chain spills down into the forecastle scuttle. Due to the large amount of silt within the hull it could not be determined how much chain remained in the lockers. It appears that some shifting of the anchor chains occurred on deck during the sinking, as the starboard anchor chain is piled directly on top of the deck pipe, which would have prevented the chain from being hauled from the locker.

Both the port and starboard anchor chains run forward from the windlass through the hawse pipes. The iron hawse pipes have an inside diameter of .6 feet surrounded by a .2 foot iron ring that protected the outer hull planks from abrasion.

Both hawse pipes are located 2.0 feet aft of the stem and penetrate the bulwark between the weather and forecastle decks. The starboard anchor chain terminates 10.0 feet from the hawse pipe. The bitter end hangs just above the lakebed, having been cut from the starboard anchor when the anchor was salvaged by recreational divers in 1972. The port side anchor chain extends from the hawse pipe, is draped over the top of the bowsprit, and disappears into the sand 21.5 feet from the port hawse pipe.

A pair of bitts is located on either side of the hull 4.6 feet aft of the forecastle deck. Each bitt is .8 feet sided and .6 feet molded with a berth of 1.4 feet between the bitts. The bitts extend 1.1 feet above and 3.0 feet below the rail. They do not penetrate the deck, but taper to a rounded foot. The corners of each bitt were not beveled or rounded, exhibiting little wear for the vessel’s age.

The forecastle scuttle is located on the vessel’s centerline aft of the windlass. The scuttle opening is 3.4 feet wide and 3.0 feet long. The scuttle is surrounded by a combing 1.3 feet high and .3 feet wide. An inclined ladder extends below the weather deck (Figure 14). The ladder is 2.0 feet wide with stringers that measure .3 feet square. Each tread measures .6 feet in depth. Wooden deck pipes extend below the weather deck on either side of the ladder to guide the anchor chains into the lockers. Each pipe is 1.4 feet square, and their robust nature suggests they may have provided some structural support for the weather deck.

Figure 14. Forecastle ladder, looking aft from the forecastle. Some of the starboard anchor chain spills down the scuttle. The vertical timber on the right is the deck pipe leading to the chain locker.

Figure 15. Port side bulkhead and door between the forecastle and cargo hold, looking aft.

A wooden bulkhead separated the forecastle from the cargo hold. Constructed of vertical planks .2 feet thick and .7 feet wide, 3.0 feet of the bulkhead is visible between the weather deck and the sediment at the bottom of the forecastle. Nine bulkhead planks are extant to starboard of the forecastle ladder. To port of the ladder, 4 planks are extant between the ladder and a door frame that is .2 feet wide. The frame houses a small door constructed of three vertical planks that are 1.8 feet wide and 3.0 feet tall (Figure 15). There is a gap between the door and the weather deck, and it could not be determined how the door was hinged and fastened. One additional bulkhead plank is extant between the door and the port side hull. The forecastle bulkhead is not continuous from port to starboard, but terminates on either side of the forecastle scuttle. Much of the area abaft of the forecastle scuttle is heavily damaged, making it difficult to determine how the bulkhead was constructed in this area.

The forecastle is a jumble of debris covered by a deep layer of fine silt (Figure 10C). There is a distance of 6.3 feet between the stem and the samson post, and only 4.0 feet of clearance between the silt and the weather deck. An unidentified piece of wire rigging lies in the forepeak that consists of a served wire eye wrapped around a cylindrical timber. This artifact lies on a small wooden shelf constructed of 3 of athwartship planks that are .7 feet wide by .2 feet thick. On either side of the forecastle are several dislodged planks that vary in width from .7 feet to 1.0 foot and are several feet in length, perhaps the remains of crew bunks or shelves for the boson’s gear. A two burner wood cook stove lies on the port side floor (Figure 16). Both burners are .6 feet in diameter, and the outboard burner has a ring to hold pots on the burner plate during heavy seas; the inner burner does not. The stove is 2.0 feet long, 1.2 feet wide, and 1.0 foot in height. A leather shoe lies forward of the stove, and an unidentified article of clothing lies along the starboard hull that consists of black cloth with visible sewn seams. A second shoe lies on the weather deck between the forecastle scuttle and the starboard anchor chain. No items in the forecastle were disturbed or moved, including the crews' clothing, so it could not be determined if any human remains were present.

Two bitts are located aft of the forecastle scuttle. The bitts are 1.0 foot square and extend 3.7 feet above the weather deck. The starboard bitt has an iron norman pin that penetrates the bitt 1.0 foot below the top. The norman pin runs fore and aft and extends .7 feet on either side. The port side bitt's norman pin is not extant.

According to historic images, the port and starboard running lights were fastened atop wooden stands on either bulwark forward of the foremast chain plates. The running lights and stands are not extant, but their mounts remain intact. The light stands were stepped into a notch in the weather deck and secured to the bulwarks with an iron hasp dogged with a wooden fid.

Figure 16. Wood cook stove in forecastle.

The bulwarks are 3.0 feet tall from the covering board to the underside of the rail and are supported by stanchions that measure .4 feet sided by .45 feet molded. Spacing between the bulwark stanchions varies between 1.4 and 2.6 feet. The rail is 1.0 foot wide by .3 feet thick. The inner bulwark is covered by a single plank immediately below the rail that is .9 feet wide and .2 feet thick. The outer bulwark has an identical plank fastened directly beneath the rail with four smaller planks fastened below it that each measure .5 feet wide by .15 feet thick. There is a gap of .15 feet between the lowest bulwark plank and the covering board to serve as a freeing port that extends from the foremast chainplates to the stern cabin. The covering board is 1.2 feet wide and .25 feet thick. There is one remnant of a waterway on the starboard side amidships that is .3 feet wide by .2 feet thick. Both the port and starboard bulwarks are missing several planks in various locations around the hull. Bulwark construction varies somewhat beneath the forecastle deck. Four bulwark stanchions are located on either side between the foredecks, each stanchion .4 feet square with a berth of 1.8 feet between stanchions. A breast hook, 1.1 feet wide, is flush with weather deck.

Three sets of lumber ports are located in both the port and starboard bulwarks (Figure 17). The port dimensions are 2.9 feet long by 1.0 foot high, and are located on either side of the vessel at distances of 41.5 feet, 57.7 feet, and 79.7 feet from the stem, measured along the vessel's centerline at each port's forward edge. The port covers are not extant, but were fastened with two triangular hinges that opened outboard and toward the bow. Each hinge is 1.1 feet in length from hinge to tip, with one fastened above the other.

Figure 17. Forwardmost lumber port on the port side with two extant hinges. The freeing port is visible along the bottom of the bulwark, as well as the two thicknesses of bulwark planks.

The outer hull planks are remarkably intact throughout the vessel and vary in width from .5 to .8 feet. A few slightly sprung planks are visible near the bow, possibly a result of the vessel's impact with the bottom. A few hull planks are missing at both the port and starboard quarters above the waterline. Planks in this area are .2 feet thick. The quarter planks appear to have been dislodged outward – possibly from escaping air pressure as the vessel sank. The missing quarter planks expose several double timbered frames (the only visible frames on the hull) that are .4 feet molded and .8 feet sided, with a space of 1.0 foot.

Deck planks are .45 feet wide and .2 feet thick. Nearly all of the decking has been dislodged and is scattered around the hull. The deck beams are largely intact with the exception of two areas. To port of the forward centerboard trunk the beams are fractured at the trunk and have fallen into the hold, but remain attached to the port side deck shelf. Forward of the forward centerboard trunk, many of the deck beams were carried away with the foremast. Beam dimensions are .6 feet sided and .9 feet molded with a berth of 2.3 feet between beams. The deck is cambered .55 feet along its entire width, measured forward of the mainmast. Deck beams run over the top of both centerboard trunks and are fastened to the top of the trunks. A double deck beam is located immediately forward of the mainmast. The additional beam is .5 feet square and is fastened to the forward side of the main beam. Each deck beam has a longitudinal salt channel carved into the top that is .2 feet wide and .1 foot deep. The deck dimensions are somewhat smaller at the bow. The weather deck planks beneath the forecastle deck are .4 feet wide and .2 feet thick. The deck beams supporting the weather deck forward of the windlass are .4 feet square.

The deck beams are saddled onto a deck shelf that runs the length of either side. The deck shelf is used in lieu of hanging knees, which were not used in the vessel's construction. The deck shelf is .9 feet molded and .4 feet sided. Lodging and bosom knees are used, and measure 2.3 feet on the body, 1.4 feet on the arm, 2.6 feet from toe to toe, .9 feet at the throat, and .4 feet sided. The knees extend beneath the covering board. Most deck beams are reinforced with only a single lodging knee whose orientation varies with its location on the hull. All knees located forward of the double beams at the foremast are fastened on the aft side of the deck beam. Aft of the double beam this orientation is reversed and the knees in the after part of the vessel face forward. Areas requiring additional strength, such as outboard of the mainmast, have both fore and aft knees that are lapped on top of one another with docked toes that abut the adjacent beam.

