

Beneath the Surface: Maritime Cultural Landscapes at Wisconsin Shipwreck Coast National Marine Sanctuary

Part I: Recommendations and Resources for Applying Maritime Cultural Landscape Approaches



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Cover photos (counterclockwise from top): Map of Wisconsin Shipwreck Coast National Marine Sanctuary; schooners in the Sheboygan River, 1890; Manitowoc Shipbuilding Company; Port Washington 1860 Lighthouse; the schooner *Lookout*. Photos (counterclockwise from top): NOAA; NOAA; Wisconsin Maritime Museum; National Archives; Wisconsin Maritime Museum

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Because of considerable differences in settings, resources, and threats, each national marine sanctuary has a tailored management plan. Conservation, education, research, monitoring, and enforcement programs vary accordingly. The integration of these programs is fundamental to marine protected area management. The National Marine Sanctuaries Conservation Series reflects and supports this integration by providing a forum for publication and discussion of the complex issues currently facing the National Marine Sanctuary System. Topics of published reports vary substantially and may include descriptions of educational programs, discussions on resource management issues, and results of scientific or historical research and monitoring projects. The series facilitates integration of natural sciences, socioeconomic and social sciences, education, and policy development to accomplish the diverse needs of NOAA's resource protection mandate. All publications are available on the [Office of National Marine Sanctuaries website](#).



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Report Availability

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Abstract

The maritime cultural landscape (MCL) approach, as an analytical tool, provides a comprehensive framework for better identifying, understanding, and interpreting the variety and significance of archaeological, cultural, and historical resources in marine protected areas. This approach was first defined in 1992 by Christer Westerdahl, and since then has been adopted and advanced by management agencies such as the National Park Service, Bureau of Ocean Energy Management, and NOAA’s Office of National Marine Sanctuaries (ONMS). The National Marine Sanctuary System’s adaptation of MCL as a tool for management has focused on meeting resource information needs for the inventory of historic properties, as well as for site condition reports and management plans. More broadly, the approach must also consider the cognitive landscape, how places are perceived, valued, and connected to individuals and communities, which is essential to resource conservation and heritage preservation efforts. The MCL initiative was prioritized in the ONMS strategic plan for FY2017–2022: “Improve understanding and management of heritage resources by completing maritime cultural landscape-focused surveys in at least four sites.”

The Great Lakes are a vast natural highway, essential to Indigenous communities prior to European contact and utilized by Euro-Americans for hundreds of years as one of the world’s most significant industrial waterways. Wisconsin Shipwreck Coast National Marine Sanctuary (WSCNMS) protects a nationally significant collection of historic shipwrecks, resources central to understanding the many cultural and historical connections between Great Lakes communities and the sanctuary’s location. These wrecks and the shoreline landscape itself preserve the personal stories of entrepreneurship, innovation, tenacity, and hardship of the past. This MCL assessment was designed to provide a scholarly, comprehensive site characterization, a baseline of useful cultural landscape information closely following designation of the new site. This report, Part I of a two-part series, provides a conceptual overview of WSCNMS’s MCL and demonstrates how the landscape approach serves to identify significant areas of cultural and environmental interaction.

Key Words

Great Lakes, cultural landscapes, maritime history, maritime archaeology, heritage preservation.

Executive Summary

The Great Lakes are a vast natural highway extending over a thousand miles into the heart of North America. For millennia before European contact, these inland seas were essential to trade, communication, and sustenance for Indigenous peoples. Over the past 300 years, these waters have been further utilized by Euro-Americans and have greatly contributed to the growth of the North American interior.



Figure 1. Map of shipwrecks within Wisconsin Shipwreck Coast National Marine Sanctuary. Image: NOAA

During the nineteenth and early twentieth centuries, the Great Lakes evolved from an isolated maritime frontier into the nation's busiest and the world's most significant industrial waterway. During this period, millions of voyages were made by tens of thousands of ships of many different designs. In the process, they brought hundreds of thousands of people to the Midwest and made possible the dramatic growth of the region's farms, cities, and industries. Spanning 962 square miles of Lake Michigan waters, Wisconsin Shipwreck Coast National Marine Sanctuary (WSCNMS) protects a nationally significant collection of 40 well-preserved historic shipwrecks. These historically diverse vessels represent broad patterns of American history on the Great Lakes and also preserve the personal stories of entrepreneurship, innovation, tenacity, and hardship that defined the period.

These shipwrecks are the central resource type for preserving our maritime heritage; however, they are not the only cultural feature that tells the stories of the Great Lakes. People have shaped, and in turn been shaped by, their marine environment in many significant ways, reflected in multiple voices and multicultural perspectives. Therefore, to understand the broader cultural significance of this site, and specifically to better assess the site's cultural ecosystem services, a more comprehensive evaluation is needed.

Maritime Cultural Landscapes (MCLs) are places where the interactions of culture and nature have resulted in identifiable cultural and ecological imprints. Every MCL captures a unique combination of nature and culture that is expressed in the condition of the natural marine environment, in both material and intangible cultural heritage, and in the meaning attached to that location by different stakeholder groups.

For the Office of National Marine Sanctuaries, MCL studies identify and characterize these unique combinations of archaeological, historical, and cultural elements for each site, providing a more comprehensive understanding of how we value our marine protected areas. These studies better reveal the wide range of potentially historic properties and cultural locations for consideration under the National Historic Preservation Act; they help address multiple perspectives and cultures of site constituents; and they elicit cultural heritage and sense of place values that must be understood to improve management and conservation efforts.

For WSCNMS, several significant elements rise to the fore. These include the long Indigenous history of the area, the westward migration and settlement patterns of the 19th century, and the development of commercial fishing, among others. This report presents these cultural landscape values and connections unique to WSCNMS, opening possibilities for better stewardship of this special place.

This report, part one of the overall study, presents a conceptual overview of the WSCNMS MCL and demonstrates how the landscape approach serves to identify significant areas of cultural and environmental interaction. Chapter 1 introduces the concept of the MCL and its application to this study. Chapter 2 discusses the cultural and environmental aspects of not just one, but the two main landscapes of the sanctuary, the Indigenous MCL and the Atlantic MCL, both equally relevant to shaping our relationship to the sanctuary today. Chapter 3 introduces other potential analytical landscape themes and examines how connections to local communities can be measured for some of these elements. Chapter 4 examines in detail how significance is assessed by the National Register of Historic Places for shipwrecks along this coast. Appendix A describes the study's online digital archive of federal charts, maps, and documents. This report is intentionally brief, meant to introduce the sanctuary's cultural landscape but also present a general approach applicable to other settings as well.

Part two of the Wisconsin Shipwreck Coast MCL assessment is more extensive, implementing this landscape approach described in this report by taking a deep and detailed "dive" into the maritime landscape of fisheries, noted as a common "biophysical pillar" of both the Indigenous and Atlantic cultural landscapes (Jensen & Sadler, 2023). The long history of fishing provides perhaps the best example of how we have shaped, and in turn been changed by, our environment.

Chapter 1: Introduction

Established in 2021, WSCNMS protects a nationally significant collection of historic shipwrecks. The 962-square-mile sanctuary encompasses the waters and bottomlands of Lake Michigan adjacent to Manitowoc and Sheboygan counties and extends southward into Ozaukee County past Port Washington and northward into the lower reaches of Kewaunee County. While the sanctuary boundaries are fixed and exclude areas of the Lake Michigan shoreline above the low water datum, the full cultural and scientific value of its nationally significant collection of historic shipwrecks and other heritage resources reside within larger local, regional, national, and international biocultural contexts.

This project applies a Maritime Cultural Landscape Approach (MCLA)¹ to study known and potential maritime cultural landscapes or landscape themes associated with the WSCNMS. MCLs are places where the interactions of culture and nature have resulted in identifiable cultural and ecological imprints. Every MCL or landscape theme captures a distinct combination of nature and culture expressed in the condition of the biophysical environment, the composition of cultural heritage, and meanings attached to the location and associated heritage by different groups of people. MCLAs address contemporary management challenges by providing an open-ended and rigorous framework that integrates data and perspectives from the physical and social sciences, humanities, and traditional/place-based knowledge systems. MCLAs also recognize that places and cultural heritage resources can have different or multiple meanings and levels of significance based on how people from different cultures, times, or backgrounds have interacted with the landscape.

