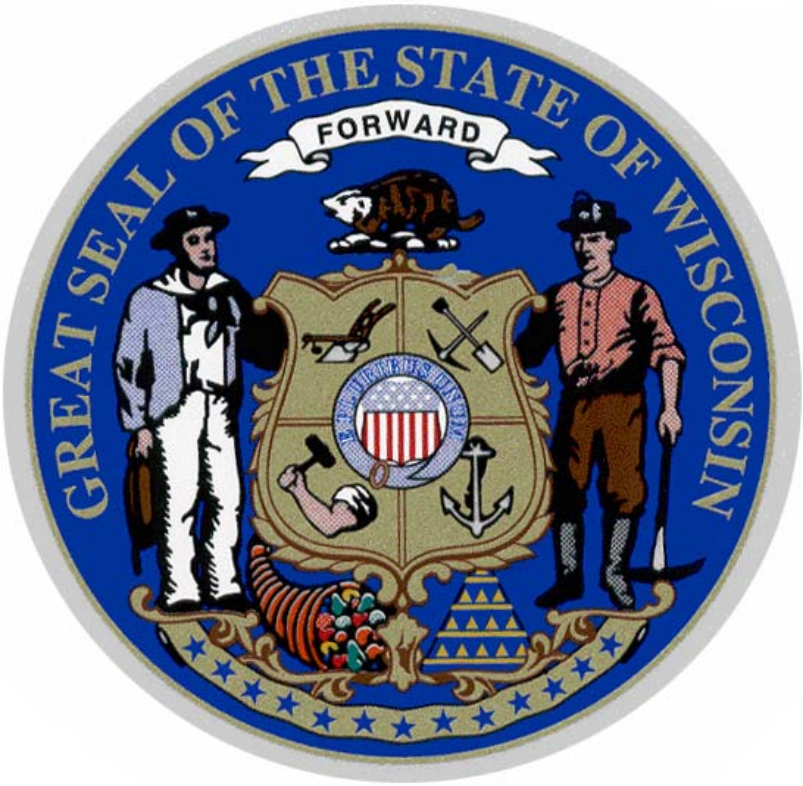
Wisconsin's Historic Shipwrecks

An Overview and Analysis of Locations for a State/Federal Partnership with the National Marine Sanctuary Program



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WISCONSIN HISTORICAL SOCIETY

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Cover image: Of the nine items depicted on the Wisconsin State Seal, three highlight the importance of maritime commerce to Wisconsin: a sailor, an anchor, and a caulking mallet.

EXECUTIVE SUMMARY

Under a grant funded by the Wisconsin Coastal Management Program, the Wisconsin Historical Society evaluated Wisconsin's collection of historic shipwrecks for the possibility of designating a National Oceanic and Atmospheric Administration (NOAA) national marine sanctuary in the State of Wisconsin's Great Lakes waters. Historic shipwrecks within each of Wisconsin's four Maritime Trails regions were evaluated for the number, condition, and variety of historic shipwreck sites. Analysis of known shipwrecks was given the greatest weight, with lesser weight given to probable shipwrecks based on historic records. Based on site density, site integrity, and potential national significance, the Society concluded that an 875 square-mile area within the 2,552 square-mile Mid-Lake Michigan region holds the best potential for a national marine sanctuary in Wisconsin. The Mid-Lake Michigan region contains 14 intact shipwreck sites, significantly more than the other maritime trails regions, and holds the best examples of many vessels that sailed Wisconsin waters, including Wisconsin's two oldest shipwrecks discovered to date, the *Gallinipper* (1833) and the *Home* (1843), both of which remain intact. The recommendation of the Mid-Lake Michigan region as the best location in Wisconsin for a potential marine sanctuary is the first step in a lengthy process and does not immediately designate potential sanctuary boundaries. This potential boundary line is meant to serve as a starting point for discussions with stakeholders. The final boundary for a potential sanctuary will be refined based on input by all stakeholders, including Wisconsin state agencies, local communities and officials, recreational sports groups, and the general public. NOAA and the State will begin meeting with these groups in the late fall and early winter of 2008.

CONTENTS

ILLUSTRATIONS

TABLES

CHAPTER ONE
INTRODUCTION

This analysis of potential locations for a State/Federal partnership with the National Marine Sanctuary Program is joint effort between the Wisconsin Historical Society, the Wisconsin Coastal Management Program, and the National Oceanic and Atmospheric Administration (NOAA). The survey was funded by a grant from the Wisconsin Coastal Management Program and conducted by the Society's State Maritime Preservation and Archaeology (SMPA) program staff.

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

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

Created in 1988, the 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 Society's Division of Historic Preservation – Public History, Office of the State Archaeologist. 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 (Figure 1). 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).

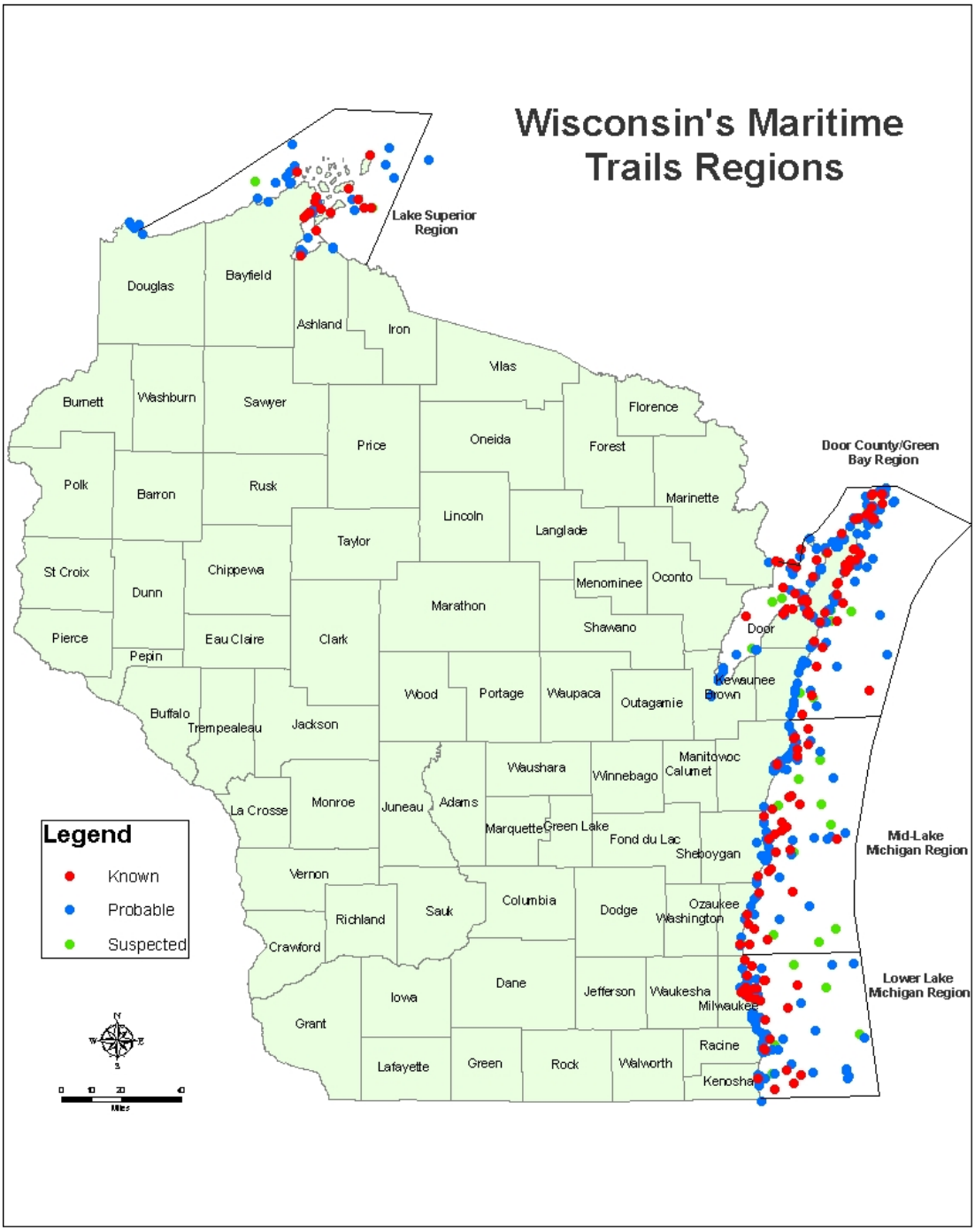

Figure 1. The four Maritime Trails regions. The dots indicate known and potential locations of shipwrecks.

The Maritime Trails initiative has become the Society's strategic plan for managing the state's diverse submerged cultural heritage while encouraging preservation and promoting public awareness and visitation. Initiatives aimed at

identifying, managing, and interpreting Wisconsin's coastal cultural resources must consider these resources at both a local and regional level. The sheer length (approximately 860 miles), as well as the geographical, social, and cultural diversity, of Wisconsin's Great Lakes coastline makes this essential. The Maritime Trails initiative encourages divers and non-divers alike to consider each unique maritime property within the broader context of Wisconsin's maritime 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 Society 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 Society 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 Society and the general public. Society 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 October 2008, the Society 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 Museums, the Kenosha Public Museum, the Door County Maritime Museum, and the Society's 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, Web links, 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 Society and the University of Wisconsin Sea Grant Institute that began in 1996. Making underwater archaeological research results accessible to the public, this site features detailed information on historically and recreationally significant shipwrecks in Wisconsin's Great Lakes waters. Each shipwreck profile includes information about the ship's archaeology, history, final voyage, sinking, and current condition.

Partnerships. The 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.

NOAA's National Marine Sanctuary Program

The National Marine Sanctuary Program serves as the trustee for a system of 14 marine protected areas encompassing more than 150,000 square miles of ocean and Great Lakes waters from Washington State to the Florida Keys, and from Lake Huron to American Samoa. The sanctuary system includes 13 national marine sanctuaries and the Papahänaumokuäkea Marine National Monument. Within their waters, giant humpback whales breed and calve their young, coral colonies flourish, and shipwrecks tell stories of our maritime history. These special places also provide homes to thousands of unique or endangered species and are important to America's cultural heritage.

The sanctuary program, part of the National Oceanic and Atmospheric Administration, manages the sanctuary system by working cooperatively with its partners and the public to protect these special places while allowing compatible recreation and commercial activities. In sanctuaries that include state waters, NOAA partners with the state governments to manage sanctuary resources. Staff work to enhance public awareness of our marine resources and maritime heritage through scientific research, monitoring, exploration, educational programs and outreach. Under the 1972 Marine Protection, Research and Sanctuaries Act, the Secretary of the Department of Commerce is authorized to designate discrete areas of the marine environment as national marine sanctuaries to "promote comprehensive management of their special conservation, recreational, ecological, historical, research, educational, or aesthetic resources." The U.S. Congress can also designate national marine sanctuaries. The President can use the authority of the Antiquities Act to establish Marine National Monuments which may be managed as part of the National Marine Sanctuary System.

NOAA's Maritime Heritage Program

NOAA's Maritime Heritage Program, created in 2002, is an initiative of the Office of National Marine Sanctuaries. The program focuses on maritime heritage resources within national marine sanctuaries, and also promotes maritime heritage appreciation throughout the entire nation. Maritime heritage is a broad legacy that includes not only physical resources, such as historic shipwrecks and prehistoric archaeological sites, but also archival documents, oral histories, and traditional seafaring and ecological knowledge of indigenous cultures. The vision of the Maritime Heritage Program is that a broad spectrum of Americans will be engaged in the stewardship and appreciation of our national maritime heritage.

NOAA's national marine sanctuaries contain a diverse collection of archaeological sites. The Maritime Heritage Program is a leader in the exploration, documentation, and stewardship of these resources. Since the first national marine sanctuary was created in 1975 with the newly discovered shipwreck of the Civil War ironclad USS *Monitor*, NOAA has taken a leadership role in the protection of these fragile sites. In addition to the *Monitor*, many other archaeological sites have been discovered within the national marine sanctuaries. NOAA's dedication to playing a key role in maritime archaeology was illustrated in 2000 with the establishment of the Thunder Bay National Marine Sanctuary in Alpena, Michigan, which maintains stewardship over one of the nation's most historically significant collections of shipwrecks. That same dedication continues today in the newly designated Papahānaumokuākea Marine National Monument, which contains shipwrecks of early exploration vessels and whalers.

Analysis Methodology

Since 2001, the Maritime Trails initiative has shaped maritime research within Wisconsin. The Maritime Trails divide Wisconsin's Great Lakes waters into four discreet areas of study: Lake Superior, Green Bay/Door County, Mid-Lake Michigan, and Lower Lake Michigan. Dividing the state's waters into these regions aids in focusing research on the local historic maritime landscape. Each Maritime Trails region contains unique geographic and cultural characteristics that distinguish it from other regions. These individual characteristics have cultured unique maritime landscapes - unique landscapes that are reflected in the archaeological record and differ between regions.

The four Maritime Trails regions have been used to focus recent historic and archaeological research and so it was natural to use the regions to focus this analysis. Vessel losses were examined at the regional level for both known and potential shipwreck sites. Each region was then analyzed for the type, condition, and variety of shipwreck sites. The regions were then compared and the region with the most significant collection of nationally significant shipwrecks was chosen as a potential sanctuary site.

The analysis was based on the Society's historic shipwreck database. This database includes 651 historic vessel losses within the Great Lakes waters of Wisconsin. This database was compiled over several years of searching historic documents such as newspapers and shipwreck lists. Known, but unidentified, shipwreck sites were also added to the database of historically documented losses.

The database is the most comprehensive list of known and potential shipwreck sites within Wisconsin waters.

For this analysis, all vessels in the database were classified into three groups - Known, Probable, and Suspected:

1. *Known*: Includes all known shipwrecks for which the Society holds precise position data, or those vessels whose position is known but not on record with the Society.

2. *Probable*: Includes all vessels that have not yet been located, but according to historic records occurred at a location that is specific to a harbor, shoal, reef, island, river mouth, landing, etc., or at an approximate location according to mileage, direction, or landmark references.

3. *Suspected*: Includes all vessels that have not yet been located, and whose position, according to historic records, is either general (exact location within a body of water unknown), uncertain (conflicting references), or unknown.

The depth of water in which a shipwreck lies often has a direct correlation to the site's integrity, thus all sites were dichotomized according to known or anticipated water depth. Wreck sites in, or suspected of being in, a water depth of 25 feet or less were classified as Surf Zone. Wreck sites deeper, or suspected of being deeper, than 25 feet were classified as Deep; where possible, known shipwreck sites in deep water were further classified as to their condition (i.e. intact, broken, or burned). Intact sites were defined as sites where the majority of the hull is complete and assembled. Broken sites were defined as those where the majority of the hull is disarticulated. Burned sites are those that were a significant portion of the hull was lost to fire prior to sinking.

CHAPTER TWO
WISCONSIN'S MARITIME HISTORY

Paul P. Kreisa and David J. Cooper

The State of Wisconsin is bordered on the east by Lake Michigan and on the north by Lake Superior, accounting for over 860 miles of Great Lakes shoreline along these boundaries. In addition, Wisconsin is bordered on the west by the Mississippi River, and possesses an important network of inland waterways such as the Fox, Wisconsin, and St. Croix rivers which connect the Great Lakes to the Mississippi River. These facts highlight the importance of water-related activities, both past and present, as an integral part of Wisconsin's history. The Great Lakes provided an important transportation link to the East and the Atlantic Ocean, and with Wisconsin's connecting riverine waterways, provided a transportation link to the South and the Gulf of Mexico.

Water transportation has played a vital role in the exploration, settlement, and development of commerce in Wisconsin. But, it was intimately tied into and affected by the socioeconomic forces in the rest of the nation. After the American Revolution, western settlement increased and the end of the British mercantile system enabled the new nation to enact policies to further its own economic growth (Labadie and Murphy 1987). Population and trade grew at a rapid pace, with an increased demand for transportation. Water transport was the cheapest or only means in many cases. The form and function of commercial water transport began to change, reflecting trends both in technological and economic development.

After 1800, immigration to the United States increased greatly, and after the Blackhawk War of 1832 effectively ended hostilities with the Native Americans, there was a concomitant rise in the number of immigrants to the western Great Lakes region. For instance, immigration to the United States totaled 60,000 in 1832, whereas by 1850 it had increased to 369,000 (Labadie and Murphy 1987:22). As a result of this trend, the population center shifted to a greater equity between the east and west.

One result of this wave of immigration was the introduction of European agricultural practices to the Midwest. New resources and raw materials became available with the opening of the western territories, and the immigrants increased the demand for the manufactured goods and capital of the east (Labadie and Murphy 1987:23). With these developments, a better transportation system was needed, and that centered on water transport. Settlement often followed the rivers and other bodies of water. Water transport was used to ship grain, lumber, ore, and other resources east, and settlers, manufactured goods, and coal to the west.

Through the 19th century, industrial growth in Wisconsin increased rapidly. The early industries included grain farming, lumbering, fishing, and lead mining. The middle of the century, those years from Wisconsin statehood to after the Civil War, saw an expansion of these early industries and the introduction of new industrial enterprises. New industries included such ventures as brewing, paper production, furniture making, tanning and leather manufacturing, carriage, wagon, farm machinery and implement manufacturing, and eventually automobile manufacturing

as well as the production of other light industrial products (Lusignan 1986a). In addition to Great Lakes shipping, other factors in industrial expansion were the ease of river transportation and the introduction of the railroad into Wisconsin. The pace of industrial growth in the United States increased after the Civil War. Mirroring this trend, in 1860 60% of American workers were engaged in agriculture, while by 1910, this figure was only 30% (Labadie and Murphy 1987:23). Even with the increasing importance of the railroads, shipping continued as a major mode of transportation.

Bulk cargoes, such as grain and ore, were increasingly shipped out of Lake Superior ports, while grain, timber and ore were important bulk cargoes in Lake Michigan. The increase in bulk shipments meant that the carriers, bulk cargo steamers and barges, grew in size. This trend also hastened the replacement of sail by steam power, and led to an increase in harbor dredging to accommodate the larger vessels (Labadie and Murphy 1987).

From the turn of the century to the Second World War, in both the United States and Wisconsin, there continued an acceleration of many of the trends that began after the Civil War. Sail was almost totally replaced as a source of propulsion, and bulk carriers became increasingly large. Ferry service, especially on Lake Michigan, linked the railroads and motorists of Wisconsin with their counterparts in the surrounding states and Canada. Moreover, pleasure craft became a numerically superior type of vessel on the lakes (Labadie and Murphy 1987).

The remainder of this chapter presents an overview of Great Lakes maritime history and the principal contexts in which Great Lakes ships were used in Wisconsin. It is organized around the major industries that employed such vessels for the transportation of people and goods both to Wisconsin and from Wisconsin to the East. Great Lakes vessels were often constructed as general freight carriers - that is, the ships would either carry many different types of freight during any one voyage, or, as in the case of bulk carriers, would often carry different cargos from voyage to voyage. As well, many Great Lakes ships were rebuilt as they lost their usefulness for their original task. For instance, passenger steamers were rebuilt into steam-barges for hauling lumber, schooners were adapted to carry lumber or ore, and almost all vessels carried different return cargos from the east, including coal, salt, and manufactured goods. These points illustrate the impossibility of attempting to pinpoint a single specific function for most Great Lakes vessels beyond that of the general freight or passenger trade.

Within the Great Lakes study, new or expanded sections should be developed for the turn-of-the century resurgence in the passenger trade (principally between the industrial cities), lifesaving and lighthouses, Great Lakes tourism and recreation, Great Lakes small craft, the development of railroad ferry links on Lake Michigan, the impact of the First and Second World Wars on shipbuilding, military training and shipping activity, and the direct linking of the Great Lakes to Atlantic and international maritime commerce with the opening of the St. Lawrence Seaway. Other topics may be included, as well. Due to its distinctive history, geography, and associated resources, inland waterway transportation and associated properties (such as Mississippi River packet steamers) is not included in this study.

Prior to 1679, Great Lakes vessels were adapted from the Native American canoes. Enlarged by the French, these canoes, up to 33 feet in length, were known as

"canot de maitre" or "grand canot" (Labadie and Murphy 1987). Developed for military and trade purposes, these vessels had capacities of 4-8,000 pounds (Labadie and Murphy 1987). In 1679, motivated by fears of British competition, Rene Robert Cavalier Sieur de la Salle constructed the *Griffon* to enable French expansion and increase the volume of furs transported to the east. The *Griffon* was built of green timber and was of a design similar to a Dutch galleot, with a high poop, rounded stern, and the ability to carry heavy loads through shoal waters. She entered Lake Erie on 6 August 1679 en route to Green Bay. There she unloaded a cargo of supplies and shipwright's tools, and departed on 18 September. The *Griffon* was never seen again, and her final resting place is unknown (Cooper 1988).

With the passing of the *Griffon*, the development of lake shipping came to a standstill for nearly fifty years. Two schooners were built on Lake Ontario in 1726 for the Frontenac-Niagara trade, and by 1741, four such vessels were recorded in service. One of the earliest upper Great Lakes vessels was a 25-ton ship built at Sault Ste. Marie on Lake Superior in 1735 by a French miner, Sieur de la Ronde. She was to be used to carry copper from the small mining concerns developing in the Superior region. Other types of watercraft began seeing use on the Great Lakes in the eighteenth century, including bateaux (large, flat-bottomed skiffs which were oared, poled, or sailed), as well as double-ended oared craft similar to contemporary whaleboats (Labadie and Murphy 1987:43; Mansfield 1899:I:390).

The experiences of the eighteenth-century indicated that the fore and aft sailing rig was the ideal rig for the Great Lakes, both for merchant and naval vessels. Sudden lake squalls discouraged the use of square sails, which could not be taken in quickly. Additionally, the fore and aft rig was easier to work to windward, and could be handled by fewer men (Cuthbertson 1931:58,128). Economy was important on the frontier, and the ability to sail in any wind was important on the lakes, with their variable airs, shoal waters, and lack of sea room.

The schooner was the favored lake rig until the decline of commercial sail on the Great Lakes. Lake vessels carried a large sail area in proportion to their hulls, as midsummer lake winds were uncertain, and often very light. Frequently, a square topsail was carried by sloops and schooners to augment the fore and aft sails while running before the wind. The gaff-rigged topsail became the classic lake rig in the nineteenth century. A yard was mounted at the hounds (below the cross-trees) of the foremast, and a large course or "runner" was set. In later times a new sail came into use, the "raffee." This was a triangular topsail footed on the yard and spread up to the mast truck (Mansfield 1899:I:233). The raffee, while not unique to the Great Lakes, saw much of its service here. It was also used in British coastal schooners in the 1860s, where it was also called a raffee (Hirthe and Hirthe 1986:115).

Another peculiarity of lake vessels was the almost universal use of the centerboard, which was found in schooners, sloops, barks, and even brigs. The invention of the centerboard has been credited to a British Royal Navy lieutenant named Schank, who apparently used these while constructing naval vessels in Boston in 1774 and on Lake Champlain in 1776. Built of oak planks and weighted with lead or iron, the centerboard, a cousin to the Dutch leeboard, was set on a pivot and lowered through a trunk in the bottom of the hull to resist drifting to leeward while under sail. This greatly improved the windwardliness of sailing vessels, and had the

further advantage that it could be raised in shoal water. These boards were either set through the keel or offset to one side (Cuthbertson 1931:236-237; Labadie and Murphy 1987:48).

Side-wheel steamboats began appearing on Lake Michigan around 1826, mostly as pleasure excursions to the scenic waters of Green Bay, which then as now, were valued for their natural beauty. Government-chartered steamers first put in their appearance at Chicago with the Blackhawk War, and the harbor of this city received its first improvements by the federal government in 1833 (Hartshorne 1924:17; Mansfield 1899:I:184). By this time, there were eleven steamers running on Lakes Michigan, Erie, and Huron. Of the 61,485 passengers they carried to and from Buffalo, 42,956 were headed west. By 1834, forty-eight steamers were running from Buffalo to Green Bay and Chicago, and regular steamship lines between Buffalo and Chicago began in 1839. In 1840, 30,945 immigrants arrived in Wisconsin, and by 1850 305,391 persons immigrated to Wisconsin, arriving almost exclusively by lake vessels (Mansfield 1899:I:184-185,188-189).

Screw steamers first came to the Great Lakes in 1842 with the launching of the *Vandalia* in Oswego, New York. During this period, many sailing vessels were converted to steam vessels (Labadie and Murphy 1987). These vessels were built for the same purposes, and in fact had the same general configuration, double-decked with a passenger cabin on top, and cargo between decks and in the hold, as had side-wheel steamers. These ships carried both package and bulk freight (Labadie and Murphy 1987). One advantage of the screw steamers was that they were far less expensive to build and operate than were the side-wheelers. Their machinery was less costly and simpler; they burned less fuel, required a smaller crew, and could carry more freight because of the smaller machinery on board (Labadie and Murphy 1987:53). Screw tugboats were being built by 1850.

The demand for larger vessels and improvements to harbors and canals brought about a steady evolution in Great Lakes vessels, both sail and steam. While brigantines and barkentines saw some early use on the lakes, the construction of larger, heavily constructed gaff-topsail schooners eclipsed the use of most alternate rigs (Cuthbertson 1931:230-231,241). From about 1850 on, full, three-masted schooners began to appear as the most popular American coastal trader, both on the Great Lakes and elsewhere. With the construction of the *Challenge* in 1852 at Manitowoc, Wisconsin, a new type of schooner hull was seen on the lakes, the clipper-model, incorporating a schooner rig and a centerboard. The *Challenge* was characterized by a sharp bow, full hull, flat bottom, and great speed (reportedly thirteen knots). At this time, many of the earlier two-masted schooners experienced a rig change to three masts, while brig and bark rigs were changing to schooner rigs (Chapelle 1982:260,268-269; Hirthe and Hirthe 1986:vii).

The schooner has been called the most important American sailing rig, both in greatest total tonnage built, and tonnage of cargo carried. They were used mostly for rapid, short voyages with a quick cargo turnover. They dominated the American coastal trade, and the efficiency of this rig combined with a clipper-model hull is proven by the long existence of these vessels, which were used commercially in the United States well into the twentieth century. Needing only a small crew and handy in confined waters, the schooner actually increased in use at a time when other rigs were

disappearing (Chapelle 1982:158,219-220). Detailed discussion of schooner evolution and development may be found in Chapelle (1982), Greenhill (1980), Labadie and Murphy (1987), and MacGregor (1984).

Most of the new sailing vessels were being built specifically for bulk cargo carrying: general merchandise and passengers seem to have been a matter of serendipity. Common bulk cargoes were ore, timber, grain, and coal. Coal was shipped west from Erie and Cleveland to fuel western stoves, factories, and steamboats. Iron ore shipments came from the Marquette, Menominee, Gogebic, Vermilion, and Mesabi ranges. Most shipments went east via Lake Superior to the iron foundries of Ohio and Pennsylvania; relatively little ore was shipped on Lake Michigan, save for ore from Escanaba and shipments for Chicago (Mansfield 1899:I:547, 555).

Lake Michigan commerce consisted largely of grain and timber, contributing heavily to the rise of many lake cities. Chicago and Milwaukee were large shippers of grain and importers of lumber for building and expansion. Chicago's first grain elevator was built in 1839. This hand-operated version was replaced with a steam elevator in 1848. The mechanization of the grain trade was important for the efficient handling and shipping of this commodity. Vessels of increasingly greater capacity began to be constructed, and the average grain vessel capacity had risen from 12,000 bushels in 1848 to 70,000 bushels in 1873 (Andrews 1910; Cooper 1988:41-43; Mansfield 1899:I:526-530; Odle 1951).

Lumber was a commodity always in demand, and was a convenient and important cargo for lake schooners. Chicago first began importing lumber in 1833, and thereafter became a huge market for building materials. By 1884-1885 there were around 500 steamers, schooners, and tow barges in the Great Lakes lumber trade, hauling almost 8,000 cargoes per year (Mansfield 1899:I:514, 518, 520). Transportation had always been a major problem in the lumber industry. In 1913 it was estimated that, "transportation of forest products to mill or market represents 75% or more of the total delivered cost of raw materials exclusive of stumpage value." Costs for actual harvesting were relatively minor (Rector 1953:15, 20-23, 25). By 1856, Chicago was the main U.S. lumber wholesaler. Production in the lake states rose from 2.5 billion board feet of pine in 1869 to 5.0 billion board feet in 1879 and to 7.0 billion board feet in 1889. By 1900, most of the accessible pineries in Wisconsin and Michigan had been logged out (Rector 1953).

Two new vessel types were an outgrowth of the need for bulk cargo transportation that increased significantly after 1860. The first was the consort system. In the consort system, a tug was used to tow several consorts, or barges, which were often converted old sailing vessels or steamers (Labadie and Murphy 1987). This system was abandoned by 1900. The second new vessel type was the steam-barge. These were screw steamers with schooner-type hulls, single decked, with small, compact cabins at the stern (Labadie and Murphy 1987). These vessels towed barges, but were also important carriers of lumber. Many could carry up to 350,000 feet of lumber, stacked on deck and in the hold (Labadie and Murphy 1987:56-57).

The final major innovation in Great Lakes shipping was the construction of bulk freight carriers. The first bulk freighter, the *R.J. Hackett* was designed by

Captain Elihu Peck in 1869 for shipping ore and grain. It was double-decked, with wide, evenly spaced hatches that matched the spacing of the Marquette, Michigan, ore loading chutes. It had a capacity of 1,200 tons and could tow two barges (True 1956). The pilothouse was placed forward to improve visibility, while all the machinery was at the stern. Because of their large size, bulk freighters had heavy keelsons and iron straps reinforcing their frames (Labadie and Murphy 1987). By the time of an economic downturn in 1873, 47 bulk carriers had been built.

Construction of bulk freighters resumed in 1880. The next major change in bulk carriers occurred in the 1880s, and centered on the use of iron and steel in their construction. The first such ship was the *Onoko*. Because of a high ratio of strength to weight, iron ships were larger than their wooden counterparts, and could thus haul more cargo (Labadie and Murphy 1987). The last wooden bulk freighters were built by 1902. But, throughout this period, both the wooden and metal freighters increased in size. By the turn of the century, 500-600 foot vessels were being built (Labadie and Murphy 1987:59).

The decline of the Great Lakes lumber industry and the passage of bulk grain, ore, and coal hauling first to steam vessels and then to railroads was to a great degree the passing of the age of sail on the Great Lakes. Metal-hulled steamers and the railroads competed for the existing bulk cargo and passenger trade, and the schooners became barges or headed for the bone yards. Passenger trade and package freight eventually disappeared from the lakes. At the present time, ". . . only the bulk freighters have survived in service . . . [and] . . . the only representatives of the many vessels that once plied the Great Lakes are the shipwrecks that lie beneath their surfaces (Labadie and Murphy 1987:61)."

The Fur Trade

For two centuries after Nicolet landed in Wisconsin in 1634, the fur trade was the dominant European commercial activity in the region. Three periods have been defined within this time period based on the different external power controlling the region; the French period from 1634-1763, the British period from 1763-1815, and the American period from 1815-1850. The major centers of European settlement in Wisconsin at this time were on Madeline Island in Lake Superior, at Prairie du Chien on the Mississippi River, and at Green Bay.

The fur trade was dependent on Native American groups to provide furs. Increasingly, trade posts were constructed in Wisconsin with Europeans serving as the middlemen. Europeans traded metal cooking implements, fire steels, steel traps, firearms, blankets, clothing, and decorative items to the Native Americans for pelts. The European manufactured goods were brought west via Green Bay and the Fox-Wisconsin waterway to Prairie du Chien, or around Sault St. Marie to La Pointe on Madeline Island. From these centers, traders were then dispatched into the interior regions to trade for furs. The furs were then gathered at the trading centers and subsequently shipped east (Fay 1986).

The fur trade and the exploration of the area had a tremendous impact on the histories of both the Native Americans and Europeans. To the Native Americans it brought warfare along with population decimation through the introduction of contagious diseases, often resulting in the destruction or dispersal of the group (Wolf

1982). Some of the Native American groups were able to profit in the fur trade by acting as middlemen, others by becoming allies to one or another European power. Access to European goods also changed the nature of the social interaction of these kin-based societies. Native Americans were increasingly diverted from older economic pursuits to a dependence on European supplied goods. This dependence often took the form of advancing trade goods to Native Americans in return for future deliveries of furs. Decline in the populations of fur-bearing animals often meant Native Americans became caught in a deepening cycle of debt. For Europeans, the fur trade both helped to supply information about the New World and supplied a readily exploited pool of resources that quenched the thirst of fashion and finance (Wolf 1982). Many of the state's first wealthy individuals were engaged in some aspect of the fur trade (Fay 1986).

The French Period

The recorded history of water-borne commerce on the Great Lakes begins with the French explorers, traders, and missionaries of the seventeenth century. In the early decades of that century, explorers financed by fur trade interests penetrated the northern Great Lakes in search of trade routes to the Orient and new areas rich in fur-bearing animals. The first French trader to possibly visit Wisconsin was Etienne Brule. During 1621-1623 he conducted a voyage along the south shore of Lake Superior (Smith 1973:7). The next incursion into the state was by Jean Nicolet who landed on the southeastern shore of Green Bay in 1634 during his search for the Northwest Passage (Fay 1986). In 1659 Medard de Groseillers and Pierre-Espirit Radisson explored the southern shore of Lake Superior, landing at Chequamegon Bay, and built a cabin near present-day Ashland. There the men traded for pelts with the Ottawa. After spending the winter, both returned the following year to Canada (Fay 1986).

With the opening of the Upper Great Lakes to trade, missionaries soon followed. Jesuit priests Rene Menard and Claude Allouez each established missions at Chequamegon Bay in the 1660s (Fay 1986). Fur trade and missionary activity led to other interests such as mineral exploration. In 1671, the Sioux drove the Ottawa and Huron from their position as middlemen in the fur trade with the French. Because of this, the French were able to expand their activity to the west (Fay 1986). Beginning in 1689, competition from the British forced the French to repeatedly reestablish their claims in the Upper Great Lakes and formulate new alliances with their Native American partners. At this time, fur trading posts were established in Green Bay, along the southern shore of Lake Superior, and at Madeline Island (Fay 1986). Perrot also established a fort near Prairie du Chien. In the early 1700s, war with the Fox Indians disrupted trade in their attempt to gain middlemen status; forts, such as Fort LaBaye at Green Bay, were built to garrison troops for military expeditions into the interior in pursuit of the Fox (Fay 1986). At the conclusion of the French and Indian War of 1762, French control of the northwest gave way to the British (Fay 1986). This action was formalized in the Treaty of Paris in 1763. As a result, many of the French fur traders relocated to St. Louis or New Orleans, while others continued to work in the fur trade for the English in the Upper Midwest.

The British Period

Occupation of the Northwest passed from French to British hands at the close of the French and Indian War in 1762 (Fay 1986). Many of the French fur traders went to work for British and Scottish merchants that took up the trade. Pelts were gathered at the supply centers of Green Bay and La Pointe, now occupied by British traders, and Prairie du Chien became a major rendezvous and distribution center. From the hinterland the pelts were transferred to Detroit, Mackinac, and Grand Portage (Fay 1986).

British policy differed greatly from the French, and soon Indian rebellions were seen in the areas west of the Great Lakes. French fur trade rivals lured the Native American trade to St. Louis. Hoping to bend the trade to their advantage, the British closed all white settlement in the Northwest and established military garrisons in the area (Fay 1986). In 1775 the American colonies revolted from British rule, and in the Treaty of 1783, the British relinquished most of the trading posts in the Northwest and the Upper Great Lakes. The American doctrine of "Manifest Destiny" caused unrest among the Native Americans in the Northwest as colonists expanded into the Midwest. Even with the expansion of the newly formed United States, the fur trade remained primarily British in character in the Upper Great Lakes region with the Northwest Fur Company monopolizing the trade (Stevens 1918). Posts on Madeline Island and Lake Michigan were established between 1783 and 1800. In 1798, a rival firm, the XY Company, was formed. In 1806 these two companies merged (Fay 1986). The fur trade in the Northwest was a major cause of the War of 1812 between the British and the Americans. At the close of the war in 1815, the Northwest Territory came under United States control (Fay 1986).