There are three cargo hatches centered on the weather deck. The forward cargo hatch is located directly above the forward centerboard trunk. Its forward head ledge is located 34.0 feet from the bow and the aft head ledge located 41.6 feet from the bow; the hatch opening is 7.6 feet in length. The hatch is largely broken up, and the starboard coaming lists 1 degree aft while the port coaming lists 3 degrees forward. The center cargo hatch is more intact but somewhat twisted. The hatch's forward head ledge is located 69.0 feet from the bow. The aft head ledge is located 76.0 feet from the bow, creating a hatch opening of 7.0 feet in length and 6.6 feet wide. The center cargo hatch is twisted in the hull with the starboard coaming listing 1 degree aft and the port side listing 3 degrees forward. The aft cargo hatch is also obstructed by the aft centerboard trunk, and its forward head ledge is located 89.0 feet from the bow with the after head ledge 94.8 feet from the bow. The hatch opening is 5.8 feet long by 6.6 feet inches wide, making the aft cargo hatch considerably shorter than the forward two hatches.

The hatch coamings are .2 feet wide and rise .8 feet above the deck. The coamings are topped with a ½ inch thick wooden batten that runs the entire circumference of the cargo hatch. This batten was likely chaffing gear that could be easily replaced when worn from sliding lumber into the cargo holds. The center and aft cargo hatches exhibit signs of repair, as the two hatches are framed in two different manners and have different lap joints at the corners.

The *Rouse Simmons*' two centerboard trunks are 1.4 feet wide and each is capped with two longitudinal planks. The forward trunk rises 3.4 feet above the cargo at its forward end, and 4.2 feet above the cargo at the rear. Seven longitudinal planks are visible above the cargo; each is 1.3 feet wide and .4 feet thick. The forward trunk begins 29.3 feet from the bow and is 19.0 feet long, terminating 48.3 feet from the bow. The forward trunk lists 5 degrees to starboard and 2 degrees aft. The centerboard is visible within the trunk at both the forward and aft ends. The forward end of the centerboard is 3.5 feet below the top of the trunk. The aft end of the centerboard is 2.2 feet below the top of the trunk, indicating the centerboard is in a fully retracted position. The chain for raising and lowering the centerboard is not extant, and a winch for raising the centerboard was not located. A small diameter chain lies in the hold to port of the trunk, but the gauge of the chain appears too light to have been used to raise and lower the centerboard.

The aft centerboard trunk rises 3.2 feet above the cargo and lists 2.5 degrees to starboard. The aft trunk's planking is tightly joined, making it difficult to distinguish individual planks. The forward edge of the aft trunk begins 78.0 feet from the bow and is 19.2 feet in length. The aft centerboard winch is extant but is not located directly over the trunk; instead, the winch is located 5.3 feet aft of the trunk. The centerboard chain exits the trunk, runs over a pulley directly above the trunk at deck level and then runs aft along the deck, through the center of a bitt, and then to the centerboard winch (Figure 18). The aft centerboard is visible at the forward end of the trunk but is not visible at the aft end. The aft end of the trunk is filled with silt to 4.0 feet below the top of the trunk. The centerboard chain disappears into the silt, indicating the aft centerboard is at least partially deployed. Several turns of chain are visible around the centerboard winch drum, indicating the aft centerboard is not fully deployed.

The bitt through which the centerboard chain passes protrudes from the deck immediately forward of the centerboard winch and was possibly used to anchor the main sheet. An iron eye is fastened to the front of the bitt and has a short length of chain attached. A single-acting bilge pump is located on the vessel's centerline 1.3 feet aft of the centerboard winch. A curved pump handle is attached to the pump and extends to the port side.

A broken boom lies in two pieces on the aft deck. The boom's aft section lays athwartship between the aft centerboard pulley and centerboard winch (Figure 18) and has a diameter of 1.0 foot at the break and .95 feet at the end. The fragment is 21.5 feet in length with a double sheave sheet block attached to an iron band and bale 6.9 feet from the end. The boom's forward section lies farther forward on the port side of the center cargo hatch. The forward section is 9.0 feet long from the break to where the jaws begin. Total length could not be measured as the forward end lies below the deck amidst a large pile of debris. Its diameter is 1.0 foot at the break.

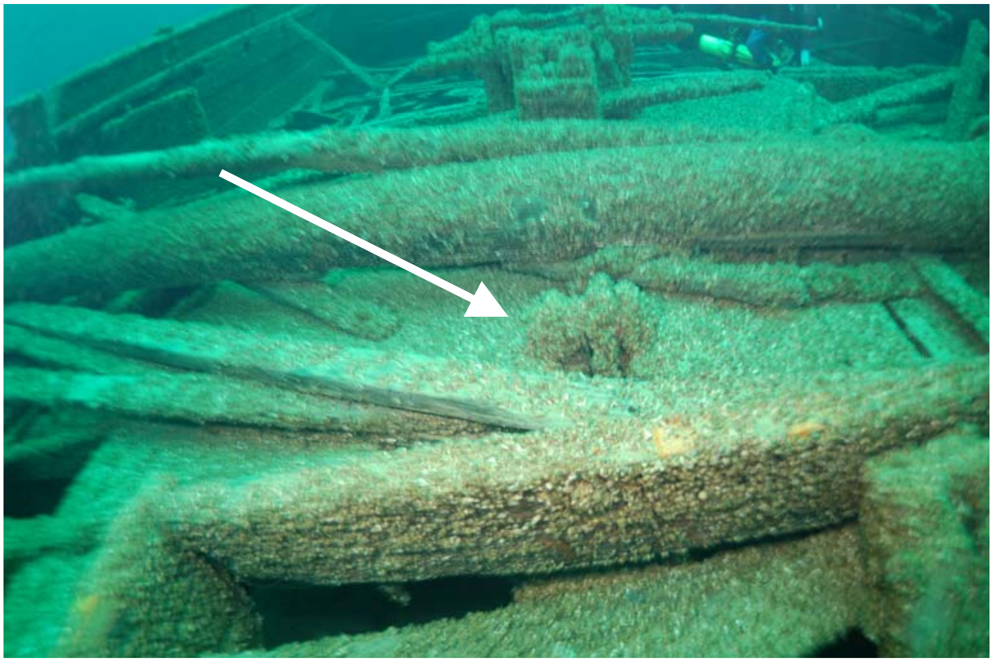


Figure 18. Pulley for aft centerboard chain (denoted by arrow). Note distance to centerboard winch farther aft on deck. Aft cargo hatch is visible at bottom of photo.

The stern cabin is missing, but its former location is discernable between the bilge pump and the after deck (Figure 19). The cabin's dimensions are 15.7 feet long by 18.5 feet wide, and it is offset to the starboard side. The cabin's starboard bulkhead abutted the starboard rail, allowing a 2.8 feet wide passageway between the cabin's port bulkhead and the port rail. The cabin's forward bulkhead separated the weather deck and after deck levels; the after deck is 1.9 feet higher than the weather deck. The cabin floor is 1.5 feet below the weather deck. The cabin's forward head ledge is scored at irregularly spaced intervals to receive strongbacks or frames that are no longer extant. The scores are .3 feet wide, .2 feet deep, and .2 feet tall. The cabin floor's planking averages .5 feet in width, but varies between .4 feet .55 feet. The cabin's floor is supported by athwartship beams that are .7 feet molded and vary in sided dimensions between .3 feet and .9 feet. There is a berth of 1.9 feet between each beam. The cabin's forward bulkhead is located 105.3 feet from the bow and the cabin's aft bulkhead is 121.0 feet from the bow. The ship's stove was located at the cabin's forward port corner, but has fallen through the floor and now lies in the lower hold under a heavy encrustation of zebra mussels (Figure 20). The stove is 2.0 feet wide and 2.6 feet long. The cabin's entrance was 2.0 feet wide and was located at the port quarter. A head ledge .8 feet in height kept water from entering the cabin through the companionway. To starboard of the companionway, the head ledge rises to 1.2 feet above the after deck. The mizzenmast penetrated the cabin roof, and is located 2.8 feet from the cabin's forward bulkhead. A through-hull fitting penetrates the hull beneath the cabin's starboard quarter, most likely for a water closet (Figure 18). The through-hull pipe is .4 feet in diameter and is located 7.8 feet forward of the transom and 9.5 feet from the starboard rail.

Figure 19. The cabin’s former location is visible near the stern. The mizzenmast broke above the cabin roof, and the base of the mast remains in the hull. The bilge pump, centerboard winch, and boom are visible forward of the cabin.

Figure 20. The stove has fallen through the cabin floor at the cabin’s forward port corner.

Figure 21. Through-hull fitting beneath the cabin’s starboard quarter. Blue hull paint is visible on much of the planking.