MCLAs have six principal characteristics that can improve the management of national marine sanctuaries. The approach:

- Operates at multiple geographic scales, from local to global;
- Makes visible cultural and environmental processes that influence the specific composition and meanings of cultural heritage resources associated with a sanctuary;
- Requires the identification, involvement, and open representation of the views of all cultures and historical groups with ties to a sanctuary and its adjacent regions;
- Makes room for multiple, even conflicting, interpretations of history, heritage, and environmental knowledge;
- Is adaptive and iterative: new landscapes or landscape themes may be identified within areas, or new meanings developed based on additional data or fresh perspectives; and
- Conforms with ecosystem-based approaches to sanctuary management.

¹The MCLA concept in this project is based on the Cultural Landscape Approach described in McCann (2012). The project aligns with the Marine Protected Areas Federal Advisory Committee (2011) document *Recommendations for Integrated Management Using a Cultural Landscape Approach in the National MPA System*, as well as the values and steps articulated by the National Marine Protected Areas Center (2023) in its *Cultural Resources Tool Kit*.

All MCLA studies address foundational questions about the relationships between people and places. In addressing these questions, listed below, MCLA studies employ many data types and research methods.

- What biophysical features have exercised the most influence on cultures?
- What major cultural groups have used this place?
- What are the most important or visible ways that each group used this place?
- Over what historical period have these groups used this place?
- What specific human practices have shaped or sustained the place's coastal or marine natural environment?
- What evidence of these activities exists or might exist in the biophysical landscape, the archaeological resources, or the practices and memories of living cultures?
- In what ways do specific cultural heritage resources link to human stories and knowledge associated with this place?
- In what ways has the identified cultural heritage and landscapes and their underlying history influenced the ecological and cultural resilience of this place?

Standard maritime heritage resource management emphasizes the inventory, classification, and preservation of known or potential sites. MCLA studies provide more inclusive contexts for managing and interpreting sites. By addressing these and related questions, MCLAs generate new or help recover understandings of people and places with immediate management applications for sanctuaries.

This project builds on and incorporates segments of the Atlantic-centered MCL study *A Cultural Landscape Approach Overview and Sourcebook for Wisconsin's Mid-Lake Michigan Maritime Heritage Trail Region* (Jensen & Hartmeyer, 2014). Drawing on recent scholarship, this project critically examined the sources and problems associated with Atlantic/Euro-American bias in the history of the sanctuary region, and the interpretation of its heritage resources. In moving beyond an exclusively Atlantic perspective, the current MCLA project offers five high-level observations:

1. The preservation and commemoration of the sanctuary's historic shipwrecks can be viewed as an extension of a celebratory settler/colonial history that has systematically erased, marginalized, and misinterpreted the presence and contributions of Indigenous people in the region's coastal and maritime histories and cultural landscapes.
2. The sanctuary and associated coastal zone lands were part of a sophisticated Indigenous MCL and maritime system of transportation, communication, and exchange that predated the arrival of Europeans and remained dominant when American settlement reached mid-Lake Michigan, Wisconsin in the 1830s.
3. Waterways, forests, and fish are the biophysical factors that most influenced the development of the Indigenous and Atlantic MCLs.
4. The bioregional interpretation of the Great Lakes, as developed by environmental historians, allows managers to understand the sanctuary as a globally unique and independent Indigenous maritime region and as an extension of the Atlantic maritime world.

5. WSCNMS can begin to “decolonize” by adopting the bioregional framework; recognizing the immense significance and dearth of knowledge of Indigenous MCLs; encouraging and providing material support for studying the Indigenous MCL; and bringing culturally diverse voices and perspectives into the management and interpretation of all its heritage resources.



Figure 2. Historic image of steamers in the Manitowoc River in winter. Photo: Wisconsin Maritime Museum Collection

Chapter 2: Great Lakes Indigenous and Atlantic Maritime Cultural Landscapes

An MCLA helps managers identify the principal peoples, environmental attributes and processes, and historical forces influencing the composition, past and present condition, and sociocultural valuing of a national marine sanctuary's natural and cultural heritage. MCL themes provide open-ended frameworks for identifying and describing the diverse combinations of historical, cultural, and ecological relationships shaping the sanctuary.

An MCL is a geographic construct with spatial and temporal boundaries determined by association with a precisely defined social or cultural group. Group identity central to an MCL can be self-assigned, or an external analytical construction based on a pattern of shared relationships. The Great Lakes Indigenous and Atlantic MCLs described below are external constructions that reveal two maritime systems, each geographically connected over long distances by water, multicultural in composition, and with broadly (but not universally) shared social, political, economic, spiritual, environmental, and technological characteristics and values. Described at their larger scales, MCLs provide sociocultural-centered contexts for monitoring and interpreting ecological and human histories and the condition of natural and cultural heritage resources both within and beyond sanctuary boundaries.

As applied to national marine sanctuaries, MCLs have much in common with the idea of Large Marine Ecosystems (LMEs). LMEs are externally defined constructs with geographic boundaries defined by particular biophysical characteristics, shared circulation systems, and interdependent ecological relationships. The LME approach reveals interdependencies between individual places and ecosystems at large spatial scales. The marine ecosystems at Monterey Bay National Marine Sanctuary are unique at the site level. However, they connect with Greater Farallones, Channel Islands, Cordell Bank, and Olympic Coast national marine sanctuaries as a part of the California Current LME. Analysis of Great Lakes Indigenous and Atlantic MCLs reveals ecological and cultural connections between Wisconsin Shipwreck Coast, Thunder Bay, and the proposed Lake Ontario national marine sanctuaries, as well as existing and future sanctuaries along the Atlantic coast.

The Indigenous Maritime Cultural Landscape

Applying an MCLA requires identifying, actively involving, and fairly representing the views of all cultures and historical groups with ties to a sanctuary. Indigenous people from many backgrounds occupied the WSCNMS region before and after the beginnings of American settlement. Their voices and contributions, however, are largely absent or mischaracterized in most of the settlers' accounts, historical newspapers, local and county histories, and regional scholarship associated with sanctuary region. This, recent scholarship demonstrates, is no accident. It is evidence of a Midwestern "cultural geography of amnesia" and settler colonialism that sought to erase Indigenous cultures, histories, and historical agency from the region's historical landscape and memory (Kiel & Brooks, 2016). A fresh application of MCLA principles with the incorporation of paradigm shifting scholarship in North American Indigenous history

transformed and complicated fundamental understandings of the sanctuary region's coastal and maritime histories and maritime cultural landscapes. With blinders of settler colonialism history removed, MCLA research makes visible a complex Indigenous maritime system and MCL encompassing the entire Great Lakes region, including WSCNMS, at the time of American settlement. Building on these insights, this study advances a conceptual foundation for incorporating Indigenous MCLs into sanctuary management that respects the knowledge, authority, and cultural boundaries of Wisconsin's contemporary and historic Indigenous peoples.

WSCNMS occupies part of a sophisticated Indigenous MCL far older than the Atlantic MCL. North America's Indigenous cultures include tribes and nations whose connection with oceans, coastal waters, and freshwater systems mark them as “maritime.” In recent years, American historians have begun to “rediscover” Indigenous maritime histories, traditions, and practices unacknowledged in academic scholarship but remembered and kept alive by Indigenous cultures across North America. Mastery of waterways and associated marine ecosystems translated into political, military, economic, and spiritual power and influence before and after the arrival of Europeans. Compared with less water-oriented cultures, North America's Indigenous maritime cultures demonstrated remarkable successes in resisting European and American efforts to control, conquer, remove, or destroy their cultures. Geographic mobility and ability to maintain and shift trading patterns and political alliances kept the balance of power in Indigenous hands across extensive areas of North America into the mid- and late eighteenth and, in places that included parts of the northern Great Lakes, into the nineteenth century (Thrush, 2020).