Water transport on the Great Lakes was improved during the British occupation of the Northwest Territory. In 1784, the British government permitted the construction and operation of commercial ships on the lakes. The 41 ton sloop *Beaver* was launched in 1785 and saw service on Lakes Michigan, Huron, and Erie (Labadie and Murphy 1987). The 70 ton sloop *Otter* of the Northwest Company was launched in the same year, and saw service on Lake Superior (Labadie and Murphy 1987). Economy was important on the lakes, with their frequent shoal waters and lack of sea room. The British Deputy-Surveyor reported in 1788:

> Gales of wind or squalls rise suddenly upon the lakes, and from the confined state of the waters, or want of sea room (as it is called), vessels may in some degree be considered as upon a lee shore, and this seems to point out the necessity for their being built of such a construction as will best enable them to work windward. Schooners should perhaps have the preference as being safer than sloops (Cuthbertson1931).

In addition, the British used the large birchbark canoes and wooden bateaux, and small sailing craft known as mackinaw boats.

The American Period

While the first significant American involvement in the fur trade actually began in 1808 with the organization of the American Fur Company by John Jacob

Astor, it really did not achieve prominence until after 1815, following the settlement of the War of 1812. In 1816, the United States Congress enacted a law that prevented foreigners from trading with Native Americans within territories of the United States, and authorized the establishment of government operated "factories" in an effort to better control the trade. Factories, often associated with military forts, were government trading houses that traded goods to Native Americans for furs. Factories were established at Green Bay and Prairie du Chien (Fay 1986).

Astor's American Fur Company established major centers at Prairie du Chien and La Pointe, drawing on the manpower and experience of non-Americans. The American Fur Company came to monopolize trade in the Upper Mississippi and Upper Great Lakes region to such an extent that the United States government terminated the factory system in the area in 1822 (Peake 1954). Throughout this period, much of the fur trade traffic had been directed south down the Mississippi River. In 1823, this was enhanced by the use of the *Virginia*, a steamboat, that began to carry supplies north and furs south (Peterson 1932).

In 1834, the American Fur Company moved its headquarters to La Pointe and began to diversify its activities as the fur trade began to wane. New concerns of the company included shipbuilding and fishing on Lake Superior (Nute 1925). An improved wharf for sailing vessels was constructed at La Pointe on Madeline Island at this time. By 1850, the fur trade diminished in economic importance, and was replaced by lead mining, farming, fishing, and other forms of commerce in the state (Fay 1986). The American fur trading companies used many of the same types of vessels as the British had used. Smaller craft such as canoes and bateaux continued in use. Schooners and brigs were also employed.

Settlement

The influx of settlers into Wisconsin is perhaps one of the most important events in the history of the state. While settlers came to Wisconsin prior to 1832, it was with the end of the Blackhawk War that immigrants gained confidence in the stability of the new territory (Wallar 1986). With the region quieted after the war, many of the Native American tribes ceded land to the United States government, and a few were even resettled west of the Mississippi River, opening up large tracts of land for new settlers (Wallar 1986). The economic potential of lumber, mining, and agriculture in Wisconsin attracted many settlers, which in turn spurred the growth of those and other ventures.

In 1836, the population of the Wisconsin Territory was 11,500, mostly concentrated in the southwestern lead mining region. By 1850, the population of the state was over 300,000, with at least a third being foreign-born (Wallar 1986). The initial influx of settlers was in the southern part of the state, eventually spreading northward (Wallar 1986). Immigration to Wisconsin was encouraged during this early period in the state's history. In 1852, a Commission of Emigration was created to encourage the settlement of Wisconsin (Wallar 1986). The Commission went so far as to publish a pamphlet on Wisconsin in a number of different languages, which was distributed in various European countries. The Commission was disbanded in 1855 due to the rise of anti-foreign sentiments. The most numerically important immigrant groups were the Germans, Poles, Norwegians, Swedes, Czechs, Austrians, and

Russians. Often these, and less numerically important nationalities, would settle as a group in certain parts of the state (Wallar 1986).

Settlers usually tried to arrive in the spring for several reasons; the ability to locate land, plant a crop, and make preparations for winter (Current 1976). Most of the people journeyed directly to the state, and this was increasingly the case as transportation systems improved (Current 1976). One important improvement was the opening of the Erie Canal, which enabled the lake steamships to transport passengers directly from the east to Wisconsin without the need for overland transfers. From 1840-1860, there was a boom in Great Lakes passenger service to Wisconsin. Side-wheel passenger steamers were used, and their number and size increased throughout the period. The number of passengers was 250,000 in 1845. This demand for service enabled steamship lines to run on set routes and increasingly on set schedules. Demand for first class accommodations also increased. Throughout, most passenger vessels carried package freight as well. By the late 1850s, the railroad began to replace water transport as a means of moving settlers to Wisconsin, although passenger service in general resumed its importance from 1870-1890 with the introduction of iron and steel ships driven by propellers (Mansfield 1899).

Great Lakes vessels played an important role in both populating Wisconsin but also in helping the State maintain links to the population centers of the East. Prior to 1850, over half of the immigrants to the western Great Lakes arrived by lake transport, and this figure may have been greater for Wisconsin (Mansfield 1899). There was a general transition from schooners to side-wheel steamers to steam screws in passenger service.

The Early Industries

With the decline of the fur trade and the end of the Blackhawk War, there was a substantial increase in the volume of settlers immigrating into what was to become the State of Wisconsin. The earliest endeavors that these individuals were engaged in took advantage of the natural resources of the state - fishing in the Great Lakes around the Apostle Islands and at many points along Lake Michigan, lumbering in the northern and western parts of the state, mining and quarrying in the southwest corner, along Lake Michigan, and in the northwest, and agriculture, first primarily wheat, in the southern two-thirds of the state. Great Lakes shipping was critical in enabling these early industries to transport raw materials back to consumers in the East.

Fishing

The early Wisconsin fishing industry was concentrated on the rich spawning areas of lakes Michigan and Superior, centered in Bayfield, Manitowoc, Two Rivers, Milwaukee, and Door County (Lusignan 1986b). Fishing rose to prominence in these areas due to their protected shorelines or harbors, nearby rich aquatic environments, and a lack of heavy industries. After the fur trade, it was one of the first commercial enterprises to attain success. Fishing on the inland waterways was less well developed.

At the start, the fishing industry in Wisconsin was characterized by individuals fishing in specific areas and mainly supplying local markets. During the 1830s, the fur companies began to establish networks of these local fishermen to

provide raw fish for export. The fur companies collected the fish, salted and packed them in barrels, and shipped the fish to the east. One of the earliest fish suppliers was the American Fur Company, which set up a fishing-warehouse center at La Pointe on Madeline Island (Holzhueter 1974). As this system was set in place, fishermen increasingly spent the season in small island or lakeshore camps. In 1836, 1000 barrels were shipped from La Pointe, this figure increased to 7500 barrels by 1839. Several local companies eclipsed the American Fur Company in Lake Superior during the 1840s, which moved its fishing operation from La Pointe to Bayfield during that time (Lusignan 1986b).

Similar early fisheries were established in Door County and Two Rivers in the 1830s. The first settlers were drawn to Door County because of its potential as a fishery, and located themselves in 1836 on Rock and Washington islands (Lusignan 1986b). Through time, Door County was advantageously positioned with respect to markets such as Green Bay and other Lake Michigan shoreline communities, and the lumber and mining camps of northern Wisconsin and the Upper Peninsula. In Two Rivers, Captain J.V. Edwards started a fishery in 1837 (Lusignan 1986b). Drawn to that site by a well-protected harbor and using an experienced workforce composed of French and French-Canadians, the Two Rivers fishery packed 2,000 barrels of fish by 1838 (Krejcarek 1969).

The fishing industry experienced little growth during the period from roughly ca. 1850-1880. Growth resumed around 1880, with the expansion of the railroad system that enhanced the fisheries ability to ship their catch to urban markets. For instance, over 1.7 million pounds were caught in Bayfield in 1888, which increased to over 8.0 million pounds in 1896, when fishing employed about 160 men (Lusignan 1986b). Increasingly important in this boom were the Green Bay fisheries. In statistics compiled by the Wisconsin Commissioner of Fisheries, it is shown that from 1888 to 1896, after which statistics were no longer compiled, the Green Bay fisheries produced 50-67% of the Great Lakes fish caught in Wisconsin (Wisconsin Commissioners of Fisheries 1891, 1897). By 1894, Wisconsin was ranked 14th in the nation in fish catch (Wisconsin Commissioners of Fisheries 1895).

Unfortunately, this boom in prosperity was not to continue. Starting around the turn of the century, over fishing, pollution, and depressed markets caused periodic downturns in the fishing industry (Lusignan 1986b). Gains were made after World War I, with the incorporation of new technology such as improved boat designs, refrigeration, and truck transport. But fishing was increasingly displaced by other industries from its waterfront locales, environmental pollution increased, areas were over fished, and a final major setback encountered was the invasion of the predatory sea lamprey via the St. Lawrence Seaway in the 1950s.

The earliest vessels engaging in fishing were sailing vessels, such as schooners, barkentines, and brigs. Schooners were some of the larger vessels used in the fishing trade. After the Civil War, tugs were incorporated into the fisheries fleets. Throughout this time, most of the fishing was done by netting. Steamer packets were also used to routinely transport the fisherman's catch to metropolitan areas such as Chicago. A vessel type less commonly associated with the fishing industry is the scow.

Lumber

The lumbering industry in Wisconsin helped reshape the state's environment and landscape, and provided a livelihood for a great number of people in many parts of the state. By the late nineteenth century, Wisconsin was one of the leading lumber producing states, and from 1890-1910, it was the state's leading industry by a wide margin (Lusignan 1986c). Initially, the lumber industry was spurred on by the building needs of settlers on the treeless prairies and plains of the Midwest (Fries 1951). Water transportation, through rivers or the Great Lakes, connected the Wisconsin forests with the east, south, and west. The history of lumbering in the state has been roughly divided between an early period of 1840-1880, and a later, post-1880 period.

Prior to the 1840s, lumbering was small scale and mostly for local consumption (Lusignan 1986c). By the 1840s, it surpassed the fur and lead mining industries to become Wisconsin's leading industry. This, and subsequent growth, was due to immigration of people into the Midwest, the growth of industry, and of the railroads (Lusignan 1986c). The lumber industry's success was due in part to the availability of skilled laborers - Irish, Scandinavian, German, and French-Canadian immigrants (Fries 1951).

The Wisconsin River area was the first to be exploited on a large scale (Fries 1951). But demand quickly outdistanced the Wisconsin River region's output during the 1840s, and several other regions became important lumbering areas. Included were the areas surrounding Green Bay, the Wolf River, the Black River, the St. Croix area, and the Chippewa River Valley (Lusignan 1986c). For many of these regions, the greatest growth occurred from ca. 1860-1880. For instance, in 1866 the Wolf River region produced 52 million board feet, while during the 1870s; the region yielded 180 million board feet per year (Lusignan 1986c). The Green Bay and St. Croix districts were producing about 300 million board feet per year in the 1870s, and in the Chippewa River Valley, there was an increase from 5.5 million board feet per year in the 1840s to 436 million board feet in 1870 (Fries 1951).

One reason for such hefty increases in the lumber trade during this period was the availability of excellent water transportation opportunities. Rafts of lumber were floated on inland streams and Lake Michigan by 1850, and by 1865 some rafts on the Mississippi River contained over one million board feet per raft. After the mid-1860s, steamships were increasingly used to tow the rafts. At its peak, more than 100 ships were engaged in the towing operations (Lusignan 1986c).

On lakes Michigan and Superior, sailing ships and steamers were used to transport milled lumber, often between 250,000 to 1.5 million board feet (Fries 1951). Through time, steamers and bulk carriers replaced the sailing ships, with many of the sailing ships stripped of their sails and towed by tugs as barges (Labadie and Murphy 1987). The most important lumber shipping ports were Superior, Ashland, Marinette, Green Bay, and Sturgeon Bay (Fries 1951).

During the time from 1880-1900, the lumber industry increased despite periods of depression. In 1892, 4 billion board feet were cut (Lusignan 1986c). But, through the years, the wasteful practices of the lumber industry depleted most of the state’s white pine. In 1897, forestry experts predicted that with current use patterns and practices, the woods could handle only 10 more years of logging (Lusignan

1986c). These predictions caused a major decline and changes in the lumbering industry. A lower grade of trees were used, and the cutting of hardwoods, mainly maple and oak, increased. This decline can be seen in the number of sawmills in operation. In 1900, Wisconsin was first in the nation with over 1,000 sawmills, but by 1925 there were only 250 mills in operation (Fries 1951). As a result, lumber slipped from its place as the state's leading industry.

A wide range and great number of vessels were engaged in transporting lumber and lumber products on the Great Lakes waters of Wisconsin, and consequently, quite a few have ended as shipwrecks. These include schooners, brigantines, and scow-schooners, steamers including steam-barges and barges. Lumber was first shipped in Lake Michigan by the 1830s, generally by schooners (Mansfield 1899). The number of lumber carriers on the Great Lakes increased from 50 in 1840 to over 500, carrying 8,000 cargos a year, by 1885. Much of the increase was due to the expansion of metropolitan areas such as Chicago and Milwaukee (Mansfield 1899). For instance, Milwaukee received 30,000 million board feet in lumber in 1860. This had increased five-fold by 1897, and compared with only 40,000 million board feet in lumber delivered to Milwaukee by rail (Mansfield 1899). Indeed, shipboard transportation continued to be relied upon into the late 19th century.

Many of the early carriers are barks and brigs. Schooners soon took up the lumber trade. By 1860, schooners were increasingly refitted as barges and were towed by tugs (Mansfield 1899). By 1870, scow-schooners became important ships in the lumber trade. The steam-barge is a type of craft that was predominantly a lumber carrier. Barges and tugs were used to tow rafts of logs. A number of other lumber products were transported by ship. This includes bark, railroad ties, posts, telegraph poles, cordwood, and Christmas trees.

Mining and Quarrying

The two most important mining operations in Wisconsin, lead and iron mining, both depended on water transport for their success. The lead mining district was situated in southwestern Wisconsin, while the most productive iron mines were located in the northern part of the state. Lead mining, which occurred earlier than iron mining, was in a large part responsible for the initial settlement of Wisconsin by Euro-Americans. Both lead and iron mining contributed greatly to the growth of Wisconsin's fledgling economy. To a lesser extent, quarried stone was also shipped on the Great Lakes.

A significant portion of American lead came from southwestern Wisconsin and adjacent states between 1820 and 1920, making the area an early economic and population center of Wisconsin (Lusignan 1986d). The presence of lead in the region was known to Europeans as early as the seventeenth century when fur traders were told of the deposits by Native Americans. It was first profitably mined after 1760 when Dubuque obtained permission from the Sauk and Fox to mine on the west side of the Mississippi River (Schafer 1932). By 1810, the United States Secretary of War estimated that a half million pounds of lead were being mined, with most of this amount being obtained by the British (Schafer 1932; Palmer n.d.).

Few Americans were engaged in lead mining prior to ca. 1825, but the increasing reports of lead strikes pressured the government to allow increased settlement in the region. The Federal government set up a system in which it controlled the land and the production of lead in the region. Permits were issued for mining and smelting, with a 10% royalty required (Nesbit 1973). Most profitable was "float mineral" of near surface deposits. At the time, lead was used for making pewter, printer's type, pipes, weights, shot, and paint.

An influx of miners began in the 1820s. In 1825, only 200 Euro-Americans lived in Wisconsin. By 1829, this figure increased to 10,000. Among this group, the Cornish helped make mining a major success (Fatzinger 1971). In 1829, there were over 4,000 miners and 52 licensed smelters producing 13 million pounds of refined lead (Nesbit 1973; Schafer 1932). By that time, Wisconsin had surpassed Missouri as the most productive lead district in America. High levels of production continued into the 1840s. In 1840, the Wisconsin Territory supplied half of the lead used in the United States, but production declined after 1845 (Schafer 1932). Shallow and surface deposits were exhausted, while deeper deposits were worked down to the water table. After 1850, lead mining became a source of supplemental income for farmers during the winter months. The Civil War proved to be the sole increase in lead production after 1845 (Nesbit 1973).

A typical lead mining operation consisted of two or three men who would sink a vertical shaft. Lateral horizontal tunnels would then be dug out from this main tunnel to follow the mainly east-west oriented veins of lead. Tubs of lead ore would be lifted up by means of a crankshaft, which was then transported to a smelter. The average claim yielded 150 pounds per day (Fatzinger 1971).

Early on, most lead was shipped on riverboats from Potosi or Galena. The vessels would travel down the Mississippi to New Orleans or up the Ohio to the east. But, by the 1830s, an overland route was established to the newly opened lake ports of Milwaukee and Racine, and the lead was then shipped over the Great Lakes to the east. By 1856, over half of the lead from southwestern Wisconsin was shipped via the Great Lakes, aided by railroad connections to the southeastern Wisconsin ports (Lusignan 1986d).

The first iron mining regions were located in southern Wisconsin - the Mayville and Baraboo districts. These areas supplied relatively low grade ores and were dependent on railroads for transportation (Lusignan 1986e). More important to the history of waterways transportation is the effect that the discovery of high grade ores in the Gogebic-Menominee ranges had in the 1880s. The exploitation of ore in this area eventually pushed the southern Wisconsin districts out of production, as many single northern mines had greater annual production than did the entire southern districts (Lusignan 1986e).

The iron ore mines of the northern districts were deep mine shaft operations, needing new mining techniques and adequate transportation for them to be economically feasible (Lusignan 1986e). Railroads were constructed to harbors on Lake Superior and Menominee/Escanaba on Lake Michigan, at which the ore was loaded onto bulk carriers and shipped to Milwaukee, Chicago, and points east (Mansfield 1899). Most of the mines were owned by eastern corporations.

The Menominee range began large scale production by 1880, shipping most of the ore through Menominee/Escanaba. Seven million tons were produced in the Wisconsin part of the range by the time it closed in the 1930s (Lusignan 1986e). The Gogebic range, centered in Wisconsin around the Hurley and Montreal mines, also began production in the 1880s. Most of the ore was shipped from Ashland (Lusignan 1986e). The mines were closed in the 1930s due to the effects of the Great Depression, but resumed production during World War II. Production continued after the war, with an average of 1.5 million tons of ore mined per year (Lusignan 1986e). Due to increased competition with other areas and the high costs of operating deep shaft mines, production was discontinued in the 1960s.

Iron mining benefited the lakeshore economies of northern Wisconsin by producing an increased demand for transportation facilities to ship the ore to markets. Not only were railroads established, but harbors were expanded and shipbuilding activities increased. Wisconsin ports proved to be central locales for shipment, ideally placed between the Minnesota, Wisconsin, and Michigan iron ore ranges (Mansfield 1899). Ashland, for instance, built a dock that ran 1/2 mile into Lake Superior for loading ores onto ships. Ashland became the second leading ore shipper after Escanaba in 1889 (11th Census of the United States 1890: Mineral Industries). Superior, from 1902-1928, built the world's largest transshipment facility, consisting of four interconnected docks (Lusignan 1986e).

Lake transport of ore was expedited by the use of bulk freighters (Labadie and Murphy 1987). One of the more innovative creations associated with the iron ore mining industry was the "whaleback" carrier, created by Capt. Alexander McDougal of Superior. The whalebacks, of which 41 were constructed in Superior, from 1889-1899, were steel hulled cigar-shaped vessels designed to carry bulk cargos such as ore, coal, or oil. Cargo was stored below the waterline, while the wheeldeck and crews quarters were above (Labadie and Murphy 1987).

Many of the mining related vessels in the Great Lakes waters of Wisconsin are associated with iron mining. In fact, by 1900, iron ore shipping counted for a third of all the Great Lakes traffic. Part of the ease of shipping ore by water was due to the locks at Sault St. Marie, allowing the Lake Superior region ore to be transported to the refineries of the East. Most of the ore was transported to a number of different Lake Erie ports, while Chicago mills used the second highest amount (Mansfield 1899). By the 1890s, Ashland shipped the fourth and Superior the sixth largest amounts of ore on the Great Lakes. During this period the Lake Superior ore districts contributed almost 70% of the nation's ore supply (Mansfield 1899). Ore mining precipitated the construction of new vessel types such as bulk carriers and the whalebacks. Similarly, mechanized bulk loaders were developed and improved in an attempt to load and unload the ore more economically.

Two quarry areas in Wisconsin used water transport extensively to market their materials; the limestone quarries of Door County and the brownstone quarries of the Apostle Islands (Lusignan 1986f). While quarrying was a major industry in Wisconsin during the last half of the 19th century, it often depended less on water transport than land transport. Stone quarrying declined in Wisconsin, as it did in the rest of the nation, after the depression of 1893. In Wisconsin, this was due to the increased use of imported limestone and concrete (Lusignan 1986f).

Door County is part of a limestone district that extends from the tip of Door County to the state boundary with Illinois, extending up to 40 miles inland from Lake Michigan (Lusignan 1986f). Most of the deposits in this area were best suited for the production of lime, although many firms quarried stone for building and roadbed use as well. In Door County, one of the first limestone quarries was established by the federal government near Sturgeon Bay during improvements to the harbor there in the 1830s. Quite a few quarries were in operation by the 1880s, including those near Sturgeon Bay, Ellison Bay, Mud Bay, Ephraim, and on Washington Island. Only the quarries near Sturgeon Bay remained in production for any length of time (Lusignan 1986f).

In the mid to late nineteenth century, population increase in the Midwest spurred a greater demand for construction materials, especially durable materials for large public buildings. When in 1868 Milwaukee was to build a new courthouse, brownstone quarries at the south end of Basswood Island in Lake Superior were chosen to supply the material. This dark sandstone was heavy and hard, resistant to crushing, and in plentiful supply in the Apostle Islands. Quarrying commenced at Basswood in 1868 by the firm of Strong, French, and Company. The quarry on Basswood Island had a boardinghouse for its workers, and received supply shipments from the mainland, including barreled crackers and tinned oysters. Other quarries were later established at Houghton Point north of Washburn in 1888, on Stockton Island in 1889, and Hermit Island in 1891. Eventually there were ten brownstone quarries in the area (Ross 1960).

The Basswood brownstone was important in the late nineteenth century as a building material. Brownstone was used in many buildings in Chicago after the Great Fire of 1871. Transported by ships and rail, it found its way to Milwaukee, Detroit, Toledo, Cincinnati, St. Paul, Kansas City, Omaha, and other cities. Records suggest it was used in 40 cities and 10 states. But, by the turn of the century, lighter building materials were more frequently used, decreasing the demand for brownstone. By 1910, the quarries were largely out of business (Ross 1960).

Agriculture

Agriculture and associated industries such as grain milling were the basis of Wisconsin's economy during much of the 19th century. During that period, farming changed from an emphasis on a single crop – wheat - to a more diversified system. Naturally, the emergence of grain milling coincided with the production of wheat in Wisconsin, and declined as wheat production moved westward.

The earliest cash crop grown in the state was wheat (Lusignan 1986g). Wheat farming required little capital investment, was easy to grow, and needed little tending until harvest. Wheat also produced a high rate of financial return. In contrast, wheat tended to be hard on the soil and yields varied due to weather conditions, insects, and disease (Lusignan 1986g). During the 1850s, wheat farmers in Iowa and Minnesota began to compete with those in Wisconsin, and wheat prices fell. Between 1860 and 1880, wheat production in Wisconsin sharply declined.

Due to falling prices and soil exhaustion, many farmers began to diversify their operations during this time. The new crops included vegetables, cranberries, hops, fruits, and tobacco. Others took up raising livestock and dairying, along with

growing feed crops for the animals. The feed crops were predominantly corn, oats, hay, and clover. By the mid 1850s, dairying was a viable alternative to wheat cultivation (Lusignan 1986h). In general, feed crop and livestock dairying was better adapted to the soils and climate of Wisconsin than was wheat farming. The change to dairying and livestock increased, so that by 1899 cows were present on over 90% of the farms in the state (Lusignan 1986h). In the subsequent years, these new ventures provided a stable agricultural base for the state of Wisconsin.

Milling grains into flour and meal was an industry closely associated with agriculture. In Wisconsin, the fortunes of the milling industry closely paralleled those of the wheat farmers. The milling of grain became one of the first industries to gain importance in the territory (Lusignan 1986h). The first mills were located along waterways as a convenient source of power, and generally serviced the needs of the immediate areas. Subsequently the milling industry was transformed, with mills located in major shipping centers in an effort to supply eastern and foreign markets.

The first mills were located in Green Bay and Prairie du Chien around 1810 (Lusignan 1986i). With the influx of settlers into the territory after 1830, Wisconsin became an important wheat producing state. By 1849, there were 117 mills in the state, and between 1845 and 1875, flour milling was the leading industry in the new state (Lusignan 1986i). In 1860, it accounted for 40% of the total dollar amount of the state's manufactures, or about $11.5 million in production. By 1880, the year of peak production, it accounted for only 20% of the total dollar amount of the state's manufactures, but over $27.5 million in production (Alexander 1929). During this period, Wisconsin was ranked seventh or eighth in flour production in the Union (Nord 1978). After 1900, the number of mills in Wisconsin declined steadily.

In the period between 1860 and 1880, wheat was increasingly milled for shipping to eastern and foreign markets (Lusignan 1986i). Cities like Milwaukee, Neenah-Menasha, La Crosse, and Superior, with their rail links to rural areas and excellent harbors, became major milling and shipping centers (Lusignan 1986i). Superior first became a major flour milling and shipment center in the 1880s, due to its proximity to the western wheat producing areas, rail connections, and harbor facilities (Lusignan 1986i). But, like all grain milling centers in Wisconsin, it too declined after 1900.

Submerged vessels associated with agriculture are present in both Lake Michigan and Lake Superior. The first shipments were made from various Lake Michigan ports in the late 1830s to Buffalo, and were carried mainly on brigs, steamers, and schooners. Initially, these ships were loaded by hand with buckets. Elevators were constructed by the 1840s, loading the vessels first by buckets and later by horse-driven belts (Mansfield 1899). Quite early, Milwaukee became a major shipping port. In 1860, almost 8 million barrels of wheat, oats, and other grains were shipped from that port. The trade peaked in Milwaukee in 1875 when over 20 million barrels were shipped, while by 1890 this amount fell to 3 million barrels. By that point, though, Lake Superior ports were important traffickers in grains. By 1900, there were nine elevators in Superior, which accounted for half of the grain handling capacity in the United States portion of Lake Superior (Mansfield 1899).

Package Freight

The term package freight is used to differentiate general merchandise from bulk cargoes. The early history of package freight carriers is associated with ships providing passenger service, with moving passengers often being more important. Some of the early freight carriers shuttled manufactured goods to isolated towns and camps, and in return picked up raw materials to be shipped back to the urban centers of the east. Typically, supplies would be loaded in Detroit and Cleveland, including coffee, pork, tobacco, stoves, net lines, crockery, sundries, leather, cider, twine, salt, beans, potatoes, sugar, flour, hay, oats, whiskey, beer, lard, butter, empty barrels, fishing gear, boats, and soap. In return, the carriers would pick up fish or other raw materials (Cooper 1987).

Over time, package freight became increasingly important, supplanting the passenger service (Murphy and Lenihan 1987). The primary trend in goods was from the east to the west, supplying the growing population of Wisconsin with manufactured goods from the east. Going to the east were agricultural products, including flour, from the Midwest. Package freight was also a frequent return cargo for schooners and cargo steamers. Murphy and Lenihan (1987) indicate that Buffalo, Cleveland, and Detroit were the primary eastern ports, with Chicago, Milwaukee, and Duluth-Superior being the western termini.

It was also increasingly common for railroad companies to own and operate package freight lines. By the early part of the twentieth century, all major lines were owned by railroad concerns. In fact, by 1916 the Interstate Commerce Commission forced a reorganization of the package freight lines, requiring that the railroads divest their holdings of Great Lakes vessels. As a result a new company, controlling 85% of the passenger and package freight service on the Great Lakes, the Great Lakes Transit Corporation, was formed (Fletcher 1960). By the Depression, though, the freight lines began to run at a deficit, and the start of World War II saw the end of the package freight service on the Great Lakes (Fletcher 1960). A descendant of the passenger and package freight service is the Great Lakes ferry lines.

Coal

Other, bulkier cargos were also shipped to and from Wisconsin via the Great Lakes. Most important among these items was coal, brought from Eastern mines to help fuel Midwestern industrial expansion. The amount of coal imported into Wisconsin was quite low before 1850. For instance, only 2,177 tons were shipped into Milwaukee in 1851 (Mansfield 1899). By 1861 this figure rose to 31,000 tons, and by 1897 it totaled 1.5 million tons (Mansfield 1899). An equally impressive 1.8 million tons were unloaded at the Duluth/Superior ports in 1897 (Mansfield 1899). Coal was transported mainly by ship prior to 1874, after which rail became increasingly important. The distribution of coal was highly centralized. Ships would deliver large loads to a nodal port, from which it was transshipped to smaller communities (Mansfield 1899).

Vessel Types

Government

While the Government impact on Great Lakes shipping was substantial, few local, state, or federal craft operated on the waters until the formation of the Coast Guard. Prior to that, most government activity centered on the improvement of harbors, the construction and manning of lighthouses, harbor lights, and lightships, and a lifesaving rescue service.

One activity that the federal government did commission vessels for was that of lightships. Lightships were sent to northern Lake Michigan as early as 1832, although most operated from 1875 to 1950. In the early years, the lightships were plagued by serious problems with vessels, personnel, and equipment (Watts 1989). In 1851, Congress investigated the situation, and in 1852 formed the Lighthouse Board within the Treasury Department in an effort to upgrade technology and improve conditions. The Board was disbanded in 1910, when the Bureau of Lighthouses within the Commerce Department was formed, once again in an effort to improve and modernize the lighthouses and lightships. The Coast Guard then took over responsibility for lighthouses and lightships in 1939 (Watts 1989).

A second federal agency involved in Great Lakes shipping was the Revenue Cutter Service. The Revenue Cutter Service was created by an act of Congress in 1789 to collect duties placed on ships and their goods being imported into the United States, and it authorized vessels to secure the collection of these revenues (Capron 1965:10). A 1790 bill authorized the construction of the first Revenue Cutters (Capron 1965). The first revenue cutters appeared on the western Great Lakes prior to the Civil War, perhaps as early as the 1840s, in an effort to regulate trade with Canada and the eastern United States ports. The Revenue Cutter Service was merged with the Lifesaving Service in 1915 and is now part of the United States Coast Guard (Capron 1965).

Sailing Vessels

Sailing vessels include such types as barks and barkentines, brigs and brigantines, schooners, schooner-barges, and scow-schooners. Of these, barks, barkentines, brigs, and brigantines are numerically the least common of the Great Lakes sailing vessels. All of these vessels are commercial ships of forty or more feet in length and are propelled by sail, with varying types of rigging. Most of the sailing vessels described here were general purpose cargo carriers, with few specialized carriers constructed.

Labadie and Murphy (1987:45) make the point that there were few barks or brigs on the Great Lakes, although these terms were often used for the more common barkentines and brigantines. True brigs were two-masted and square-rigged on both masts; the mainmast also carried a spanker sail. Barks carried three or more masts were square-rigged on both fore and mainmasts, and the mizzen (or the aftermost mast in barks with more than three masts) was fore-and-aft rigged (usually with a gaff-rigged spanker and gaff-topsail). Brigantines and barkentines were characterized by having a combination of square and fore-and-aft sails. The brigantine carried a single square-rigged foremast and a fore-and-aft rigged mainmast. Barkentines had three or more masts with square sails on the foremast and fore-and-aft (usually gaff-

rigged) sails on the other masts. Barks and brigantines usually carried a variety of jibs and headsails on their foremast, main staysails, and gaff-topsails.

After 1830, schooners quickly became the most favored rig on the Great Lakes. Schooners were built for speed, maneuverability, and their ability to sail close to the wind, and usually had a single deck. Flat-bottomed schooners were poor sailors, as they tended to drift sideways. Centerboards came to be incorporated into the designs of all hull types to improve windwardliness and control leeward drift (Labadie 1989:19-20).

Schooners are fore-and-aft rigged, and have two or more masts. Three-masters became the norm on the Great Lakes around the Civil War; a few four-masters appeared thereafter, and at least one five-master was constructed (Chapelle 1982:259-260, 270; Hirthe and Hirthe 1986:vii). Lake schooners usually carried square-rigged topsails on their foremasts, and by the time of the Civil War, augmented these with an additional triangular sail (called a raffee) footed on the foretopsail yard and spread up to the mast truck (Cuthbertson 1931:128-129; Hirthe and Hirthe 1986:vii). Lake schooners usually carried a variety of jibs and headsails on their foremast, main staysails, and gaff-topsails.

Scow-schooners were schooner rigged, but were characterized by flat-bottomed, boxy hulls, and flat bows (though some variants of this design had an ordinary schooner bow). They were usually rigged with two or three masts. They were generally crudely built, and used for low-paying, local freight such as hay, lumber, cordwood, tanbark, and sand (Labadie 1990:F:4).

Canaller schooners were designed to fit through the Welland and St. Lawrence locks, allowing passage into and out of Lake Ontario from Lake Erie and the St. Lawrence River, respectively. Restricted by lock dimensions, canallers were characterized by straight, vertical stems, narrow beams, flat sides, flat bottoms and sterns, and short, highly canted bowsprits and jib booms (Cuthbertson 1931:234-235; Labadie 1989:21). As a class, their dimensions changed along with the developing lock systems.

Schooner-barges developed out of a need to transport large quantities of bulk material economically after the Civil War (Carrell 1985:14-16). This resulted in a "consort system" in which heavily laden barges were towed by tugs or steam barges. Schooner-barges included schooners renovated into barges, or specially constructed schooner-barges. The main difference between schooner-barges and schooners is the reduction in the sail and rigging area in the former. The masts were shorter (sometimes deliberately cut down), and usually totaled two to three in number. Deckhousing was usually removed from converted schooners, and hatches were added. A pilothouse was sometimes added to provide the pilot with a clear view, and a small steam-engine was often used to hoist anchors, work pumps, and load and unload cargo. Schooner-barges needed fewer crew members for their operation than did fully-rigged schooners, thus reducing costs.

Steam Vessels

The major steam vessels include side-wheel steamers, steam-barges, steam-screws, and steam-scows, of which the last is a somewhat numerically unusual type. These vessels were used to transport package freight, passengers, and bulk freight.

Side and stern paddle-wheel steamers usually had two or more decks, with cargo space below the decks in holds, and passenger accommodations in cabins on the deck. Of the two paddle-wheel steamers, side-wheel steamships were most common on the Great Lakes, with stern-wheelers being quite rare. Side-wheelers functioned as general cargo carriers and had non-specialized cargo space. These vessels became particularly well-suited for passengers, culminating in the "palace" side-wheelers of the mid-nineteenth century. Paddle-wheel steamers that did not specialize in the transport of passengers were known as package freighters and had two decks with side loading gangways (Labadie and Murphy 1987:52-54).

A few "steam-schooner" vessels mark somewhat of a transitional design between schooners and steam-screws. Steam-schooners were converted schooners that had steam engines and screw propellers replacing sails as their primary means of locomotion. These vessels were used to carry passengers and freight (Labadie and Murphy 1987:51).

Steam-screws (called "propellers" by contemporaries) were general cargo and passenger carriers. These vessels were double-decked with main and spar decks and a passenger cabin on top. Cargo was carried between decks and in the hold beneath the main deck. Package freight (cargo usually in barrels, crates, boxes, bags, and bales) was loaded between decks through a series of gangways (freight openings in the sides of the vessel), and could also be stowed in the hold. Bulk cargo, such as grain and coal, was loaded into the hold by buckets. Steam-screws had compact machinery, enabling them to carry more cargo, providing an advantage over side-wheelers (Labadie and Murphy 1987:53).

Steam-screws grew in size through time, and, as their length exceeded 150 feet, hulls needed to be reinforced to prevent longitudinal sagging or hogging. Complex reinforcing systems of wood, and later, iron and steel began to emerge, including longitudinal hogging trusses (called crown or Bishop's arches), use of an arched bilge ceiling, and iron sheer straps (Labadie and Murphy 1987:55). Though wooden steam-screws were built up to 1902, after 1880 they were being slowly replaced by iron and steel-hulled ships (Labadie and Murphy 1987:59). Gas and oil-powered screw propulsion systems made their appearance around the turn of the century.