The after deck is fully intact, covered with planks .5 feet in width. A hatchway to the lazarette is located at the starboard quarter. The hatch’s outside dimensions are 2.2 feet long by 2.7 feet wide. The hatch coaming is .2 feet wide and rises .5 feet above the deck. An iron boat davit lies on the starboard after deck. A spar 13.0 feet in length, lies across the after deck but possesses no distinguishing features. The spar runs from the starboard quarter bitts, over the lazarette hatch, and behind the rudder post. The spar’s diameter is .74 feet on the port side and .55 feet on the starboard. A pair of mooring bitts is located on either side of the quarter deck. The stern rail is .6 feet wide, and an iron open chock is fastened atop the rail at the starboard quarter. The port side chock is not extant and was most likely removed by divers.

The wheel box is located 3.5 feet from the cabin’s aft bulkhead, and the rudder stock is located 126.2 feet from the bow, measured to the stock’s center (Figure 22). Listing 4 degrees to port, the stock is topped with an iron cap with sockets on either side to accept the ball sockets of the patent steering gear. The wheel box is raked aft and consists of four strong timbers. Two longitudinal timbers are attached to the deck on either side of the rudder stock. These timbers are 3.7 feet long, .4 feet thick, 1.4 feet tall, and are spaced 3.0 feet apart. Two athwartship timbers are saddled onto the lower longitudinals. The upper timbers are 3.1 feet long, .5 feet thick, 1.4 feet tall, and are radiused on each end. The patent steering gear was mounted atop the athwartship timbers. The top of the forward athwartship timber appears to have been broken away, but two iron braces remain attached to the aft athwartship timber. It appears that the rudder was driven upward when the hull settled into the bottom, as the rudder head is now .7 feet above the top of the wheel box. The wheel was formerly located at the front of the wheel box with the binnacle mounted within the cabin’s aft bulkhead.

Figure 22. Wheel box and rudder stock. The lazarette hatch is visible between the rudder and the starboard bitts.

At amidships the transom is 7.8 feet tall, and is partially dislodged on the port side (Figure 23). The transom is planked with 13 horizontal planks that are each .35 feet wide, with the exception of the three lowest planks, which are .8 feet wide. Two circular dead lights penetrated the transom to provide light for the lazarette and pantry. Both deadlights have been removed by divers, and the remaining openings are both .75 feet in diameter. They are located 3.0 feet above the bottom of the transom and 6.6 feet from either quarter.

Figure 23. The transom is intact, but dislodged at the port quarter.

The rudder is intact and dead amid, with 6.3 feet of the rudder blade exposed between the hull and lakebed. The rudder stock is .9 feet sided where it joins the rudder blade, and its forward surface is radiused to rotate within the sternpost. Three visible timbers make up the rudder blade, and all are .9 feet sided. The first timber aft of the rudder stock is .8 feet molded, the next is .9 feet molded, and the farthest aft timber is .8 feet molded. An iron eye for the preventer chains is located on the rudder blade's aft surface 3.4 feet below the transom. The eye is .3 feet in diameter with a .1 foot hole. The port preventer chain is attached to the eye but has separated from the hull. The starboard preventer chain is not extant. A depression surrounds the vessel's stern, reaching a maximum depth of 160 feet.

Rigging

The *Rouse Simmons* carried three masts that were all fore-and-aft rigged. The foremast carried a yard that held a square fore course below and a triangular raffee topsail above. The foremast was stepped between the forecastle scuttle and the forward centerboard trunk and was violently dislodged during the sinking, carrying away many of the surrounding deck beams as well as the foremast partners. The foremast step could not be located without significant excavation, which was outside the scope of this survey, and prevented a precise determination of the foremast location within the hull. The foremast chainplates on the port side are all wrenched astern, indicating the foremast initially fell towards the stern before coming to rest on the lake bed off the bow.

The mainmast was stepped 65.8 feet from the bow and was also dislodged during the sinking, although in a much less violent manner than the foremast. It appears that the mainmast fractured above deck level and initially fell astern before coming to rest off the port bow beneath the foremast. The base of the foremast has not been located, but the mainmast partners remain intact on deck.

The mizzenmast was stepped through the stern cabin and broke just above the cabin roof. The base of the mizzenmast remains stepped in the hull and is located 109.2 feet from the bow. The extant portion of the mizzenmast is 1.5 feet in diameter and rises 8.3 feet above the cabin floor. The upper portion of the mizzenmast was not located, and was reportedly removed from the site by divers in the 1970s (Suzette Lopez 2008, pers. comm.).

The *Rouse Simmons* was wire rigged with deadeyes and lanyards, and the chainplates for all three masts are largely extant. The foremast was supported by four shrouds on either side of the hull, fastened to iron chainplates .25 feet in width and 4.8 feet in length. A wooden chain whale, .38 feet in height, is fastened over top of the chainplates beneath the sheer strake as well as on the outboard edge of the rail. The first foremast chainplate is located 24.0 feet from the bow, measured on the vessel's centerline. The following three chainplates are irregularly spaced at 2.1, 2.3, and 1.9 feet on center from bow to stern. The deadeyes are .65 feet in diameter and .35 feet thick and are hinged at the top of the chainplate; the hinge is flush with the top of the rail. A .5 foot diameter deadeye is fastened to the rail between the first and second chainplates, and there are small iron eyes fastened to the rail between the third and fourth chainplates, as well as astern of the fourth chainplate. On the port side, the forward three chainplates are pulled toward the stern and the chain whales are not extant.

The mainmast was also supported by four shrouds on either side. The forwardmost chainplate is located 64.8 feet from the bow, measured on the vessel's centerline. The forward two chainplates are both .25 feet wide, but the aft two chainplates are slightly smaller at .23 feet. The spacing between the first and second chainplates is 1.9 feet, 1.95 feet between the second and third chainplates, and 2.04 feet between the third and fourth chainplates. The main chainplates are 4.55 in length, and the chain whales are .4 feet in height and .2 feet wide. The deadeyes are .5 feet in diameter and .32 feet thick. As with the foremast, a smaller diameter deadeye is fastened to the rail between the first and second chainplates, and iron eyes are fastened to the rail between each of the remaining chainplates, as well as astern of the aftmost chainplate. Also like the foremast, the mainmast's port chainplates are less intact than starboard. The two forward chainplates are wrenched outward and astern. While the two aft chainplates remain upright, their deadeyes are pulled outward at the hinge, and neither chain whale is extant.

The mizzenmast was supported by three shrouds on either side. The forwardmost chainplate is located 107.2 feet from the bow, measured on the centerline. The stern monkey rail begins just forward of the mizzen chainplates, but like the other masts, the mizzen chainplates terminate at the top of the main rail. The forwardmost chainplate is .25 feet wide, the middle chainplate is .22 feet wide, and the aft chainplate is .27 feet wide. Spacing between chainplates is 2.75 feet between the first and second chainplates and 2.9 feet between the second and third chainplates. The chain whale .48 feet in height, .27 feet thick, and 8.3 feet in length. The mizzen deadeyes are .55 feet in diameter and .3 feet thick. A smaller diameter deadeye is attached to the top of the monkey rail between the first and second chainplates as well as aft of the third chainplate.

The fore- and mainmast today lie on the lakebed forward of the bow, with the foremast lying on top of the mainmast. The foremast is completely intact from head to heel, and other foremast components remain attached, including the topmast, yard, and standing rigging. The foremast is 71.8 feet in length and 1.5 feet in diameter, tapering slightly at the top with a diameter of 1.4 feet at the futtock band. A tenon is cut into the heel that was fitted into the mast step. Two vertical wooden cleats are attached to the mast, with the top of the cleats at 10.8 feet above the heel.

The futtock band is located 56.8 feet above the heel and is tightly fitted around the mast. The futtock band is constructed of iron and served as an anchor point for the yard truss in addition to providing support for the cheeks (Figure 24). The yard truss is a gimbaled iron truss fastened to the front of the futtock band that held the only yard carried by the *Rouse Simmons*. The yard was 67.3 feet in length and was most often used to set the raffee sail, a triangular topsail common on the Great Lakes, but could also have been used to set a fore course. The yard truss is intact, although somewhat bent, and is supported by a chain sling. The yard is broken to starboard of the truss, and the yard's starboard half lies beneath the foremast closer to the hull. The detached starboard section is 32.0 feet in length, .67 feet in diameter at the break, and .5 feet in diameter at the arm. An iron hoop is fastened to the yard arm's bitter end that forms an elongated eye. A brace block is attached to the yard via an iron brace pendant 4.0 feet from the end of the yard arm. The port side of the yard remains attached to the truss and measures 35.3 feet in length. The yard is circular in section and is 1.0 foot in diameter where the yard truss is attached. At the center of the yard where the truss is attached are several 3-foot-long wooden battens that are attached longitudinally around the yard. On either end of the battens, the yard's diameter is reduced sharply to .67 feet. The yard tapers slightly toward the ends with a diameter of .5 feet at either yard arm. There is a single sheave mortised into the port yard arm for the outhauls, with an iron hoop that is fastened to the very end of the yard arm, as with the starboard yard arm.

Figure 24. Foremast with top, trestle trees, cheeks, futtock band, truss, sling, and yard visible.