The Great Lakes as a Bioregion and Indigenous Maritime Cultural Landscape

Indigenous MCLs are shaped by knowledge, histories, cultural practices, and spiritual beliefs that belong to Indigenous cultures and communities. The authority to define, document, interpret and share the cultural knowledge of the Indigenous maritime cultural landscape overlapping with WSCNMS belong to the living representatives of historically associated Indigenous tribes and nations. The bioregional history approach applied in this study provides an intellectual framework that recognizes the existence and importance of the Great Lakes Indigenous MCL to the sanctuary without the cultural trespass of presenting a dedicated MCLA Indigenous history.

The bioregion, as used by environmental historians, is “any part of the earth's surface whose rough boundaries are determined by natural characteristics rather than human dictates, distinguishable from other areas by particular attributes of flora, fauna, water, climate, soils, and landforms, and by the human settlements and cultures that those areas have given rise to” (Binnema, 2010).

Bioregional history descends from, but should not be confused with, the ecological philosophy of “bioregionalism.” In his seminal 1994 essay *Place: An Argument for Bioregional History*, environmental historian Dan Flores lauded the concept's “emphasis on the close linkage between ecological locale and human culture” (Flores, 1994). There are multiple ways that

humans alter and adapt to the environment, to places captured by the bioregion concept that, Flores argues, “ties it to some central questions of environmental history inquiry.” For Flores and subsequent environmental historians, a bioregion is a geographic unit of historical study that uses naturally occurring rather than politically imposed boundaries. In a resonant passage, Flores called on environmental historians to define the geographic boundaries of places for study “in ways that make real sense ecologically and topographically.” Bioregional historical approaches have found special favor among historians of Indigenous communities but have only recently been applied to maritime places and cultures.

Environmental historian William Nelson takes a bioregional approach to the Great Lakes and Indigenous/European history in his essay *The Ecology of Travel on the Great Lakes Frontier: Native Knowledge, European Dependence, and the Environmental Specifics of Contact* (Nelson, 2019). The result was a radical shift in the historical understanding of the Great Lakes as a maritime region and cultural space. Nelson's Great Lakes bioregion encompasses the entirety of the Laurentian Basin, and is defined by its expansive network of natural waterways and aquatic ecosystems.

Waterways and ecosystems “fostered movement, exchange, and interaction” characteristic of the region's Indigenous peoples. The bioregion's Indigenous peoples developed a distinctive “waterborne mobility” built on systems of geographic, ecological, and technological knowledge associated with the waterways. Centuries before European contact, the Great Lakes region was “a dynamic region of human exchange and travel” (Nelson, 2019).

European arrival from the Atlantic in the early 1600s complicated the region's political and economic relations. The ecological and cultural foundations of the bioregion, however, and its “ecology of travel,” as summarized by Nelson (2019, p. 25) in the passage below remained in place:

The Indigenous ecology of travel offered both Europeans and native peoples the ability to travel and interact within the distinct marine environment of the Great Lakes waters from early contact through the beginning of the nineteenth century. Europeans relied on Indigenous craftsmanship in the form of birchbark canoes and Indigenous geographic knowledge by way of portage routes. Without such technological and ecological innovations, it becomes hard to imagine how French and British missionaries, traders, and officials would have navigated the Great Lakes. Food resources, from native-raised crops to fish and fowl captured from the surrounding waters and shorelines, facilitated sustained incursions into the lakes by French, British, and American travelers. The ecological expertise of the Great Lakes Indians fostered a region defined by waterborne mobility that benefited both themselves and, eventually, incoming Europeans.

Although never using the term “maritime cultural landscape,” Nelson's definition of the Great Lakes as a bioregion accurately captures the geographic boundaries of the Great Lake Indigenous MCL. His “ecology of travel” identifies the Indigenous MCL's most important biophysical foundations, posits a functional biocultural explanation of its operation as a transportation system, and underscores how Indigenous people used water and associated maritime technical and ecological knowledge to retain the balance of power over Europeans throughout the seventeenth and eighteenth centuries.

The Atlantic Maritime Cultural Landscape

The Atlantic MCL is geographically the largest associated with the sanctuary. The Atlantic MCL first took shape with state-sponsored European voyages of exploration that began in the fifteenth century. The westward spread of the Atlantic MCL began with Columbus's voyage and accidental "discovery" of the Americas in 1492. By connecting the previously isolated American continents with the Old World, Columbus sparked the dynamic global movement of people, ideas, technologies, plants, animals, and diseases that fundamentally altered the shape and course of human and ecological history (Crosby, 2003). In the centuries following 1492, a broadly defined Atlantic maritime culture and their systems of transportation, trade, and empire created an "Atlantic World" that eventually reached nearly everywhere an Atlantic-style ship could travel.

The search for a western route to the Pacific Ocean and Asia led to the first encounters between the Atlantic and Indigenous Great Lakes maritime cultures in 1535, when Jacques Cartier sailed up the St. Lawrence River to the present-day site of Montréal. Samuel De Champlain established the Atlantic maritime culture's permanent presence in the St. Lawrence River in 1608. While the Great Lakes region became deeply enmeshed in the Atlantic economy and military conflicts between Europe's competing maritime empires, Indigenous people and cultures remained responsible for most of the maritime activities taking place in the Great Lakes region until the beginning of the nineteenth century. The end of international warfare in 1815 and the building of the Erie Canal (1817–1825) sparked a rapid rise of in Atlantic-style merchant vessels and maritime trade in the Great Lakes (Jensen, 2019). However, the WSCNMS region and the adjacent coastal zone areas of Wisconsin remained only tangentially connected to the Atlantic maritime web until the 1830s. The sanctuary's Atlantic MCL, for all practical purposes, begins with the U.S. government's opening of the region to settlement in the mid-1830s.

The Euro-American settlement of Wisconsin's mid-Lake Michigan counties was part of the global expansion of the Atlantic maritime world. European-originated ships, maritime people, markets, and capital are essential and readily visible factors in the founding and early development of mid-Lake Michigan Wisconsin coastal communities. At the time of American settlement and in decades that followed, maritime influences were found across nearly every sector of economic, cultural, and political life. These created tangible and intangible features in the local Atlantic MCL. At the beginning of the twentieth century, a historically knowledgeable local observer could easily discern the maritime influences on the region through the harbors and physical organization of its largest cities; composition and history of social organizations and civil and political institutions; ethnic diversity of population; the character of its manufacturing and industrial economies; and absence of forests. The lighthouses, breakwaters and harbors, and historic shipwrecks surviving today are obvious reminders of the region's tangible maritime heritage. Tangible, visible, and simple to understand at the surface level, these features represent only the tip of the virtual iceberg constituting the WSCNMS region's Atlantic MCL.



Figure 3. Historic image of the bustling Sheboygan harbor. Photo: Wisconsin Maritime Museum Collection

Biophysical Foundations of the Indigenous and Atlantic Maritime Cultural Landscapes

Waterways, forests, and fish are the most influential of many important biophysical influences on the WSCNMS Indigenous and Atlantic MCLs. The definition of “waterways” comes from the Oxford English Dictionary (2015): “a route for travel or transport by water; a navigable river, canal, or stretch of sea or lake” and “a channel for the escape or passage of water.” These focus on the physical properties of water harnessed by humans for transportation and generation of energy for milling and manufacturing. “Forest” is a broad term that encompasses the complex of species and forest products incorporated into MCLs. “Fish” includes all aquatic organisms (fish, shellfish, and plants) harvested for human use. Forests and fish provided building materials and foodstuffs for Indigenous peoples, early Europeans, and pioneer settlers to the territory and state of Wisconsin. The biophysical features related to geology and climate relate directly to the waterways, forest, fish, and other aspects of the sanctuary’s Indigenous and Atlantic MCLs.²

Waterways

The highly detailed representation of rivers, creeks, Lake Winnebago, and the Lake Michigan coastline in Figure 4 can be viewed as a map of the Great Lakes bioregion as described by Nelson’s ecology of travel (Nelson, 2019). The many waterways suggest the porosity of the landscape that supported effective systems of long-distance travel, trade, and cultural alliances

² Egerton (2018) provides an exceptionally valuable historical discussion of Great Lakes ecology and ecological science.

characteristic of the Indigenous MCL. The map itself was part of the protracted effort to create an all-water route from Lake Michigan to the Mississippi River and was a product of engineering-centered environmental and economic values shaping the region's Atlantic MCL (S. Rep. No. 318, 1840). While this federal initiative focused on expanding maritime transportation routes and trade at the regional and national levels, the complex of rivers, creeks, and Lake Michigan coastline were central to the American settlement and local and regional economic development.