After about 1860, steam-screws were built without enclosed freight decks, and were single-decked with small cabins located at the stern. These modified steam-screws were forerunners of a new vessel type, steam-barges. Steam-barges were screw propelled steamers with schooner-type hulls. These vessels had single open freight decks unlike the earlier steam-screws, and compact aftercabins. Steam-barges were designed to tow barges and to carry bulk cargoes, mainly lumber. Small storage capacity below deck along with inadequate hatch sizes thwarted their use as bulk carriers. The earliest of these vessels had after pilothouses, while after 1880 most carried a raised forecastle with a well deck between the bow and stern. Most steam-barges had a tall mast near the bow, while larger vessels had up to three masts. Most had centerboards. Large steam-barges, like their steam-screw counterparts, needed reinforced hulls. Steam barges ended operation on the Great Lakes by the 1930s (Labadie and Murphy 1987:56-57, 60). Steam-scows are smaller than steam-barges, with boxy scow hulls and steam-screw propulsion, usually involved in general-

purpose heavy marine work such as dredging, logging, wrecking and salvage, and construction.

Specially designed bulk freighters, used to carry ore and grain, began to be built shortly after the Civil War. The first was the bulk freighter *R. J. Hackett*. These freighters were double-decked and had space below the decks for dry bulk cargo, wide hatches that were evenly spaced to accommodate bulk loading devices, and were equipped with powerful engines to enable them to tow barges. Pilothouses were placed forward to improve visibility, and the machinery was placed in the stern. Originally, these vessels had three to four masts to steady them and act as auxiliary propulsion, but this was abandoned by around 1890 due to improvements in steam engines. The vessels had long, narrow shoal-draft hulls and were characterized by close, heavy floor framing, large multiple floor keelsons set parallel to the centerline keelson, and (in many cases) the use of diagonal iron or steel cross bracing and reinforcing straps in the hull. Due to improvements in marine architecture, propulsion systems, and the enlarging of canals and locks, bulk carriers increased in size through time, and, after the turn of the century, were being built almost exclusively of steel (Labadie and Murphy 1987:57-59).

Miscellaneous Vessels

Government lightships and revenue cutters, barges, scows, and fish and towing tugs were often designed around vessel function more than propulsion, differentiating them from the above mentioned vessel types. Scows and barges were used for hauling bulk cargos, wrecking and salvage, construction, dredging, logging, and other heavy marine uses. Both types are unpowered, and must be towed by other craft. Many Great Lakes barges were simply cut down, unrigged old schooners and steamers, utilizing the original vessel's hull shape and reinforcement scheme, perhaps with some ad hoc reinforcing additions such as tie rods and turnbuckles. Converted barges carrying massive bulk cargoes such as stone may have even had their decks removed, serving simply as huge floating wheelbarrows. Scows were generally smaller, specially built workcraft, having boxy hulls, cross-planked bottoms, and squared ends. Neither barges nor scows carried masts (other than derricks for salvage or logging work, differentiating them from scow-schooners and schooner-barges), and had minimal superstructure, other than that required for housing crews, machinery, and equipment. Barges and scows frequently carried specialized equipment for the current task at hand, including wrecking, logging, construction, or dredging equipment. In various forms, barges are still in use today. Most are general-purpose, steel hulled vessels; though a variety of special-purpose types are utilized for bulk cargo transport on large inland rivers. Some are former military work vessels (such as construction and dredging barges), as well as landing craft.

Tugs are generally small powered vessels, less than 100 ft in length, used for various types of fishing and towing operations. Tugs apparently have their origin in small, multi-purpose steam powered craft, both screw and paddle-propelled, that came into use around the 1840s and 1850s (Labadie 1989:25). These vessels were used to perform many tasks, both commercial and governmental, including service as fish tugs, towing log rafts, harbor tugs, fireboats, hydrographic survey vessels, and even gunboats. As small steamers, tugs were used locally from time to time for

passenger and packet transportation, and occasional use for shipwreck rescues, pleasure excursions, salvage, and wrecking.

Great Lakes tugs were used both in harbors and on the open lake. Harbor tugs became increasingly common after the Civil War, especially as vessels became larger and less maneuverable, and as developing harbors became more congested. Harbor tugs were used for towing sailing vessels into and out of harbors, nudging sailing and steam ships into and out of loading docks, and towing sailing vessels through canal areas, such as the Sturgeon Bay Ship Canal. These tugs were generally around 40 to 70 feet in length, were screw-propelled, with a single powerful steam engine. Resembling modern tugs in many ways, these harbor tugs usually had a small pilot house forward, crews' quarters, machinery and galley amidships, and an open afterdeck with towing bitts.

Lake tugs were generally larger, and were used for towing lumber rafts and strings of barges, scows, or schooner-barges. Powerful towing tugs were built for towing large rafts of lumber on lakes Michigan and Huron during the 1870s. These large tow tugs were also used as wrecking tugs, and specialized in the salvage and recovery of other vessels. These large tow tugs resembled their smaller harbor sisters, but had much larger engines, varied from 90 to over 150 feet in length, and had a higher freeboard for navigating on the open lakes.

Tugs also saw use in the fisheries, including setting gill nets, pound nets, set lines, trawling, and shipping processed fish to distribution points. Frequently one of only a handful of powered vessels available locally, fish tugs also ended up performing many miscellaneous local tasks, including towing, rescues, excursions, and carrying package freight. In the twentieth century, more specialized fishing tugs emerged. Twentieth century fish tugs were first built of wood, later of riveted steel and then welded steel, and were propelled by steam screws until about the time of the Great Depression. Smaller launches propelled by steam and naphtha were also used during this period for fishing and transportation. After the 1920s and 1930s, gasoline engines, including the popular Kahlenberg engines built at Two Rivers, came into greater use. During and after the Second World War, diesel engines, also manufactured by Kahlenberg, came to replace gasoline engines.

The Great Lakes fishing tug in its final form was a product of local innovation as well as adaptation to the harsh Great Lakes environment. It seems to have developed from the designs of the small packet steamers and tugs of the late-nineteenth century. The classic gill net tug is frequently likened to a "wooden shoe" in appearance. These sturdy gill net boats invariably have an enclosed hull but exhibit a great amount of variation in the placement of the pilot house and net doors. Generally, the pilot house is placed aft, though many examples of forward pilot houses exist, especially in earlier boats, with the machinery amidships. The pilot house usually consists of a steering station slightly elevated above the top of the boat, fitted with square windows or round portholes. The enclosed upper structure permits fishing even in winter, allowing the tugs to wallow through heavy winter seas which may break clear over the vessel. Winter heating was provided by wood or coal stoves, now replaced by oil stoves in more modern tugs. Modern fish tug hulls are normally of steel (though some older boats are wooden with steel-sheathing) with a sharp bow for ice-breaking. Gill net boats generally have net doors placed on either side of the

hull forward for lifting nets, and a large after door for setting nets. Traditional vessel colors were a black lower hull and a white upper hull, with trim of the same color as the lower hull, and occasionally a bottom painted with a red anti-fouling paint (Weborg, pers. comm. 1991).

Another fishing boat type is the pound net boat. Pound nets came into use by 1885 in the Apostle Islands and by 1917 in Door County (USNPS 1988:15, 24-25; Weborg, pers. comm. 1991). Placement and lifting of these nets requires an open boat design, the boat having to actually enter into the net impoundment under the net cables to harvest fish from the pound nets. Therefore, pound net boats are characterized by a pilot house placed far forward, with a long open afterdeck and a very low bulwark. Early pound net boats were basically large wooden skiff designs with propulsion by oar, sail, or later, by small internal combustion engines. Modern pound net boats are gasoline or diesel screw-propelled, and have steel hulls and superstructures.

CHAPTER THREE
LAKE SUPERIOR REGION

The Lake Superior region encompasses all Lake Superior waters within Wisconsin state lines and includes approximately 2,049 square miles of water off Douglas, Bayfield, Ashland, and Iron counties (Figure 2). The Wisconsin state line abuts the state boundaries of Minnesota and Michigan, and includes major shipping lanes to and from Duluth and Two Harbors, Minnesota, and Ashland and Superior, Wisconsin. Several smaller harbors exist along the Wisconsin shoreline that includes Port Wing, Herbster, Cornucopia, Red Cliff, Bayfield, LaPointe, and Saxon Harbor. These harbors were used by smaller vessels that serviced the fishing, lumber, and fur trades, and continue to be used for commercial fishing and recreation. Maximum water depth is 504 feet.

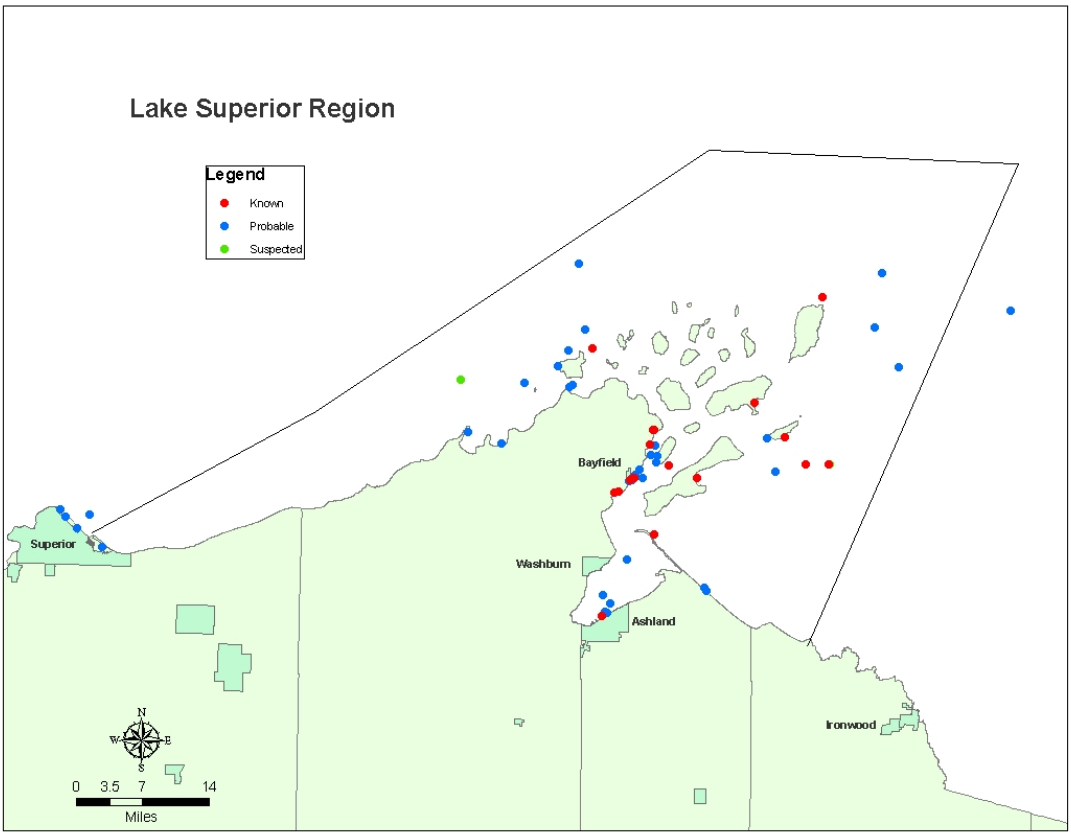

Figure 2. Lake Superior region.

Historic records indicate there were 65 vessels lost within the Lake Superior region. Of these 65 losses, the locations of 21 wreck sites are known (Table 1). Of the known wreck sites, 81% are located within the surf zone, 3 wreck sites are deep and broken, 1 wreck site is deep and intact, and 9 wreck sites are listed on the National Register of Historic Places. One site, an unidentified barge, was removed for a marina development.

Table 1. Known shipwrecks in the Lake Superior region.

Name / Build Date	Vessel Type	Condition	Depth	NRHP Listed
Charlotte (1912)	Tug	Surf Zone	6	
Emerald (1862)	steam paddle	Surf Zone	0	
Fedora (1889)	steam screw	Surf Zone	5	
Finn McCool (1926)	barge	Surf Zone	15	
H.D. Coffinberry (1874)	steam screw	Surf Zone	6	
Lucerne (1873)	schooner	Surf Zone	25	Yes
Marquette (1881)	steam screw	Deep / Broken	215	Yes
Moonlight (1874)	schooner-barge	Deep / Broken	240	Yes
Noquebay (1872)	schooner-barge	Surf Zone	10	Yes
Ottawa (1881)	Tug	Surf Zone	10	Yes
Pretoria (1900)	schooner-barge	Deep / Broken	65	Yes
R.G. Stewart (1878)	steam screw	Surf Zone	7	Yes
R.W. Currie (1882)	Tug	Surf Zone	4	
Rambler (1873)	Tug	Surf Zone	1	
Sevona (1890)	steam screw	Surf Zone	25	Yes
T.H. Camp (1876)	Tug	Deep / Intact	185	Yes
unidentified Mackinaw	sloop	Surf Zone	30	
unidentified barge	scow	Surf Zone	Removed	
unidentified wreckage (p)	Tug	Surf Zone	10	
unidentified wreckage (q)	Tug	Surf Zone	15	
unidentified wreckage (r)	unknown	Surf Zone	25	

Of the 21 known shipwreck sites within the Lake Superior region only one, the tug *T.H. Camp*, remains intact. Eighty-one percent of the known shipwreck sites are in the surf zone, broken up and largely devoid of cultural materials. Many of the deeper sites are broken up as well, a condition common to wooden vessels that sank while carrying iron ore. The known shipwreck sites are not concentrated in any one area, but are widely dispersed throughout and around the Apostle Islands.

There are 40 probable and 4 suspected shipwreck sites within the Lake Superior region (Tables 2 and 3). Of these, 72% are located within the surf zone. There is a small concentration of known, probable, and suspected sites around Bayfield, but these sites are largely small craft in the immediate vicinity of marina development. It is likely that marine construction and use have reduced these sites' potential to yield significant hull structure and cultural components, and make sustained site access difficult.

Known wreck sites within this region represent vessels constructed in Illinois, Michigan, New York, Ohio, Pennsylvania, and Wisconsin. Vessel types include schooners, schooner barges, scows, wooden tugs, a sloop, wood and steel steam screws, a steam paddle, and a wooden work barge. Known vessels within the Lake Superior region include:

Charlotte (1912) A 43-ton tug built at an unknown yard in Erie, Pennsylvania. The vessel was originally built as a towing vessel, then converted to a fishing tug, and was finally converted to a work tug. Originally steam-powered, she was converted to gas

and finally diesel. She was abandoned sometime between 1943 and 1945. Today, she lies badly broken and buried in 6 feet of water in Pikes Bay near the marine railroad.

Emerald (1862) A 215-ton wooden steam paddle built at the Charles Hinman shipyard in Algonac, Michigan. She was abandoned in 1893 in Ashland Harbor at the old Durfee dock, where her boilers and walking beam engine were salvaged. The vessel's position is reportedly known but not on record with the Society.

Fedora (1889) A 1,848-ton wooden bulk carrier built at the F. W. Wheeler shipyard in West Bay City, Michigan. She caught fire and was run aground north of Red Cliff on 20 September 1901. Today, her lower hull lies in 8 feet of water near the mainland with portions of her wooden frames breaking the surface of the water.

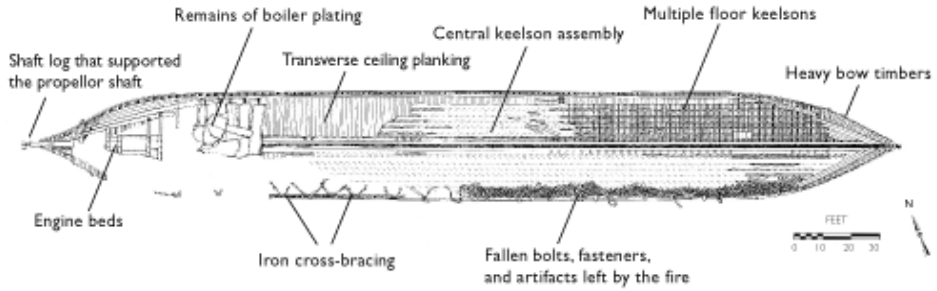

Figure 3. The *Fedora*'s site plan. Wisconsin Historical Society.

Finn McCool (1926) A 343-ton wooden derrick barge built at an unknown shipyard in Ashland, Wisconsin. Employed in the lumber industry, she sank at her mooring around 1959. Today, she lies partially intact in 15 feet of water off Bayfield Harbor. Portions of the hull break the surface of the water.

Figure 4. The *Finn McCool*'s port quarter. Tamara Thomsen.

H.D. Coffinberry (1874) A 778-ton wooden bulk freighter built at the Thomas Arnold shipyard in East Saginaw, Michigan. She was abandoned in 1917 and today her lower hull lies on shore on the north side of Red Cliff Bay.

Figure 5. The *H. D. Coffinberry* on the north side of Red Cliff bay. Tamara Thomsen.

Lucerne (1873) A 727-ton, three-masted schooner built at the Parsons & Humble shipyard in Tonawanda, New York. She sank in a storm while hauling iron ore from Ashland on 17 November 1886 with her entire crew lost. Today, she lies partially intact in 20 feet of water off Long Island. The *Lucerne* is listed on the National Register of Historic Places.

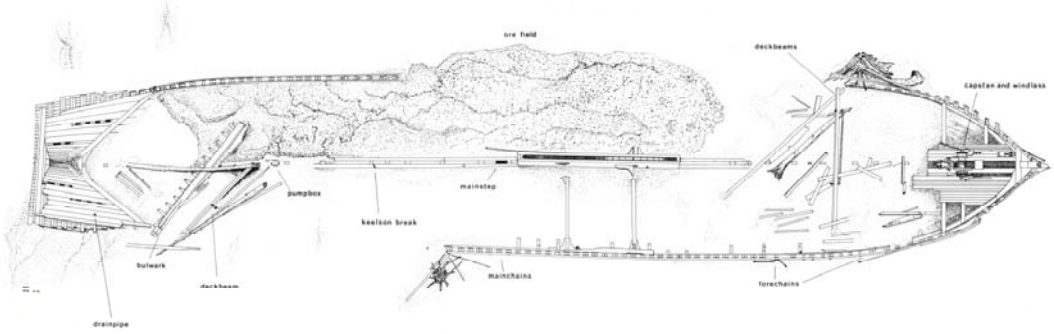

Figure 6. The *Lucerne*'s site plan. Wisconsin Historical Society.

Marquette (1881) A 1,343-ton wooden bulk freighter built at the Globe Iron Works in Cleveland, Ohio, as the *Republic*. Renamed the *Marquette*, she sprung a leak on 4 October 1903 after departing Ashland with a load of iron ore. Today, she lies partially broken in 215 feet of water 5 miles east of Michigan Island. The *Marquette* is listed on the National Register of Historic Places.

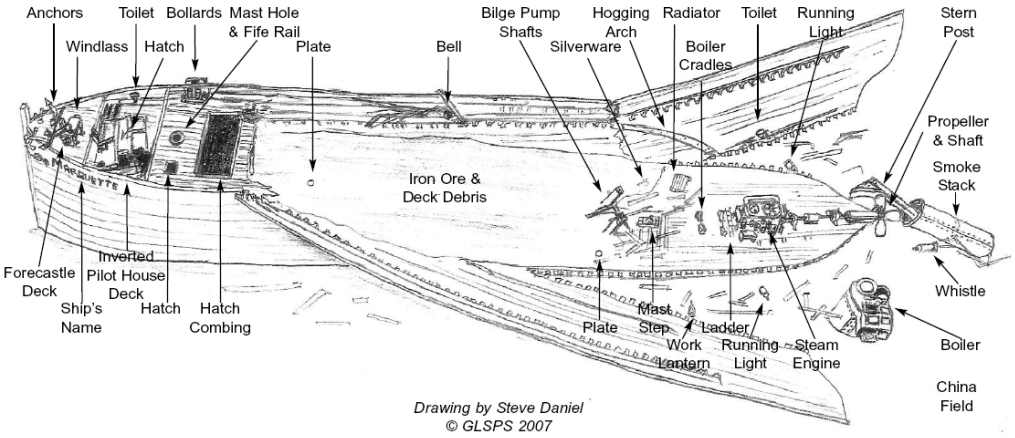

Figure 7. The *Marquette*'s site plan. Great Lakes Shipwreck Preservation Society.

Moonlight (1874) A 777-ton, three-masted schooner built at the Wolf & Davidson shipyard in Milwaukee, Wisconsin. Cut down to a schooner barge in 1896, she was carrying iron ore from Ashland when she sprung a leak on 17 September 1903. Today, she lies broken in 235 feet of water 7 miles east of Michigan Island. The *Moonlight* is listed on the National Register of Historic Places.

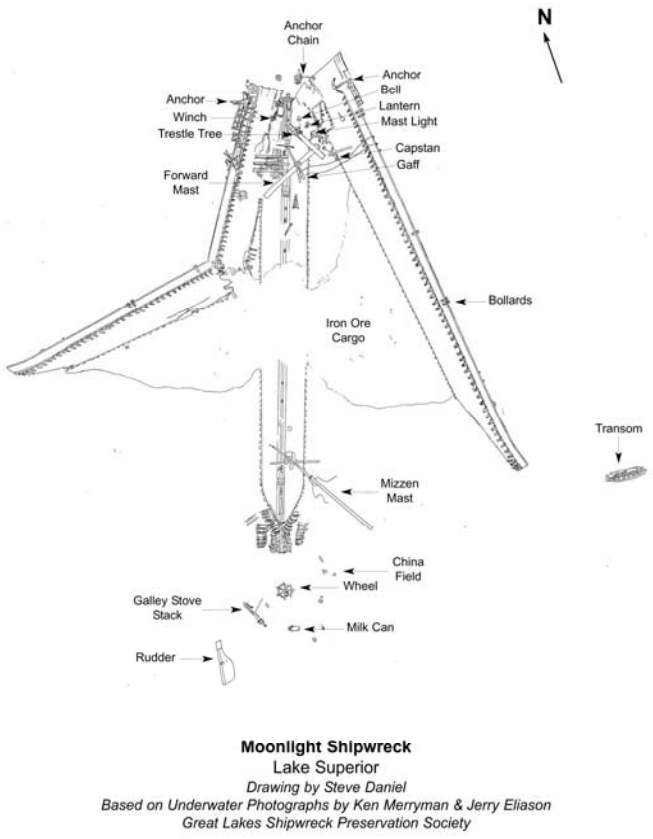

Figure 8. The *Moonlight*'s site plan. Great Lakes Shipwreck Preservation Society.

Noquebay (1872) A 684-ton wooden schooner barge built at the A.A. Turner shipyard in Trenton, Michigan. She caught fire while carrying a cargo of wood on 5 October 1905 and was run aground at Stockton Island. Today, she lies broken and buried in 15 feet of water. The *Noquebay* is listed on the National Register of Historic Places.

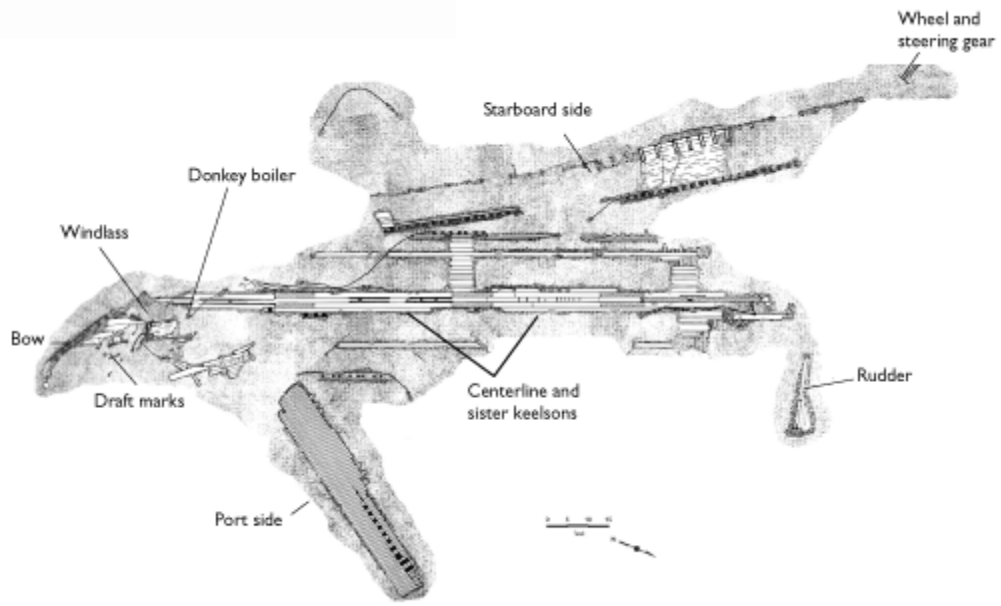

Figure 9. The *Noquebay*'s site plan. Wisconsin Historical Society.

Ottawa (1881) A 610-ton wooden tug built as the *Boscobel* at the Miller Brothers shipyard in Chicago, Illinois. She was working as a salvage tug when she caught fire on 29 November 1909. Today, her lower hull lies in 10 feet of water on the north side of Red Cliff Bay. The *Ottawa* is listed on the National Register of Historic Places.

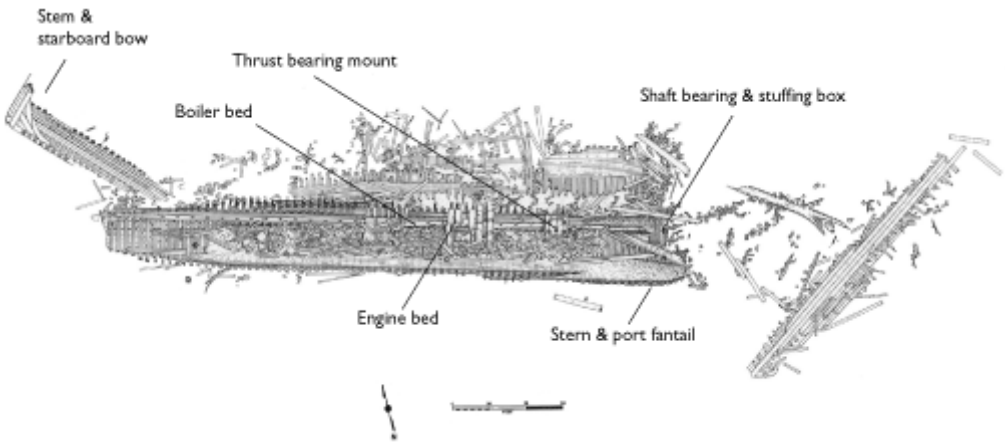

Figure 10. The *Ottawa*'s site plan. Wisconsin Historical Society.

Pretoria (1900) A 2,790-ton wooden schooner barge built at the James Davidson shipyard in West Bay City, Michigan. She began taking on water while carrying iron ore out of Ashland on 2 September 1905 and sank northeast of the Outer Island Lighthouse. Today, she lies broken in 55 feet of water. The *Pretoria* is listed on the National Register of Historic Places.

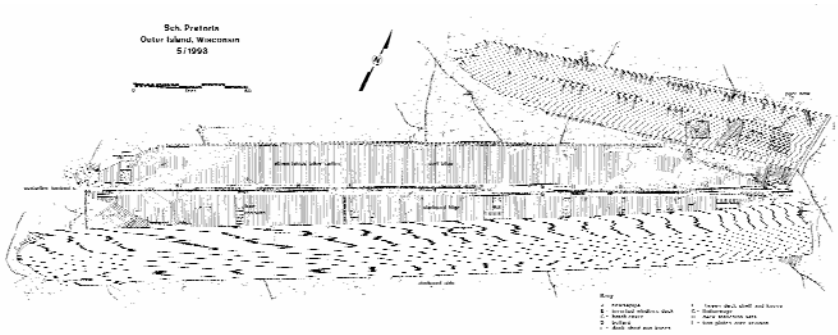

Figure 11. The *Pretoria*'s site plan. Wisconsin Historical Society.

R.G. Stewart (1878) A 197-ton wooden steam screw built at the George H. Notter shipyard in Buffalo, New York. She caught fire during a salvage attempt on 4 May 1899 on the east side of Michigan Island. Today, no hull structure remains, but a debris field is widely scatted throughout the area. The *R.G. Stewart* site is listed on the National Register of Historic Places.

R.W. Currie (1882) A 36-ton wooden tug built at the Cash and Currie shipyard in Port Huron, Michigan. The vessel was burned and abandoned around 1919 on the north side of Red Cliff Bay. Today, the site is known but not on record with the Society.

Rambler (1873) A 42-ton wooden tug built by the Union Dry Dock Company in Buffalo, New York. The vessel caught fire on 24 August 1891 in the vicinity of Red Cliff and was a total loss. Today, the vessel lies under the wreckage of the *H. D. Coffinberry* on the north side of Red Cliff Bay.

Sevona (1890) A 3,166-ton steel bulk carrier built as the *Emily P. Weed* at the F. W. Wheeler shipyard in West Bay City, Michigan. She was later lengthened and renamed the *Sevona*. She ran aground in a blinding storm on 2 September 1905 on Sand Island Shoal, and today lies broken in 20 feet of water. The *Sevona* is listed on the National Register of Historic Places.

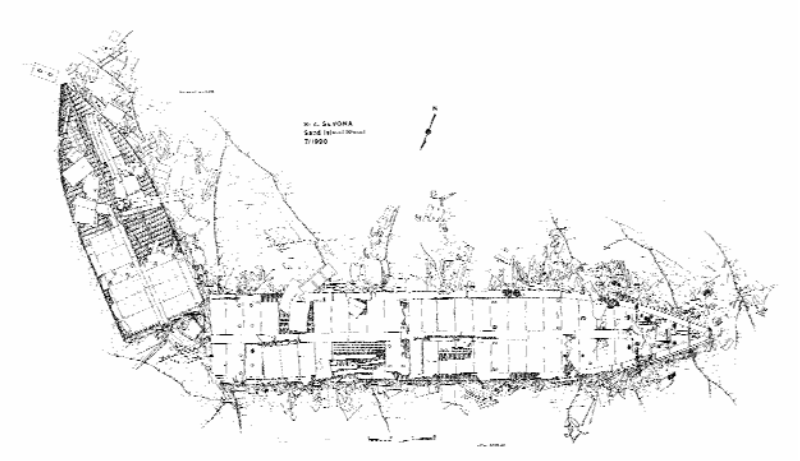

Figure 12. The *Sevona*'s site plan. Wisconsin Historical Society.

T.H. Camp (1876) A 58-ton wooden tug built at the C. Reed shipyard in Cape Vincent, New York. She foundered while overloaded on 15 November 1900 between Basswood and Madeline Islands. Today, she lies upright and completely intact in 185 feet of water. The *T.H. Camp* is listed on the National Register of Historic Places.

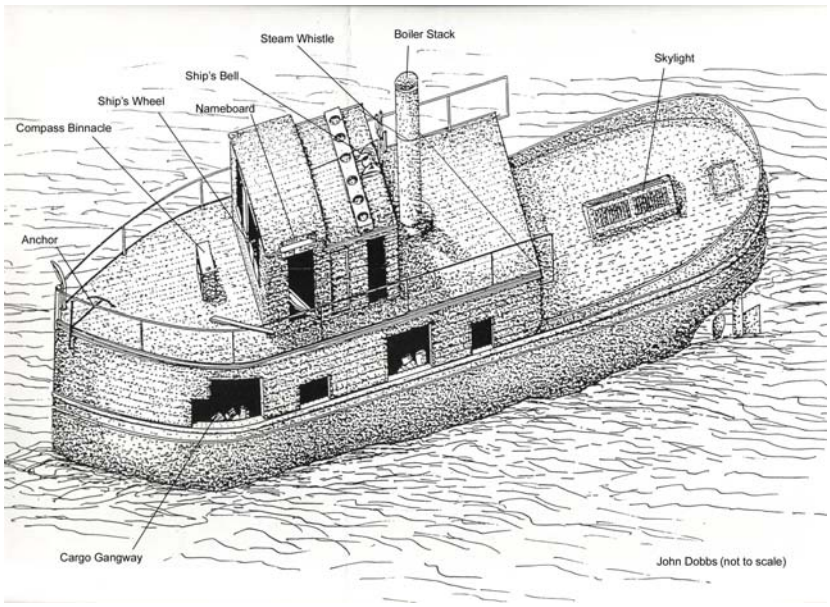

Figure 13. The *T. H. Camp.* Great Lakes Shipwreck Preservation Society.

Unidentified Mackinaw A 27-foot unidentified sloop located in Big Bay off Madeline Island. The site is associated with an abandoned log crib. Today, the vessel lies partially intact in 25 feet of water. This site is pending listing on the National Register of Historic Places.

Figure 14. Photo mosaic of the unidentified vessel in Big Bay. Wisconsin Historical Society.

Unidentified barge Believed to be the burned and abandoned scow *Bob Cook*, the site consists of the broken hull and some ship's equipment in 4 feet of water on the north side of Pikes Bay.

Unidentified wreckage (p) This site appears to be a steam tug from the late nineteenth century, which today lies burned and abandoned near an old sawmill dock that ceased operation in 1924. The site lies in 10 feet of water on the southwest side of Bayfield Harbor.

Unidentified wreckage (q) This site appears to be the wreck of a small wooden tug that may have been used in fishing or general work purposes. Abandoned and possibly burned, all the machinery has been salvaged and the hull has been demolished by waves and ice. This site is associated with *Unidentified wreckage (p)* on the southwest side of Bayfield Harbor in 10 feet of water.

Unidentified wreckage (r) A possible fish tug built between 1890-1930. Today, a 20-foot long section of keel, engine bed, disarticulated hull sides, and a section of the stern post remain in 27 feet of water southeast of Blackhawk Harbor Marina.

Table 2. Probable shipwrecks within the Lake Superior region.

Name / Build Date	Vessel Type	Casualty Type	Probable Condition
A.L. Hopkins (1888)	schooner	foundered	Deep
Algonquin (1839)	schooner	abandoned	Surf Zone
Alice Craig (1877)	schooner	stranded	Surf Zone
Antelope (1861)	schooner-barge	foundered	Deep
City of Ashland (1883)	steam paddle	burned	Deep
Clarence (1930)	gas screw	exploded	Surf Zone
Commodore Jack Barry (1885)	tug	burned	Surf Zone
F.L. Danforth (1867)	tug	burned	Surf Zone
Francis R. Anderson (1885)	tug	abandoned	Surf Zone

Fred and Will (1867)	tug	burned	Surf Zone
Hazel (1893)	steam screw	abandoned	Surf Zone
Idlewild (?)	unknown	burned	Surf Zone
Ira H. Owen (1887)	steam screw	foundered	Deep
John A. Paige (1881)	tug	burned	Surf Zone
Josephine (1864)	schooner	stranded	Surf Zone
Kakabeka (1885)	steam screw	foundered	Deep
Lua (1905)	sailboat	foundered	Surf Zone
M.R. Warner (1873)	schooner-barge	Stranded	Surf Zone
Madeline (1892)	steam screw	abandoned	Surf Zone
May Corgan (?)	tug	foundered	Surf Zone
Mystic (?)	gas screw	Stranded	Surf Zone
Oden (1890)	steam screw	foundered	Surf Zone
Ontario (1891)	barge	foundered	Deep
Ozaukee (1861)	steam paddle	Stranded	Surf Zone
Phantom (?)	schooner	Stranded	Surf Zone
Prussia (1873)	steam screw	Burned	Deep / Burned
Tourist (1888)	tug	Burned	Surf Zone
Unknown gasboat (a)	gas screw	Foundered	Deep
Unknown gasboat (b)	gas screw	Burned	Surf Zone
Unknown gasboat (c)	gas screw	foundered	Deep
Unknown gasboat (d)	gas screw	Stranded	Surf Zone
Unknown gasboat (e)	gas screw	Stranded	Surf Zone
Unknown scow (b)	scow	foundered	Surf Zone
Unknown scow (c)	scow	foundered	Deep
Unknown skiffs	skiff	unknown	Surf Zone
Unknown sloop (a)	sloop	foundered	Deep
Unknown sloop (b)	sloop	Stranded	Surf Zone
Unknown sloop (c)	sloop	Stranded	Surf Zone
Unknown wreck (a)	unknown	unknown	Deep
Unknown wreck (b)	unknown	Stranded	Surf Zone

Table 3. Suspected shipwrecks within the Lake Superior region.

Name / Build Date	Vessel Type	Casualty Type	Probable Condition
Ashland (1867)	Tug	abandoned	Surf Zone
Bob Cook (1907)	Scow	foundered	Surf Zone
Coaster (1836)	scow-schooner	unknown	Deep
Manistee (1867)	steam screw	foundered	Deep

CHAPTER FOUR
DOOR COUNTY/GREEN BAY REGION

The Door County/Green Bay region encompasses all of the Wisconsin waters of Green Bay and Lake Michigan off Marinette, Oconto, Brown, Door, and Kewaunee counties (Figure 15). This region covers approximately 2,897 square miles of water and includes major shipping routes to the ports of Escanaba, Menomonee/Marinette, Green Bay, and Sturgeon Bay, as well as shipping lanes that pass through the region to ports in southern Wisconsin and Illinois. The larger ports within the region served the iron ore, lumber, and shipbuilding industries. Smaller ports located along the shoreline include Peshtigo, Oconto, Egg Harbor, Fish Creek, Ephraim, Sister Bay, Ellison Bay, Gills Rock, Detroit Harbor, Jackson Harbor, Rock Island, Newport, Baileys Harbor, Jacksonport, Clay Banks, Algoma, and Kewaunee. These smaller ports primarily serviced the lumber and fishing industries, but also provided a link between hinterland communities and the larger commercial markets to the south. Maximum water depth is 864 feet.