The cheeks are fastened to either side of the mast immediately above the futtock band and support the weight of the topmast. Each cheek is 6.0 feet in length and tapers towards the heel where it abuts the futtock band. The trestle trees are fastened to either side of the mast immediately above the cheeks, and are equal in thickness to the cheeks. They are fastened in a fore and aft position and primarily served to hold the heel of the topmast in place, but also provided a platform for the tops as well as providing an anchor point for the yard truss sling. The yard truss sling is a length of chain anchored to an iron eye on the forward end of the trestle tree. The sling held the gimbaled yard truss in a level position in front of the foremast while allowing the yard truss to swing from port to starboard.

Frequently misnamed the crow's nest, the top is fastened above the trestle tree along with two hardwood bolsters and battens (Figure 25). Located 6.0 feet above the futtock band and 12.9 feet in width, the rim of the top is fastened to the trestle tree with iron bolts, and its primary purpose was to provide a platform for working the raffee and topsails. The foremast top's forward edge is swept aft to cut down on weight aloft as well as reduce the spread of the forward topmast shrouds. This allowed an increased angle at which the fore yard could be braced and reduced sail chafe on the top. No cross trees are extant, and the top is not fully decked but rather has two widely spaced planks on either side of the mast. Two hardwood bolsters are fastened directly atop the trestle tree on either side of the mast and provided a seat for the shroud eyes to prevent their cutting into the trestle trees.

Figure 25. Foremast with top, trestle trees, bolsters, and battens, viewed from above. Note shroud eyes still attached to mast.

The mast is square in section from the cheeks upward, and rises 9.0 feet from the top of the cheeks to the masthead. A tenon 1.0 foot long by .9 feet wide is cut into the top of the masthead to accept the wooden mast cap. The fore topmast was stepped forward of the foremast, but is dislodged and now lies near the masthead at a perpendicular angle to the foremast. The fore topmast in intact, but the top of the foremast is buried in the lakebed; the measureable length is 30.0 feet. The topmast is circular in section with the exception of the heel, which is squared to fit into the trestle trees. The topmast was kept from dropping through the trestle tree by a wooden fit that remains in place at the bottom of the topmast (Figure 26). The heel of the topmast is .9 feet by 1.1 feet in dimension. The wooden foremast cap is intact on the topmast and is located 8.5 feet from the bottom of the topmast (Figure 27). The mastcap is .25 feet thick and is mortised 1.0 foot by .9 feet to fit the tenon at the fore masthead. A topsail saddle is located above the mast cap. The topsail saddle is constructed from four wooden chocks affixed around the topmast that begin at 9.9 feet above the heel. An iron band is tightly fitted over the top of the chocks and is located 11.2 feet above the heel. At 22.0 feet above the heel, the topmast’s diameter is .9 feet.

Figure 26. The base of the fore topmast with intact fid. The mast cap visible at the top of the image, which fit onto the tenon at the masthead beneath the topmast.

Figure 27. The foremast cap is intact on the fore topmast. The topsail saddle is visible above the mast cap. Topmast shrouds are visible beneath the topmast.

The mainmast lies beneath the foremast, parallel to it and somewhat closer to the hull. The base of the mainmast is broken off, and the break in the mainmast lies beneath the port cathead in a dense tangle of commercial fishing net and floats. The base of the broken mainmast has not been located, but the extant section of mainmast is 56.9 feet in length and 2.0 feet in diameter at the break. The main topmast, like the fore topmast, was stepped forward of the mainmast and now lies atop both the fore- and mainmast at a perpendicular angle to the main masthead. The main topmast's length is 48.0 feet from heel to head and is nearly identical to the fore topmast. The main topmast is circular in section with a diameter of 1.1 feet, except for the square heel which is .9 feet by 1.1 feet. The wooden fid is intact. The main mastcap is intact 8.0 feet above the heel and is .25 feet thick, mortised to fit the main masthead tenon, which is 1.1 feet square. The main topmast also has a topsail saddle with four vertical wooden chocks equally spaced around the topmast's circumference. The chocks begin 9.7 feet above the heel and are 1.9 feet in length. The iron hoop has become dislodged from the chocks but remains around the topmast several feet above the chocks. The topmast shrouds remain attached to the topmast 35.6 feet above the heel via an iron collar with an eye on either side of the topmast. Here the topmast is .7 feet in diameter. A second collar is attached to the topmast 43.0 feet above the heel to anchor the wire topmast stays. This collar also has eyes affixed on either side of the topmast with attached wire rope that disappears into the lake bed. At this collar the topmast is .6 feet in diameter.

An unidentified wooden spar lies beneath the main topmast, nearly parallel to the lower masts (Figure 28). This spar's identity has not been confirmed, but may be the fore staysail boom. One of the spar's ends is tapered with a hole bored through the end at the base of the taper. This spar is broken near the vessel's bow, but its extant length is 31.8 feet with a .5 foot diameter at the break and a .35 foot diameter at the tapered end.

Figure 28. Unidentified spar lies beneath the main topmast, possibly the fore staysail boom.

CHAPTER FIVE
CONCLUSIONS AND RECOMENDATIONS

Since its discovery in 1971 by Milwaukee diver Kent Bellrichard, the *Rouse Simmons* has been visited by hundreds, if not thousands, of divers. Even at a depth of 165 feet, divers travel from great distances to explore Lake Michigan's most celebrated shipwreck. Despite more than 35 years of heavy diver visitation, the 2006 WHS archaeological survey was the first systematic survey of the wreck site, and although the site has been almost completely stripped of artifacts, there was still much to be learned about the vessel and what happened during her final moments afloat.

The *Rouse Simmons* survey was designed to answer several questions as part of an overall research design. Survey objectives included documenting double centerboard lumber schooner construction, nominating the wreck site to the National Register of Historic Places, and to determine, as much as possible, why the *Rouse Simmons* may have sank. The first two objectives were successful: the *Rouse Simmons* now joins the *Boaz* and the *Lumberman* as the third double centerboard schooner documented in Wisconsin waters, and on 21 March 2007 the *Rouse Simmons* was listed on the National Register of Historic Places. The final, and most lofty, goal of determining how and why the *Rouse Simmons* sank was partially fulfilled. It will never be known exactly what sent the *Rouse Simmons* to the bottom, but the survey has given a much better understanding of what transpired during the *Rouse Simmons*' final moments, in addition to dispelling several myths that have grown around the *Rouse Simmons*' legend.

The 2006 archaeological survey did not reveal any artifacts that conclusively identified the vessel as the *Rouse Simmons*, but the vessel's identity is unquestioned. The wreck was positively identified in 1971 by Kent Bellrichard, as the name boards were intact at the time of discovery. Underwater video recorded by John Steele shows the vessel's name boards in place near the stern with the name *Rouse Simmons* clearly visible (Parcher and Heaton 1975). Other archaeological data recorded during the survey also supports the identification, including hull dimensions, construction features, and the intact cargo of evergreen trees.

The survey documented many of the *Rouse Simmons*' structural features, which are described in detail in Chapter 4. The most surprising construction feature was the complete lack of hanging knees. Unusual for wooden vessels, the lack of hanging knees was perfectly logical for a vessel designed to carry dimensioned lumber. In vessels that carried less bulky commodities such as grain or coal, the cargo could be stacked around and between the hanging knees, resulting in little wasted space in the hold. On a vessel designed to carry long lengths of dimensioned lumber, however, hanging knees would have resulted in much wasted space in the corners of the hold where lumber would have to be stacked around the knees, reducing the amount of cargo that could be carried, and thus the profitability of the vessel.

In many ways, the *Rouse Simmons* archaeological survey was a turning point for the Wisconsin Historical Society. For the first time, Wisconsin ventured into technical diving depths to document the state's more intact, and more valuable, cultural resources. Over the previous ten years, advances in technical diving have increased the accessibility of shipwrecks lying deeper than 130 feet, and today technical dives to 300 feet are conducted on a regular basis throughout the Great Lakes. It was therefore a necessary and natural progression for the State of Wisconsin to extend its operations to document the state's deeper shipwrecks. The *Rouse Simmons* survey was also a first for Wisconsin in the use of Closed Circuit Rebreather technology. Although more complex than Open Circuit scuba, the use of CCR technology allowed researchers to dive to deeper depths in a safer, more comfortable, and logistically less expensive manner, and will allow researchers to expand their studies to increasingly deeper depths in upcoming years (Stanton et al. 2007).

What happened on 23 November 1912?

Since her disappearance in 1912, countless volumes have been written on the *Rouse Simmons*. It is both unnecessary and outside the scope of this project to recreate that work here. For those readers interested in a more in-depth study of Captain Schuenemann and the *Rouse Simmons*' role as the "Christmas Tree Ship" both Neuschel (2007) and Pennington (2004) are highly recommended. However, a few noteworthy aspects of what transpired on 23 November 1912 are important to understanding the wreck site today and played an important role in shaping the research questions used in examining the wreck site. In addition to framing the fieldwork, the search of the historic record exposed several discrepancies between it and the *Rouse Simmons*' legend. As soon as the *Rouse Simmons* was overdue at Chicago wild speculations began as to her whereabouts and what may have happened. In the years since, that speculation has grown into legend, and today the *Rouse Simmons*' story is retold each year in newspapers, books, television programs, and even theatrical plays. A good story is often dependant on the teller, and the *Rouse Simmons*' story has not been exempt from an occasional embellishment from time to time.