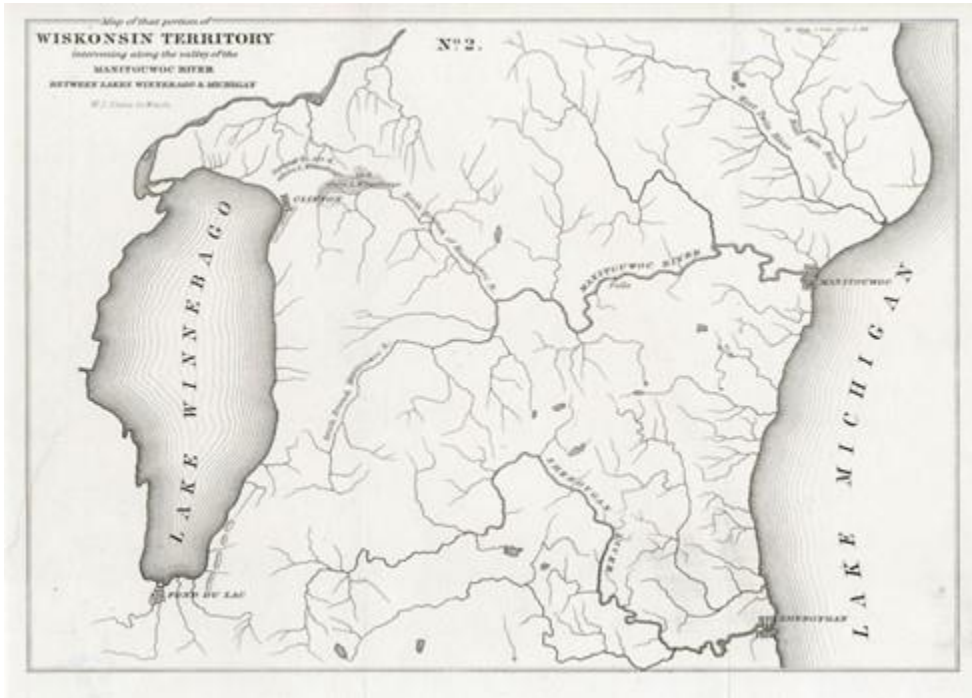


Figure 4. Map of the portion of “Wisconsin” Territory intervening along the valley of the Manitowoc River between lakes Winnebago and Michigan, 1839. Image: U.S. Congress, 1840

Forests

For Indigenous peoples, the forests provided critical habitat for game, a source of carbohydrates (maple sugar), and material for constructing structures, tools, weapons, and a variety of other technologies, including the essential birchbark canoes. The details of the Indigenous uses of the forests are beyond the scope of this study. However, they were crucial to the Indigenous transportation system and in the daily lives of those who inhabited the mid-Lake Michigan region.

At the beginning of American settlement in the 1830s, the WSCNMS region had large and biologically diverse forests. The area above Sheboygan consisted of the larger northern mesic forests, characterized by maple, hemlock, and yellow birch, along with significant stands of white pine. Below Sheboygan, a southern mesic forest, characterized by sugar maple, basswood, and elm, dominated. Black spruce, tamarack, and cedar grew in abundance within conifer swamps in low inshore areas. Oak forests were scattered across the southern and southwestern parts of the region. Substantial oak savannah and some southern oak forest grew to the west in what are now Fond du Lac, Winnebago, and Outagamie counties. Like the region's Indigenous

inhabitants, the first American period settlers hunted game in forests and felled trees to construct shelters, boats, and various household products. However, the settlers did not restrict their consumption of forest resources to meet local needs. The cutting, milling, and shipping of forest products to markets in Chicago or Milwaukee became, along with fish, one of the region's two early export industries (Jensen & Hartmeyer, 2014).



Figure 5. The schooner *Lucia A. Simpson* loaded with lumber. Image: Wisconsin Maritime Museum Collection

Combining Waterways and Forests

Increase Lapham's *Wisconsin: Its Geography and Topography, History, and Geology* (1846) describes the areas shown in Figure 4 and highlights the intersection of waterways, wood, and the economic development of the mid-Lake Michigan region during the earliest days of American settlement:

The Manitowoc River, or "river of spirits," is the largest and principal stream in the county. It originates in two main branches called the north and south branches, which have their origin near the two extremities of Lake Winnebago, and unite at the west line of this county. It drains about four hundred square miles of surface, and is navigable four miles, to the foot of the rapids. From this point there is a series of rapids extending twelve miles, with an aggregate fall supposed to be about one hundred and forty feet. Above this point the current is gentle, and the stream is navigable for canoes to within a few miles of Lake Winnebago. . . A canal has been proposed along this river

to Lake Winnebago, for the purpose of bringing the trade of the country, lying in that vicinity, and west of it, to Manitowoc, instead of Green Bay.

The whole county (Manitowoc) consists of timbered land—being usually hard wood, as beech, maple, bass-wood, & c., except along the margin of the principal streams, where pine predominates. Pine lumber is manufactured to a considerable extent, and shipped on the lake to market. . .

The village of Manitowoc, at the mouth of the river of the same name, consisting of some twenty or thirty buildings, is a place of some importance as the depot of the lumber made on the river above. . .

Manitowoc Rapids is the name of a village four miles above Manitowoc . . . The rapids here, at the head of navigation of the river, afford a very extensive water power, which is taken advantage of to manufacture pine lumber and shingle to a great extent, to be shipped on Lake Michigan.

Neshoto is another village of this county, situated at the head of navigation of the West Twin River, where there is also a water-power and saw-mills. It is eight miles above the mouth of the river.

There are no prairies or openings [in Sheboygan County]; the whole country being covered by dense forests. Among the trees are found pine, to a considerable extent, which is manufactured into lumber at the Sheboygan Falls, near the mouth of the river, and shipped on Lake Michigan.

Forests provided the raw materials and water the transportation medium and the first sources of energy for what become the region’s internationally known wood-centered industrial and manufacturing sectors.

Fish

Fish are foundational in the Indigenous and Atlantic MCLs³. At the time of Euro-American settlement in the 1830s, the mid-Lake Michigan region supported diverse natural fish stocks, including whitefish, lake trout, lake sturgeon, herring, perch, chub, and pike. Knowledge of individual fish species and sophisticated harvest techniques contributed to Indigenous capacities for long-distance travel and rapid migration within the Great Lakes bioregion. The largest villages at the beginning of American settlement were located on the water adjacent to productive fishing grounds. Commercial fishing commenced at the beginning of American settlement and involved Indigenous and Euro-American fishers and processors (Jensen & Hartmeyer, 2014).

³ Specific species, anthropogenic influences, and the commercial uses of fish are addressed in the companion report, *Commercial Fisheries Maritime Cultural Landscape Approach: Historical Overview and Resources*.

Geology and Climate

The historical composition and characteristics of the sanctuary region’s waterways, forests, and fish also connect with its geological and climate history. Geology and climate exercised highly specific influences on the physical composition and history of the WSCNMS Indigenous and Atlantic MCLs and are described in more detail by Jensen and Hartmeyer (2014).