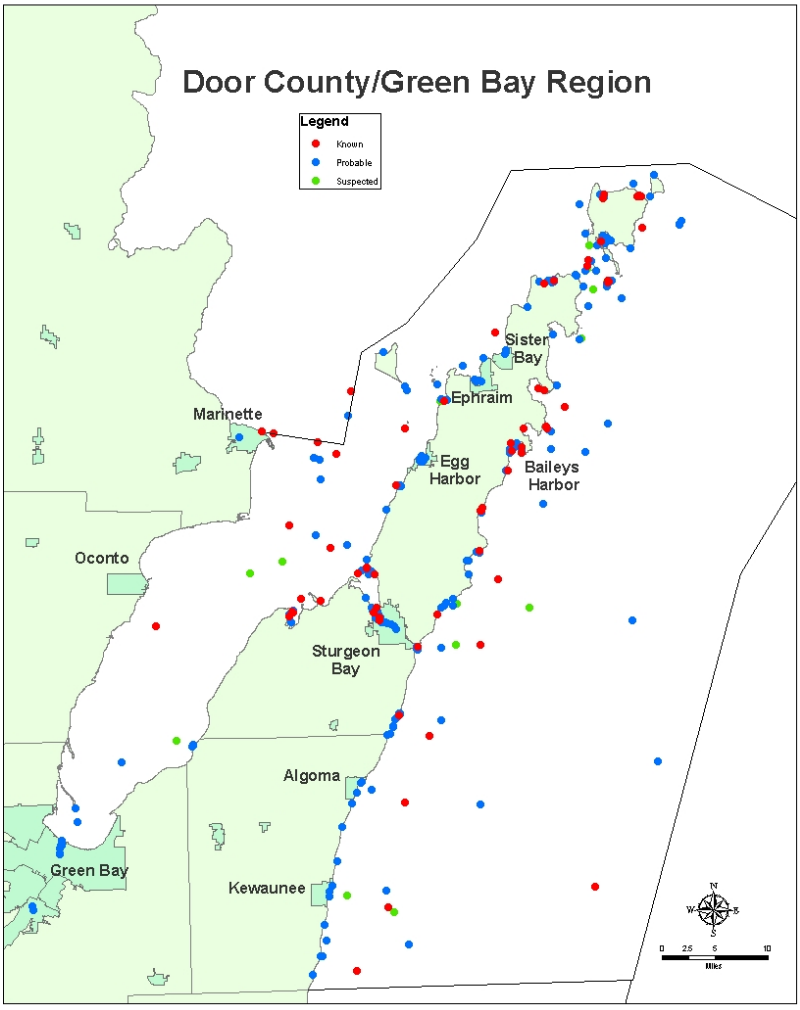

Figure 15. Door County/Green Bay region.

The Door County/Green Bay region is the largest of the Maritime Trails regions, and with 275 recorded vessel losses, it possesses the largest number of recorded losses and abandonments of all the regions. The region contains 68 known wreck sites (Table 4), 69% of which are in the surf zone. There are 192 probable wreck sites (Table 5), of which 90% are in the surf zone. There are an additional 15 suspected sites (Table 6) within the region, of which 53% are in the surf zone. Fifteen wreck sites are listed on the National Register of Historic Places.

Table 4. Door County/Green Bay known sites.

Name / Build Date	Vessel Type	Condition	Depth	NRHP Listed
A.P. Nichols (1861)	Schooner	Deep/Broken	35	Yes
Adriatic (1889)	schooner-barge	Surf Zone	15	
Advance (1871)	Barge	Surf Zone	0	
America (1873)	schooner	Deep/Broken	125	
Andromeda (1847)	Schooner	Deep	unknown	
Australasia (1884)	Steam screw	Surf Zone	20	
Boaz (1869)	schooner	Surf Zone	20	
Carrington (1853)	Schooner	Deep/Broken	55	
Cecelia (1868)	schooner	Surf Zone	15	
Cherubusco (1848)	Bark	Surf Zone	10	
Christina Nilsson (1871)	schooner	Surf Zone	15	Yes
City of Glasgow (1891)	Barge	Surf Zone	5	
City of Grand Haven (1872)	Schooner	Surf Zone	10	
Daniel Hayes (1868)	scow-schooner	Surf Zone	10	
Daniel Lyons (1873)	schooner	Deep/Broken	110	Yes
Ebenezer (1863)	schooner	Surf Zone	20	
Emeline (1864)	schooner	Surf Zone	20	
Empire State (1862)	Barge	Surf Zone	10	Yes
Erie L. Hackley (1882)	steam screw	Deep/Intact	110	
Fleetwing (1867)	Schooner	Surf Zone	20	Yes
Forest (1857)	scow-schooner	Deep/Broken	30	Yes
Frank O'Connor (1892)	Steam screw	Deep/Burned	65	Yes
Granite State (1852)	steam barge	Surf Zone	0	
H.M. Scove (1873)	Schooner	Surf Zone	10	
Ida Corning (1881)	Barge	Surf Zone	10	Yes
Illinois (1848)	schooner	Surf Zone	1	
Iris (1866)	scow-schooner	Surf Zone	5	Yes
J.E. Gilmore (1867)	Schooner	Deep/Broken	55	
James H. Johnson (1882)	steam paddle	Surf Zone	25	
Jennibel (1863)	Schooner	Deep/Intact	105	
Joseph L. Hurd (1869)	Barge	Surf Zone	10	
Joys (1884)	steam screw	Surf Zone	5	Yes
Kate Williams (1862)	Tug	Surf Zone	5	
Lakeland (1887)	Steam screw	Deep/Intact	210	
Louisiana (1887)	steam screw	Surf Zone	15	Yes
M.J. Bartelme (1895)	Steam screw	Surf Zone	15	
Meridian (1848)	Schooner	Deep/Broken	40	Yes

Mueller (1887)	steam screw	Surf Zone	10	
O.M. Nelson (1882)	Schooner	Deep/Broken	60	
Oak Leaf (1866)	Barge	Surf Zone	10	Yes
Ocean Wave (1860)	Scow	Deep/Broken	110	Yes
Perry Hannah (1859)	schooner	Surf Zone	15	
Pierpont (1852)	schooner	Surf Zone	0	
Pride (1849)	Schooner	Deep/Broken	40	
Resumption (1879)	Schooner	Surf Zone	20	
Sardinia (1856)	Schooner	Surf Zone	10	
Sidney O. Neff (1890)	steam screw	Surf Zone	12	
Stewart Edwards (1876)	steam screw	Surf Zone	0	
Sydney C. McLouth (1880)	steam screw	Surf Zone	18	
Unidentified Hull	Steam screw	Deep/Burned	50	
unidentified sloop	Sloop	Deep/Intact	85	
unidentified wreckage (a)	unknown	Surf Zone	20	
unidentified wreckage (c)	unknown	Surf Zone	10	
unidentified wreckage (d)	unknown	Surf Zone	10	
unidentified wreckage (e)	Unknown	Surf Zone	0	
unidentified wreckage (f)	schooner	Surf Zone	15	
unidentified wreckage (g)	unknown	Surf Zone	5	
unidentified wreckage (h)	Unknown	Surf Zone	25	
unidentified wreckage (i)		Surf Zone	0	
unidentified wreckage (l)	Steam screw?	Deep/?	180	
unidentified wreckage (m)	Dredge?	Deep/?	130	
unidentified wreckage (n)	steamer	Surf Zone	15	Yes
unidentified wreckage (o)	unknown	Surf Zone	20	
unidentified wreckage (s)	unknown	Surf Zone	10	
unknown barges	barge	Surf Zone	0	
W.L. Brown (1880)	steam screw	Deep/Intact	80	
Winfield Scott (1852)	Schooner	Surf Zone	5	
Wisconsin (1882)	schooner-barge	Deep/Broken	85	

Known wreck sites within this region represent vessels constructed in Michigan, New York, Ohio, Wisconsin, and Ontario. Vessel types include canallers, schooners, scows, barques, a sloop, wood, iron, and steel steam screws, a steam paddle, tugs, an early self-unloader, and two unidentified nets hangs. Known vessels within the Door County/Green Bay region include:

A.P. Nichols (1861) A 299-ton, three-masted schooner built by the Bailey Brothers shipyard in Madison Dock, Ohio. She ran aground on the northwest side of Pilot Island on 28 October 1892. Today, she lies broken and scattered in 35 feet of water. Her remains are scattered amongst those of the *J. E. Gilmore* and the *Forest*. Positive identification of individual vessels remains uncertain. The Pilot Island Northwest Site is listed on the National Register of Historic Places.

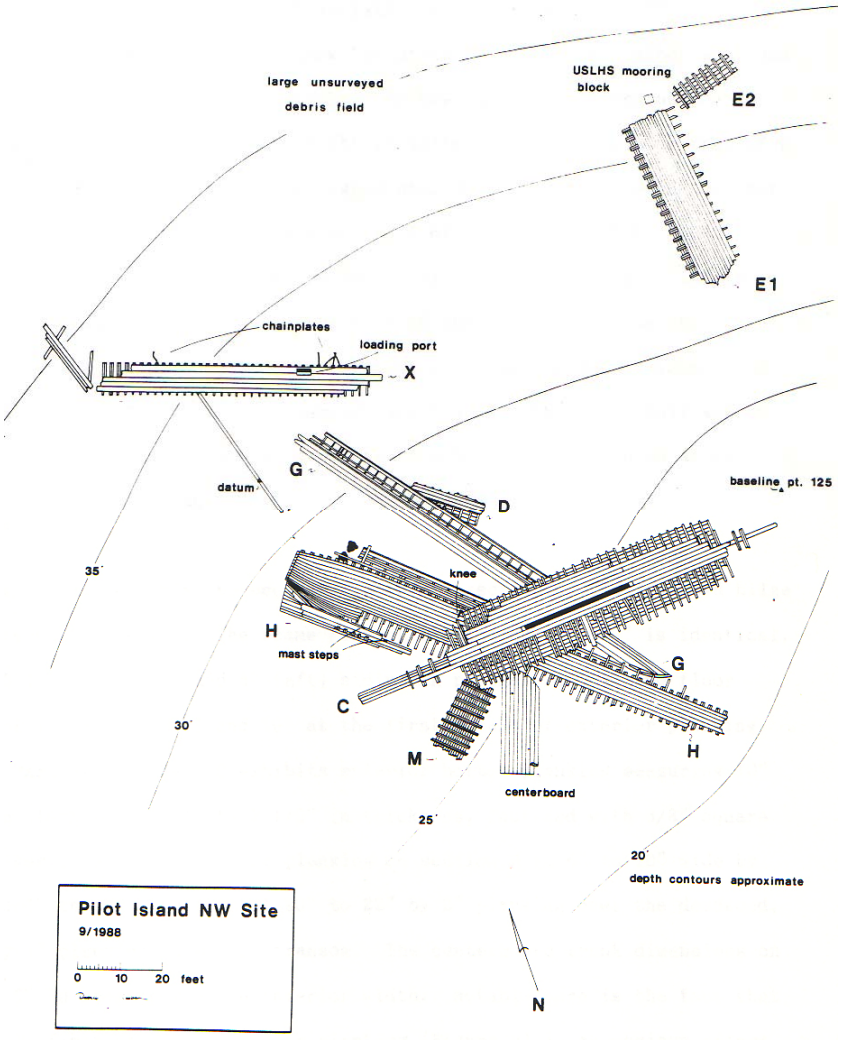

Figure 16. Pilot Island site map that includes the remains of the *A. P. Nichols*, *J. E. Gilmore*, and *Forest*. The vessel remains have not been positively identified. Wisconsin Historical Society.

Adriatic (1889) A 915-ton schooner barge built by the James Davidson shipyard in West Bay City, Michigan, the *Adriatic* was converted to a self-unloader – one of the earliest on the Great Lakes – by the Leatham and Smith Company in 1913. She was abandoned and sank at the pier in 1930. Today, the *Adriatic* lies in 15 feet of water at the Sturgeon Bay Shipbuilding Company, directly beneath one of their piers. The lower hull is mostly intact, as well as some of the internal self-unloading equipment, but much of the hull is filled with a heavy layer of sediment.

Figure 17. The *Adriatic* as a self-unloader. Historic Collections of the Great Lakes, Bowling Green State University.

Advance (1871) A 366-ton wooden barge built in Trenton, Michigan, that was used as a lighter by the Peshtigo Lumber Company. Today, its location at the north point of Sand Bay is known, but not on record with the Society.

America (1873) A 341-ton, three-masted canaller built by the Archibald Muir shipyard in Port Huron, Michigan. She was lost on 28 September 1880 southeast of Kewaunee, Wisconsin, when she collided with a towed consort in the middle of the night. Today, the vessel lies in 120 feet of water. The hull sides have collapsed outward, but nearly all of the hull structure and rigging is extant.

Figure 18. Divers inspect the *America*'s bow and bowsprit. Tamara Thomsen.

Andromeda (1847) A 207-ton, two-masted schooner built at Madison Dock, Ohio, by the Erastus Lockwood shipyard. The vessel foundered 25 miles east of Kewaunee on 17 July 1858. The vessel's position is reportedly known but not on record with the Society.

Australasia (1884) A 1,829-ton wooden bulk steamer built by the James Davidson shipyard in West Bay City, Michigan. She caught fire on 17 October 1896 while carrying a cargo of coal and was run aground south of Cave Point. She burned to the waterline and all of her machinery was subsequently salvaged. Today, she lies broken and mostly buried in 15 feet of water off Whitefish Dunes State Park.

Figure 19. Society diver measuring the remains of the wooden bulk freighter *Australasia*. Tamara Thomsen.

Boaz (1869) A 127-ton, three-masted double centerboard schooner built by the Amos C. Stokes shipyard in Sheboygan, Wisconsin. She stranded in North Bay at Marshall's Point on 9 November 1900. Today, she lies broken and mostly buried in 10 feet of water with her two centerboard trunks upright and intact.

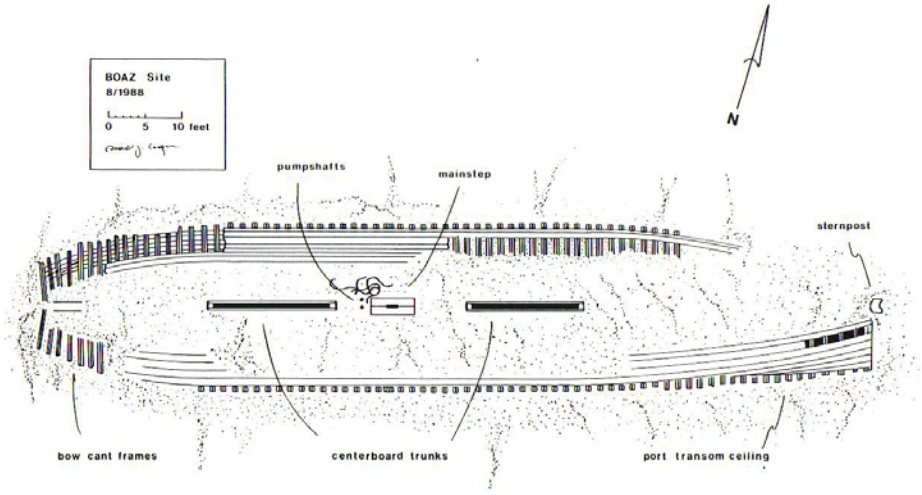

Figure 20. *Boaz*'s site plan. Wisconsin Historical Society.

Carrington (1853) Little is known about the schooner *Carrington* other than she was a two-masted, 215-ton schooner built in Cleveland, Ohio. In November 1870, she stranded on Hat Island Reef in Green Bay with a load of pig iron and today lies broken and scattered in 57 feet of water.

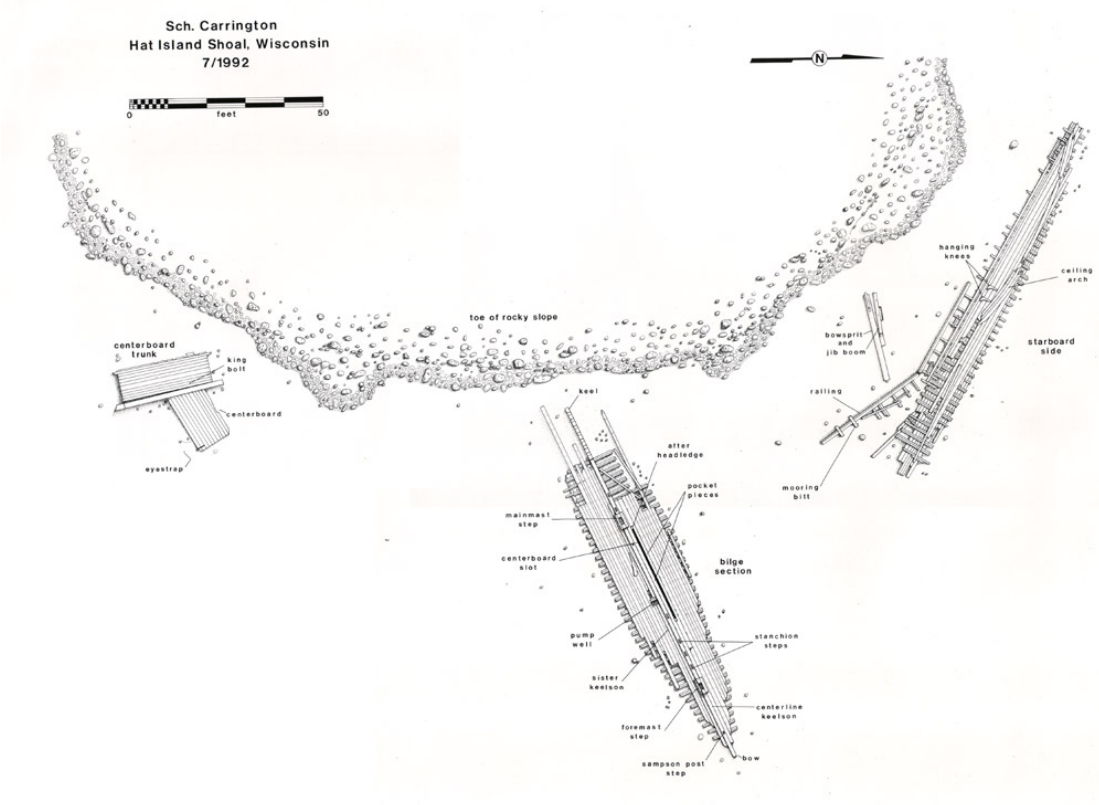

Figure 21. *Carrington*'s site plan. Wisconsin Historical Society.

Cecelia (1868) A 175-ton, three-masted schooner built by the James MacGiven shipyard in White Lake, Michigan. Originally built as a barque, she was later converted to a schooner rig. She stranded and wrecked while loading a cargo of lumber in Jacksonport on 9 September 1885. Today, she lies broken and buried in 10 feet of water as part of the Reynolds' Pier Site along with the remains of Reynolds' Pier and the schooner *Perry Hannah*. Neither vessel has been positively identified.

Figure 22. A centerboard trunk from either the *Cecelia* or *Perry Hannah* at the Reynolds' Pier Site in Jacksonport. Tamara Thomsen.

Cherubusco (1848) A 203-ton, three-masted barque built by the Hubbell shipyard in Milwaukee, Wisconsin. She was lost in November 1874 when she stranded in North Bay. Today she lies buried but largely intact in 10 feet of water in the middle of North Bay. Her centerboard trunk and hull sides protrude from the sand bottom.

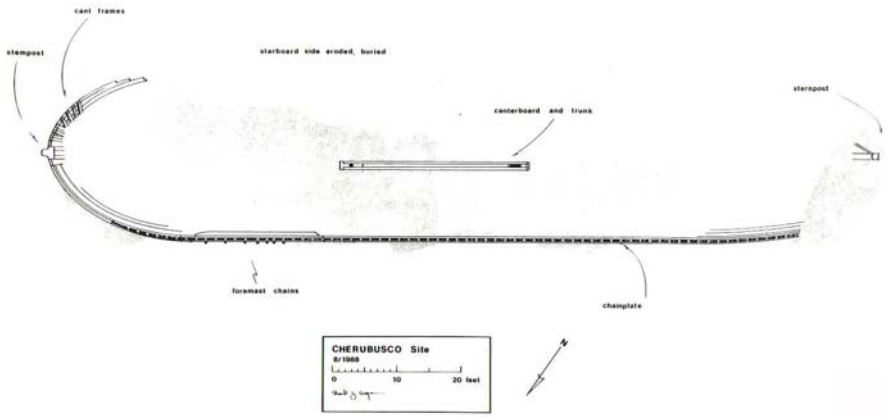

Figure 23. *Cherubusco*'s site plan. Wisconsin Historical Society.

Christina Nilsson (1871) A 311-ton, three-masted schooner built by the Hanson and Scove shipyard in Manitowoc, Wisconsin. She ran aground while seeking shelter from a storm in Baileys Harbor on 25 October 1884. Today, she lies broken and scattered off the old Baileys Harbor Light in 15 feet of water. This vessel's identity has come into question in recent years. The *Christina Nilsson* is listed on the National Register of Historic Places.

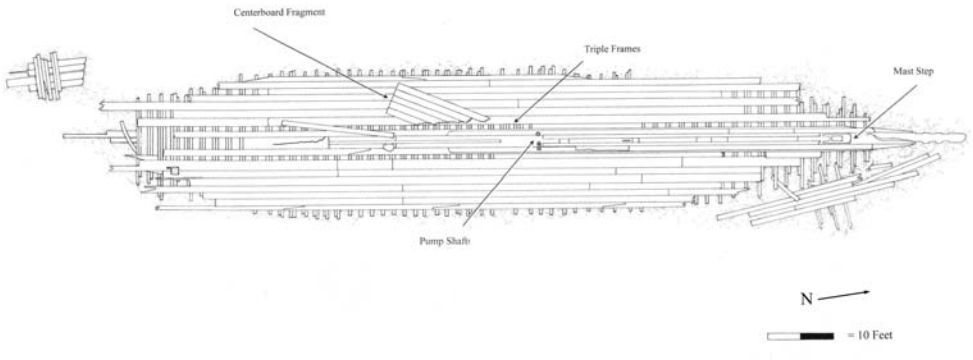

Figure 24. The *Christina Nilsson*'s site plan. Wisconsin Historical Society.

City of Glasgow (1891) A 2,003-ton wooden bulk steamer built by the James Davidson shipyard in West Bay City, Michigan. She was converted to a stone barge following a fire in December 1907, and was lost on 6 October 1917 when her tow line parted and she was blown ashore. Today, her lower hull lies in 3 feet of water in Lily Bay.

Figure 25. The *City of Glasgow*'s remains lying near the beach in Lily Bay. East Carolina University.

City of Grand Haven (1872) A 201-ton, two-masted schooner built in Grand Haven, Michigan, she was later converted to a three-master and then became the originator of the Grand Haven rig type when her mainmast was removed to facilitate cargo loading and unloading. She was abandoned in the Menomonee River in 1932, and today lies broken at the end of 6th Street in Marinette.

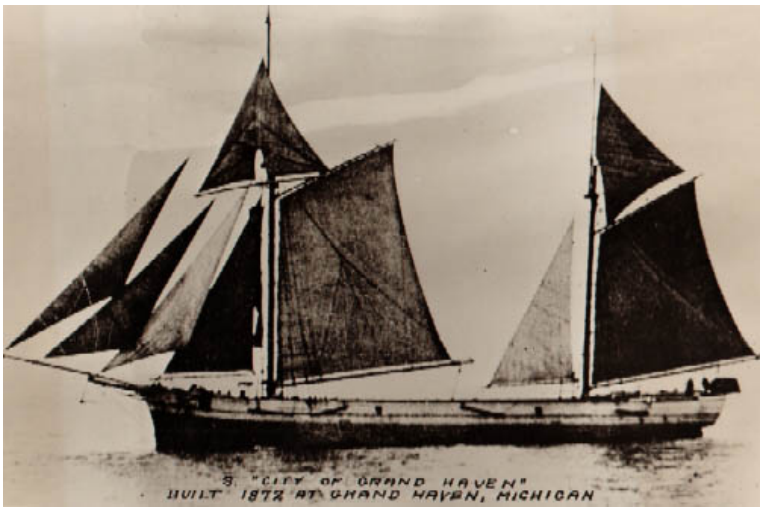

Figure 26. The *City of Grand Haven* underway. Historic Collections of the Great Lakes, Bowling Green State University.

Dan Hayes (1868) A 145-ton scow schooner built in Fairport, Ohio, she was working in the stone industry when she was abandoned in Sturgeon Bay in 1903. Today, she lies broken in 15 feet of water in Sturgeon Bay.

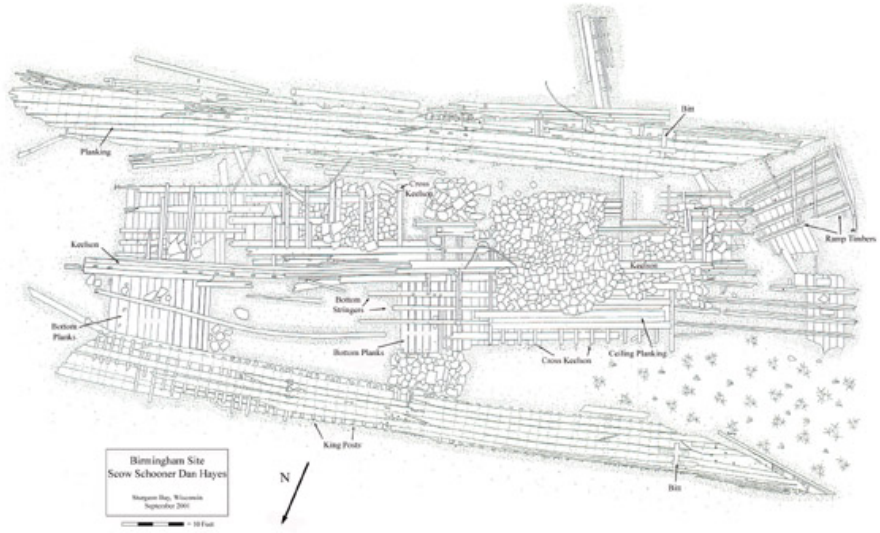

Figure 27. The *Dan Hayes*' site plan. East Carolina University.

Daniel Lyons (1873) A 318-ton, three-masted canaller built by the George Goble and Sons shipyard in Oswego, New York. She collided with the *Kate Gillett* on 18 October 1878, sending her to the bottom northeast of Algoma in 110 feet of water. Her hull sides have collapsed, but her centerboard trunk remains upright and nearly all of her hull structure and rigging are extant. The *Daniel Lyons* is listed on the National Register of Historic Places.

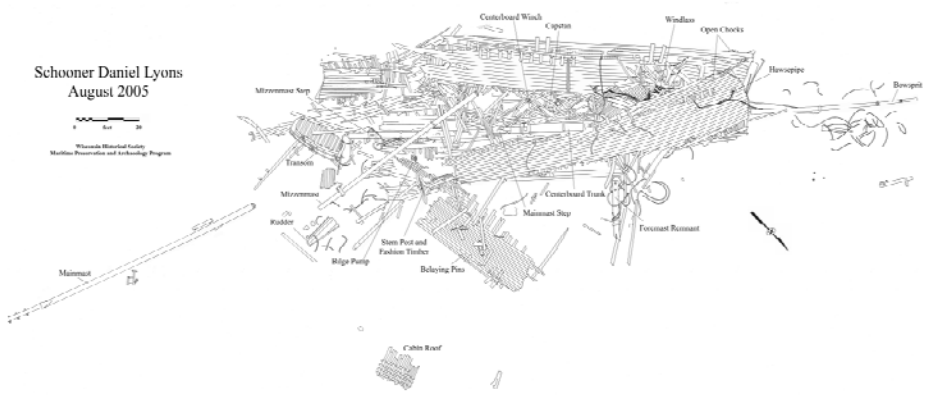

Figure 28. The *Daniel Lyons*' site plan. Wisconsin Historical Society.

Ebenezer (1863) A 119-ton, two-masted schooner built by the E. Sorenson shipyard in Fort Howard, Wisconsin. She stranded in Moonlight Bay inside of the quarry dock on 16 October 1880. Today, she lies broken and scattered in 14 feet of water near the dock cribs.

Emeline (1864) A 127-ton, three-masted schooner built by the M. Williams shipyard in Vicksburg, Michigan. The *Emeline* capsized off Baileys Harbor on 9 August 1896 and was towed to Anclam Pier where her anchors were salvaged and her hull was dynamited in 1903. Today, she lies broken and scatted in 18 feet of water. She is a double centerboard schooner, and one of her centerboards remains upright. Also known as the Anclam Pier wreck, the vessel's identification is not positive, but reasonably certain.

Empire State (1862) A 1,116-ton wooden package and passenger steamer built in Buffalo, New York, she was cut down to a barge and worked the Sturgeon Bay stone industry until she was abandoned and burned at the pier in 1931. Today, her lower hull lies in 6 feet of water at Bullhead Point alongside the *Ida Corning* and *Oak Leaf.* The Bullhead Point Historic District is listed on the National Register of Historic Places.

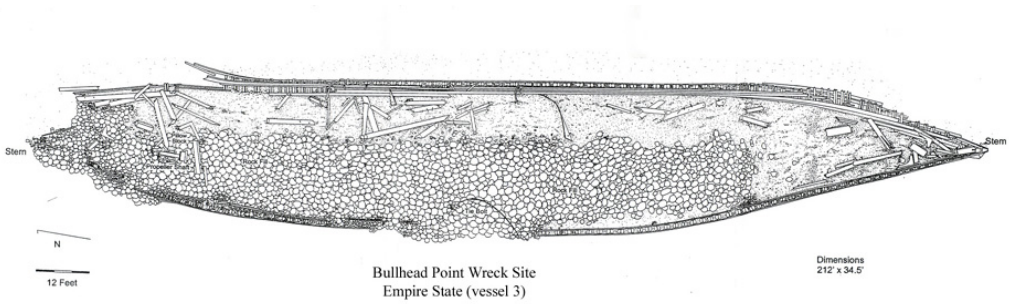

Figure 29. The *Empire State* site plan. East Carolina University.

Erie L. Hackley (1882) A 54-ton package and excursion steamer built in Muskegon, Michigan, she foundered in a storm in October 1903, taking eleven lives with her. Today, she lies upright in Green Bay in 110 feet of water with her lower hull intact.

Figure 30. The *Erie L. Hackley*. Historic Collections of the Great Lakes, Bowling Green State University.

Fleetwing (1867) A 230-ton, three-masted schooner built by the Burger shipyard in Manitowoc, Wisconsin. She ran aground in Garrett Bay on 26 October 1888 and today lies broken and scattered in 15 feet of water near the Garrett Bay boat launch. The *Fleetwing* is listed on the National Register of Historic Places.

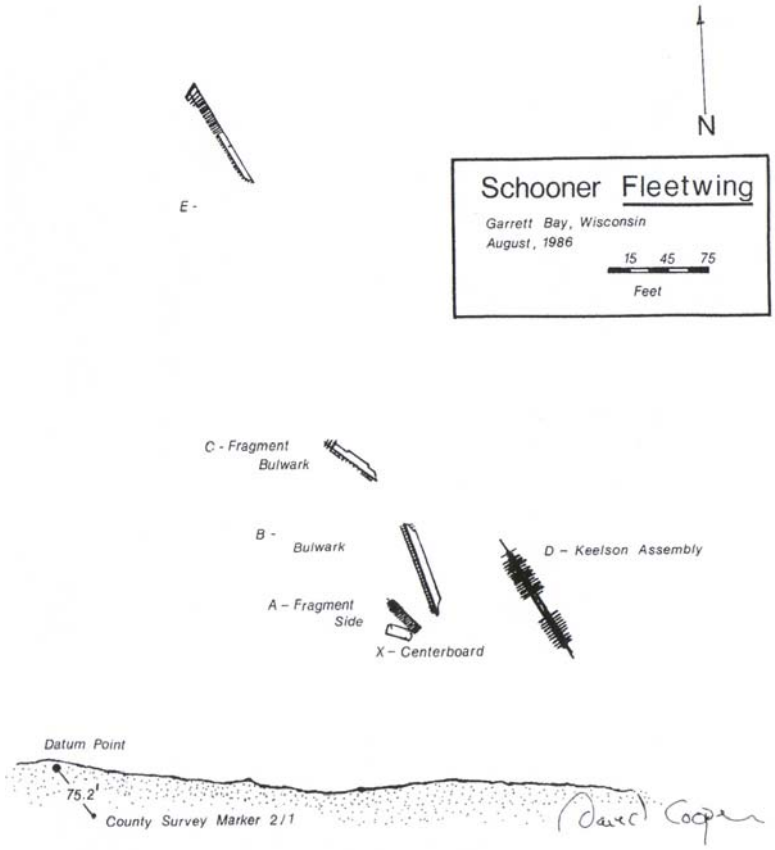

Figure 31. The *Fleetwing*'s site plan. Wisconsin Historical Society.

Forest (1857) A 113-ton, three-masted scow schooner built by the D. Lester shipyard in Newport, Michigan. She ran aground on Pilot Island on 28 October 1891 and today lies broken and scattered in 35 feet of water northwest of Pilot Island. Her remains are scattered amongst those of the *A. P. Nichols* and the *J. E. Gilmore*. Positive identification of individual vessels remains uncertain. The Pilot Island Northwest Site is listed on the National Register of Historic Places (Figure 16).

Frank O'Connor (1892) A 2,340–ton wooden bulk steamer built by the James Davidson shipyard in West Bay City, Michigan. She caught fire while carrying a load of coal and burned to the waterline on 21 October 1919. Today, she lies in 65 feet of water 2 miles off North Bay. Her cargo was salvaged and her hull sides have fallen outward, but her boilers, triple expansion steam engine, and propeller remain upright and intact. The *Frank O'Connor* is listed on the National Register of Historic Places.

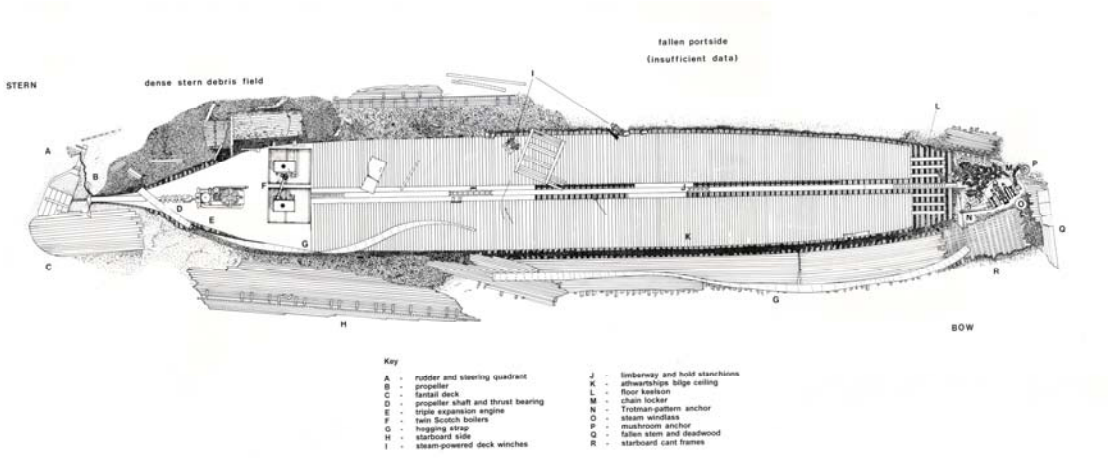

Figure 32. The *Frank O'Connor*'s site plan. Wisconsin Historical Society.

Granite State (1852) A 351-ton steam propeller built by the Quayle and Martin shipyard in Cleveland, Ohio. Converted to a barge in the 1870s, she began taking on water and was run aground near Clay Banks on 3 October 1881. Today, she lies broken and scattered along the shore near Clay Banks with only hull fragments remaining.