According to the Kewaunee Life-Saving Station's logbook, the station's lookout spotted a schooner at 2:50 P.M. on Saturday, 23 November 1912 flying an ensign at half mast, an accepted distress signal. The schooner was between 5 and 6 miles east southeast of the station and running before a northwest gale. The Kewaunee station had only rowed lifeboats so Captain Craite sent a request to the government tug *Industry* to aid him in intercepting the unknown schooner, but the tug had already departed Kewaunee earlier that morning. With no other options of aiding the distressed vessel himself, Captain Craite telephoned the Two Rivers Life-Saving Station. The Two Rivers station had a gas-powered lifeboat, putting them in a much better position to render assistance as the distressed vessel passed Two Rivers Point (United States Lifesaving Service 1912a).

After receiving Captain Craite's call, the Two Rivers lifeboat was launched in an unsuccessful search for the distressed vessel. After returning the station later that night, Captain Sogge of the Two Rivers Life-Saving Station entered in his logbook (United States Lifesaving Service 1912b):

> "At 3:10 P.M. the Capt. of the Kewaunee Life Saving Station called me by telephone, stating a schooner under short sails heading south and under a good headway and about 5 miles out from his station was displaying a flag at half mast. The wind was blowing W.N.W. and fair weather for the schooner to make good along this shore and I expected the schooner would be near Two Rivers Point around 5 P.M. At 3:20

> P.M. I launched the power lifeboat and at 6:20 I was about 13 miles north of this station, but nothing to be seen of the schooner. At this time weather got very misty and started snowing heavy. I considered the schooner had changed her course and steered E. out into the lake. I turned about and came home, arrived at the station 8 P.M. I called up the Capt. of Kewaunee Station and informed him our results."

Nearly a month later, Captain Sogge recounted a more detailed description of the events of 23 November 1912 to the Sturgeon Bay Advocate. In an article printed on 26 December 1912, Captain Sogge stated (Sturgeon Bay Advocate 1912):

> "On November 23rd, at 3:10 P.M. I received a telephone message from Captain Craite, keeper of the Kewaunee station, saying that a three-masted schooner was sighted off that harbor, about five miles out, displaying signs of distress, with foresail and jib-top sail set and coming south. I immediately launched my power lifeboat and at 4:20 was rounding the Two Rivers Point six miles north from the station. I then expected to see the schooner. We could see nearly to Kewaunee, but there was nothing to be seen. I kept running north about eight miles from the point; then changed my heading out in the lake for one hour. By this time it was dark. There was nothing to be seen of the schooner, nor wreckage, nor signals. It started to snow heavy, and considering that we had been making a very thorough search for the distressed vessel, and that I had done all in my power, and all there was in my judgment to do in the case, we set our course for the station. The trip, as may well be imagined, was not a very pleasant one, but our only regrets were that we had put forth our best efforts in that direction without avail. My opinion about the schooner reported seen off Kewaunee is that the vessel was probably waterlogged, and that the crew was unable to keep the craft afloat. Being loaded with a cargo of green spruce – if this schooner was the *Rouse Simmons* – she foundered somewhere in mid-lake, as during the night of November 23rd, a northwest gale was blowing and a very high sea running."

Captain Sogge's accounts disprove a popular version the *Rouse Simmons* legend where his Life-Saving crew caught a glimpse of the distressed *Rouse Simmons* during a lull in a raging blizzard and saw the vessel's sails in tatters, her rigging broken, and large amounts of ice covering the hull and causing her to ride dangerously low in the water. The story continues in that just as quickly as they had spotted the *Rouse Simmons*, the ship disappeared in the blinding snow and was not seen again (Sander 1998; Hachten 1973). As written by Captain Sogge, the Life-Saving crew found no trace of the vessel during their search.

Combining Captain Sogge's logbook entry with his later statements, the lifeboat's approximate search pattern was recreated (Figure 29). It was presumed the Life-Saving crew took a direct route back to Two Rivers after ending their search. The recreated route, superimposed over the location of the *Rouse Simmons*' wreck site, shows that the lifeboat's search pattern completely encircled the *Rouse Simmons*. With visibility reaching nearly to Kewaunee when the search was commenced, the lifeboat crew should have seen the *Rouse Simmons* as they rounded Two Rivers Point. Even if they were unable to see the *Rouse Simmons* when the search commenced, they should have encountered her at some point during their search. Given that the lifeboat crew saw no trace of the vessel, it is likely that the *Rouse Simmons* was already on the bottom when the lifesaving crew rounded the point at 4:20 P.M., a little over an hour after her sighting by the Kewaunee Life-Saving Station.

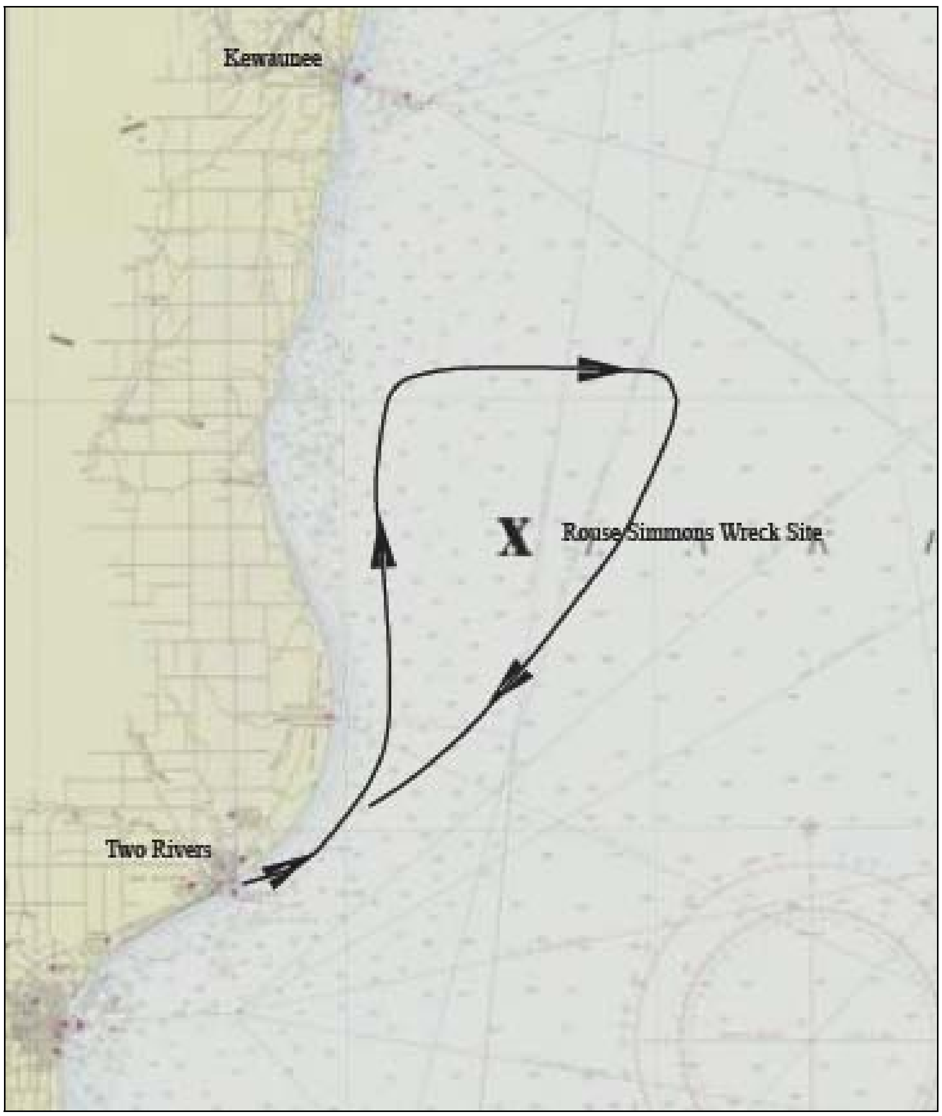


Figure 29. Recreated search pattern of the Two Rivers Life-Saving crew with the location of the *Rouse Simmons* today.