Bedrock and Glacial Geology

Coastal Manitowoc, Sheboygan, and Ozaukee counties rest on bedrock from the Silurian and Devonian periods. Created with the calcium carbonate deposited by dying sea organisms during periods of ocean advancement in the Paleozoic Era, limestone bedrock forms an ancient maritime geological landscape. The bedrock became a canvas for the glaciers of the Wisconsin Ice Sheet, which reached its maximum size approximately 14,500 years ago. Bedrock composition, glaciers, and glacial melt physically transformed mid-continental North America into a maritime region and determined or set the stage for many of the WSCNMS area’s most historically and culturally influential biophysical characteristics. Glaciers flattened the landscape of the mid-Lake Michigan region and created the region’s watershed, including inland lakes, rivers, streams, and creeks. The melting glaciers deposited gravel, sand, and rock in ridges called eskers and left a coating of glacial till consisting of unstratified sand, clay, pebbles, and rock. The clay provided the raw material for a local brickmaking industry that began in the 1850s and continued into the mid-twentieth century. The production and export of quick lime made from limestone bedrock became an important industry after the Civil War; however, stone used for the construction of buildings, bridges, and harbors was mostly imported (Jensen & Hartmeyer, 2014).

Coastal and Submerged Geology

The coastal geology of the WSCNMS region consists principally of unconsolidated soils extending 50 and 200 feet below the surface. Shoreline elevation and composition range from a few miles of low, flat coastline to high bluffs and sand dunes that are highly susceptible to erosion. Most of the sanctuary bottomlands are part of the Two Rivers Ridge: the end moraine of the last glacial advance. Coastal erosion and shifting unconsolidated sands on the lake bottom created constant challenges for coastal engineers in charge of building harbors and maintaining navigation channels, as well as marine salvors. From a maritime perspective, the coast lacked natural harbors or sheltered waters; had unstable sediments, including sandy patches that were poor holding ground for anchoring; and offered few landmarks for piloting. The human-driven physical transformations of the coast, instituted to address geological deficiencies, became the most influential and durable features of the local Atlantic MCL. Between 2016 and 2020, NOAA’s National Centers for Coastal Ocean Science conducted extensive surveys and mapping of the WSCNMS lakebed that included habitats, invasive species, shipwrecks, and other underwater cultural resources. The map products and associated ecological data provide robust new tools for understanding the biophysical composition and condition of the sanctuary’s MCLs (National Centers for Coastal Ocean Science, 2020).

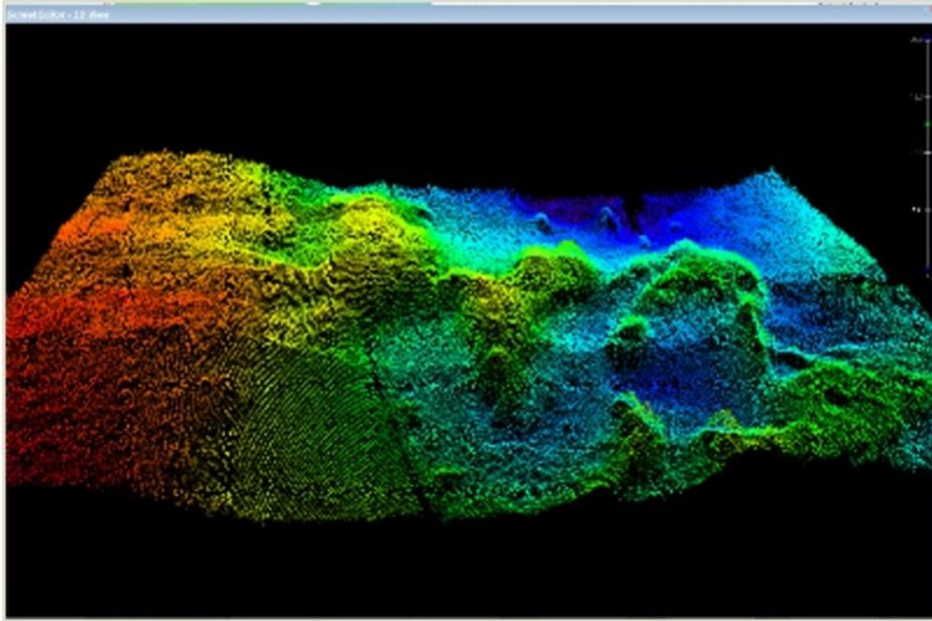


Figure 6. Sonar image of the Lake Michigan lakebed. Image: NOAA

Temperature and Ice

Lake Michigan contributes to the WSCNMS region's generally moderate coastal climate. Average high temperatures in the summer are in the upper 70s and low 80s Fahrenheit, with low temperatures in the winter falling to between 10 and the low 20s Fahrenheit. The annual variation in seasonal temperatures, however, is high, with scorching hot summers and extremely cold winters not unusual. Although Lake Michigan's surface does not typically freeze over completely, extreme cold temperatures and persistent wind cause rapid ice build-ups along the shore and drive the movement of large ice masses across the lake surface. While most Great Lakes ports close for a few months during the winter, Manitowoc, while not ice-free, has usually remained open to navigation throughout all or most of the winter (Jensen & Hartmeyer, 2014).

Winds and Storms

Westerly winds prevail across the Great Lakes region. Locally, wind at the Sheboygan pier head recorded between 1983 and 2011 blew from westerly directions about 55% to 65% of the year (Jensen & Hartmeyer, 2014). Easterly winds occur more frequently in the spring and typically peak in April, when they account for 50–60% of recorded winds. They remain common in summer, decrease in autumn, and become rare during winter. The strongest average winds occur in November, March, and April, with wind gusts exceeding 40 knots common. June, July, and August are calmest months. However, clashes of warm and cold air create violent squalls and thunderstorms, which are relatively common in the summer and fall. The NOAA National Climatic Data Center reports 77 significant storm days in Sheboygan County between 1996 and 2013, including summer thunderstorms with winds exceeding 50 knots (Jensen & Hartmeyer, 2014).



Figure 7. Historic image of the schooner *Dart* wrecked on the beach at Twin River Point (Rawley Point), Lake Michigan. Image: Wisconsin Maritime Museum Collection

Rain and Snowfall

Average precipitation for Manitowoc, Sheboygan, and Port Washington is about 32 inches per year, and August is the rainiest month at about 4 inches. Annual snowfall recorded at Manitowoc between 1892 and 2011 varied from less than three inches to nearly six feet and averaged 36 inches. Average snowfall at Sheboygan is substantially greater at 46 inches (Jensen & Hartmeyer, 2014).

A Laboratory for Studying Historical and Contemporary Climate Change

Climate variability and rapid periods of climate change are potent factors in the human and ecological history of the Great Lakes bioregion. The underlying coastal and aquatic ecosystems that have supported human habitation and cultural development in the Great Lakes region are less than 10,000 years old. Because of its ecological youth, small size, and self-contained geography (compared with oceanic regions), the results of natural and anthropogenic changes to Great Lakes ecosystems manifest quickly. How humans have caused or responded to climate and other ecological changes is readily apparent in the Indigenous and Atlantic MCLs, particularly in the past two centuries. Linked by their MCLs and common bioregion, the Wisconsin Shipwreck Coast and Thunder Bay national marine sanctuaries, along with proposed sanctuaries in lakes Ontario, Erie, and Superior, constitute a natural laboratory for studying and monitoring, at the individual and regional level, the causes, effects, and cultural adaptations to historical and contemporary natural and anthropogenic changes affecting the health and well-being of the Great Lakes and the people who rely on them.

Chapter 3: Maritime Cultural Landscape Themes

MCL themes capture distinct combinations of nature and culture, expressed in the condition of the biophysical environment, the composition of cultural heritage, and meanings attached to the location and associated heritage by different groups of people. The following representative landscape themes provide inclusive analytical frameworks for documenting important maritime resources, human uses, and cultural processes associated with the WSCNMS Atlantic MCL.⁴ The number of MCL themes will expand as the MCL approach is applied to the sanctuary. Landscape themes are at the heart of the MCL approach. They can be constructed in many ways and by different groups of people. They provide a framework for incorporating diverse historical and cultural voices and present multiple or conflicting points of view. The themes are based on the region's coastal and maritime history, assessment of sanctuary resources, and previous MCL studies. The landscape themes are geographically and temporally scalable and culturally inclusive, and incorporate, in various ways, the five associated historic contexts developed in the Multiple Property Documentation *Great Lakes Shipwrecks of Wisconsin* (Cooper & Kreisa, 1988).