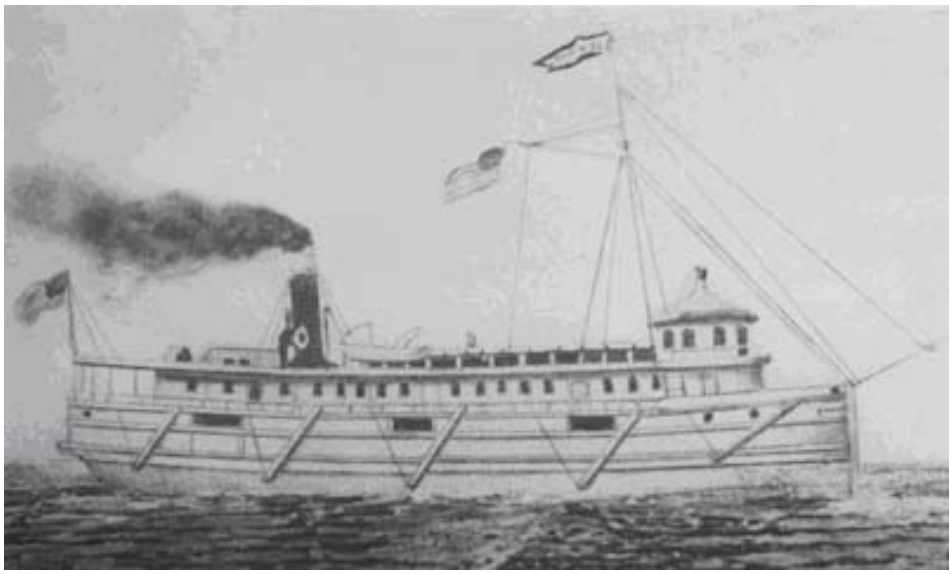

Figure 33. The *Granite State* prior to her conversion to a barge. C. Patrick Labadie Collection, Alpena County Public Library.

H.M. Scove (1873) A 305-ton, three-masted schooner built by the Hanson and Scove shipyard in Manitowoc, Wisconsin. She ran aground while carrying lumber near Detroit Harbor on Washington Island on 4 December 1891. Today, she lies broken and buried near the entrance to the Detroit Island Passage. Her location is known but not on record with the Society

Ida Corning (1881) A 444-ton, two-masted schooner built in East Saginaw, Michigan, she sailed in the lumber industry until 1907, when she was cut down to a barge for use in the Sturgeon Bay stone industry. She worked as a stone barge until she was abandoned and burned at the pier in 1931. Today, her lower hull lies in 6 feet of water at Bullhead Point in Sturgeon Bay alongside the *Empire State* and *Oak Leaf*. The Bullhead Point Historic District is listed on the National Register of Historic Places.

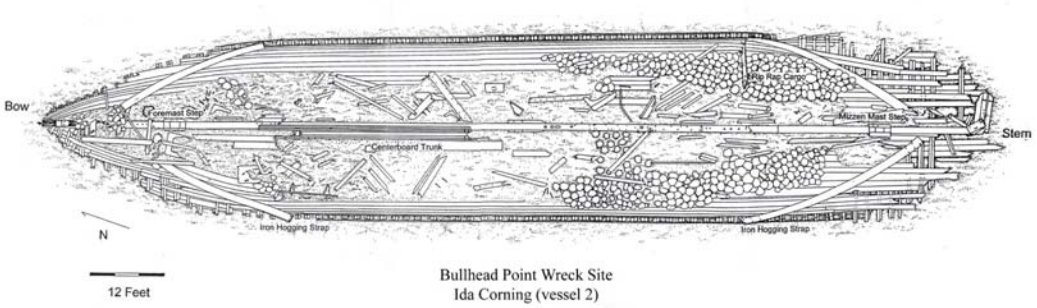

Figure 34. The *Ida Corning* site plan. East Carolina University.

Illinois (1848) A 85-ton, two-masted schooner built at the J. Randall shipyard in St. Joseph, Michigan. She stranded near Smith's Pier, 2.5 miles south of Baileys Harbor at the mouth of Hein's Creek on 29 October 1873. Today, she lies broken and buried on the beach in less than 1 foot of water.

Iris (1866) A 62-ton, two-masted scow schooner that was built by the Bedford shipyard in Port Huron, Michigan. She ran aground and was abandoned in Jackson Harbor on Washington Island in March 1913. Today, she lies broken and largely buried beneath dredge spoil in 2 feet of water. The *Iris* is listed on the National Register of Historic Places.

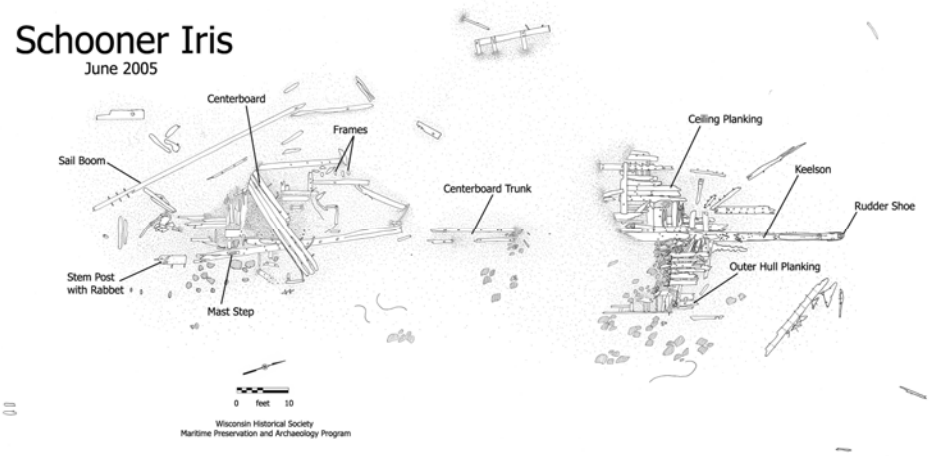

Figure 35. The *Iris*' site plan. Wisconsin Historical Society.

J.E. Gilmore (1867) A 290-ton, two-masted schooner built at the A.S.A. Wilcox shipyard in Three Mile Bay, New York. She ran aground on Pilot Island on 17 October 1892 and today lies broken and scattered in 35 feet of water northwest of Pilot Island. Her remains are scattered amongst those of the *A. P. Nichols* and the *Forest*. Positive identification of individual vessels remains uncertain. The Pilot Island Northwest Site is listed on the National Register of Historic Places (Figure 16).

James H. Johnson (1882) A 53-ton steam paddle built in St. Joseph, Michigan, and worked as a package steamer until she ran aground on the south end of Horseshoe Reef. Today, she lies broken in 25 feet of water. Her position is known, but not on record with the Society. In some historic records she is described as a schooner.

Jennibel (1863) A 132-ton schooner built in Sheboygan, Wisconsin, and sailed in the lumber trade until she foundered in a storm in September 1881. Today, she lies in 110 feet of water with her lower hull intact.

Joseph L. Hurd (1869) A 759-ton wooden steam barge built in Detroit, Michigan, she sailed in the Sturgeon Bay stone trade in her later years until she was abandoned at the mouth of Sturgeon Bay in September 1913. Today, she lies broken and buried at the entrance to the Olde Quarry Park launch ramps in 15 feet of water.

Figure 36. The *Joseph L. Hurd* underway. Historic Collections of the Great Lakes, Bowling Green State University.

Joys (1884) A 268-ton steam barge built in Milwaukee, Wisconsin, she spent most of her career in a successful lumber route between Marinette and Milwaukee until she caught fire at the pier in Sturgeon Bay in December 1898. Following the fire she was towed north of the shipyards and used as a breakwall. Today, her hull lies broken in 10 feet of water off Sunset Park in Sturgeon Bay. The *Joys* is listed on the National Register of Historic Places.

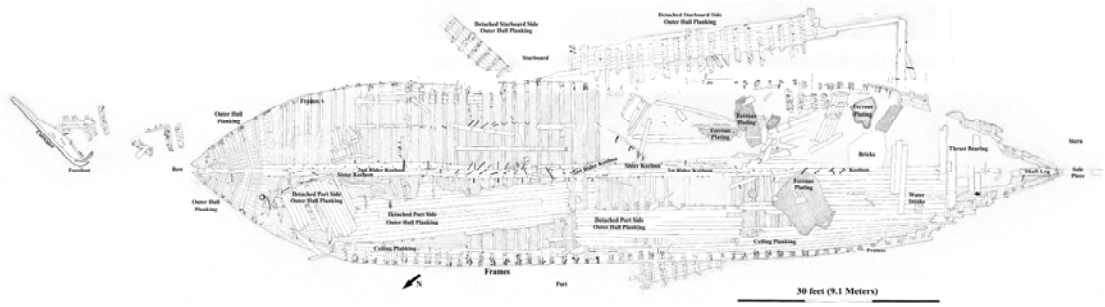

Figure 37. The *Joys*' site plan. East Carolina University.

Kate Williams (1862) A 164-ton steam tug that was built by the Ira Lafrinnier shipyard in Cleveland, Ohio, she stranded on the east side of Jackson Harbor, Washington Island, on 1 October 1907. The wreck was heavily salvaged and today lies very broken and scattered along the beach and harbor between Jackson Harbor and Rock Island.

Figure 38. The tug *Kate Williams* getting underway. Wisconsin Historical Society.

Lakeland (1887) A 2,425-ton iron steamer built by the Pittsburg Steamship Company in Cleveland, Ohio, as the *Cambria*, she was renamed the *Lakeland* on 24 May 1910. On 3 December 1924, after departing Sturgeon Bay where she had waited out a storm, she began taking on water and sank in 210 feet of water 6 miles east of the canal entrance with a cargo of Nash, Kissel, and Reynolds automobiles. Today, she lies upright and largely intact with many of her automobiles intact in her hold.

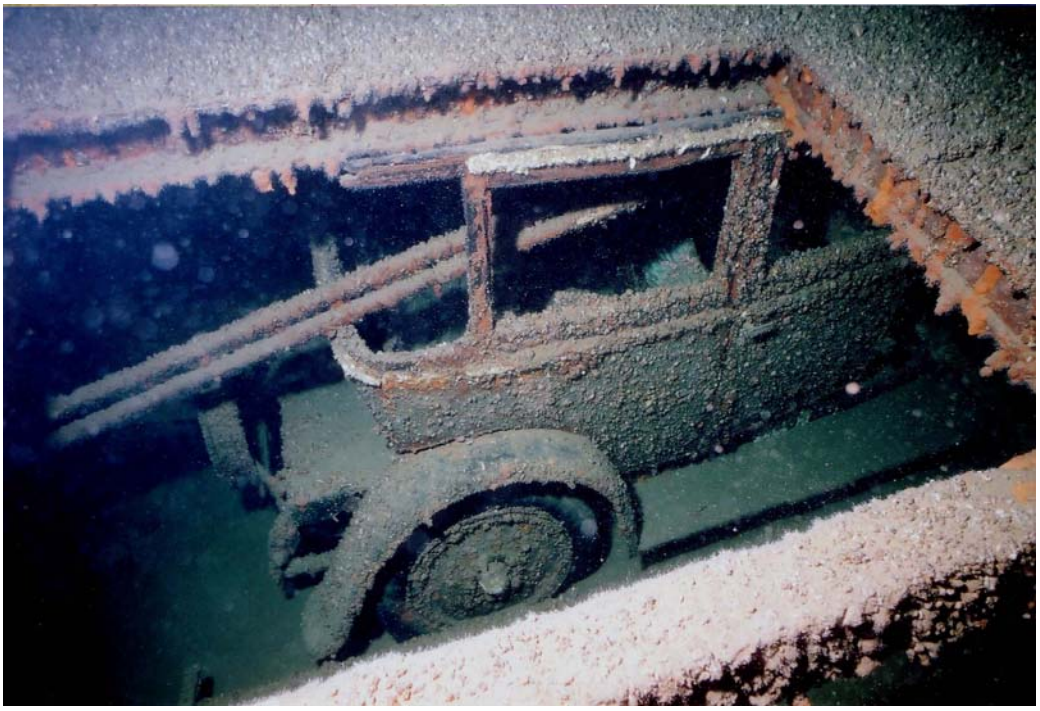

Figure 39. One of the many cars in the *Lakeland*'s hold. Tamara Thomsen.

Louisiana (1887) A 1,929-ton wooden bulk steamer built by the Morley and Hill shipyard in Marine City, Michigan, she was blown ashore and caught fire while riding out a storm at anchor in Washington Harbor on 8 November 1913. Today, her bow lies ashore and her lower bilge structure lies along the beach in 15 feet of water in Washington Harbor. The *Louisiana* is listed on the National Register of Historic Places.

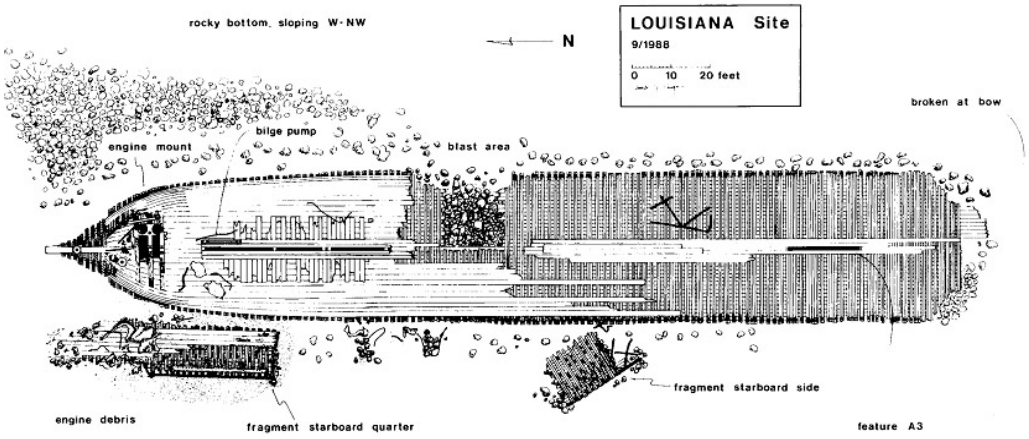

Figure 40. The *Louisiana*'s site plan. Wisconsin Historical Society.

M.J. Bartleme (1895) A 3,400-ton steel bulk freighter built by the Wheeler shipyard in West Bay City, Michigan, she ran aground off Cana Island Light on 3 October 1928 and was subsequently salvaged. All that remains at the wreck site are a few steel plates and random debris.

Figure 41. The *M. J. Bartleme* running light. Historical Collections of the Great Lakes, Bowling Green State University.

Meridian (1848) A 184-ton, two-masted schooner built in Black River, Ohio, she spent most her career in the lumber trade until stranding on Sister Island Reef in a late October storm in 1873. Today, her hull lies broken and scattered in 40 feet of water.

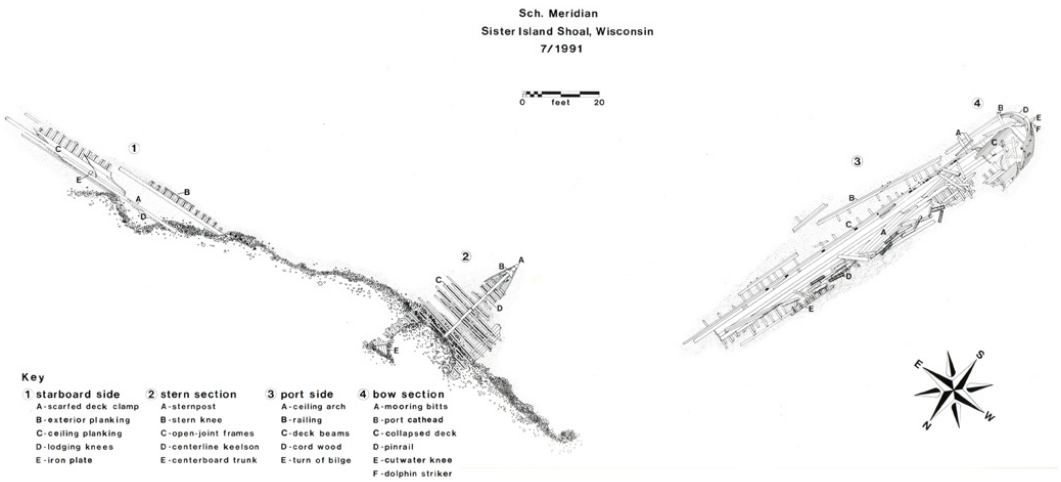

Figure 42. The *Meridian*'s site plan. Wisconsin Historical Society.

Mueller (1887) A 567-ton wooden steam barge built as the *Edwin S. Tice* in Manitowoc, Wisconsin, she sailed most of her life in the lumber trade. In her later years she was converted to a barge and sailed in the Sturgeon Bay stone industry.

When her usefulness ran out she was used to construct a pier at the Leatham and Smith quarry dock. Today, her sternpost, shaft, and propeller are on display ashore at Old Quarry Park in Sturgeon Bay. Her hull side is remains visible as part the breakwall at Old Quarry Park.

Figure 43. The *Mueller* underway and loaded with wood. Historic Collections of the Great Lakes, Bowling Green State University.

O.M. Nelson (1882) A 167-ton, two-masted schooner built by the L. E. Bahle shipyard in Sutton's Bay, Michigan, she ran aground on the south side of Pilot Island on 4 June 1899. Today, she lies broken and scattered in 60 feet of water.

Oak Leaf (1866) A 395-ton, three-masted schooner built in Cleveland, Ohio, she spent most of her career in the lumber trade. In her later years she was cut down to a barge and sailed for the Sturgeon Bay stone industry until she was abandoned and burned at the pier in 1931. Today, her lower hull lies in 6 feet of water at Bullhead Point, alongside the *Ida Corning* and *Empire State*. The Bullhead Point Historic District is listed on the National Register of Historic Places.

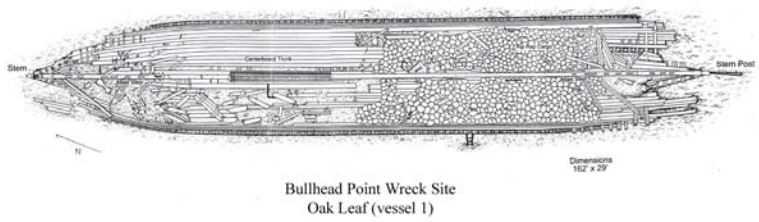

Figure 44. The *Oak Leaf*'s site plan. East Carolina University.

Ocean Wave (1860) A 73-ton, two-masted scow schooner built by the Robert Chambers shipyard at Harsen's Island, Michigan, she was loaded with stone from Moonlight Bay when she foundered after striking a submerged object off Whitefish Point on 23 September 1869. Today, she lies mostly broken in 110 feet of water. Much of her bow is upright and intact, including a screaming eagle figurehead – rare for a scow schooner. This *Ocean Wave* is listed on the National Register of Historic Places.

Figure 45. The *Ocean Wave* in 110 feet of water. Tamara Thomsen.

Perry Hannah (1859) A 219-ton, two-masted schooner built by the Thomas J. Arnold shipyard in Newport, Michigan, she stranded and was wrecked while loading a cargo of lumber at the Reynolds' Pier in Jacksonport on 16 October 1880. Today, she lies broken and buried in 10 feet of water as part of the Reynolds' Pier Site along with the remains of Reynolds' Pier and the schooner *Cecelia*. Neither vessel has been positively identified.

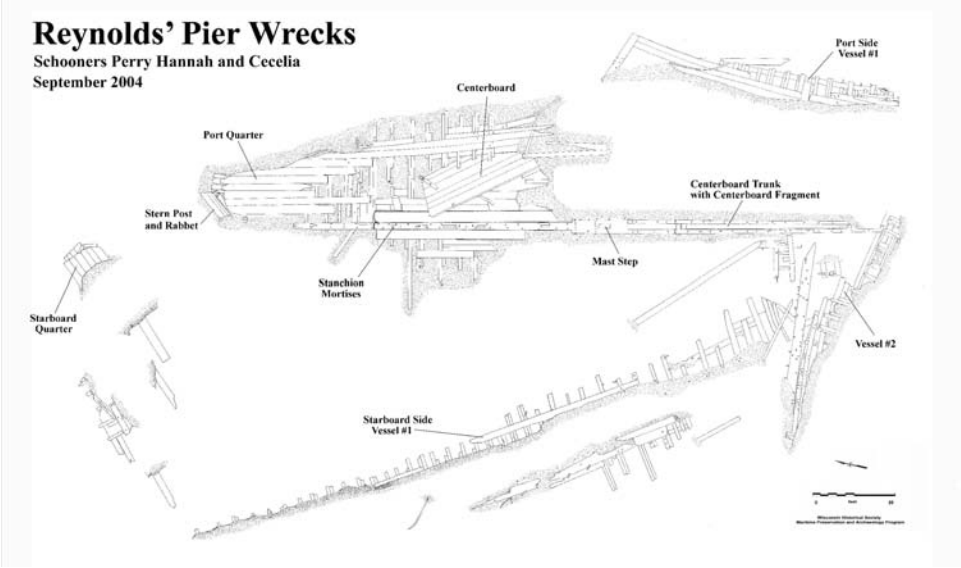

Figure 46. The Reynold's Pier site plan. Wisconsin Historical Society.

Pierpont (1852) A 152-ton, two-masted schooner built by the M. Ellenwood shipyard in Sackets Harbor, New York, she stranded near the north pier of the Sturgeon Bay Canal on 25 November 1881. Much of her hull was subsequently salvaged, and today only the stern section of her lower hull lies broken along the shore.

Resumption (1879) A 293-ton, three-masted schooner built by the Wolf and Davidson shipyard in Milwaukee, Wisconsin, she stranded near Plum Island on 7 November 1914 and today lies broken and scattered in 20 feet of water. Her position is known, but not on record with the Wisconsin Historical Society.

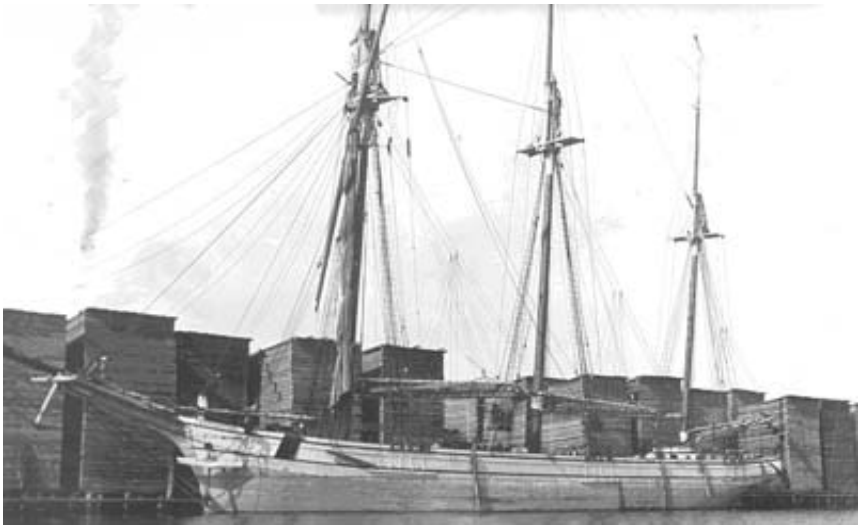

Figure 47. The *Resumption* unloading lumber at an unknown yard. Historical Collections of the Great Lakes, Bowling Green State University.

Sardinia (1856) A 150-ton, two-masted schooner built by the William Pidgeon shipyard in Penetanguishene, Ontario, she stranded in Hedgehog Harbor near Gills Rock on 29 June 1900. Today, she lies broken and widely scattered in 10 feet of water. This vessel's identification is tentative.

Sidney O. Neff (1890) A 435-ton steam barge built in Manitowoc, Wisconsin, she sailed most of her life in the lumber industry and briefly carried the name *M.C. No. 2* during 1923 and 1924. In June 1940, she was scuttled in Green Bay southeast of Menomonee Harbor and today lies broken and scattered in 12 feet of water.

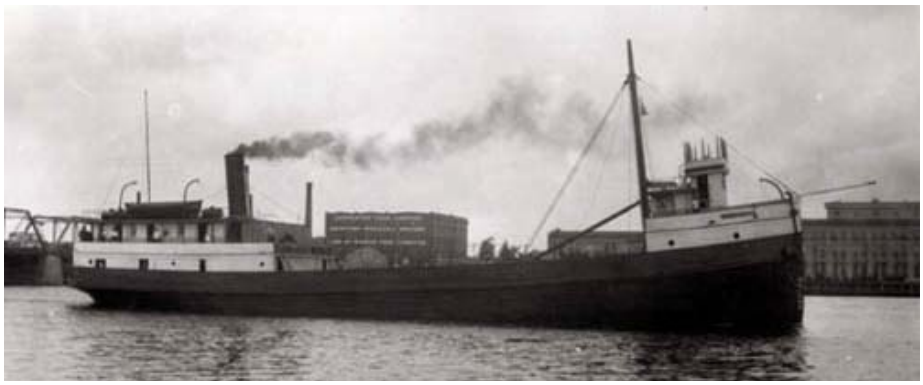

Figure 48. The *Sidney O. Neff* underway. Historic Collections of the Great Lakes, Bowling Green State University.

Stewart Edwards (1876) A 15-ton fish tug built by D. Robinson in Grand Haven, Michigan, she burned at Jackson Harbor during the 1920s. Today, only her boiler remains on the beach at Jackson Harbor.

Unidentified Hull During the summer of 2007 the unidentified hull of a wooden propeller was discovered in 55 feet of water off Old Quarry Park. The hull is stripped and burned to the waterline, apparently an abandonment.

Unidentified Sloop An unidentified sloop that lies in 85 feet of water, intact and upright with her mast still standing. The vessel lies in a mud bottom and is buried nearly to her rail. Construction features indicate this vessel was built prior to 1850.

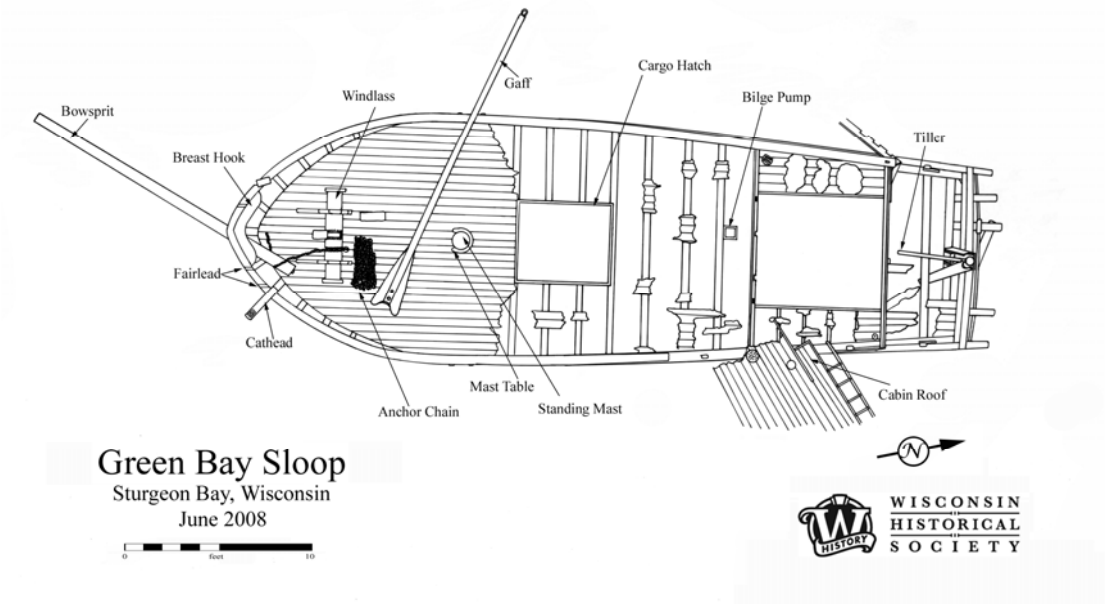

Figure 49. The Green Bay Sloop's site plan. Wisconsin Historical Society.

Unidentified Wreckage (a) This small vessel lies west of Claflin Point in 20 feet of water. The site consists of a section of lower hull from a wooden propeller that is 32 feet in length.

Unidentified Wreckage (c) Located in 15 feet of water on the north side of Baileys Harbor off the range lights, the wreckage consists of an unknown vessel, possibly a schooner that is broken and buried.

Unidentified Wreckage (d) Located north of the causeway connecting Cana Island to the mainland, this site is broken and scattered in 10 feet of water and is identified as a possible schooner.

Unidentified Wreckage (e) Also known as the Plum Island Lagoon Wreck, this wooden vessel is located on the north side of Plum Island immediately off the Coast Guard Station. Tentatively identified at the schooner *Grapeshot*, this vessel is broken and buried along the shoreline.

Unidentified Wreckage (f) Located on the North Reef off the old Baileys Harbor Lighthouse, this site consists of a 130-foot section of bilge/keelson and hull side in 16 feet of water.

Unidentified Wreckage (g) This site consists of the remains of a wooden scow hull in 3 feet of water on the northeast side of Fish Creek Harbor.

Unidentified wreckage (h) Also known as the Pilot Island Northwest Wreckage-3, this site is located on the northwest side of Pilot Island and consists of a hull side and wire rigging from a two-masted schooner in 26 feet of water.

Unidentified Wreckage (i) This site lies west of Snake Island near Little Sturgeon Bay and consists of unknown wreckage, possibly a fish tug or schooner. The site location is known but not on record with the Society.

Unidentified Wreckage (l) Unidentified net hang in 180 feet of water off Kewaunee, Wisconsin. Reported by local commercial fisherman, this site is not identified and the location is not on record with the Society.

Unidentified Wreckage (m) Unidentified net hang in 130 feet of water off LaSalle Park north of Algoma. Reported by local commercial fisherman, this site is not identified and the location is not on record with the Society.

Unidentified Wreckage (n) The Claflin Point wreck was surveyed in 1995 and consists of a broken hull 150 feet in length in 14 feet of water. This steam-powered vessel was listed on the National Register of Historic Places in 2000.

Unidentified Wreckage (o) This site includes the broken and scattered remains of a wooden schooner approximately 75-100 feet in length in 20 feet of water southwest of the Little Sister Bay boat launch.

Unidentified Wreckage (s) This site lies on the north side of the old Michigan Street Bridge in Sturgeon Bay. The site consists of broken hull section mostly buried in 10 feet of water. Part of the site is under a breakwall.

Unknown Barges This site consists of three barges sunk off the Sturgeon Bay Stone Company's wharf near the mouth of Sturgeon Bay. The barges are broken and scattered in 14 feet of water.

Unknown Wreck (c) Also known as the Jacksonport North Wreck, this vessel is located at the end of Hibbard's Pier at Jacksonport. The remains are of a three-masted schooner with the hull sides collapsed and an upright centerboard trunk located in 15 feet of water.

W. J. Pride (1849) A 83-ton, three-masted schooner built by the Daniel Dibble shipyard in Sandusky, Ohio, she was blown ashore in Washington Harbor while riding out a storm on 22 November 1901. Today, she lies broken and scattered in 40 feet of water on the northeast side of Washington Harbor.

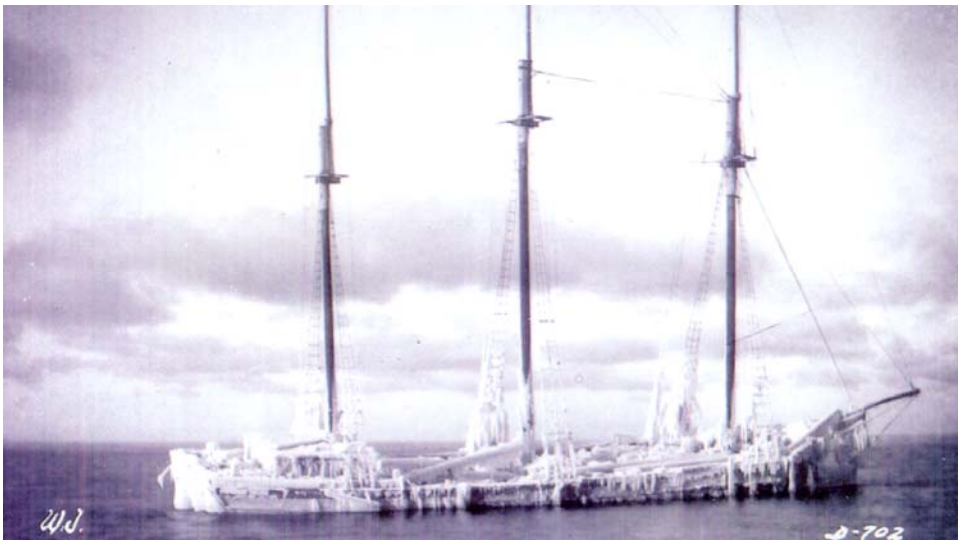

Figure 50. The *W. J. Pride* following the aftermath of the storm that washed her ashore in Washington Harbor. Door County Maritime Museum.

W.L. Brown (1856) A 336-ton wooden passenger and package steamer built in Green Bay as the *Neptune*, she was rebuilt as a steam barge in 1880 following a fire and continued to sail until she foundered in October 1886 off Green Island with a load of pig iron. Her boiler and engine were salvaged and used in the steamer *Fannie C. Hart*. Today, she lies upright and mostly intact, including her cargo, in 85 feet of water.

Winfield Scott (1852) A 255-ton, two-masted schooner built by the William Jones shipyard in Black River, Ohio, she was carrying a load of lumber when she capsized and drifted onto the rocks at Washington Island. Today, she lies broken and scattered in 6 feet of water near Hog Island.

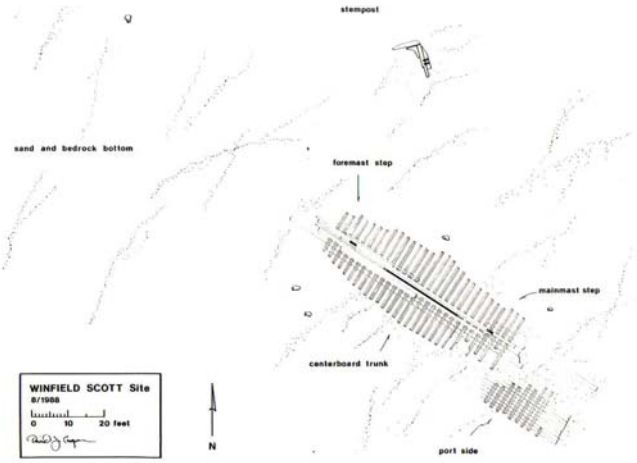

Figure 51. *Winfield Scott*'s site plan. Wisconsin Historical Society.

Wisconsin (1882) Built as the 556-ton wooden steamer *F. & P.M. No. 1* in Detroit, Michigan, she began her career as a break-bulk steamer in the cross-lake railroad trade. In her later years she was cut down into a barge before she was abandoned in Marinette in 1935. Soon after, she was towed into Green Bay where she was burned to the waterline and scuttled off Green Island. Today, her lower hull lies in 85 feet of water.

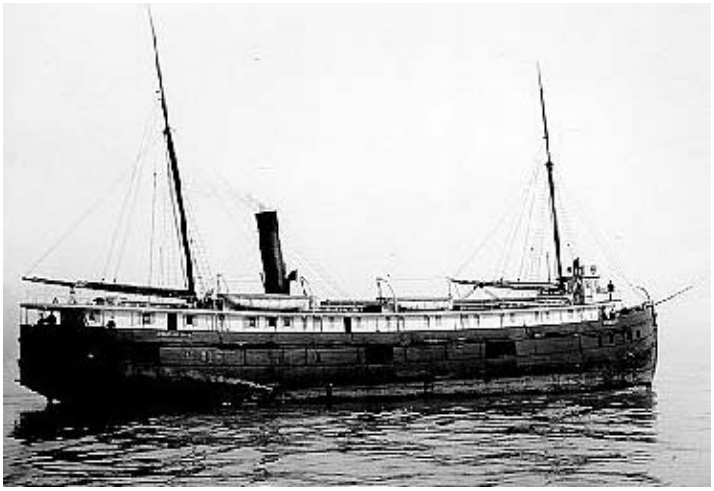

Figure 52. The *Wisconsin*, sailing under her former name, *F. & P.M. No. 1*. Historic Collections of the Great Lakes, Bowling Green State University.

Table 5. Door County/Green Bay probable sites.