The Life-Saving logbooks contain other important information regarding why the *Rouse Simmons* may have went down, or rather disprove the popular theory that a heavy coat of ice sank the vessel. Examination of the logbooks from both the Kewaunee and Two Rivers Life-Saving Stations reveal that the temperatures did not go below freezing, nor the ferocious weekend blizzard begin, until *after* the *Rouse Simmons* had already sank (Figures 30 and 31). Sunrise on 23 November saw rain and 44 degrees Fahrenheit at Kewaunee with a light (4-7 miles per hour) northwest wind. Sunrise at Two Rivers saw cloudy skies at 38 degrees, with a moderate (13-18 miles per hour) west wind. The temperature dropped slightly throughout the day but remained above freezing. By noon that day, the temperature was 36 degrees Fahrenheit and cloudy at Kewaunee and 36 degrees and misting at Two Rivers. By sunset, the temperature had dropped to 35 with snow at Kewaunee and 32 degrees and sleeting at Two Rivers (United States Lifesaving Service 1912a; 1912b). The temperature did not hit freezing until the *Rouse Simmons* was already on the bottom. Although a blizzard had swept northern Wisconsin and the Upper Peninsula of Michigan on Friday night, the blizzard did not move into the Two Rivers area until Saturday night, 23 November, and then continued on throughout the weekend. The *Rouse Simmons* was obviously laboring under heavy seas, but she was lost well before she had to deal with freezing temperatures and reduced visibility due to snow. The Life-Saving Station logbooks are confirmed by contemporary newspapers. The *Sheboygan Press* (1912) describes "Saturday night's storm was one of the worst on Lake Michigan in three years…Captain Dionne of the life saving station, [sic] says that he never saw waves larger at the pier entrance that they were [Sunday] morning". The *Racine Daily Times* (1912) reported "Blowing at the rate of sixty miles an hour a severe gale struck Racine Saturday evening…" Many vessels came off the lake that weekend claiming it was one of the worst storms they had ever experienced, and indeed it likely was, but the *Rouse Simmons* was lost before the worst of the storm struck. Given that the *Rouse Simmons* sank sometime during the afternoon of 23 November, the temperatures were too warm to result in heavy icing. It was only after the *Rouse Simmons* sank that the temperatures dropped low enough to cause heavy icing.

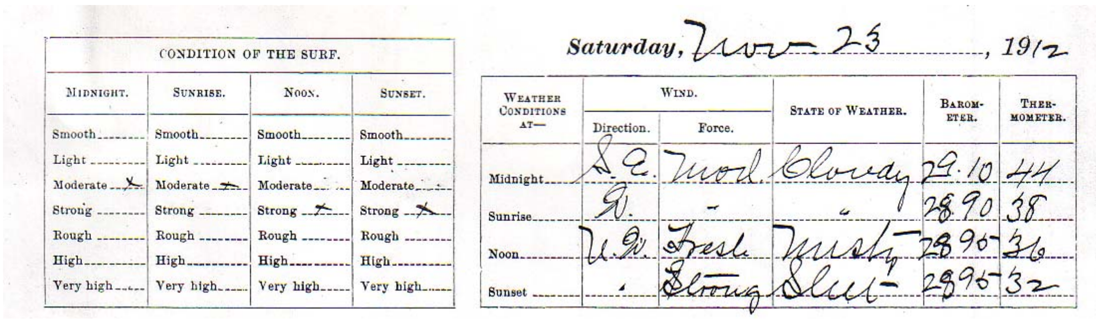
CONDITION OF THE SURF.

Midnight.	Sunrise.	Noon.	Sunset.
Smooth	Smooth	Smooth	Smooth
Light	Light	Light	Light
Moderate X	Moderate X	Moderate X	Moderate X
Strong	Strong	Strong	Strong
Rough	Rough	Rough	Rough
High	High	High	High
Very high	Very high	Very high	Very high

Saturday, Nov. 23, 1912

Weather Conditions at—	Wind. Direction.	Wind. Force.	State of Weather.	Barometer.	Thermometer.
Midnight	S E	fresh	Cloudy	28.55	46
Sunrise	N.W.	Light	Rain	28.35	44
Noon	N. W.	Gale	Cloudy	28.30	36
Sunset	N. W.	Gale	snow	28.35	35

Figure 30. Excerpt of Kewaunee Life-Saving Station logbook showing surf and weather conditions on 23 November 1912 (United States Lifesaving Service 1912a).



CONDITION OF THE SURF.			
MIDNIGHT.	SUNRISE.	NOON.	SUNSET.
Smooth	Smooth	Smooth	Smooth
Light	Light	Light	Light
Moderate X	Moderate X	Moderate	Moderate
Strong	Strong	Strong X	Strong X
Rough	Rough	Rough	Rough
High	High	High	High
Very high	Very high	Very high	Very high

Saturday, Nov 23, 1912

WEATHER CONDITIONS AT—	WIND.		STATE OF WEATHER.	BAROMETER.	THERMOMETER.
	Direction.	Force.			
Midnight	S.E.	Mod.	Cloudy	29.10	44
Sunrise	S.	"	"	28.90	38
Noon	N.W.	Fresh	Misty	28.96	36
Sunset	"	Strong	Sleet	28.96	32

Figure 31. Excerpt of Two Rivers Life-Saving Station logbook showing surf and weather conditions on 23 November 1912 (United States Lifesaving Service 1912b).

The Life-Saving Stations logbooks also give insight into how steep the seas may have been off Rawley Point on 23 November (United States Lifesaving Service 1912a; 1912b). Logbook entries for both the Kewaunee and Two Rivers stations vary somewhat, but both logbooks recorded the wind coming from the southeast during the early morning of 23 November, and then veering to the northwest and increasing throughout the afternoon. A moderate to fresh breeze (13 to 24 miles an hour) during the early morning hours would have built a sea running from the southeast, and when the wind veered 180 degrees and increased to a northwest gale (39-46 miles an hour) in the afternoon it would have created very steep seas as the gale blew against the prevailing wave pattern, pushing the waves higher than usual to create steep waves and a treacherous sea state.

It was never confirmed that the distressed vessel sighted by the Kewaunee Life-Saving Station was indeed the *Rouse Simmons*. Could it have been a vessel other than the *Rouse Simmons*? The distance by sea from Thompson, Michigan, to Kewaunee, Wisconsin, is 125 miles. If the *Rouse Simmons* departed Thompson around 4:00 P.M. on 22 November, she would have needed to average 5.4 miles an hour to reach Kewaunee by 3:00 P.M. on 23 November – making it highly likely the vessel sighted by the Kewaunee Station was indeed the *Rouse Simmons*.

The Missing Wheel

When the *Rouse Simmons* was discovered, her wheel and steering mechanism could not be located (James Brotz 2006 pers. comm.). In 1999, a commercial fishing net pulled up a ship's wheel and steering mechanism approximately one mile north of the *Rouse Simmons* - a steering mechanism typical of that used on a vessel like the *Rouse Simmons*. The wheel's cast iron rim was intact, but two handles were missing, three were bent, and the steering mechanism was turned hard to port. The wheel was restored by James Brotz of Sheboygan, Wisconsin, but the restoration did not reveal any marks that positively identified the wheel as belonging to the *Rouse Simmons*. It did have the number 1868 stamped into the wheel shaft's brass cover - the construction year of the *Rouse Simmons*. The only other schooner lost in the immediate area, the schooner *America*, was built in 1873 and her wheel was intact when the vessel was discovered, so it is likely the wheel is indeed that of the *Rouse Simmons*; but how did it end up one mile north of the wreck site?

Speculation began, and consensus arose that the discovery of the wheel, eighty seven years following the *Rouse Simmons*' loss, now explained why the vessel went to the bottom. The theory stated that a rigging failure on the mizzen mast caused the mizzen boom to sweep the after deck, striking the wheel and knocking it overboard (Pennington 2004). Helpless without steering, the *Rouse Simmons* then wallowed in the troughs for one mile before she finally succumbed to the seas. While a convenient and dramatic theory, there are a few problems. First, if the vessel sighted by both the *Ann Arbor No. 5*[1] and the Kewaunee Life-Saving Station was the *Rouse Simmons*, she did not have a mizzen sail set (Neuschel 2007:14; Sturgeon Bay Advocate 1912). If the mizzen sail was not set, the mizzen boom would have been tightly sheeted above the wheel. Sweeping the entire after deck would have been unlikely. If the mizzen sail was set and she was running south before a northwestern gale, the mizzen boom would have been set over the port quarter, and a rigging failure would have caused the mizzen boom to sweep further outboard over the port side, rather than across the vessel's centerline and into the wind. Even if the mizzen boom had struck the wheel, it would have had to have struck with enough force to move the 406-pound mass of the steering mechanism. Given that the wheel is constructed of cast iron, a blow forceful enough to knock the entire steering mechanism off the wheel box, and also carry it overboard, should have broken the cast iron wheel.

Evidence found on the lake bottom also did not support the theory. If the *Rouse Simmons* lost her steering, nothing would have prevented her rudder from flopping back and forth in the heavy seas and the rudder would be expected to lie at an angle to the keel. Upon inspection of the rudder, divers discovered it was dead amid, an unlikely position if the steering gear was lost. They also discovered the vessel's heading was northwest, into the prevailing winds at the time of her loss. If steering was lost and the vessel was drifting helplessly, it is unlikely she would have kept her bow into the wind. If for some reason she did keep her bow to the wind without steering, the winds would have pushed her astern and the water pressure against the rudder would certainly have pushed it hard over.