The themes identified below can be adapted or expanded for use at other existing and proposed sanctuaries. Other themes may apply only to WSCNMS or individual communities or groups.

Fisheries Landscapes

Commercial, subsistence, and recreational activities; properties; institutions; and people associated with Great Lakes living resources.

Commercial Maritime Landscapes

Activities, properties, institutions, persons associated with the transportation of merchandise, processed commodities, and passengers.

Maritime Trades and Industries Landscapes

Activities, properties, institutions, and persons associated with specialized maritime trades and supporting activities.

Social Identity Maritime Landscapes

Activities, properties, institutions, and persons that directly connect the Great Lakes with specific groups of people with a common ethnic, tribal, racial, or other mutually held social identity within a community.

Indigenous Landscapes or Tribal Cultural Landscapes (see footnote)

⁴ This study acknowledges Indigenous history and highlights the need for Indigenous landscape assessments, but is not an Indigenous or tribal landscape study itself. Tribal Cultural Landscapes, by and for Indigenous communities, should be developed in the future, engaging specialist scholars and representatives from Great Lakes Indigenous tribes and nations.

Activities, properties, and persons associated with trade, migration, subsistence, and fishing on the Great Lakes.

Navigation Landscapes

Activities, properties, institutions, and persons associated with developing and maintaining the Great Lakes as a navigable waterway.

Federal Maritime Landscapes

Activities, properties, institutions, and persons associated with the federal government's role in creating, maintaining, and regulating commercial navigation on the Great Lakes.

Forest Landscapes

Activities, properties, institutions, and persons directly connected with the movement of forest products by water.

Agricultural Landscapes

Activities, properties, institutions, and persons directly connected with the movement, processing, and sale of grain, fruit, and other foodstuffs transported from midwestern farms to markets by water.

Industrial Landscapes

Activities, properties, institutions, and persons directly connected with the movement of raw and processed industrial commodities by water.

Energy Landscapes

Activities, properties, natural resources, institutions, and persons directly associated with the transportation of fuel for domestic, commercial, or industrial purposes.

Maritime Heritage Landscapes

Contemporary properties, institutions, activities, and persons connected with sustainable education, business, recreation, commemoration, research, and preservation directly associated with the long-term human use of the Great Lakes and its natural and cultural resources.

An individual shipwreck or other feature often fits within more than one landscape theme. Such overlaps reveal known and previously unrecognized relationships between maritime landscape features and with other areas of community history.



Figure 8. Wreck of the schooner *Galinipper*, the oldest known shipwreck in WSCNMS. Image: Becky Kagan Schott

Local Connection Scores and Maritime Cultural Landscape Themes

The National Marine Sanctuary System emphasizes place-based resource management; therefore, connection to place for heritage resources is an important value. The National Register of Historic Places (NRHP) is one metric of historical value. The strength of connection with sanctuary communities and history is another. Shipwrecks with robust local connections have the most potential for engaging communities and providing cultural ecosystem services. The hierarchical scoring matrix below awards points to shipwrecks based on the presence and type of historical connection documented in NRHP nominations. Wrecks accrue points for every category they occupy.

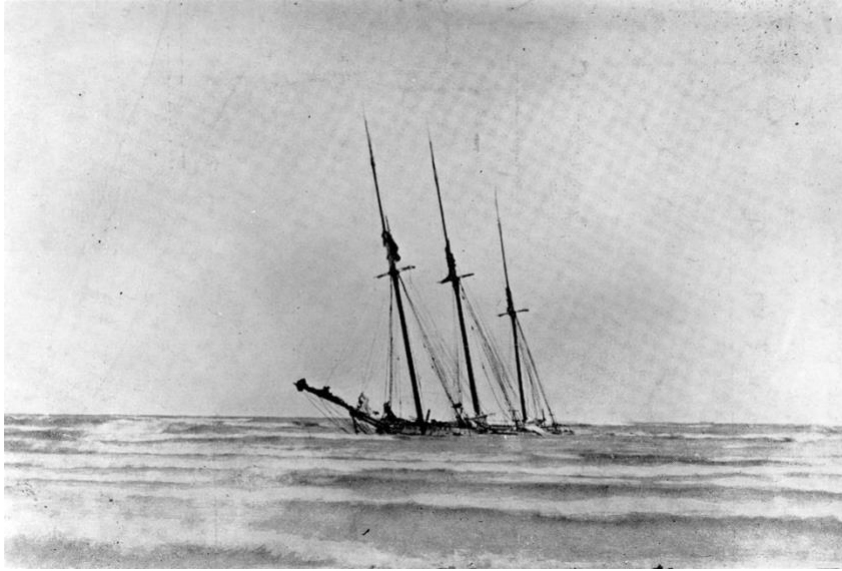


Figure 9. The schooner *Lookout* stranded on Twin River Point (Rawley Point). Image: Wisconsin Maritime Museum Collection

The matrix includes six categories:

Locally built	5 points
Locally owned or enrolled	4 points
Regularly traded	3 points
Wintered or repaired	2 points
Occasionally traded	1 points
No connection	0 points

Fifteen NRHP-listed wrecks have documented historical connections to local communities (Table 1). Potential MCL themes and the scoring system capture the variety and intensity, respectively, of local connections to WSCNMS shipwrecks. Fifteen wrecks have some documented historical connection to sanctuary communities. Two wrecks, the ubiquitous tug *Arctic* and the schooner *Byron* scored the maximum fourteen points. The scoring system is a work in progress, but succeeded in differentiating shipwrecks based on the strength and variety of local connections. Useful for setting management priorities and identifying interpretation opportunities, the matrix may be adapted for other existing or proposed national marine sanctuaries, particularly within the Great Lakes.

Table 1. Shipwrecks with local connections to WSCNMS and associated MCL themes.

Name	Vessel Type	Local Connection	MCL Theme 1	MCL Theme 2	MCL Theme 3
<i>Arctic</i>	Tug	14	Maritime trades and industries (shipbuilding)	Navigation	—
<i>Byron</i>	Schooner	14	Social identity (German)	Commercial (merchandise)	—

Name	Vessel Type	Local Connection	MCL Theme 1	MCL Theme 2	MCL Theme 3
<i>Francis Hinton</i>	Steam barge	14	Forest	Maritime trades and industries	Federal
<i>Alaska</i>	Scow schooner	12	Forest	Maritime trades and industries	Social
<i>Atlanta</i>	Steam screw	9	Commercial (passengers, leisure, freight)	—	—
<i>I.A. Johnson</i>	Scow schooner	9	Forest	Social identity (German)	—
<i>Robert C.</i>	Tug	8	Maritime trades and industries (shipbuilding)	Commercial	—
<i>Northerner</i>	Schooner	4	Social identity (Norwegian)	Commercial	—
<i>Niagara</i>	Steamer	3	Commercial (passengers, freight, immigration)	—	—
<i>S.C. Baldwin</i>	Tow barge	3	Navigation (local harbor construction)	Commercial (bulk freight)	—
<i>Continental</i>	Wooden bulk	2	Commercial (bulk freight)	—	—
<i>Walter B. Allen</i>	Canaller	2	Agriculture	Energy	—
<i>Hetty Taylor</i>	Schooner	1	Forest	—	—
<i>Home</i>	Schooner	1	Commercial (merchandise)	Forest	—
<i>Montgomery</i>	Canaller	1	Energy	—	—

Chapter 4: Sanctuary Shipwrecks and National Historical Significance

Cultural landscape analysis reveals multiple resources and locations of significance to local communities. Shipwrecks are a recognizable and familiar subset of these resources, and an important part of the character of WSCNMS. This section addresses the sanctuary's flagship cultural resources, nineteenth- and twentieth-century historic shipwrecks. In the Abandoned Shipwreck Act of 1987, Congress determined that "states have the responsibility for management of a broad range of living and non-living resources in state waters and submerged lands." The act asserted title to specific types of abandoned historic shipwrecks, including those "on submerged lands of a state [that are] included in or determined to be eligible for inclusion in the National Register [of Historic Places]." In 1988, the Wisconsin Legislature established a submerged cultural resources program with the Wisconsin Historical Society as the lead state agency. Located in the State Historic Preservation Office, the Wisconsin Historical Society's Maritime Preservation and Archaeology Program and many partners have added 28 shipwrecks within the sanctuary to the NRHP.⁵ The organic act of federal historic preservation law, the National Historic Preservation Act of 1966, created the NRHP, "the official list of the nation's historic places worthy of preservation" (National Park Service, 2023). NRHP listings provided powerful justification for designation of WSCNMS.