Name / Build Date	Vessel Type	Casualty Type	Probable Condition
A.S. Piper (1880)	tug	Burned	Surf Zone
Abner Howes (1859)	scow-schooner	stranded	Surf Zone
Agnes Arnold (1864)	tug	Burned	Surf Zone
Agnes Behrman (1883)	Scow-schooner	stranded	Surf Zone
Alfred Mosher (1863)	tug	Burned	Surf Zone
America (1912)	oil screw	Foundered	Surf Zone
Anabel II (1928)	oil screw	Burned	Surf Zone
Annie Dall (1848)	schooner	stranded	Surf Zone
Ardent (1857)	schooner	stranded	Surf Zone
Arrow (1879)	Schooner	Abandoned	Surf Zone
Augustus (1885)	scow-schooner	Burned	Surf Zone
Banner (1864)	scow-schooner	stranded	Surf Zone
Bay State (1855)	schooner	Abandoned	Surf Zone
Beaver (1892)	steam screw	Burned	Surf Zone
Belle (1848)	brig	stranded	Surf Zone
Belle Laurie (1876)	Schooner	Abandoned	Surf Zone
Benjamin Drake (1862)	tug	Abandoned	Surf Zone
Berwyn (1866)	Schooner	stranded	Surf Zone
Blazing Star (1873)	Schooner	stranded	Surf Zone
Buccaneer (1943)	oil screw	stranded	Surf Zone
Cecilia Hill (1896)	steam screw	Burned	Surf Zone
Charles A. Eddy (1889)	steam screw	Abandoned	Surf Zone
Charley J. Smith (1879)	scow	Abandoned	Surf Zone
Chicago (?)	bark	foundered	Deep
Cleveland (1860)	steam screw	Abandoned	Surf Zone
Columbia (1842)	Brig	stranded	Surf Zone
Cynthia (1907)	tug	Burned	Deep
Cynthia Gordon (1864)	Schooner	abandoned	Surf Zone
D.A. Van Valkenburg (1866)	bark	foundered	Surf Zone
D.O. Dickenson (1854)	schooner	Stranded	Surf Zone
Dan Sickles (1868)	scow-schooner	foundered	Surf Zone
Daniel Slauson (1857)	Schooner	stranded	Surf Zone
Dawn (1858)	schooner	stranded	Surf Zone
Denmark (1846)	Schooner	stranded	Surf Zone
Dolphin (?)	Schooner	stranded	Surf Zone
E.C.L. (1855)	bark	Stranded	Surf Zone
E.G. Crosby (1903)	steam screw	Burned	Surf Zone
E.G. Grey (1854)	schooner	stranded	Surf Zone
E.M. Davidson (1871)	Schooner	stranded	Surf Zone
E.P. Royce (1873)	schooner	stranded	Surf Zone
Ebenezer (1867?)	schooner	stranded	Surf Zone
Ebenezer (1890)	scow-schooner	Abandoned	Surf Zone
Eclipse (1823)	Schooner	stranded	Surf Zone
Edith H. Koyen (1890)	scow-schooner	abandoned	Surf Zone
Edward E. Gillen (1872)	tug	Abandoned	Surf Zone

Ella Doak (1868)	Scow-schooner	stranded	Surf Zone
Ellen Couture ?	schooner	Stranded	Surf Zone
Ellen Pike (1855)	schooner	stranded	Surf Zone
Emerald (1869)	schooner-barge	Abandoned	Surf Zone
Emmanuel (1890)	schooner	Abandoned	Surf Zone
Esther H. Scott (1843)	Brig	stranded	Surf Zone
Europe (1844)	Brig	stranded	Surf Zone
F.J. King (1867)	schooner	foundered	Deep
Fairfield (1846)	schooner	stranded	Surf Zone
Farrand H. Williams (1882)	scow-schooner	Stranded	Surf Zone
Flora (1849)	brig	stranded	Surf Zone
Florence M. Dickinson (1855)	schooner-barge	foundered	Deep
Flotilla (1891)	gas schooner	abandoned	Surf Zone
Foam (1882)	schooner	Stranded	Surf Zone
Fountain City (1857)	steam screw	Burned	Surf Zone
Four Brothers (1870)	Schooner	stranded	Surf Zone
Francis IV (1922)	gas screw	Exploded	Surf Zone
Frank D. Barker (1867)	Schooner	stranded	Surf Zone
Frank W. Gifford (1868)	Schooner	Foundered	Deep
Fred Nielson (1868)	tug	abandoned	Surf Zone
Free Democrat (1853)	schooner	stranded	Surf Zone
Free Trader (1860)	schooner	Unknown	Deep
G.A.R. (1877)	Tug	Burned	Surf Zone
George (1891)	scow-schooner	Abandoned	Surf Zone
George C. Smalley (?)	Schooner	foundered	Surf Zone
George L. Newman (1855)	bark	Stranded	Deep
George Presley (1889)	steam screw	Burned	Surf Zone
George Presley Debris	steam screw	Burned	Surf Zone
George R. Roberts (1847)	schooner	Stranded	Surf Zone
Grapeshot (1855)	Schooner	stranded	Surf Zone
Grey Eagle (1857)	schooner	stranded	Surf Zone
Halstead (1873)	schooner-barge	Abandoned	Surf Zone
Hanover (1852)	schooner	Stranded	Surf Zone
Harry Johnson (?)	Barge	stranded	Surf Zone
Henry Norton (1834)	Schooner	stranded	Surf Zone
Hungarian (1853)	schooner	stranded	Surf Zone
Hunting Boy (1873)	scow	stranded	Surf Zone
Hustler (1893)	gas schooner	Burned	Deep
Ida H. Bloom (1864)	scow-schooner	stranded	Surf Zone
Iowa (1852)	barge	stranded/burned	Surf Zone
Iver Lawson (1869)	schooner	Stranded	Surf Zone
J.A. Travis (1867)	schooner	stranded	Surf Zone
J.K. Stack (1875)	schooner	crushed by ice	Surf Zone
J.S. Williams (1868)	schooner	abandoned/burned	Surf Zone
James Garrett (1868)	schooner	stranded	Surf Zone
Janette (?)	schooner	stranded	Surf Zone
Japan (1853)	Schooner	stranded	Surf Zone
Jenny (1889)	scow-schooner	crushed by ice	Surf Zone
John C. Fremont (1856)	scow-schooner	collided	Surf Zone
John Evenson (1884)	tug	collided	Deep

Joseph Cochrane (1856)	schooner	stranded	Surf Zone
Josephine Lawrence (1854)	schooner	stranded	Surf Zone
Julia Smith (1847)	schooner	stranded	Surf Zone
Kate Hinchman (1862)	schooner	Abandoned	Surf Zone
Kittie Laurie (1872)	schooner	Stranded	Surf Zone
L. May Guthrie (1874)	Scow-schooner	stranded	Surf Zone
L.C. Butts (1872)	Schooner	stranded	Surf Zone
L.P. Hill (1889)	steam screw	abandoned	Surf Zone
La Petite (1866)	schooner	stranded	Surf Zone
Laurel (1852)	Scow-schooner	stranded	Surf Zone
Leila C. (1928)	Tug	collided	Deep
Lewis Cass (1846)	schooner	stranded	Surf Zone
Lewis Day (1868)	Schooner	stranded/burned	Surf Zone
Libbie Nau (1867)	schooner	Burned	Surf Zone
Lily Hamilton (1874)	Schooner	Foundered	Deep
Louise (1925)	gas schooner	burned	Surf Zone
Lucia A. Simpson (1875)	schooner	Burned	Surf Zone
Luna (1862)	schooner	Stranded	Surf Zone
Lydia Case (1862)	Schooner	stranded	Surf Zone
M. Capron (1875)	schooner	stranded	Surf Zone
Madonna (1871)	Schooner	abandoned	Surf Zone
Maple Leaf (1854)	Schooner	stranded	Surf Zone
Margaret A. Muir (1867)	schooner	foundered	Deep
Maria (1866)	Scow-schooner	stranded	Surf Zone
Maria Hilliard (1844)	Schooner	stranded	Surf Zone
Mariner (1853)	schooner	stranded	Surf Zone
Mariner (1854)	schooner	Stranded	Deep
Martha G. (1907)	scow-schooner	Burned	Surf Zone
Mary Ellen Cook (1875)	schooner	Burned	Surf Zone
Mary L. (1895)	scow-schooner	Burned	Surf Zone
Mary Newton (1869)	Tug	Burned	Surf Zone
Matthew McNair (?)	schooner	stranded	Surf Zone
Mount Vernon (1849)	scow-schooner	stranded	Surf Zone
Myra (1885)	tug	Burned	Surf Zone
Mystic (1866)	Schooner	stranded	Surf Zone
Nellie (1894)	Schooner	stranded	Surf Zone
Nellie Church (1867)	scow-schooner	stranded	Surf Zone
Nevada (1882)	steam screw	foundered	Deep
Newsboy (1862)	Schooner	stranded	Surf Zone
Norma (1867)	schooner	Stranded	Surf Zone
Norman (1883)	schooner	Foundered	Surf Zone
North Shore (1894)	steam screw	Abandoned	Surf Zone
Oak Orchard (1887)	scow-schooner	Stranded	Surf Zone
Octavia (1849)	schooner	stranded	Surf Zone
Ottawa (1853/1854)	steamer	burned	Surf Zone
Ottawa (1874)	schooner	stranded	Surf Zone
Otter (1863)	schooner	stranded	Surf Zone
Peoria (1854)	schooner	stranded	Surf Zone
Petoskey (1888)	steam screw	Burned	Surf Zone

Petrel (1885)	schooner	Stranded	Surf Zone
Petrus (?)	scow	Stranded	Surf Zone
Pewaukee (1873)	barge	Abandoned	Surf Zone
Pride (1866)	schooner	Abandoned	Surf Zone
Pup (1894)	Barge	foundered	Deep
Quickstep (1868)	Scow-schooner	stranded	Surf Zone
Rambler (1883)	scow-schooner	Stranded	Surf Zone
Ramsey Crooks (1836)	Brig	stranded	Surf Zone
Reciprocity (1855)	schooner	stranded	Surf Zone
Reindeer (1865)	Tug	Burned	Surf Zone
Robert Holland (1872)	steam screw	Burned	Surf Zone
Robert Noble (1883)	steam paddle	Burned	Surf Zone
Roving Star (1881)	schooner	stranded	Surf Zone
S.B. Paige (1863)	schooner	Stranded	Surf Zone
S.L. Noble (1846)	schooner	stranded	Surf Zone
Sassacus (1867)	schooner	stranded	Surf Zone
Scow No. 1 (?a)	scow	Burned	Surf Zone
Scow No. 2 (1900)	scow	Collided	Surf Zone
Sea Queen (1920)	gas screw	burned	Surf Zone
Sea Star (1855)	scow-schooner	Stranded	Surf Zone
Seaman (1848)	Schooner	stranded	Surf Zone
Senator (1863)	schooner	Abandoned	Surf Zone
Sophia Lawrence (1882)	scow-schooner	Stranded	Surf Zone
South Side (1867)	scow-schooner	stranded	Surf Zone
Starlight (1897)	gas schooner	Burned	Deep
Success (1875)	scow-schooner	stranded	Surf Zone
Swift (1893)	steam screw	Burned	Surf Zone
Thomas C. Wilson (1868)	schooner	Stranded	Surf Zone
Thomas Spear (1880)	tug	burned	Surf Zone
Three Sisters (1901)	gas schooner	Stranded	Surf Zone
Torch Lake (1860)	steam screw	foundered	Deep
Tornado (1872)	tug	abandoned/burned	Surf Zone
Trident (1847)	Schooner	Stranded	Deep
Trinidad (1867)	schooner	foundered	Surf Zone
Two Katies (1873)	scow-schooner	collided	Surf Zone
Union (1867)	schooner	Foundered	Surf Zone
unknown tug (1893)	tug	stranded	Surf Zone
Veto (1879)	schooner	Stranded	Surf Zone
W.C. Tillson (1876)	steam paddle	Burned	Surf Zone
Warren (1835)	schooner	Stranded	Surf Zone
Whilrwind (?)	Schooner	Stranded	Surf Zone
Willard A. Smith (1875)	Schooner	Stranded	Surf Zone
William Finch (1878)	Scow schooner	stranded	Surf Zone
William M. Arbuckle (1854)	Schooner	Stranded	Surf Zone
Windham (1843)	Schooner	stranded	Surf Zone
Windsor (1856)	schooner	stranded	Surf Zone
Wisconsin (1835)	Schooner	stranded	Surf Zone
Wm. J. Livingstone Jr. (1874)	tug	foundered	Deep

Table 6. Door County/Green Bay suspected sites.

Name / Build Date	Vessel Type	Casualty Type	Probable Condition
Badger State (1924)	Tug	foundered	Deep
Cleveland (1846)	Bark	stranded	Surf Zone
Dollie M. (1893)	schooner	stranded	Surf Zone
Duncan City (1883)	tug	Abandoned	Surf Zone
Glen Cuyler (1859)	gas schooner	abandoned	Surf Zone
Herring King (?)	tug	burned	Deep
James Reid (1863)	tug	Burned	Deep
M.A. Gagnon (1874)	tug	abandoned	Deep
Ontario (1846)	brig	Foundered	Deep
Red River (?)	scow	Stranded	Surf Zone
Shakespeare (1848)	Brig	stranded	Surf Zone
Success (1862)	schooner	foundered	Deep
Tiger (1863)	Steam screw	Unknown	Surf Zone
Transit (1854)	schooner	abandoned	Deep
Windsor (1847)	schooner	stranded	Surf Zone

CHAPTER FIVE
MID-LAKE MICHIGAN REGION

The Mid-Lake Michigan region encompasses all of the waters of Lake Michigan off Manitowoc, Sheboygan, and Ozaukee Counties (Figure 53). The Wisconsin state line is approximately 35 miles offshore, and the region includes approximately 2,552 square miles of water. This region includes major shipping routes to all ports along western Lake Michigan and includes the ports of Manitowoc and Sheboygan. Smaller harbors include Two Rivers, Cleveland, and Port Washington. Maximum water depth in this region is 792 feet.

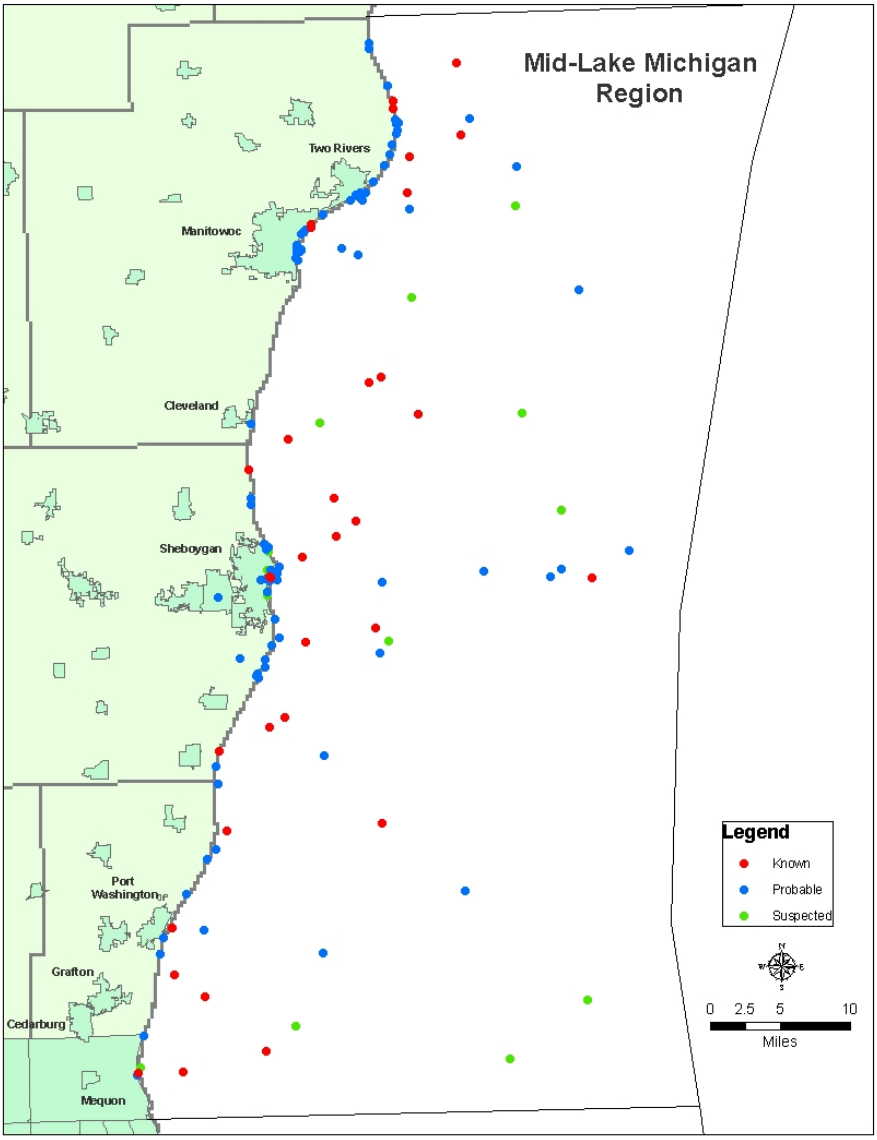

Figure 53. Mid-Lake Michigan region.

Historic records indicate there were 137 vessel losses within the Mid-Lake Michigan region. Of these 137 losses, there are 33 known wreck sites (Table 7), 27% of which are located in the surf zone. One of these, the *Lottie Cooper*, is on display ashore having been removed from the lake for marina construction. Eight wreck sites are deep and broken, 15 wreck sites are deep and intact, and 5 wreck sites are listed, and one pending listing, on the National Register of Historic Places. There are 92 probable wreck sites within the region, 82% of which lie in the surf zone (Table 8). There are 12 suspected wreck sites within the region, 38% of which lie in the surf zone (Table 9).

Table 7. Known sites in the Mid-Lake Michigan region.

Name / Build Date	Vessel Type	Condition	Depth	NRHP Listed
Advance (1853)	Schooner	Deep/Broken	85	
Arctic (1881)	tug	Surf Zone	10	
Atlanta (1891)	steam screw	Surf Zone	20	
Byron (?)	Schooner	Deep/Intact	135	
Continental (1882)	steam screw	Surf Zone	15	
Ella Ellinwood (1870)	Schooner	Surf Zone	10	
Floretta (1868)	Schooner	Deep/Broken	170	
Francis Hinton (1889)	steam screw	Surf Zone	15	Yes
Gallinipper (1833)	Schooner	Deep/Intact	220	
Helvetia (1873)	Schooner-barge	Deep/Intact	165	
Henry Gust (1893)	tug	Deep/Broken	80	
Hetty Taylor (1874)	Schooner	Deep/Intact	110	Yes
Home (1843)	Schooner	Deep/Intact	165	
Island City (1859)	Schooner	Deep/Broken	135	
Julia (1843)	steam paddle	Surf Zone	0	
Lottie Cooper (1876)	Schooner	Removed	n/a	
Mahoning (1847)	Brig	Deep/Broken	55	
McMullen and Pitz Dredge (1918)	Dredge	Deep/Intact	85	
Mediterranean (1859)	Schooner	Deep/?	300	
Niagara (1846)	steam paddle	Deep/Broken	65	Yes
Northerner (1851)	Schooner	Deep/Intact	125	
Pathfinder (1869)	schooner	Surf Zone	10	
Robert C. Pringle (1903)	steam tug	Deep/Intact	300	
Rouse Simmons (1868)	Schooner	Deep/Intact	165	Yes
S.C. Baldwin (1871)	Barge	Deep/Broken	85	
Selah Chamberlain (1873)	steam screw	Deep/Broken	85	
Senator (1896)	steam screw	Deep/Intact	460	
Silver Lake (1889)	scow-schooner	Deep/Intact	210	
Tennie and Laura (1876)	scow-schooner	Deep/Intact	325	Yes
Toledo (1854)	steam screw	Surf Zone	20	
unidentified wreckage (b)	Unknown	Surf Zone	10	
Vernon (1886)	steam screw	Deep/Intact	210	
Walter B. Allen (1866)	Schooner	Deep/Intact	170	

Known wreck sites in this region represent vessels constructed in Michigan, New York, Ohio, Illinois, and Wisconsin. Vessel types include schooners, a brig, canallers, scows, wood and steel steam propellers, steam paddles, barges, a dredge, and tugs. The 33 known vessels within the Mid-Lake Michigan region include:

Advance (1853) A 180-ton, two-masted schooner built in Milwaukee in 1853, she spent most of her career in the Lake Michigan lumber trade until she foundered southeast of Sheboygan on 8 September 1885, taking 5 of her crew with her. Today, she lies in 85 feet of water with her hull broken, but her centerboard trunk remains upright and all of her major hull components are extant.

Arctic (1881) A 71-ton steam tug built for the Goodrich Steamship Company by the Rand and Burger shipyard in Manitowoc, Wisconsin, she was built with a reinforced bow for ice breaking. Abandoned in 1930, she was beached north of Manitowoc and today lies broken in 15 feet of water near the wreckage of the *Francis Hinton*. The wreck site consists of the lower hull and portions of the hull sides, a firebox boiler, propeller blade, engine mounts, rudder and other artifacts.

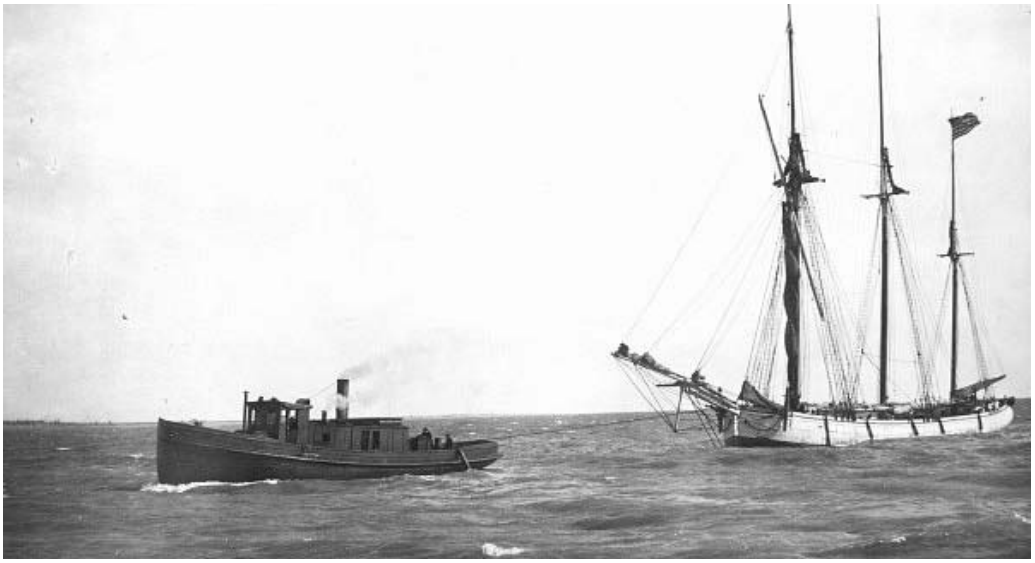

Figure 54. The tug *Arctic* towing a schooner into port. Historical Collections of the Great Lakes, Bowling Green State University.

Atlanta (1891) A 1,129-ton wooden propeller built in Cleveland, Ohio, for the Goodrich Transportation Company, she spent most of her life sailing the passenger and package trade between Lake Michigan ports until she caught fire and burned to the waterline on 18 March 1906. Today, she lies in 17 feet of water south of Sheboygan.

Figure 55. The Goodrich Steamer *Atlanta*. Historic Collections of the Great Lakes, Bowling Green State University.

Byron (1849?) Little is known about the little trading schooner *Byron*. Just under 40 feet in length, the tiller-steered, two-masted schooner sank on 8 May 1867 loaded with sundries. Today, she lies in 135 feet of water 12 miles southeast of Sheboygan with her hull intact except for her decking.

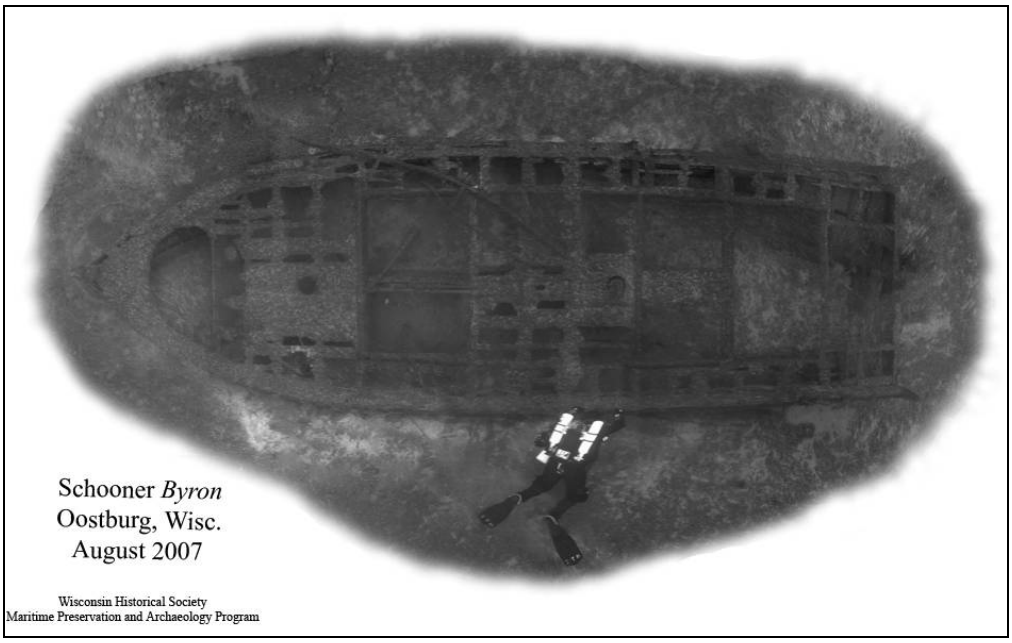

Figure 56. Photo mosaic of the trading schooner *Byron*. Wisconsin Historical Society.

Continental (1882) A 1,506-ton wooden steam barge built by the George Presley shipyard in Cleveland, Ohio, she ran aground while running empty north of Rawley Point Lighthouse on 12 December 1904. She broke up over the winter, and today her hull lies in 15 feet of water. Her compound steam engine remains upright and intact, breaking the water's surface near the beach. The *Continental* is listed on the National Register of Historic Places.

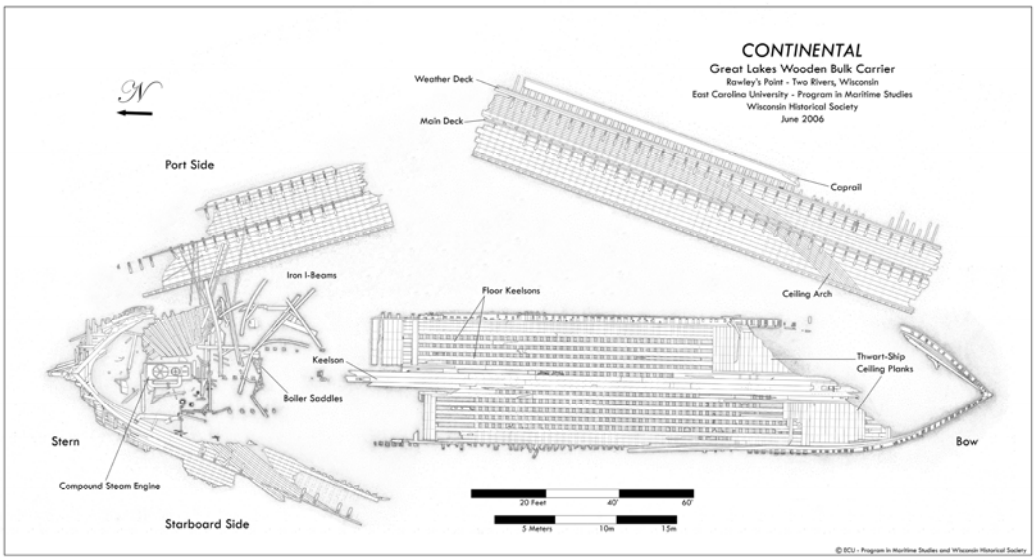

Figure 57. The *Continental*'s site plan. East Carolina University.

Ella Ellinwood (1870) A 158-ton schooner built in East Saginaw, Michigan, she ran aground south of Port Washington on 29 September 1901. The vessel's location is reportedly known but not on record with the Society.

Floretta (1868) A 260-ton, two-masted schooner built in Detroit, Michigan, she was carrying a rare cargo for schooners on Lake Michigan when she foundered off Manitowoc on 18 September 1885 – iron ore. Today, she lies somewhat broken in 170 feet of water. Her centerboard trunk remains upright, but like most wooden vessels that sank carrying iron ore, her hull is broken with much of her lower hull covered in ore. Her two intact hull sides lay next to her lower hull. Nearly all of her standing and running rigging are extant.

Figure 58. The *Floretta*'s starboard bow with the ground tackle and rigging visible. Tamara Thomsen.

Francis Hinton (1889) A 417-ton wooden steam barge built by the Hanson and Scove shipyard in Manitowoc, Wisconsin, she came ashore in a storm on 16 November 1909 north of Manitowoc. Today, she lies broken in 20 feet of water with her hull sides collapsed and her boiler, engine, and propeller intact. The *Francis Hinton* is listed on the National Register of Historic Places.

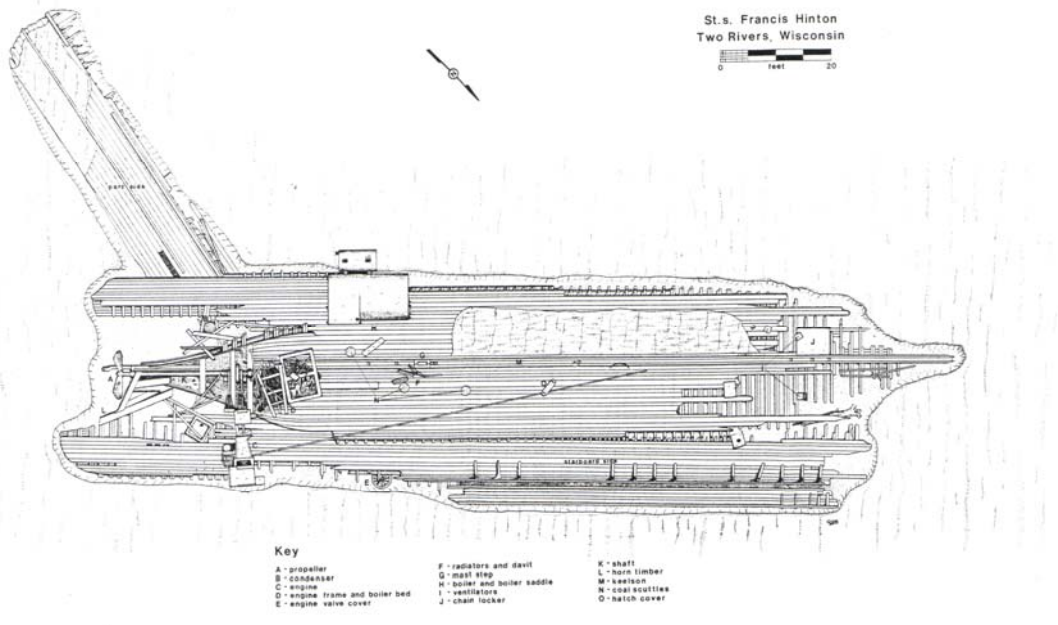

Figure 59. The *Francis Hinton*'s site plan. Wisconsin Historical Society.

Gallinipper (1833) A 95-foot, two-masted schooner originally built as the *Nancy Dousman* in Black River, Ohio, in 1833, her name was changed to the *Gallinipper* prior to her foundering northeast of Sheboygan on 5 July 1851 while empty. Today, she lies on a slight list to starboard with her hull completely intact and one of her masts still standing (the other is on display at Roger Street Fishing Village in Two Rivers.) The *Gallinipper* is Wisconsin's oldest known shipwreck, having ties to early Wisconsin settlement and the fur trade, and is an excellently-preserved example of a very early hull type.

Figure 60. The *Gallinipper*'s bow, with bow knee, bowsprit, anchor, and mast. Tamara Thomsen.

Helvetia (1873) A 793-ton, three-masted schooner built in Tonawanda, New York, she was cut down to a schooner barge and continued to sail until she was abandoned and scuttled northeast of Sheboygan on 10 September 1921. Today, she lies in 165 feet of water with much of her lower hull intact.

Figure 61. The schooner *Helvetia* under tow. Historic Collections of the Great Lakes, Bowling Green State University.

Henry Gust (1893) A 37-ton wooden steam-powered fish tug built by the Milwaukee Shipyard Company in Milwaukee, Wisconsin, she was scuttled off Two Rivers in 1935. Today, she lies in 85 feet of water with her lower hull largely intact as well as her boiler, engine, and propeller.

Hetty Taylor (1874) A 84-ton, two-masted schooner built in Milwaukee and sailed as trading schooner until she capsized in a storm southeast of Sheboygan on 26 August 1880. Today, she lies mostly intact in 110 feet of water.

Figure 62. Bow of the trading schooner *Hetty Taylor*. Tamara Thomsen.

Home (1843) This 85-foot, two-masted schooner was built in Black River, Ohio, and was sunk in a collision southeast of Manitowoc on 17 October 1858 with a load of slabwood. Today, she lies intact in 170 feet of water with the collision damage visible on her starboard bow. Her foremast is on display at Rogers Street Fishing Village, but her mainmast remains in place, having fallen towards the port quarter.

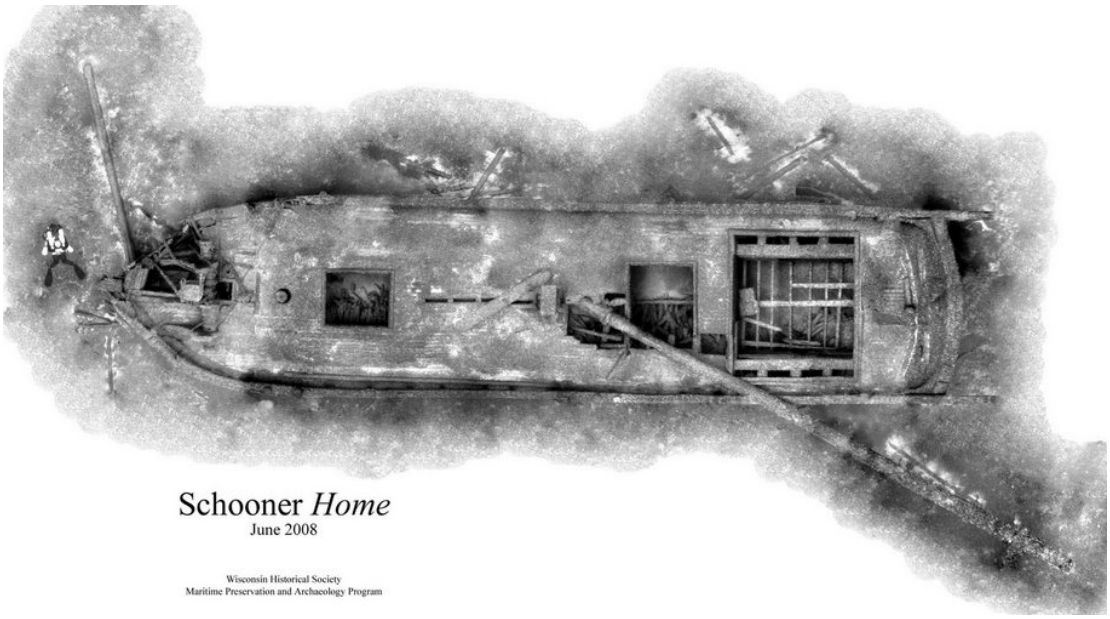

Figure 63. Photo mosaic of the *Home*. Wisconsin Historical Society.

Island City (1859) This 54-ton, two-masted schooner was built in St. Clair, Michigan, and served as a trading schooner until she foundered on 8 April 1894. She was owned by the same family that owned the scow schooner *Tennie and Laura*, which lies just a few miles to the northeast. Today, the *Island City* lies in 135 feet of water. Her hull is broken up, but all major hull components are extant.

Julia (1843) A 102-ton steam paddle built in Buffalo, New York, she was abandoned in the Sheboygan Harbor in 1893. The site has seen extensive dredging operations, but some hull remains may remain.

Lottie Cooper (1876) A 252-ton, three-masted schooner built in Manitowoc, Wisconsin, she sailed in the lumber trade until she stranded at Sheboygan in a storm on 9 April 1894. In the 1990s, her hull was removed for the construction of the Sheboygan Marina, and today is on display at the marina entrance.