If the *Rouse Simmons* did not lose her wheel on the surface, how did it end up one mile north of the wreck? Soon after her loss, the *Rouse Simmons* had many encounters with commercial fishing nets. Local fisherman reported pulling up evergreen trees in their nets, and even today a large amount of netting is tangled around the site as a testament to the many fish net encounters. It is possible that the wheel was pulled from the wreck by a commercial fishing net and subsequently fell out of the net one mile to the north, only to be caught up again in 1999. This theory is supported by the fact that it appears the rudder was driven upward into the hull as it settled onto the bottom. This may have dislodged the steering mechanism from the wheel box, making it easier to pull clear of the wreck.

The Northwest Heading

Although the researchers found no support for the lost steering theory, they were baffled by wreck's northwest heading. The *Rouse Simmons*' last known heading

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[1] At 2:00 P.M. on 23 November 1912, the *Ann Arbor No. 5* sighted a schooner believed to be the *Rouse Simmons* north of Kewaunee and about five miles offshore. The schooner was flying only a staysail, a jib, and a reefed foresail. The vessel was laboring, but displayed no distress signals (Neuschel 2007:14).

was south, and a vessel adrift turns a beam to the seas, and so it was expected that the *Rouse Simmons* would be oriented somewhere between a northeast to southwest heading, but not northwest. Surprisingly, the *Rouse Simmons* is pointed almost directly back into the northwestern gale that was blowing that day. This would only be possible under two circumstances: 1) something was acting as a sea anchor to point her head into the wind, or 2) the *Rouse Simmons* was under power and in control until the moment she slipped beneath the waves.

Divers first began searching for evidence that something was acting as a sea anchor. It was most obvious to look to the anchors, but it was presumed that both anchors were salvaged, and there was no reason to expect a seasoned lake captain would have attempted to anchor in deep, open water in the middle of a gale when a good, sheltered anchorage was nearby. Both Captains Nelson and Schuenemann were familiar with the area and knew their best and closest opportunity for shelter was in the lee of Two Rivers, just a few miles to the south. Both captains had anchored in the lee of Two Rivers during the previous season while waiting out a storm, and this location also provided the added security of a Life-Saving Station within sight.

The survey team looked to the next logical possibility - the centerboards. If only the forward centerboard had been deployed, it could have created enough drag to keep her bow into the wind, but just the opposite was found. The forward centerboard is stowed and the aft centerboard is deployed. If she was adrift, the drag from the aft centerboard would have caused her bow to swing downwind, pointing her on a southeasterly heading.

The next possibility examined was that the *Rouse Simmons* was dismasted and her rigging, still fastened to the ship via the shrouds and stays, acted as a sea anchor to pull her head into the wind in addition to helping send her to the bottom by either holing the hull or dragging it to the bottom before the crew could cut it away. This theory was also not supported by the evidence. Nearly all of the *Rouse Simmons*' rigging lies in a very neat pile immediately forward of the bow. If her masts had come down on the surface and proceeded to be dragged behind the drifting vessel a much more chaotic deposition of rigging would be expected. With a heavy sea running, a floating tangle of rigging would be more widely dispersed, and if acting as a sea anchor to a drifting vessel it would more likely be deposited off the vessel's beam rather than the bow. Additionally, if the rigging were being dragged behind the drifting hull, the shrouds and stays should lead from the mastheads back towards the hull, and the mastheads should be nearest to the hull as they were being pulled along. Just the opposite was found, and all of the wire rigging extends from the mastheads to the north, in the opposite direction as the hull. Examination of the port side chainplates showed that several of the fore and main chainplates were wrenched astern, rather than forward or outboard. If dismasted while the vessel was underway, the masts would have fallen away from the wind, or towards the bow. Evidence suggests the standing rigging came down as the vessel sank bow first, toppling toward the stern as the bow descended. When the bow struck the bottom the hull was nearly vertical, and the rigging continued its descent as the hull slowly settled, coming to rest in a neat pile forward of the bow.

In further examination of the wreck site it became apparent that the *Rouse Simmons*' crew was preparing to set the port anchor. A large amount of both the port and starboard anchor chains had been heaved from the chain locker and lay on the weather deck. The starboard anchor chain had been loosened and tied to the strongback, and a norman pin was in place on the port side, ready to be driven into the windlass to lock down the chain once the anchor was set. However, no sane captain would have attempted to anchor in a gale where the *Rouse Simmons* now lies. The *Rouse Simmons* carried approximately 450 feet of chain on each anchor (Board of Lake Underwriters 1876). The port anchor chain, entirely deployed in 165 feet of water, would have given a scope of 2.7:1. In calm weather, the minimum recommended scope on an anchor chain is 4:1, in heavy weather it is increased to 10:1. Even if the crew ran out both chains fastened end to end (giving 900 feet of chain), they would still have had a scope of only 5.45:1, hardly enough to effectively hold in a gale. With a manually-operated pump brake windlass, if the crew had run out 900 feet of anchor chain it would have taken hours to retrieve it when they were ready to once again get underway. With a sheltered shoreline and much shallower water only a few miles away, it would have been suicidal to drop an anchor at their location.

Neither the port nor starboard anchors were extant on the wreck during the survey. One of the anchors was recovered in the early 1970s and is currently on display in front of the Milwaukee Yacht Club. It was assumed that the other anchor had also been salvaged, especially given the heavy amount of recreational salvage that has stripped the wreck of nearly all artifacts. It was presumed that the second anchor had been shoreside for several decades and simply needed to be tracked down by interviewing divers who dived the wreck in the 1970s. All options of the sea anchor theory had presumably been exhausted, and it seemed the only explanation left for the vessel to be facing into the wind was that she was under control and actively sailing right up until the time she sank beneath the waves. Although it was unlikely that a double centerboard schooner would sail very well close-hauled (if at all) with her forward centerboard stowed and the aft centerboard deployed, it seemed it was the only plausible explanation left. But if so, why had the captain turned the vessel to face the seas rather than continue running before them?

If the vessel was going to anchor and the crew was preparing to do so, they certainly wouldn't have anchored in the middle of the lake with the lee of Two Rivers so near. Perhaps the captain was not willing to attempt to round Rawley Point and instead wished to head straight for the nearest possible shelter? A line charted on the *Rouse Simmons*' current heading leads to the north end of the bay north of Rawley Point. The lee of Rawley Point would have been a better anchorage, but the small bay was much closer. Without knowing the location of the second anchor, this theory seemed the most plausible, if unsatisfying.

During the survey, it was documented that the anchor chain exiting the port hawse pipe was significantly longer than that exiting the starboard, but this was not surprising given that the crew was preparing to set the port anchor and would have had the chain ready to run out. It was presumed that when the port anchor was salvaged a length of chain had been pulled free of the hawse pipe during the recovery. Survey divers had not located the chain's bitter end, but the chain was deeply buried in the sand immediately forward of the bow, and as Phase II archaeological surveys preclude excavation, a search for the bitter end was not conducted. Following the archaeological survey, several inquiries were made of local divers who had dived the *Rouse Simmons* in the 1970s regarding the current location of the missing anchor, but none knew the whereabouts of a second anchor. Contemporary newspapers told the story of Kent Bellrichard's recovery of one anchor, but not two. With suspicions raised, an early underwater video captured by John Steele was located at the Wisconsin Maritime Museum. The video was taken soon after the wreck's discovery and before the hull was stripped of artifacts. Although the visibility was poor, in the video it was clearly seen that the starboard anchor lay on deck and was lashed with chain to the starboard bitts. In a brief glimpse outside of the bow, the port anchor chain was seen exiting the hawse pipe, exactly as it does today. The video confirmed suspicions, and convinced the authors that the port anchor was never recovered and was still lying on the lakebed off the bow. With 450 feet of chain on each anchor, and approximately half of the port chain piled on deck, it was hypothesized that the port anchor was lying about 200 feet north of the *Rouse Simmons*.

On 21 July 2007 Keith Meverden and Tamara Thomsen returned to the *Rouse Simmons* to search for the port anchor. Within minutes, the anchor was located 170 feet due north of the vessel's stem (Figure 32). The shank was oriented toward the *Rouse Simmons* with the eye nearest the hull, and an estimated 188 feet of chain between the hawse pipe and the anchor. It was unlikely the anchor had simply fallen overboard as the *Rouse Simmons* capsized. In order to have fallen overboard it would had to have been unlashed from the bitts, something that wouldn't have happened in the open water during a gale - a large anchor loose on deck in a heavy sea would have been hazardous to both the crew and the vessel. It's also unlikely it broke free during the wrecking event since the starboard anchor remained lashed. The port anchor is set into the bottom and was obviously holding the bow into the wind. If it had simply fallen overboard as the vessel sank it would not have been dragged along the bottom nor set so deeply into the bottom, and the *Rouse Simmons*' hull would not be on a northwest heading. The crew had deliberately deployed the port anchor before the *Rouse Simmons* sank.