Figure 10. An archaeologist documents the stern of the steamer *Selah Chamberlain*. Photo: NOAA

The NRHP is the federal government's official list of districts, sites, buildings, structures, and objects assessed to be worthy of preservation for their historical significance. The guidelines for determining "historical significance" used in NRHP nominations are both precise and nuanced. Properties may be nominated to the NRHP if they meet one or more of the following four criteria:

⁵ The number of NRHP-listed shipwrecks was accurate as of December 31, 2022.

- A. They are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. They are associated with the lives of significant persons in our past; or
- C. They embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; or represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. They have yielded or may be likely to yield information important in history or prehistory.

A nomination must identify and document each criterion of historical significance applied to the property and specify a geographic significance level. A property may have local, state, or national significance.

The foundation for all shipwreck nominations completed through the Wisconsin Historical Society is the Multiple Property Documentation *Great Lakes Shipwrecks of Wisconsin* (Cooper & Kreisa, 1988). The document provides detailed historic contexts and registration requirements for historic shipwrecks under criteria A, C, and D.⁶ The authors expected that “many of the sunken vessels will have significance under more than one area.” The steamers *Niagara* and *Francis Hinton*, the first WSCNMS shipwrecks listed on the NRHP, were nominated under multiple significance criteria.



Figure 11: The remains of Niagara's wreckage, featuring one of the vessel's broken paddlewheels. Photo: NOAA

⁶ Category B significance (association with a historically important person) is accepted by the Keeper of the National Register in very rare circumstances and is covered in detail in Cooper and Kreisa (1988). This underscores the unusual significance of *Niagara*.

In 2002, the United States Court of Appeals, Seventh Circuit decision in *Ehorn v. Rosinco* altered the legal landscape for Wisconsin shipwrecks and preservation priorities. The court ruled that historic shipwrecks on state bottomlands determined eligible or listed on the NRHP are the property of the state of Wisconsin. The ruling meant that historic shipwrecks not yet listed or determined eligible for the NRHP *might* belong to the state, but ownership remained open to potential admiralty claims. Thus, NRHP listing or determination of eligibility became the surest legal protection against future admiralty claims in federal courts by the treasure hunter/salvor community (Jensen, 2015).

Between 2005 and 2023, Wisconsin added 29 WSCNMS wrecks to the NRHP; 23 of these are listed exclusively under criterion D (archaeology) at the state significance level. The exceptional quality and detailed historical and archaeological data collected by the Wisconsin Historical Society's Maritime Preservation and Archaeology Program could support multi-criteria nominations for virtually all sanctuary shipwrecks on the NRHP. However, criterion D state-level nominations are less complicated and time-consuming to prepare than multiple criteria or national-significance nominations, and trigger the protections against admiralty claims. Applying this streamlined approach, Wisconsin has added more historic shipwrecks to the NRHP than any other state.

Table 2. Significance criteria and levels for NRHP-listed shipwrecks in WSCNMS.

Name	Year Listed	Criterion A	A Level	Criterion B	B Level	Criterion C	C Level	Criterion D	D Level
<i>Abiah</i>	2022							X	State
<i>Advance</i>	2023							X	State
<i>Alaska</i>	2017							X	State
<i>America</i>	2013							X	State
<i>Arctic</i>	2018							X	State
<i>Atlanta</i>	2017							X	State
<i>Byron</i>	2009							X	State
<i>Continental</i>	2009							X	State
<i>Floretta</i>	2014							X	State
<i>Francis Hinton</i>	1996					X	State	X	State
<i>Gallinipper</i>	2010	X	State					X	State
<i>Hetty Taylor</i>	2005					X	State	X	State
<i>Home</i>	2010							X	State
<i>I.A. Johnson</i>	2019							X	State
<i>LaSalle</i>	2017							X	State
<i>Lookout</i>	2017							X	State
<i>Major Anderson</i>	2014							X	State
<i>Montgomery</i>	2019							X	State
<i>Niagara</i>	1996	X	National	X	National	X	National	X	National
<i>Northerner</i>	2010							X	State
<i>Pathfinder</i>	2015							X	State
<i>Robert C. Pringle</i>	2020							X	State
<i>Rouse Simmons</i>	2007	X	State					X	State
<i>S.C. Baldwin</i>	2016							X	State
<i>Selah Chamberlain</i>	2019							X	State
<i>Senator</i>	2016							X	State

Name	Year Listed	Criterion A	A Level	Criterion B	B Level	Criterion C	C Level	Criterion D	D Level
<i>Silver Lake</i>	2013					X	State	X	State
<i>Tubal Cane</i>	2017							X	State
<i>Walter B. Allen</i>	2011							X	State

National marine sanctuaries are areas of “special national significance” with nationally significant resources that provide public benefits that can be maintained through long-term protection and management. The National Marine Sanctuaries Act defines a sanctuary resource as “any living or nonliving resource of a national marine sanctuary that contributes to the conservation, recreational, ecological, historical, educational, cultural, archeological, scientific, or aesthetic value of the sanctuary.” The designation of WSCNMS in 2021 strengthened the management regime for its historic shipwrecks, but also introduced some ambiguities into regulatory language.

Section 303 of the National Marine Sanctuaries Act (16 U.S.C. 1433) specifies a national marine sanctuary must be of “special national significance” under one or more of three categories:

1. Its conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or esthetic qualities
2. The communities of living marine resources it harbors
3. Its resource or human use values

The act does not specify what constitutes “special national significance.” By contrast, the requirements for national significance under the National Historic Preservation Act are specific, stringent and bring additional responsibilities for federal agencies. National Historic Preservation Act Section 110.2 (B) directs federal agencies to give “special consideration” to “preserving the historic, archaeological, architectural, and cultural values” of properties “designated as having national significance.” Although the National Marine Sanctuaries Act protects all historic shipwrecks within WSCNMS, only one shipwreck, the steamer *Niagara*, is nationally significant under the National Historic Preservation Act. Listed on the NRHP under criteria A, B, C, and D in 1996, *Niagara* has the potential to qualify as a National Historic Landmark.

The 28 NRHP listings treat WSCNMS historic shipwrecks as individual properties. These shipwrecks, however, become more when connected through the Atlantic MCL and MCL themes. The MCL approach poses new questions, demonstrates complex biocultural and historical relationships, and demands the inclusion of multiple cultural voices in the valuing and interpretation of maritime places and heritage. An MCLA-based NRHP district nomination has the potential to bridge any remaining gaps between National Marine Sanctuaries Act and National Historic Preservation Act regulatory language, and more effectively demonstrate the public value of WSCNMS.

In 2015, an MCL symposium organized by the National Park Service, NOAA, and Bureau of Ocean Energy Management focused considerable attention on the potential use of MCLs in the NRHP process. The symposium’s panel on the legal considerations of MCLs came to a unanimous consensus that, as with terrestrial cultural landscapes, MCLs could be nominated as a district to the NRHP or as a National Historical Landmark if they meet the existing standards.

However, archaeological district listing guidelines were developed for terrestrial spaces and do not recognize the distinctive characteristics of maritime spaces and connectivity. Boundary definitions and determining whether a district is contiguous or noncontiguous have proven to be sticking points (Duggins, 2015). Lacking a formal NRHP definition and guidelines for MCLs, the closest match is *National Register Bulletin 30, Guidelines for Evaluating Rural Historic Landscapes* (National Park Service, 1989). Bulletin 30 evaluates 11 characteristics of rural historic landscapes, four processes that shaped the land, and seven physical components visible on the land. Not all characteristics are always present in each landscape. The 11 characteristics, however, could provide the framework for an Atlantic MCL NRHP nomination.