Figure 64. The *Lottie Copper* on display ashore. Tamara Thomsen.

Mahoning (1847) A 119-foot brig built at Black River, Ohio, she was lost while being towed to Milwaukee for repairs on 4 November 1864. Today, the *Mahoning* lies broken in 55 feet of water southeast of Port Washington. Most of her hull structure is extant, including her bow knee and an early centrifugal salvage pump that was aboard at the time of her loss. The *Mahoning* is one of a handful of square-rigged vessels discovered in Wisconsin waters.

Figure 65. The *Mahoning*'s bow knee. The windlass is visible aft of the stem. Tamara Thomsen.

McMullen and Pitz Dredge (1918) The *McMullen and Pitz Dredge* was only a year old when she foundered between Manitowoc and Sheboygan in a storm on 18 November 1919. Today she lies upright and intact in 85 feet of water.

Figure 66. The *McMullen and Pitz Dredge*. Tamara Thomsen.

Mediterranean (1859) A 239-ton, two-masted schooner built in Sodus, New York, that foundered 25 miles off Sheboygan on 25 September 1891. The vessel's location is reportedly known but not on record with the Society.

Niagara (1846) A 225-foot wooden sidewheel steamer that was built in Buffalo, New York, and carried passengers and package freight on a regular route between New York and Wisconsin. She caught fire and burned to the waterline northeast of Port Washington on 24 September 1856, taking more than 60 of her passengers with her. Today, the *Niagara* lies broken in 55 feet of water, but her engine, boilers, walking beam, and paddles are extant. The *Niagara* is listed on the National Register of Historic Places.

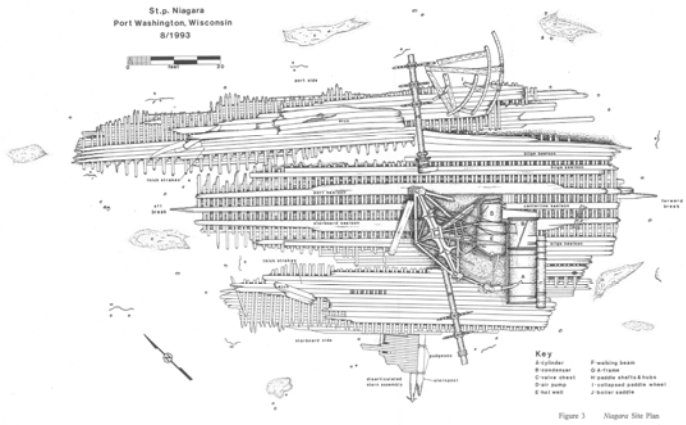

Figure 67. The *Niagara*'s site plan. Wisconsin Historical Society.

Northerner (1851) A 77-ton, two-masted schooner built in Clayton, New York, she worked in the lumber trade until she foundered in a storm southeast of Port Washington on 29 November 1868. Today, she lies intact in 135 feet of water with a unique scroll head still intact.

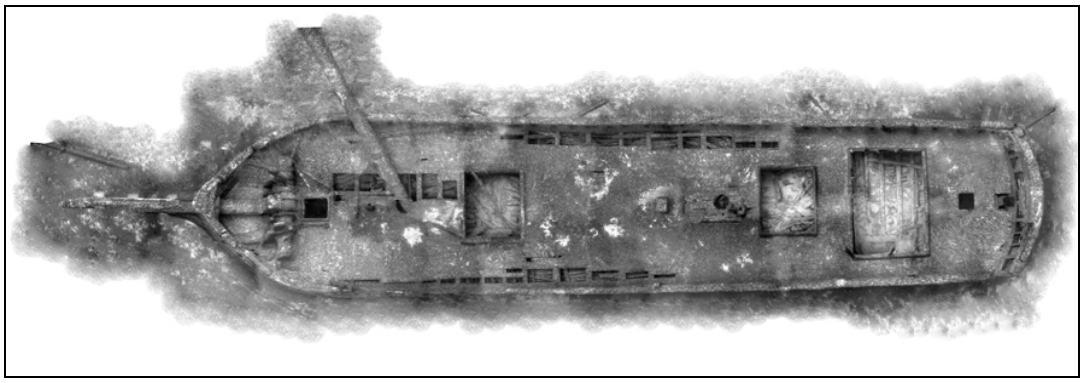

Figure 68. Photo mosaic of the *Northerner*. Wisconsin Historical Society.

Pathfinder (1869) A 634-ton, three-masted schooner built by the O. Campbell and Company shipyard in Detroit, Michigan, she stranded 2.5 miles north of Two Rivers on 18 November 1886. Today, she lies broken in 10 feet of water.

Robert C. Pringle (1903) A 141-ton wooden steam screw built in Manitowoc, Wisconsin, as the excursion boat *Chequamegon* before she was converted to a work tug. While towing the steamer *Venezuela* enroute to Sandusky, Ohio, she struck a submerged object and sank off Sheboygan on 19 June 1922. Today, she lies upright and completely intact in 300 feet of water southeast of Sheboygan.

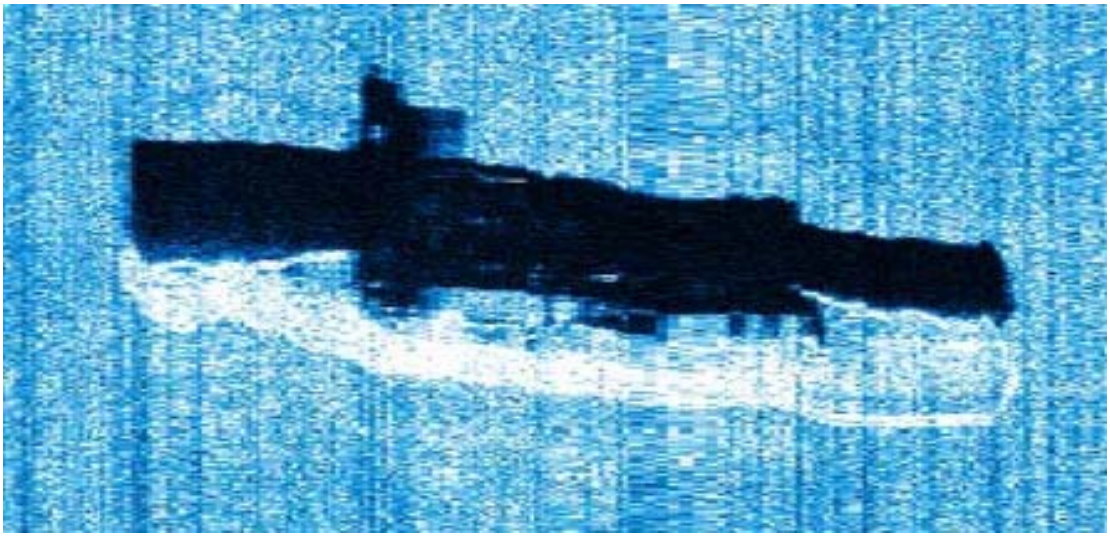

Figure 69. Side scan image of the *Robert C. Pringle*. National Oceanic and Atmospheric Administration.

Rouse Simmons (1868) A 205-ton, three-masted double centerboard schooner built by the Allen McClellen and Company shipyard in Milwaukee, Wisconsin, she foundered off Two Rivers on 23 November 1912 while carrying a load of Christmas trees to Chicago. Today, she lies upright and intact in 165 feet of water, including her cargo of evergreen trees. The *Rouse Simmons* is listed on the National Register of Historic Places.

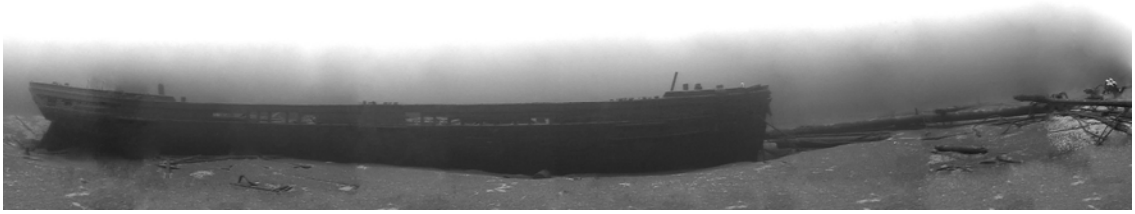

Figure 70. A profile mosaic of the *Rouse Simmons*. Wisconsin Historical Society.

S.C. Baldwin (1871) A 412-ton wooden steam barge built by the Campbell and Company shipyard in Detroit, Michigan, she is reportedly the first double-decked wooden steam barge built on the Great Lakes. She foundered on 27 August 1908 north of Two Rivers. Today, she lies broken and scattered in 70 feet of water.

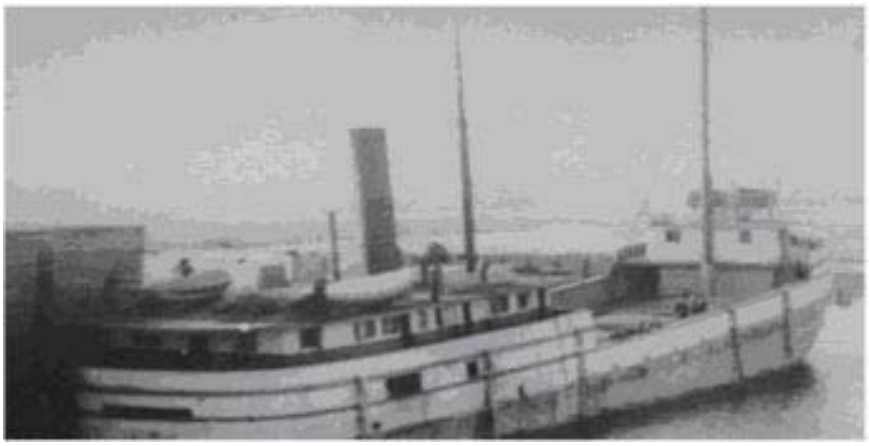

Figure 71. The steam barge *S. C. Baldwin*. C. Patrick Labadie Collection, Alpena County Public Library.

Selah Chamberlain (1873) A 1,207-ton steam barge built in Cleveland, Ohio, she collided with the *John Pridgeon Jr.* in a dense fog off Sheboygan on 14 October 1886. She quickly sank, taking five of her crew with her. Today, the *Selah Chamberlain*'s hull is largely broken up, but her twin boilers, steeple compound engine, sternpost, propeller, and rudder remain upright and intact.

Figure 72. The *Selah Chamberlain*'s twin boilers are still attached to the steeple compound engine. Tamara Thomsen.

Senator (1896) A 4,408-ton steel steamer built in Wyandotte, Michigan, she was carrying 264 brand new Nash automobiles when she collided with the steamer *Marquette* in a dense fog southeast of Sheboygan on 31 October 1929. Located in 2005, she is upright and intact in 460 feet of water, but the vessel's location is not on record with the Society.

Figure 73. The steamer *Senator* with a deck load of automobiles. Historic Collections of the Great Lakes, Bowling Green State University.

Silver Lake (1889) A 105-ton, two-masted scow schooner built in Little Point Sable, Michigan, she sailed in the lumber trade until she collided with the *Pere Marquette* on 28 May 1900. Today, she lies upright and intact in 210 feet of water northeast of Sheboygan. Her hull is fractured from the collision, but her foremast remains standing with a rigged yard.

Tennie and Laura (1876) A 57-ton, two-masted scow schooner built in Manitowoc, Wisconsin, she sailed in the lumber trade until she capsized in a gale on 2 August 1903 northeast of Milwaukee. Today, the *Tennie and Laura* lies upright and intact in 325 feet of water southeast of Port Washington with both masts still standing.

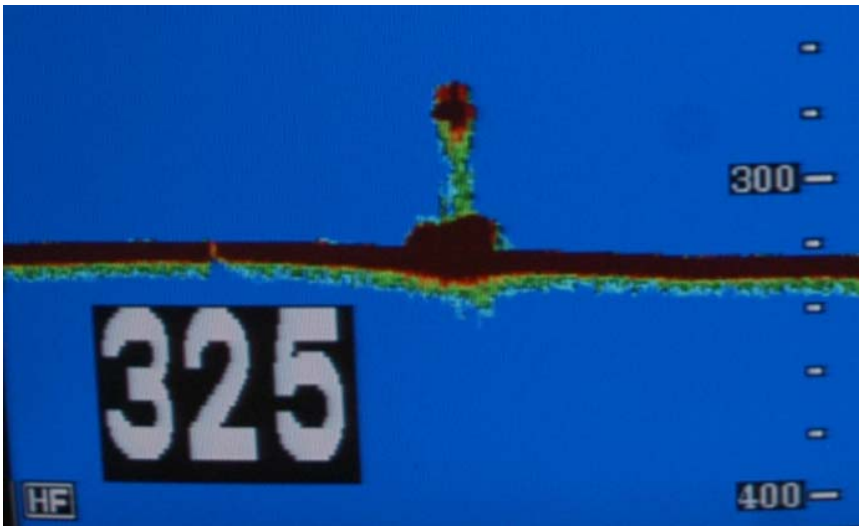

Figure 74. Sonar image of the *Tennie and Laura* showing the standing masts and rigging. Wisconsin Historical Society.

Toledo (1854) A 128-foot steam screw built in Buffalo, New York, she sailed in the passenger and package trade until she foundered off Sheboygan on 22 October 1856 with the loss of approximately 40 lives. Today, she lies broken and scattered in 20 feet of water just north of the Sheboygan entrance.

Unidentified wreckage (b) In 10 feet of water, six miles north of Sheboygan, lies the broken and scattered remains of a wooden vessel. Tentatively identified as a schooner, more work needs to be done on this site for further analysis.

Vernon (1886) A 694-ton wooden propeller built by the J. P. Smith shipyard in Chicago, Illinois, she worked as a package freighter for the Booth Fish Company for one year when she foundered northeast of Two Rivers on 29 October 1887. Today, she lies intact in 210 feet of water with her cargo of general merchandise intact in her holds.

Figure 75. A Society diver inspects the *Vernon*'s ornate bow. Tamara Thomsen.

Walter B. Allen (1866) A 296-ton, two-masted schooner built in Ogdensburg, New York, she was being towed to the shipyard for repairs when she foundered northeast of Sheboygan on 17 April 1880. Today, she lies upright and completely intact in 170 feet of water. Both of her masts were upright until the winter of 2006-2007, when the mainmast broke at deck level and toppled to the port side. The steam pump that was used to keep her afloat remains lashed to the deck.

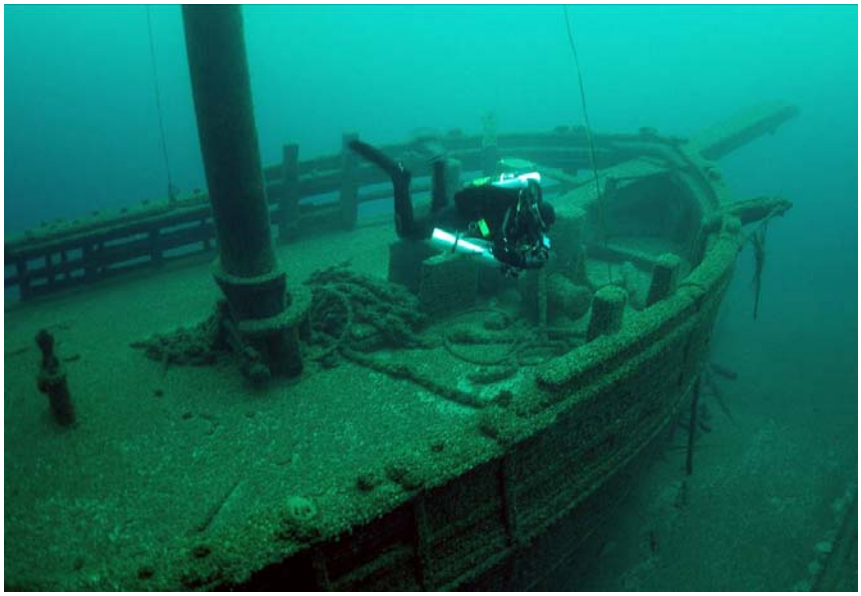

Figure 76. A Society diver inspects the *Walter B. Allen* in 170 feet of water. Tamara Thomsen.

Table 8. Probable shipwrecks within the Mid-Lake Michigan region.

Name / Build Date	Vessel Type	Casualty Type	Probable Condition
A.V. Knickerbocker (1840)	Schooner	stranded	Surf Zone
Abiah (1848)	Schooner	Foundered	Deep
Ahnapee (1867)	scow-schooner	stranded	Surf Zone
Alaska (1869)	scow-schooner	stranded	Surf Zone
Ann Arbor #1 (1892)	steam screw	burned	Surf Zone
Arrow (1852)	schooner	stranded	Surf Zone
Baltimore (1847)	steam paddle	stranded	Surf Zone
Belle (1860)	steam screw	burned	Deep
Belle Wallbridge (1857)	Schooner	stranded	Surf Zone
Bessie Boalt (1868)	schooner	foundered	Surf Zone
Big Z (1844)	Schooner	stranded	Surf Zone
Blue Belle (1867)	scow-schooner	stranded	Surf Zone
Bohemian (?)	Schooner	stranded	Surf Zone
Boss (1882)	tug	foundered	Deep
Brilliant (1856)	Schooner	stranded	Surf Zone
Buena Vista (1847?)	Schooner	unknown	Surf Zone
C.G. Breed (1862)	brig	foundered	Deep
C.S. Davis (1870)	schooner	stranded	Surf Zone
Challenge (1852)	Schooner	stranded	Surf Zone
Collingwood (1855)	Schooner	foundered	Deep
Commerce (1857)	Schooner	foundered	Surf Zone
Conquest (1853)	Schooner	unknown	Surf Zone
Dan Tindall (1858)	schooner	abandoned	Surf Zone
Dart (1867)	schooner	stranded	Surf Zone
Dawn (1888)	scow-schooner	stranded	Surf Zone
Delaware (1846)	steam screw	stranded	Surf Zone
Dispatch (1857)	schooner	stranded	Surf Zone
E.G. Wolcott (?)	Schooner	stranded	Surf Zone
E.M. Portch (1867)	Schooner	collided	Surf Zone
Emily Cooper (?)	schooner	stranded	Surf Zone
Eva M. Cone (1857)	Schooner	stranded	Surf Zone
Express (1864)	Scow-brig	Collided	Deep
F.C. Clark (1849)	brig	stranded	Surf Zone
G.P. Heath (1872)	steam screw	burned	Surf Zone
Grace Patterson (1880)	steam screw	stranded	Surf Zone
Graham Brothers (1874)	schooner	abandoned	Surf Zone
Greyhound (1853)	brig	stranded	Surf Zone
Guiding Star (1869)	schooner	stranded	Surf Zone
Hampton (1845)	brig	foundered	Deep
Hannah Etty (1864)	schooner	foundered	Surf Zone
Hercules (1854)	scow	foundered	Surf Zone
Humko (1946)	yacht	burned	Deep
J.M. Harvey (1896)	gas schooner	stranded	Surf Zone
J.M. Jones (1855)	schooner	collided	Deep
James Navagh (1857)	schooner	stranded	Surf Zone
Jennifer (1964)	Oil screw	Foundered	Deep
John Irwin (1845)	brig	stranded	Surf Zone
Joseph G. Masten (1867)	bark	stranded	Surf Zone

L.B. Nichols (1854)	schooner	stranded	Surf Zone
L.B. Shepard (1855)	schooner	foundered	Surf Zone
La Salle (1874)	schooner	stranded	Surf Zone
Levant (1854)	schooner	foundered	Deep
Lexington (1838)	steam paddle	stranded	Surf Zone
Lookout (1855)	schooner	stranded	Surf Zone
Lynx (1905)	scow-schooner	abandoned	Surf Zone
Magellan (1873)	schooner	collided	Surf Zone
Major Anderson (1861)	bark	stranded	Surf Zone
Major Barnum (1849)	schooner	stranded	Surf Zone
Mars (1855)	schooner	stranded	Surf Zone
Mary Ann Scott (1871)	scow-schooner	stranded	Surf Zone
Mary B. Hale (1857)	schooner	stranded	Surf Zone
Milton (1867)	scow-schooner	foundered	Deep
Minnesota (1847)	schooner	stranded	Surf Zone
Montgomery (1866)	schooner	stranded	Surf Zone
Muskegon (1871)	steam paddle	abandoned	Surf Zone
Nora (1869)	schooner	collided	Deep
Ocean Eagle (1855)	brig	collided	Surf Zone
Oleander (1848)	brig	stranded	Surf Zone
Oliver Culver (1855)	schooner	stranded	Surf Zone
Our Son (1875)	Schooner	Foundered	Deep
Pere Marquette 18 (1902)	Steam screw	Foundered	Deep
Petrel (1847)	schooner	collided	Surf Zone
Phoenix (1845)	steam screw	burned	Surf Zone
Planet (1855)	barge	foundered	Surf Zone
Polynesia (1885)	Schooner	Foundered	Deep
R.H. Becker (1867)	scow-schooner	stranded	Surf Zone
R.J. Sanborn (1860)	schooner	stranded	Surf Zone
Richard Roe (1857)	schooner	stranded	Surf Zone
Saint Peter (1868)	Schooner	Foundered	Deep
Scow No. 2 (?)	scow	stranded	Surf Zone
Sea Bird (1875)	schooner	stranded	Surf Zone
Sea Gem (1863)	Schooner	stranded	Surf Zone
Sheboygan (1869)	steam paddle	burned	Surf Zone
Silver Cloud (1869)	scow-schooner	stranded	Surf Zone
Sir William Wallace (1836)	schooner	stranded	Surf Zone
Speed (1866)	scow-schooner	stranded	Surf Zone
Tubal Cain (1866)	Bark	stranded	Surf Zone
unknown scow (a)	Scow	foundered	Surf Zone
W.F. Allen, Jr. (1853)	schooner	stranded	Surf Zone
White Oak (1867)	scow-schooner	stranded	Surf Zone
William A. Reiss (1901)	steam screw	stranded	Surf Zone
Wollin (1854)	schooner	stranded	Surf Zone

Table 9. Suspected shipwrecks within the Mid-Lake Michigan region.

Name / Build Date	Vessel Type	Casualty Type	Probable Condition
Alma (1887)	scow-schooner	unknown	Deep
David Wagstaff (1863)	schooner	foundered	Deep
Emily (1853)	Schooner	Foundered	Deep
Libbie Carter (1882)	scow-schooner	unknown	Deep
Mojave (1864)	Bark	Foundered	Deep
Mosher (1890)	Steam screw	Unknown	Unknown
Northport Belle (1869)	steam paddle	abandoned	Surf Zone
R.P. Mason (1867)	Schooner	burned	Deep
Saint Ignace (1882)	Scow	Foundered	Deep
Sea Bird (1857)	scow-schooner	foundered	Deep
Wellan (<1839)	Schooner	Abandoned	Surf Zone
Winona (1863)	schooner	stranded	Surf Zone

CHAPTER SIX
LOWER LAKE MICHIGAN REGION

The Lower Lake Michigan region is the smallest of the Maritime Trails regions and includes approximately 1,876 square miles of Lake Michigan water off Milwaukee, Racine, and Kenosha counties (Figure 77). This region includes major shipping routes to all ports along western Lake Michigan and includes the ports of Milwaukee, Racine, and Kenosha. Maximum water depth in this region is 510 feet.

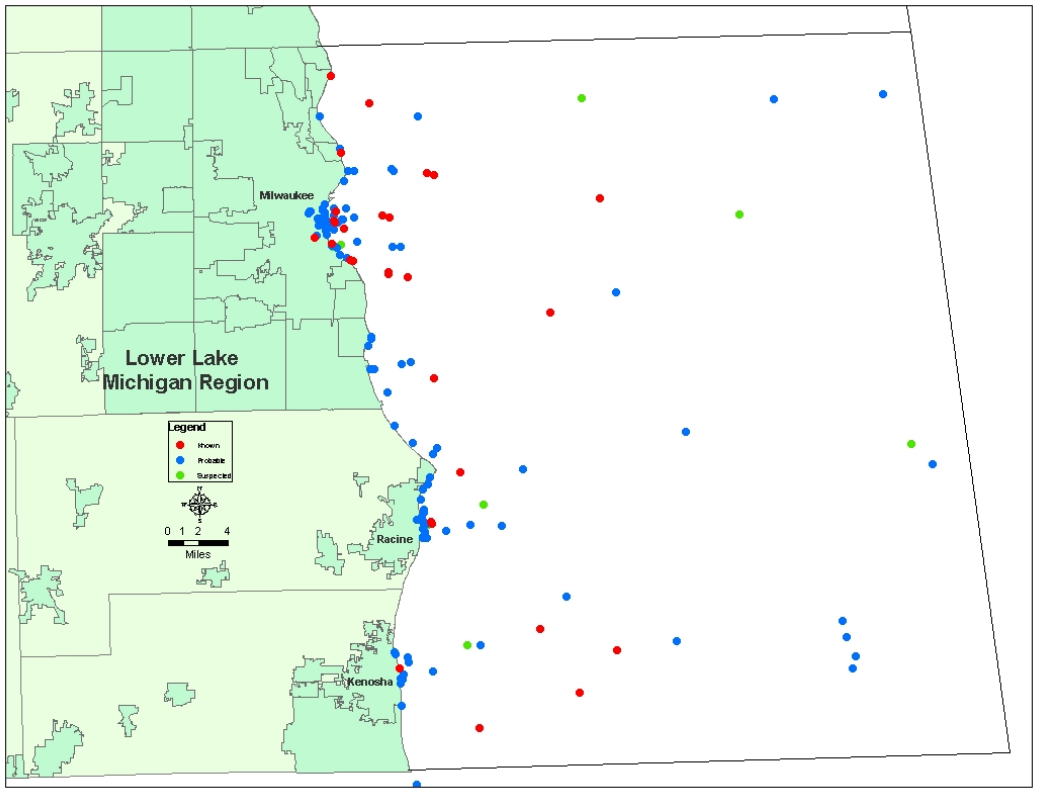

Figure 77. Lower Lake Michigan region.

Historic records indicate there were 146 vessel losses within the Lower Lake Michigan region. Of these 146 losses, 29 wreck sites are known today, 35% of which lie in the surf zone (Table 10). There are 108 probable wreck sites within the region, 78% of which lie in the surf zone (Table 11). There are 9 suspected wreck sites in the region, 44% of which lie in the surf zone (Table 12). Four sites are listed on the National Register of Historic Places.

Table 10. Known sites in the Lower Lake Michigan region.

Name / Build Date	Vessel Type	Condition	Depth	NRHP Listed
#23 MFD (1896)	Fire boat	Deep/Broken	75	
Alice E. Wilds (1883)	Tug	Deep/Intact	220?	
Alleghany (1849)	steam screw	Surf Zone	15	
Appomattox (1896)	steam screw	Surf Zone	20	Yes
Dredge 906 (?)	Barge	Deep/Intact	65	
Edward E. Gillen (1908)	Tug	Deep/Intact	55	
EMBA (1890)	schooner-barge	Deep/Intact	165	
Evra Fuller (1873)	schooner	Deep/Broken	35	
Grace A. Channon (1873)	Schooner	Deep/Intact	185	
Hiram R. Bond (1888)	steam screw	Surf Zone	20	
Ida H. Lee (1863)	Tug	Deep/broken	60	
J.M. Allmendinger (1883)	steam screw	Surf Zone	15	
Kate Kelley (1867)	schooner	Deep/Broken	55	Yes
Lac La Belle (1864)	steam screw	Deep/?	300	
Lightship 57 (1891)	steam screw	Surf Zone	5	Yes
Lumberman (1862)	schooner	Deep/Intact	55	
Merchant (1862)	steam screw	Surf Zone	15	
Milwaukee (1903)	steam screw	Deep/Intact	125	
Norlond (1890)	steam screw	Deep/Broken	65	
Northwest (1862)	schooner	Deep/?	?	
Prins Willem V (1948)	oil screw	Deep/Intact	90	
Rosinco (1916)	gas screw	Deep/Intact	180	Yes
Sebastopol (1855)	steam paddle	Surf Zone	10	
St. Albans (1868)	steam screw	Deep/Broken	165	
Sumatra (1874)	Schooner	Surf Zone	20	
Transfer (1872)	Schooner barge	Deep	120	
USACE Sandsucker (?)	Dredge	Surf Zone	20	
Volunteer (1888)	steam screw	Surf Zone	10	
Wisconsin (1880-1881)	steam screw	Deep/Intact	125	

Known sites in this region represent vessels built in Michigan, New York, Ohio, Wisconsin, Delaware, and Norway. Vessel types include several types of tugs, wood, iron, and steel steam screws, schooners, a canaller, an early self-unloader, a luxury motor yacht, a railroad car ferry, a fire boat, dredge, and a WWII-era oil screw. The 29 known vessels within the Lower Lake Michigan region include:

#23 MFD (1896) A purpose-built 133-ton fireboat built in Sturgeon Bay, Wisconsin, as the *August F. Janssen* for the Milwaukee Fire Department, and later renamed the *#23 MFD*. She was stripped, set afire, and scuttled on 27 July 1923, and today lies broken in 75 feet of water 4 miles off Milwaukee.

Figure 78. The propeller, rudder, and stern post of the *#23 MFD*. Tamara Thomsen.

Alice E. Wilds (1883) A 292-ton steam tug built in Detroit, Michigan, the *Alice E. Wilds* was lost in a collision on 12 June 1892 eighteen miles off Milwaukee. Reportedly found in 1996, the vessel's position is known but not on record with the Society.

Alleghany (1849) A 468-ton wooden steam screw built in Cleveland, Ohio, she came ashore in a gale on 20 October 1855 at South Shore Beach in Milwaukee. Today, she lies broken and scattered in 15 feet of water.

Appomattox (1896) A 2,643-ton wooden bulk carrier built by the James Davidson shipyard in West Bay City, Michigan, she ran aground in dense fog and smoke at North Point while attempting to enter Milwaukee on 2 November 1905. Her machinery was subsequently salvaged, and today she lies in 20 feet of water with her hull broken and scattered. The *Appomattox* is the world's largest wooden bulk steamer ever built, and is listed on the National Register of Historic Places.

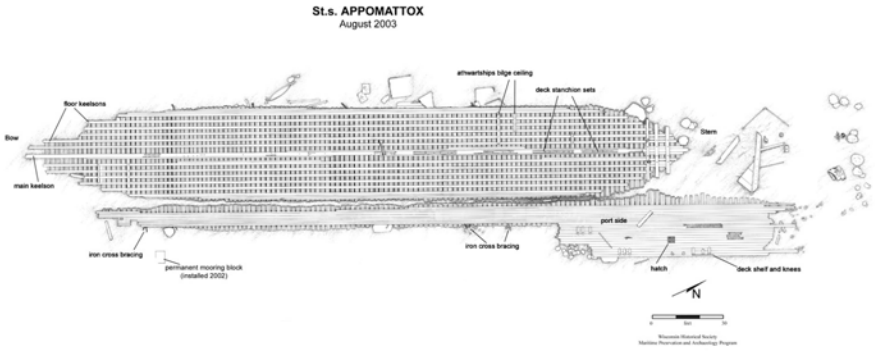

Figure 79. The *Appomattox*'s site plan. Wisconsin Historical Society.

Dredge 906 (?) Little is known about the history of the *Dredge 906*, which capsized in a storm on 23 May 1956, tanking nine crewmen with her. Today, the steel dredge lies eight miles southeast of Milwaukee in 75 feet of water. She is largely intact, but lies upside down on the lakebed, supported off the bottom by her spuds.

Figure 80. The *Dredge 906* lies inverted, held off the bottom by the spuds. Kim Brungraber.

Edward E. Gillen (1908) A 47-ton steel tug built in Buffalo, New York, she was converted from steam to diesel power in 1928. On 3 June 1981 she was assisting the U.S. Coast Guard when she capsized and sank in 55 feet of water 3 miles east of Milwaukee. Today, she lies upright and intact on the bottom.

Figure 81. The *Edward E. Gillen* tug. Tamara Thomsen.

EMBA (1890) A 679-ton, three-masted schooner built in West Bay City, Michigan, she was cut down to a Grand Haven rig in 1900 and continued to sail until December 1932, when she was stripped and scuttled 7 miles northeast of Milwaukee. Today, she lies upright and mostly intact in 165 feet of water. The vessel's identity is uncertain, as the hull includes the remains on an early self-unloader.

Figure 82. The *EMBA*'s stern. Kim Brungraber.

Evra Fuller (1873) A 229-ton, three-masted schooner built at an unknown shipyard in Fort Howard, Wisconsin, she was originally named the *Lena Johnson* before her name was changed and she stranded on Racine Reef on 13 October 1893. Today, the wreck site consists of broken and scattered wreckage spread over a wide area in 35 feet of water.

Grace Channon (1873) A 265-ton, three-masted schooner built in East Saginaw, Michigan, she was carrying a load of coal to Chicago when she collided with the steamer *Favorite* on 2 August 1877. She sank quickly, taking the captain's 7-year-old son with her. Today, she lies upright and intact in 185 feet of water 16 miles off Oak Creek. Her stern cabin remains intact and nearly all of her standing rigging is extant.

Figure 83. The *Grace A. Channon*'s stern. Tamara Thomsen.

Hiram R. Bond (1888) A 230-ton wooden steam screw built in Milwaukee, Wisconsin, she was lost in a collision on 29 May 1905. Today, she lies broken and scattered just off the North Point Light in 20 feet of water.

Ida H. Lee (1863) A 18-ton wooden tug built in Buffalo, New York, she was lost in a collision on 23 April 1874 off Milwaukee. Today, she lies broken and scattered north of Milwaukee in 60 feet of water.

J.M. Allmendinger (1883) A 183-ton wooden steam barge built in Benton Harbor, Michigan, she was enroute from Sturgeon Bay to Milwaukee on 26 November 1895 in a dense snowstorm when she stranded at Fox Point. Today, she lies broken and scattered in 15 feet of water.

Figure 84. The steam barge *J.M. Allmendinger*. Historic Collections of the Great Lakes, Bowling Green State University.

Lightship 57 (1891) A 130-ton wooden lightship built in Toledo, Ohio, she was decommissioned and purchased by a boys club a year before she broke up in a storm in October 1929. The wreck site is largely broken and lies alongside the break wall at South Shore Yacht Club.

Kate Kelly (1867) A 257-ton, two-masted canaller built by the J. Martell shipyard in Tonawanda, New York, she foundered in a sudden squall northeast of Racine on 14 May 1895. Today, the wreck lies broken and widely scattered in 55 feet of water northeast of Wind Point Lighthouse. The *Kate Kelly* site is listed on the National Register of Historic Places.

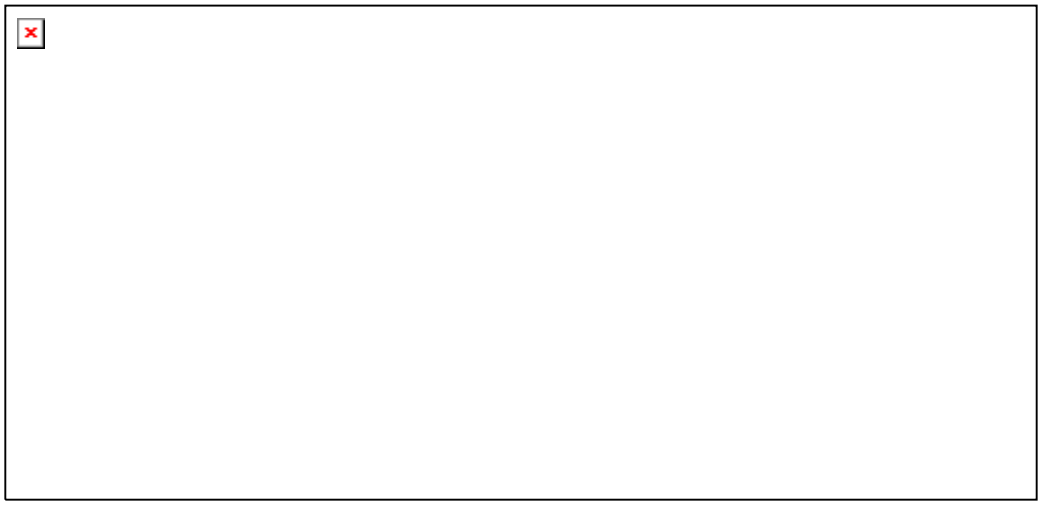

Figure 85. The *Kate Kelly*'s site plan. Wisconsin Historical Society.