Figure 32. The port anchor as it was discovered 21 July 2007.

Deploying an anchor in deep water in the open lake during a gale would only have been used as a desperate last ditch effort. Something catastrophic had to have happened. The *Rouse Simmons* was not dismasted. If dismasted and an anchor was deployed, all of the rigging would be south of the hull instead of north and the shrouds would not lead away from the hull. A loss of steering would have been catastrophic enough to warrant deploying an anchor, but the mizzen was not set, the wheel's rim is not broken, the 406-pound steering mechanism would had to have been knocked over the bulwarks, and the rudder lies dead amid. Perhaps the vessel was simply taking on so much water that the anchor was thrown overboard to steady the vessel to launch and board the yawl. If that was the case, not everyone got off the *Rouse Simmons*. Divers visiting the wreck in the 1970s reported finding the remains of at least two crew members, one in the remains of the cabin and one forward of the cabin (Richard Boyd 2007, pers. comm.). Whatever the reason, there wasn't much time between when the anchor was deployed and when the *Rouse Simmons* sank. The length of chain deployed is barely more than the water depth, and the port chain was not locked down to prevent it from running out further. The norman pin is in place, but was never driven into the windlass to lock down the chain.

Why did the *Rouse Simmons* sink?

The question remains, why did the *Rouse Simmons* sink? It will never be known for sure, but it was more likely due to an old, worn out vessel that was past her prime more than any other factors. The deck beams may hold one clue. A close examination of the deck beams revealed salt channels carved into the top of each (Figure 33). These channels were filled with salt prior to installation of the deck planks and served to pickle the deck beams to prevent rot. Impregnating the beams with salt would also have had a detrimental effect on the integrity of the iron nails that fastened the deck planks, and may have resulted in loosening of the deck during the storm. Very little of the deck is intact, unlike similar vessels in Wisconsin wrecked at similar depths. Missing deck planks may have let more water into the hull than the pumps could remove.

There may be another reason the *Rouse Simmons* is missing so many deck planks. Several contemporary newspaper accounts described the existence of a deck house that was installed by Captain Schuenemann. The archaeological survey of the hull did not discover any evidence of a deck house, and it was presumed that the newspapers had confused the deck house with that of the *George Wrenn*, a schooner used by Schuenemann prior to the *Rouse Simmons* on which he had installed a large deck house (Figure 34). It wasn't until maritime historian Ron Beaupre uncovered a rare image of the *Rouse Simmons* that was published in the Marine Review in February 1913 (Figure 35) that the existence of the *Rouse Simmons*' deck house was confirmed. In the image a crude deck house is shown between the foremast and the stern cabin. Did Captain Schuenemann consider the deck house seaworthy enough to forego installation of the hatch covers prior to packing the deck house with evergreens, or were some of the weather deck planks removed and used to construct the deck house? This would have allowed a small increase in cargo capacity but would have left the vessel extremely vulnerable to swamping. The deck house's roof was lapstrake planked,

Figure 33. Salt channels carved into the top of each deck beam.

Figure 34. The *George Wrenn*, moored outboard, was used by Captain Schuenemann prior to the *Rouse Simmons* and included a deck house forward of the cabin (Chicago Historical Society DN-0006954f).

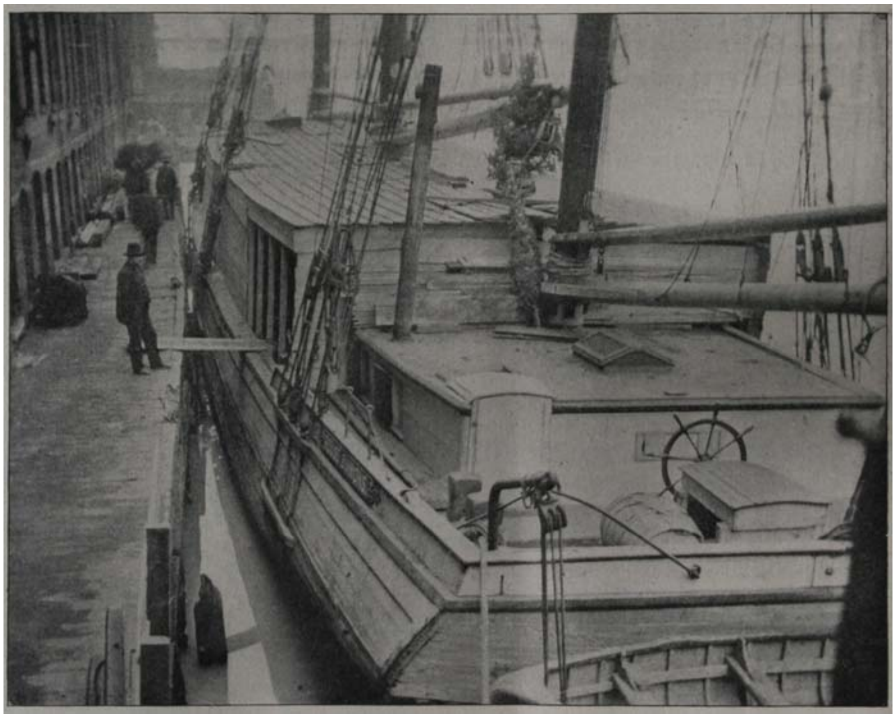

Figure 35. This rare image may be the last ever taken of the *Rouse Simmons*, and confirms the existence of the deck house (Marine Review 1913).

and the sides of the house are so poorly fitted it is doubtful the cabin was watertight. Given that no evidence of the deck house was found on the hull, its framing was obviously equally as poor as its planking.

Whatever the reason the *Rouse Simmons* sank, when she did she went down bow first, but did not immediately descend to the bottom. With air trapped in her stern the bow sank and the stern rose as the wind and waves pushed her southward. With the bow deep beneath the surface, the port anchor chain fouled the bowsprit and broke it off at the stem. With the loss of the bowsprit and the pressure of the wind and water, the fore and main masts fell toward the stern. As the vessel descended the air trapped in the stern compressed until the pressure was great enough to dislodge the transom and several outer hull planks on either quarter. As the bow came to rest on the bottom, the rigging continued its momentum and came to rest forward of the bow, while the stern settled more slowly to the bottom as the trapped air escaped.

Future Research

The *Rouse Simmons* is one of the most researched and written about vessels on the Great Lakes. The exhaustive volume of work leaves few opportunities for new and original historic research, but this study has uncovered one avenue that could potentially answer new questions into the *Rouse Simmons*' loss, as well as result in a better understanding of schooner use on the Great Lakes. Few Great Lakes schooners utilized deck structures other than an aft cabin, and even fewer had a deck house that covered most of the weather deck as did the *George Wrenn* and the *Rouse Simmons*. It is doubtful that any full length deck houses have survived in the archaeological record, so future research should focus on the historical record to determine how common full length deck houses were and whether they were specific to only certain trades or only used by certain captains, such as Captain Schuenemann. It is also possible that deck houses were temporary structures, installed only to extend the shipping season or to allow certain cargoes at certain times of the year. Only further historic research will reveal if Captain Schuenemann was confident enough in the *Rouse Simmons*' deck cabin to preclude installing the hatch covers, or even if he used some of the deck planks to construct the deck house.

The *Rouse Simmons* is the third double centerboard schooner documented in Wisconsin waters. At least one more double centerboard schooner remains undocumented in Wisconsin, the Anclam Pier wreck in Bailey's Harbor, which has been tentatively identified as the schooner *Emeline*. Although there is a growing database of archaeological examples of double centerboard schooners on Lake Michigan, there is a marked dearth of historical information regarding these unusual vessels. What little historical information has been uncovered often describes double centerboards as less than effective, but scarcely little else (Griffiths and Bates 1854). Despite early disfavor amongst prominent shipbuilders, double centerboard schooners continued to be built around the lake for reasons unknown. Future archaeological research should focus on comparative studies between archaeological examples of double centerboarders to gain an increased understanding of the nuances between builders. Additional comparative studies between double and single centerboard lumber schooners will allow insights into their genesis and persistence on the Great Lakes and reveal any advantages they may have held over single centerboard vessels.

Finally, there are vast opportunities for research into the persistence of merchant sail on the Great Lakes during the twentieth century. The golden age of sail had long since passed by 1900, yet a handful of hardy sailors continued to operate their dilapidated vessels in a dying trade, many until they were lost to the waters on which they sailed. Research avenues may focus on the economics of merchant sail's continuance, as well as the psychology of those sailors who chose to continue operating merchant sail. The Great Lakes saw a waning support structure for merchant sail as the twentieth century progressed. The number of sailors competent in rigging and handling sailing vessels was quickly dwindling, as was the number of shipyards capable, or willing, to maintain large wooden vessels. Despite the challenges, several vessel owners ignored the writing on the wall and continued sailing their rotting vessels, sometimes until they sank out from beneath them. New research will give insights into why some sailors challenged the odds and sailed their schooners long after it was viable, or wise, to do so.

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