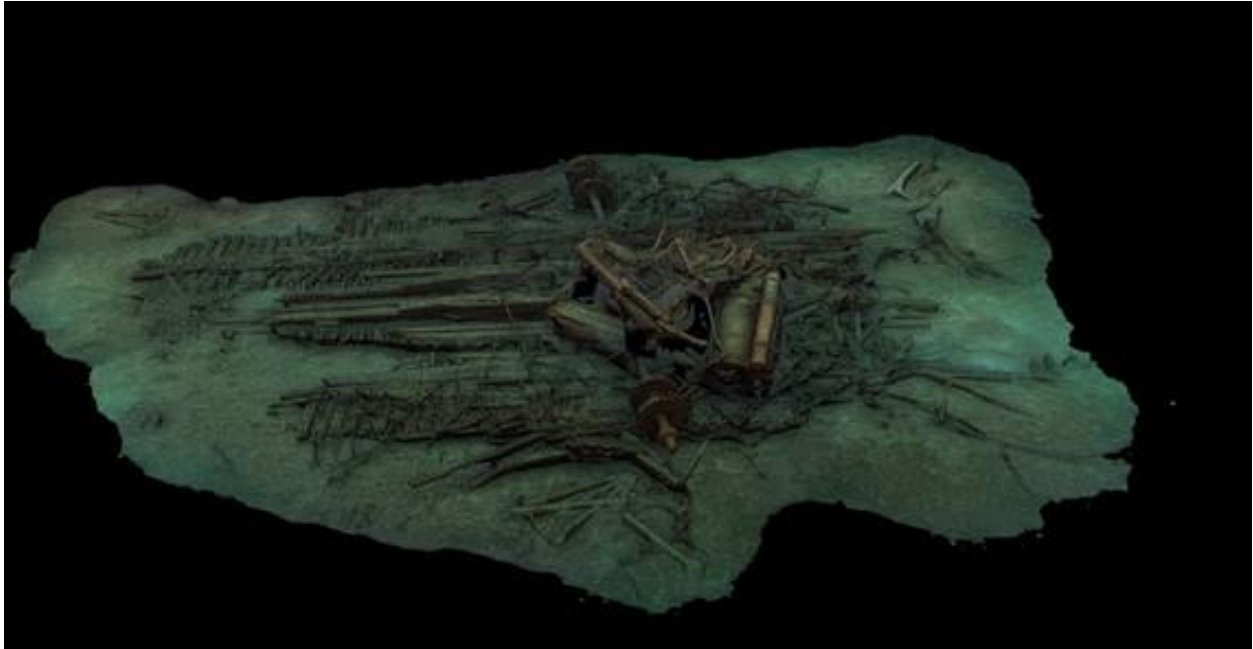


Figure 12. Still from a 3D model of *Niagara*. Image: NOAA

Chapter 5: Concluding Remarks

Shipwrecks are a central historic resource for WSCNMS, but clearly from the above landscape assessment, they are not the only feature that illuminates the stories of the Great Lakes. This fuller understanding of history reveals, at every turn, the dynamic interactions between individuals, communities, and their environments, which can best be viewed through the lens of MCLA. This is also important to the regular management of national marine sanctuaries. Specifically, MCL studies:

- Help identify and characterize the broad range of archaeological and historical and cultural resources as highlighted in the National Marine Sanctuaries Act, for potential nomination to the NRHP (National Historic Preservation Act section 110);
- Help identify and characterize the broad range of archaeological and historical and cultural resources for consideration of potential impacts from federal undertakings (National Historic Preservation Act section 106);
- Contribute critical heritage information to resource scoping processes associated with national marine sanctuary nominations, management plans, and management plan reviews;
- Elicit important ecosystem services information in the form of cultural heritage and sense of place values evaluated as part of national marine sanctuary condition reports; and
- Assist with acknowledging and including multiple perspectives and multiple cultures and communities from the diverse range of site constituents.

Each national marine sanctuary is unique, and therefore the expression of cultural landscapes will be varied and unique as well. In every case, though, as the National Marine Sanctuary System continues to adopt this more comprehensive approach, the MCLA offers a tool for helping us become better stewards of our marine and Great Lakes areas.

Acknowledgements

This report provides a conceptual overview, recommendations, and a selection of digital primary sources for applying MCLA to research, management, and public outreach at WSCNMS. The report is part of the project *Beneath the Sanctuary's Surface: Evaluating the Maritime Cultural Landscape* completed by the University of West Florida in partnership with the NOAA Office of National Marine Sanctuaries Maritime Heritage Program and WSCNMS. The University of West Florida project components were completed as a subcontract with Cardinal Point Captains, Inc., purchase order no. 1018-053-001-02. The project also included extensive commercial fisheries MCL thematic research. Those results are presented in a separate report: *Commercial Fisheries Maritime Cultural Landscape Approaches: Historical Overview and Resources for Wisconsin Shipwreck Coast National Marine Sanctuary*.

The University of West Florida project team included Dr. John Odin Jensen (Principal Investigator), Ms. Cassandra Sadler (Fisheries Heritage Specialist), Ms. Christina Brown (Research Assistant), and Ms. Mel Parchment (Research Assistant).

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Appendix A:

Maritime Cultural Landscape Digital Resources

This project resulted in the collection of a range of digital resources that may support future research and public outreach. These documents were organized into libraries and made accessible using the Google Sheets. The individual libraries are accessible through the hyperlinks included in the descriptions.

Federal Charts, Maps, and Documents Relating to Sanctuary Harbors

[U.S. Army Corps of Engineers Reports and Harbor Maps](#)

Excerpted from U.S. Army Corps of Engineers annual reports, this library includes links to 249 documents containing detailed commercial, environmental, and engineering information and statistical data for WSCNMS ports covering the years 1866 to 2012.

This library also contains maps and engineering plans relating harbor surveys, dredging, and engineering at sanctuary ports. In the early stages of collection, the library includes links to 24 documents, most covering the period between 1875 and 1909.

[Navigation Charts of Manitowoc and Sheboygan Harbors](#)

Links to 31 detailed charts of the Manitowoc and Sheboygan harbors in the NOAA Office of Coast Survey Historical Map and Chart Collection. The charts include detailed graphic and textual information that document the changing economic and physical landscape of the harbors between 1905 and 2016.

Digital Sources for Manitowoc MCL Thematic Story Map

[Birdseye View of Manitowoc, Manitowoc County, Wisconsin, 1868](#)

Detailed view of the city of Manitowoc drawn by Augustus Koch. Born in Germany in 1834, Koch emigrated to Wisconsin and may have lived in Manitowoc County before entering military service during the Civil War. Koch's birds eye view of Manitowoc was among the first of at least 110 that he produced of U.S cities over the next thirty years. Koch's reputation for accuracy and knowledge of Manitowoc makes this an especially valuable MCL source for the period. The high-resolution file came from Barry Lawrence Ruderman Antiques, Inc. The copyright status, however, is undetermined.

[Manitowoc: Select Maritime Newspaper Article and Advertising Clippings, Primarily 1867–1869](#)

This collection contains links to 121 columns addressing a wide spectrum of maritime events and issues culled from the *Manitowoc Herald* and *Manitowoc Pilot* weekly newspapers between April 5, 1867, and September 22, 1870. The second tab includes 16 maritime-related advertisements published in 1868. Most of the advertisements come from the 1868–1869 addition of Edward's City Directory for the Village of Manitowoc.


[Manitowoc Miscellaneous MCL Theme Photographs](#)

A selection of links to 131 photographs and postcards in University of Wisconsin digital collections with MCL themes and information related to Manitowoc. The images range in dates from the late 1860s through the early 20th century.

[Manitowoc City Directory 1868](#)

[Manitowoc City Directory 1875–1876](#)

[Manitowoc City Directory 1880](#)



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