Lac La Belle (1864) A 1,187-ton wooden steam screw built by the Ira Lafrinnier shipyard in Cleveland, Ohio, she foundered in a storm 20 miles off Racine on 14 October 1872. The site location is reportedly known in 300 feet of water, but the location is not on record with the Society.

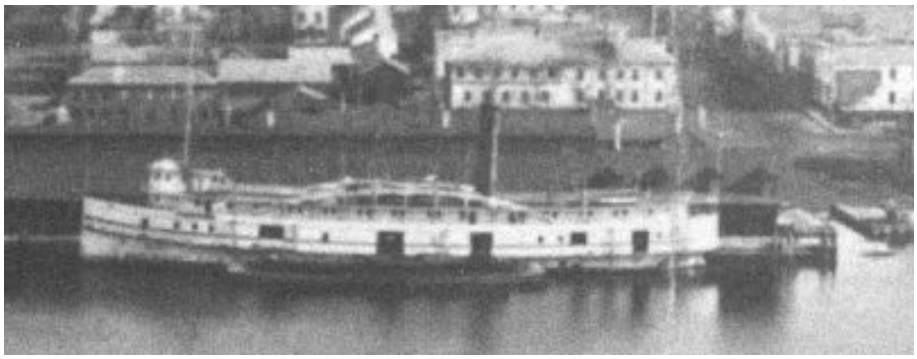

Figure 86. The *Lac La Belle* pier side. Historic Collections of the Great Lakes, Bowling Green State University.

Lumberman (1862) A 159-ton, three-masted double centerboard schooner built at the A. C. Litchfield shipyard in Blendon's Landing, Michigan, she capsized during a sudden squall while running light on 6 April 1893. Today, she lies mostly intact in 55 feet of water 4 miles off Oak Creek.

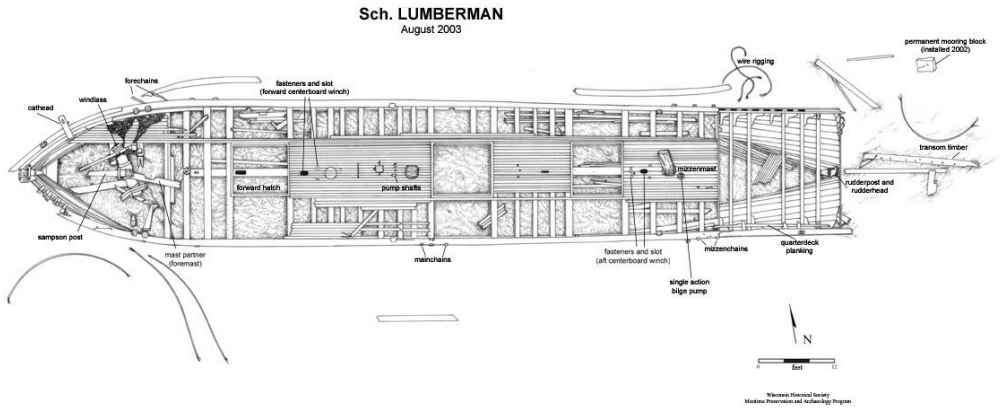

Figure 87. The *Lumberman*'s site plan. Wisconsin Historical Society.

Merchant (1862) A 1,068-ton iron steam propeller built by the David Bell shipyard in Buffalo, New York, she is reportedly the first iron-hulled steam propeller built on the Great Lakes. She stranded on Racine Reef in October 1875, and today her remains are broken and scattered over a large area in 25 feet of water.

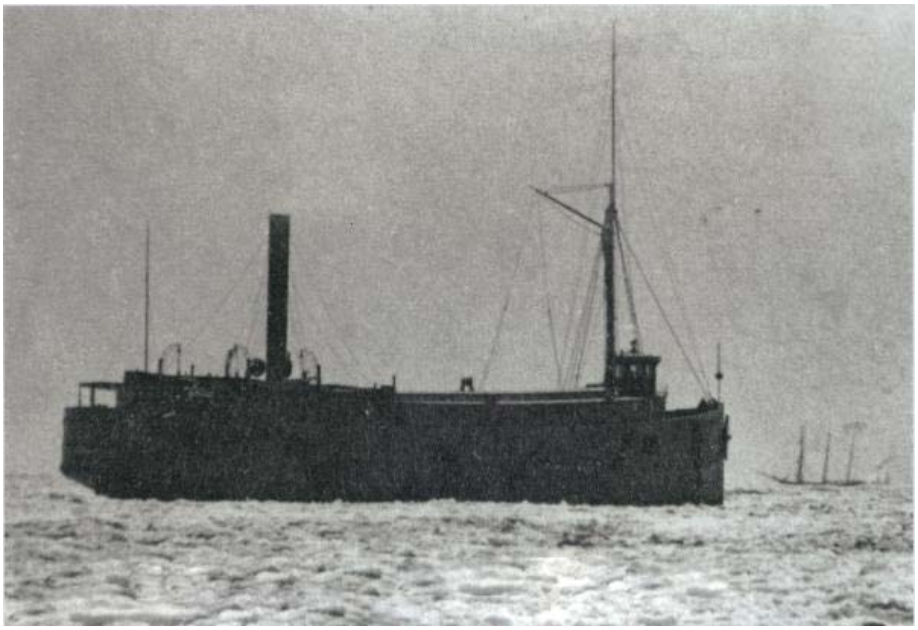

Figure 88. The *Merchant* underway. Historic Collections of the Great Lakes, Bowling Green State University.

Milwaukee (1903) A 2,933-ton steel railroad car ferry built in Cleveland, Ohio, she foundered in a fierce gale on 22 October 1929 with all hands. Today, she lies upright with her lower hull mostly intact in 125 feet of water northeast of Milwaukee.

Figure 89. The *Milwaukee*'s pilothouse lies on the lakebed off the port side. Tamara Thomsen.

Northwest (1862) A 458-ton, three-masted barkentine built by the Peck & Masters shipyard in Cleveland, Ohio, she was sunk in a collision 12 miles off Kenosha on 24 October 1876. The site location is reportedly known but not on record with the Society.

Norlond (1890) A 522-ton wooden package freighter built in Manitowoc, Wisconsin, she foundered southeast of Milwaukee on 13 November 1922. Today, she lies broken and scattered in 65 feet of water.

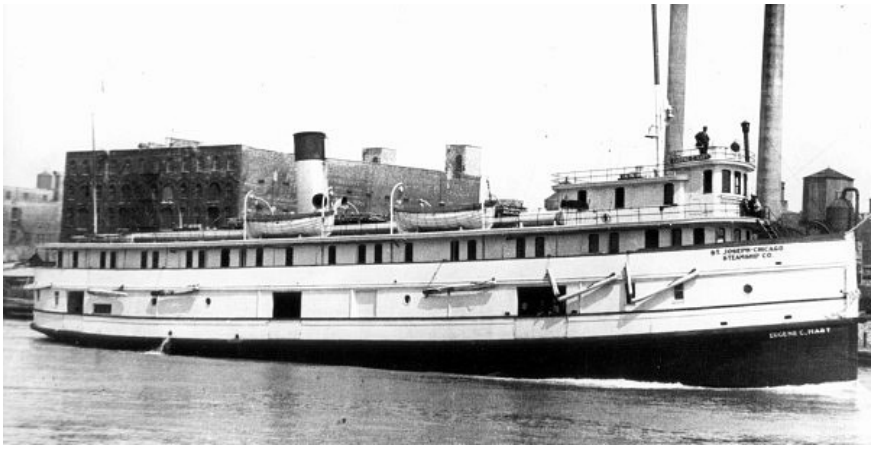

Figure 90. The wooden package steamer *Norlond*. Historic Collections of the Great Lakes, Bowling Green State University.

Prins Willem V (1948) A 1,567-ton steel oil screw built in Hardinveld, Norway, she collided with an oil barge while departing Milwaukee bound for Norway on 14 October 1954. Today, she lies intact on her starboard side in 95 feet of water 4 miles east of Milwaukee.

Figure 91. The *Prins Willem V*. Milwaukee Public Library.

Sebastopol (1855) A 234-foot wooden sidewheel steamer built in Cleveland, Ohio, she sailed as a package steamer until she stranded on 17 September 1855 with four lives lost. Today, she lies in 10 feet of water inside the break wall off St. Francis.

St. Albans (1868) A 435-ton wooden package freighter built at Cleveland, Ohio, she was iron sheathed and built to pass through the Welland Canal locks. She foundered after striking ice off Milwaukee on 30 January 1881. Today, she lies in 165 feet of water 6 miles northeast of Milwaukee. Her bow is broken, but her stern remains intact.

Figure 92. A Society diver documenting the *St. Albans*' stern. Tamara Thomsen.

Sumatra (1874) A 845-ton, three-masted schooner built in Black River, Ohio, she was enroute from Chicago to Fort Williams carrying rails when she foundered at anchor on 30 September 1896 with four lives lost. Today, she lies off South Point, broken and scattered in 20 feet of water.

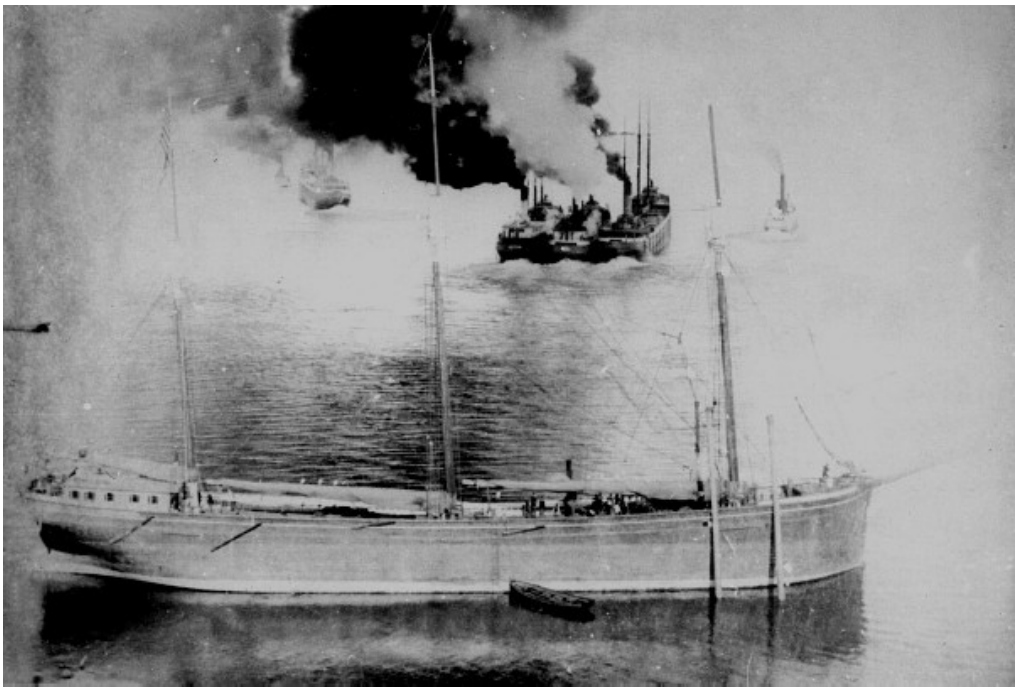

Figure 93. The *Sumatra* aground with five steamers trying to pull her free. Historic Collections of the Great Lakes, Bowling Green State University.

USACE Sandsucker (?) Little is known about the *USACE Sandsucker* other than it was lost in 1905 off Milwaukee harbor after being run down by a freighter. Today, she lies broken and scattered off Milwaukee's south pier.

Rosinco (1916) A 82-ton steel luxury yacht built by the Harlan and Hollingsworth shipyard in Wilmington, Delaware, she sank on 18 April 1928 after colliding with a submerged object northeast of Kenosha. Today, the vessel sits upright and intact in 185 feet of water. The *Rosinco* is listed on the National Register of Historic Places.

Figure 94. The steel luxury yacht *Rosinco*. Wisconsin Historical Society.

Transfer (1872) A 732-ton schooner built at the Linn and Craig shipyard in Gibraltar, Michigan, she was originally named the *William McGregor*. She was cut down to a schooner barge in 1910 and abandoned in December 1923. Today, the vessel lies broken in 120 feet of water 6 miles off Milwaukee. The identification of this vessel is tentative.

Figure 95. A Society diver inspects the vessel believed to be the *Transfer*. Tamara Thomsen.

Volunteer (1888) A 2,316-ton wooden bulk steamer built in Trenton, Michigan, she was abandoned and burned south of Milwaukee in the fall of 1914. Today, she lies beneath the south Milwaukee break wall in 10 feet of water.

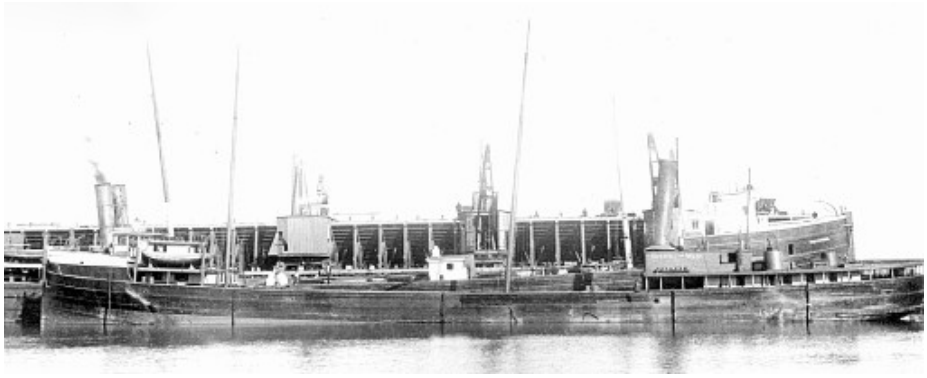

Figure 96. The wooden bulk steamer *Volunteer*. Historic Collections of the Great Lakes, Bowling Green State University.

Wisconsin (1880-1881) A 1,907-ton iron steam screw built by the Detroit Dry Dock Company in Wyandotte, Michigan, she served under a number of names and survived a number of accidents before she foundered in a storm off Kenosha, Wisconsin, on 29 October 1929. Today, she lies upright and mostly intact in 125 feet of water.

Figure 97. A Society diver enters the *Wisconsin*'s cargo hold. Tamara Thomsen.

Table 11. Probable shipwrecks within the Lower Lake Michigan region.

Name / Build Date	Vessel Type	Casualty Type	Probable Condition
A.W. Lawrence (1881)	Tug	exploded	Surf Zone
Active (1845)	schooner	foundered	Deep
Ashtabula (1854)	Schooner	foundered	Deep
Badger (1837)	steam paddle	stranded	Surf Zone
Barbarian (1855)	Schooner	foundered	Surf Zone
Barge A (?)	barge	foundered	Surf Zone
Boston (1846)	steam paddle	stranded	Surf Zone
Buckeye State (1852)	Schooner	stranded	Surf Zone
Buena Vista (1847)	Schooner	unknown	Surf Zone
C. Harrison (1854)	Schooner	stranded	Surf Zone
C.C. Trowbridge (1838)	steam paddle	stranded	Surf Zone
Cape Horn (1857)	Schooner	abandoned	Surf Zone
Cheerio (1935)	oil screw	foundered	Surf Zone
City of Madison (1857)	steam screw	burned	Deep
Colorado (1861)	bark	stranded	Surf Zone
Contest (1863)	scow-schooner	abandoned	Surf Zone
Coquette (1858)	Schooner	Foundered	Deep
Cumberland (1847)	Brig	collided	Surf Zone
Detroit (1837)	steam paddle	Stranded	Surf Zone
Dolphin (1842)	schooner	stranded	Surf Zone
E. M. Carrington (1866)	Schooner	Foundered	Deep
Edna (1877)	schooner	foundered	Deep
Elbe (1853)	Schooner	abandoned	Surf Zone
Elizabeth (1856)	schooner	crushed by ice	Surf Zone
Elizabeth (1863)	schooner	stranded	Surf Zone
Elizabeth Jones (1867)	schooner	stranded	Deep
Emily A. Roelofson (1854)	Bark	abandoned	Surf Zone
Equator (1842)	schooner	collided	Surf Zone
Evergreen (1864)	scow-schooner	stranded	Surf Zone
F.W. Backus (1846)	steam screw	burned	Surf Zone
Flora Temple (?)	schooner	stranded	Surf Zone
Flying Cloud (1852)	schooner	foundered	Deep
Forelle (1908)	oil screw	foundered	Deep
Freddie (1901)	Tug	abandoned	Surf Zone
Free Mason (1854)	Schooner	foundered	Surf Zone
G. Ellen (1854)	Scow schooner	Foundered	Deep
George Barber (1857)	schooner	abandoned	Surf Zone
George Hanson (1847)	schooner	foundered	Surf Zone
Golden (1892)	Tug	abandoned	Surf Zone
Grace Grummond (1869)	Schooner	abandoned	Surf Zone
Great West (1854)	bark	stranded	Surf Zone
H. Rand (1856)	schooner	foundered	Surf Zone
H.L. Whitman (1855)	schooner	stranded	Surf Zone
Hans Crocker (1856)	bark	stranded	Surf Zone
Henry Clay (1842)	schooner	stranded	Surf Zone
Hippogriff (1863)	Schooner	Collided	Surf Zone
Home (1867)	scow-schooner	stranded	Surf Zone
Honest John (1849)	scow-schooner	abandoned	Surf Zone

Hurrah Boys (1872)	Scow	stranded	Surf Zone
J. Steinhart (1853)	Schooner	foundered	Deep
J.P. Decoudres (1873)	Schooner	stranded	Surf Zone
J.V. Taylor (1867)	schooner	abandoned	Surf Zone
Jo Vilas (1857)	Schooner	Foundered	Deep
John D. Dewar (1885)	steam screw	foundered/abandoned	Surf Zone
John Eggers (1887)	scow-schooner	stranded	Surf Zone
John F. Porter (1842)	Schooner	foundered	Deep
John V. Jones (1875)	Schooner	foundered/abandoned	Surf Zone
Josephine (1873)	steam screw	stranded	Surf Zone
Kate E. Howard (1867)	Schooner	foundered/abandoned	Surf Zone
Kearsarge (1864)	Schooner	stranded	Surf Zone
L. R. Doty (1893)	Steam screw	Foundered	deep
L.W. Perry (1870)	Schooner	abandoned	Surf Zone
Laura Johnson (1882)	schooner	stranded	Surf Zone
Laurina (1875)	scow-schooner	stranded	Surf Zone
Lavinda (1863)	Schooner	abandoned	Surf Zone
Lenzema (1882)	scow-schooner	stranded	Surf Zone
Leo (1886)	tug	stranded	Surf Zone
Liberty (1835)	Schooner	stranded	Surf Zone
Liberty (1865)	schooner	stranded	Surf Zone
Lilly E. (1869)	Schooner	abandoned/burned	Surf Zone
Lomira (1851)	schooner	unknown	Surf Zone
Luise M. (1892)	Steam screw	Foundered	Deep
M. Courtwright (1856)	schooner	stranded	Surf Zone
M.C. Springer (1887)	schooner		Surf Zone
M.J. Cummings (1874)	Schooner	stranded	Surf Zone
M.S. Scott (1856)	schooner	stranded	Surf Zone
Maine (1852)	scow-schooner	stranded	Surf Zone
Mary Ann Larned (1846)	schooner	collided	Surf Zone
May Queen (1853)	steam paddle	burned	Surf Zone
Monitor (1870)	steam screw	foundered	Deep
Nebraska (1849)	Brig	stranded	Surf Zone
Nile (1844)	steam screw	stranded/burned	Surf Zone
Orleans (1846)	Brig	stranded	Surf Zone
Persia (1855)	schooner	stranded	Surf Zone
Peter Doling (1848)	schooner	foundered	Surf Zone
Progress (1880)	Barge	abandoned	Surf Zone
R. G. Peters (1880)	Stream screw	Burned	Deep
Reliable (1880)	steam screw	foundered	Deep
Rocky Mountain (1852)	scow	stranded	Surf Zone
Rosabelle (1863)	schooner	foundered	Surf Zone
Rough & Ready (1885)	Schooner	foundered	Deep
Rudolph Wetzel (1870)	steam screw	exploded	Deep
Sailor Boy (1866)	Schooner	stranded	Surf Zone
Scow No. 1 (?b)	Scow	stranded	Surf Zone
Sioux (1883)	Tug	abandoned	Surf Zone
Snow Drop (1853)	Schooner	stranded	Surf Zone
Speed (1848)	schooner	stranded	Surf Zone
St. Lawrence (1848)	schooner	burned	Deep
Storm King (1856)	Schooner	collided	Surf Zone

Sunrise (1862)	schooner	collided	Deep
Tanner (1863)	Bark	stranded	Surf Zone
Temperance (1847)	schooner	stranded	Surf Zone
Tempest (1854)	scow	stranded	Surf Zone
Thomas A. Scott (1869)	Schooner-barge	collided	Surf Zone
Thomas H. Smith (1881)	steam screw	collided	Deep
Twin Brothers (1848)	Schooner	foundered	Surf Zone
William McGregor (1872)	Schooner-barge	abandoned	Surf Zone
William Rudolph (1880)	steam screw	abandoned	Surf Zone

Table 12. Suspected shipwrecks within the Lower Lake Michigan region.

Name / Build Date	Vessel Type	Casualty Type	Probable Condition
Adell (1860)	Schooner	stranded	Surf Zone
Dolphin (?b)	schooner	foundered	Surf Zone
Eliza (1868)	Schooner	foundered	Deep
Lem Ellsworth (1874)	schooner	foundered	Deep
Northshore (1930)	Gas screw	Foundered	deep
Ossian Cook (1880)	steam screw	abandoned	Surf Zone
Saint Marys (1848)	Schooner	Foundered	deep
Starke (1889)	steam screw	abandoned	Surf Zone
Surprise (1856)	schooner	abandoned	Deep

CHAPTER SEVEN
RECOMMENDATIONS

The collection of historic shipwrecks within each of the four Maritime Trails regions was analyzed for the number, condition, and variety of sites. Analysis of known shipwrecks was given the greatest weight (Table 13), with lesser weight given to the probable shipwrecks based on historic records (Table 14). Suspected shipwrecks were not included in the analysis. Several factors were taken into consideration in evaluating the best region for a potential national marine sanctuary. These factors include (in no order of precedence):

- Site density: areas with a high density of wreck sites (both known and potential)
- Site integrity: areas with a high number of intact sites – more frequently sites outside the surf zone.
- Potential national significance: areas with a wide range of vessel types and construction dates. Early vessels received greater weight.

Table 13. Summary of known sites within each region.

Known Sites	Lake Superior	Green Bay / Door County	Mid-Lake Michigan	Lower Lake Michigan
Pre-1850	0	5	5	2
Post-1850	16	46	26	25
Date Uncertain	5	17	2	2
Sail	6	34	18	7
Steam Paddle	1	1	1	2
Steam Propeller	12	15	10	15
Oil/Gas Screw	1	0	0	3
Other/Unknown	1	18	4	2
Foundered	5	10	15	9
Collided	0	2	6	8
Burned / Exploded	4	9	2	2
Abandoned /Stranded	10	32	9	8
Other/Unknown	2	15	1	2
Surf Zone	17	29	10	11
Deep	4	39	23	18
Total	**21**	**68**	**33**	**29**

Table 14. Summary of probable sites within each region.

Probable Sites	Lake Superior	Green Bay / Door County	Mid-Lake Michigan	Lower Lake Michigan
Pre-1850	1	26	15	24
Post-1850	22	155	72	78
Date Uncertain	17	11	5	6
Sail	13	141	76	85
Steam Paddle	2	2	5	4
Steam Propeller	13	35	8	15
Oil/Gas Screw	7	10	2	2
Other/Unknown	5	4	1	2
Foundered	13	18	15	25
Collided	0	5	6	7
Burned / Exploded	10	36	7	8
Abandoned /Stranded	15	131	60	64
Other/Unknown	2	2	4	4
Surf Zone	28	167	77	89
Deep	12	25	15	19
Total	**40**	**192**	**92**	**108**

Lake Superior Region

The Lake Superior region has relatively few historic vessel losses and abandonments compared to Lake Michigan regions, with 61 known and probable losses according to historic records. This is unsurprising given that large-scale commercial shipping developed much later on Lake Superior than on the lower lakes, largely due to the falls on the St. Mary's River. Commercial shipping did occur on Lake Superior prior to the opening of the Soo locks to bypass the falls, but the vessels were few in number and small in size. Lake Superior did not reach a large scale until after Soo Locks opened in 1855.

By the time the locks opened Lake Superior to major shipping traffic, steam technology was well-established on the Great Lakes, resulting in a rather large number of steam vessels on Lake Superior compared to sailing vessels. This is reflected in Lake Superior's archaeological record, which is dominated by steam-powered bulk carriers. Many of the few sailing vessels that are represented in the archaeological record are schooner barges, not intended to be self-propelled except in times of emergency.

As a result, the Lake Superior region has the least diverse collection of vessel types within Wisconsin. Additionally, the age of the vessels within the region spans a latter time period than Lake Michigan regions, with the construction years of known shipwrecks spanning from 1862 and 1926. For these reasons, the Lake Superior region is not recommended as the best location for a potential national marine sanctuary.

Door County/Green Bay Region

The Door County/Green Bay region is the largest of the Maritime Trails regions and also possesses the largest number of known and probable shipwreck sites. Despite these impressive numbers, the Door County/Green Bay region possesses the least number of intact vessels of all the Lake Michigan regions, with only five shipwreck sites that retain a high degree of hull integrity: *Jennibel*, *Erie L. Hackley*, *Lakeland*, the unidentified Green Bay Sloop, and *W. L. Brown*.

Of the probable sites within the region, fifty-three of them lie within Sturgeon Bay and consist primarily of abandonments and vessels used to construct breakwaters or piers - vessels that were stripped of nearly all useable items before they were abandoned. Many of these potential sites lay within the city of Sturgeon Bay in dredged areas or adjacent to shoreline development. This suggests many of these sites may be buried, disturbed, destroyed, or have been removed.

Local lore holds that the Death's Door area holds a disproportionately large number of shipwrecks due to strong currents and a confined navigational channel. However, this area only holds 7 known shipwreck sites, all of which are broken and scattered. Many of these sites are in such a condition that positive identification of the shipwrecks has proved elusive. According to historic records, there are 24 probable shipwreck sites within the area, of which 22 were strandings. This makes the possibility of future intact wreck discoveries unlikely.

The Lake Michigan waters of Door County hold 25 known shipwreck sites, but of these sites only six lay outside the surf zone: *Andromeda* (location reportedly known but not on record with the Society), *Frank O'Connor*, *Lakeland*, *Ocean Wave*, *Daniel Lyons*, and *America*. Of these sites, only the *Lakeland* retains a high degree of hull integrity. The 19 sites that lay within the surf zone are largely fragmented hulls that are frequently covered by shifting sands. The fragmented condition of these sites has precluded anything more than tentative identifications for most. Only five of these sites have a reasonably certain identification: *Boaz*, *Cherabusco*, *City of Glasgow*, *Australasia*, and *M. J. Bartleme*.

In addition to the fewest number of intact shipwrecks, the construction years of known shipwreck sites within the region spans the shortest time period of all the Maritime Trails regions – from 1847 to 1895. For these reasons, the Door County/Green Bay Maritime Trails region is not recommended as the best location for a potential national marine sanctuary.

Lower Lake Michigan Region

The Lower Lake Michigan region is the smallest of the four regions and contains fewer known shipwrecks sites than all but the Lake Superior region. The construction dates of known shipwreck sites span from 1849 to 1948, and include 10 intact shipwrecks that were constructed in 5 different states and one foreign country. There are 108 probable sites within the region, but of these sites 46 lay within the Milwaukee Harbor area, suggesting these sites are likely buried, disturbed, destroyed, or have been removed.

The intact shipwreck sites represent a range of vessel types that have sailed the Great Lakes and retain varying degrees of hull integrity The *Milwaukee* was a railroad car ferry designed to haul freight cars across Lake Michigan, avoiding the

bottleneck of rail yards in Chicago. Today, the *Milwaukee*'s upper decks have collapsed, but the lower hull is intact and allows experienced divers the opportunity to view the well-preserved crew's quarters and engineering spaces. The *Dredge 906* is an inverted, but intact steel dipper dredge - one of only two known dredges in Wisconsin waters. The *Edward E. Gillen* is a steel-hulled diesel tug that lies upright and intact in 70 feet of water. The vessel has been stripped of all artifacts, but the hull and machinery remain intact. The *EMBA* is a tentatively identified vessel that was abandoned off Milwaukee in 1932. This vessel's bow has collapsed and retains few artifacts, but the vessel does retain portions of an early self-unloading mechanism. The *Grace A. Channon* is a very well-preserved schooner – one of only two schooners in Wisconsin waters with an intact aft cabin. The *Lumberman* is well-preserved example of a double-centerboard schooner, but due to heavy salvage efforts by recreational divers all that remains is the hull and portions of the deck; the *Lumberman*'s stern has begun to collapse in recent years. The *Prins Willem V*, a Norwegian oil screw, has been identified as one of the Great Lakes' most-dived shipwrecks. This vessel lies intact in 95 feet of water, but has been completely stripped of all artifacts and much of the ship's equipment. The *Rosinco*, the first diesel-powered yacht on Lake Michigan, lies intact in 185 feet of water northeast of Kenosha. The *Wisconsin* is an early iron package steamer with a storied career that included use as WWI hospital ship in New York Harbor. The upper decks are partially collapsed, but much of the vessel remains intact, including her cargo and engineering spaces.

Although the Lower Lake Michigan region has many strong points for a potential national marine sanctuary, the number and condition of significant, intact shipwreck sites is surpassed by that of the Mid-Lake Michigan region. For this reason, the Lower Lake Michigan Maritime Trails region is not recommended as the best location for a potential national marine sanctuary.

Mid-Lake Michigan Region

The Mid-Lake Michigan region contains 14 intact shipwreck sites - the largest number of intact sites of all the Maritime Trails regions - whose construction dates range from 1833 to 1918 and represent vessels built in five different states. The region not only has the greatest number of intact sites, but the level of hull integrity of these sites far surpasses that of other regions. Four vessels within the Mid-Lake region, the *Tennie and Laura*, the *Walter B. Allen*, the *Gallinipper*, and the *Silver Lake*, all possess standing masts – a rarity in any of the Great Lakes. The *Silver Lake* is especially noteworthy in that its foreyard is still rigged on her foremast.

This region includes Wisconsin's two oldest shipwrecks discovered to date, the *Gallinipper* (1833) and the *Home* (1843), both of which remain intact. The *Gallinipper* is particularly important as she has ties to the early Great Lakes fur trade and visited many Wisconsin ports prior to statehood, and possess a very early-style hull with an ornate bow knee and scroll work.

The Mid-Lake region contains the best examples of many vessels that sailed Wisconsin waters. The *Tennie and Laura* and *Silver Lake* represent two intact examples of an especially unique vessel class on the Great Lakes – the scow schooner. Little historical and archaeological data exits regarding scow schooners and

these two vessels, with intact hulls and standing rigging, represent two of the best-preserved examples anywhere on the Great Lakes. Great Lakes scows have particular importance as they influenced scow construction throughout the world, with examples based on the Great Lakes type built as far away as New Zealand (Meverden and Thomsen 2006:9).

The Mid-Lake region also possesses the best-preserved shipwreck in Wisconsin, and arguably ranks as one of the best-preserved wrecks in the Great Lakes – the *Robert Pringle*. Identified as a net hang in the 1970s and first dived in 2008, this vessel is completely intact and reportedly still has nautical charts stowed in drawers in the wheelhouse. Originally built as an excursion steamer for the Pabst company, the vessel was later converted to a work tug.

Wisconsin has four known examples of a unique and poorly-understood vessel type – the double centerboard schooner. The best-preserved of these vessels is located in this region, the *Rouse Simmons*. The *Rouse Simmons* is better known as the Christmas Tree Ship, and is one of the most celebrated shipwrecks in all the Great Lakes.

Few package steamers are represented in Wisconsin's archaeological record, but the most intact example is the *Vernon*, which lies northeast of Two Rivers. Not only does the *Vernon*'s hull and machinery remain intact, so does her cargo of sundries, including a large number of woodenware items that remain neatly packed in boxes.

Other sites in the region broaden the range of represented vessel types. Trading schooners were small vessels typically 90 feet and less in length that rarely traveled beyond Lake Michigan. Frequently carrying goods to market from the owner's home port, these little-documented vessels were the lifeblood of hinterland communities and allowed a connection between remote communities and larger markets around the lake. Several trading schooners are represented in this region, including the *Hetty Taylor*, *Byron*, *Home*, *Island City*, *Northerner*, and the *Tennie and Laura*.

Canallers were boxy, purpose-built vessels that were designed to barely squeeze through the Welland Canal locks with the largest possible amount of cargo. There are several canallers located in Wisconsin, but the best-preserved example, the *Walter B. Allen*, lies northeast of Sheboygan. The *Walter B. Allen* site also contains a relatively intact ship's yawl, the only known yawl boat in Wisconsin waters.

Sites with lower levels of hull integrity also add to the significant range of sites within the region. The *S.C. Baldwin* was one of the earliest wooden bulk steamers on the Great Lakes, and is reportedly the first double-decked steamer built on the Great Lakes. The sidewheel steamer *Niagara* is Wisconsin's most significant vessel representing the early Great Lakes passenger trade. The *Niagara* was lost while carrying nearly 300 passengers – most of them immigrants coming to settle in the Midwest.

Other sites add diversity to the collection of vessels in the Mid-Lake Michigan region. The *Mahoning* is a rare example of an early Great Lakes square rigger - the brig. The *McMullen and Pitz Dredge* is an excellently-preserved example of a vessel that was vital to Great Lakes commerce yet is largely forgotten – the steam dredge. The *Henry Gust* is an excellent example of an early fish tug, a vessel that is rarely

represented in the archaeological record. For these reasons, the Mid-Lake Michigan Maritime Trails region is recommended as the best location for a potential national marine sanctuary.

Next Steps

The recommendation of the Mid-Lake Michigan region as the best location in Wisconsin for a potential marine sanctuary is the first step in a lengthy process and does not immediately designate potential sanctuary boundaries. The Mid-Lake Michigan region covers approximately 2,552 square miles of water, but much of this area - areas towards the center of the lake – do not presently contain known shipwreck sites. An area that contains only known shipwreck sites within the region reduces the potential area to approximately 875 square miles (Figure 98).

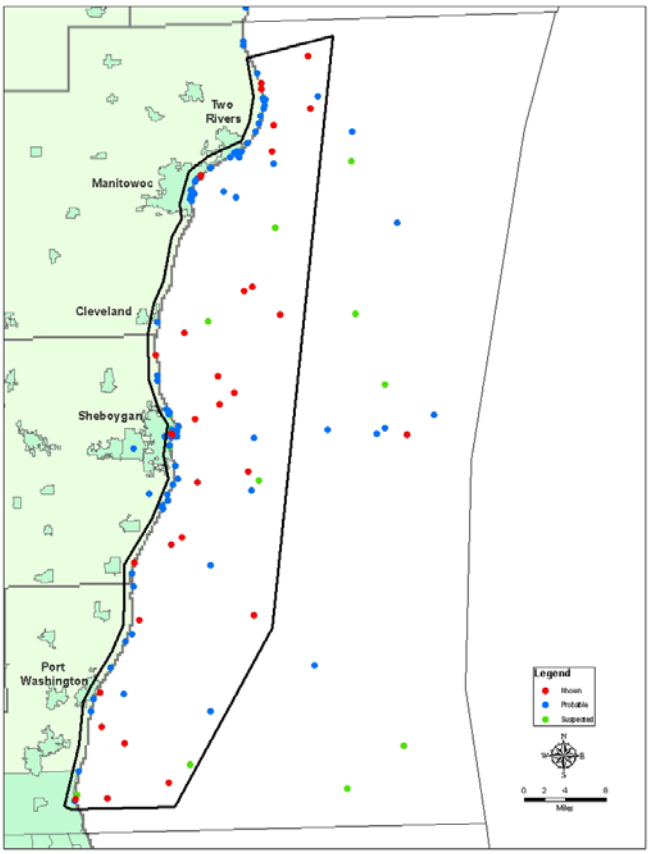

Figure 98. Potential boundary line surrounding known shipwreck sites within the Mid-Lake Michigan region.

This potential boundary line is meant to serve a starting point for discussion with stakeholders in the process to designate a national marine sanctuary in Wisconsin. The final boundary line for a potential sanctuary will be refined based on input by all stakeholders, including Wisconsin state agencies, local communities and officials, recreational sports groups, and the general public.

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