The Historic Piers of Sleeping Bear Bay

A NAS Part II Survey of:
Central Dock, Nessen Dock & Fisher Dock
In Sleeping Bear Bay, Michigan

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# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgments</td>
<td>1</td>
</tr>
<tr>
<td>Survey Team</td>
<td>1</td>
</tr>
<tr>
<td>Project Introduction</td>
<td>2</td>
</tr>
<tr>
<td>The Settlement of Glen Arbor</td>
<td>3</td>
</tr>
<tr>
<td>A Growing Community</td>
<td>4</td>
</tr>
<tr>
<td>Central Dock</td>
<td>5</td>
</tr>
<tr>
<td>Fisher Dock</td>
<td>6</td>
</tr>
<tr>
<td>Glen Haven Dock</td>
<td>7</td>
</tr>
<tr>
<td>Nessen Dock</td>
<td>9</td>
</tr>
<tr>
<td>Locating the Docks</td>
<td>10</td>
</tr>
<tr>
<td>Location on the Map</td>
<td>13</td>
</tr>
<tr>
<td>Access to Sites</td>
<td>17</td>
</tr>
<tr>
<td>Important Terms</td>
<td>17</td>
</tr>
<tr>
<td>Survey Journal</td>
<td>18</td>
</tr>
<tr>
<td>Preparation</td>
<td>18</td>
</tr>
<tr>
<td>Assessment Surveys</td>
<td>19</td>
</tr>
<tr>
<td>Nessen Dock Assessment Survey</td>
<td>19</td>
</tr>
<tr>
<td>Central Dock and Fisher Dock Assessment Surveys</td>
<td>20</td>
</tr>
<tr>
<td>Surveying the Sites</td>
<td>21</td>
</tr>
<tr>
<td>Total Station Data</td>
<td>23</td>
</tr>
<tr>
<td>Measurements</td>
<td>23</td>
</tr>
<tr>
<td>Timeline of Survey</td>
<td>26</td>
</tr>
<tr>
<td>Appendix A: Project Outline</td>
<td>27</td>
</tr>
<tr>
<td>Appendix B: Assessment Surveys</td>
<td>29</td>
</tr>
<tr>
<td>Appendix C: Control Point Positioning</td>
<td>33</td>
</tr>
<tr>
<td>Appendix D: Total Station Data</td>
<td>35</td>
</tr>
<tr>
<td>Appendix E: Additional Material</td>
<td>41</td>
</tr>
<tr>
<td>Works Cited/References</td>
<td>42</td>
</tr>
</tbody>
</table>
# Table of Figures

Cover Photo: Nessen Pile .............................................................................................. Cover

Figure 1: Map of Sleeping Bear Bay ................................................................................. 2
Figure 2: Topographical Map of North and South Manitou Islands and Sleeping Bear Bay .................................................. 3
Figure 3: Photo of D. B. Harrington Train ........................................................................ 4
Figure 4: Photo of Central Dock ...................................................................................... 5
Figure 5: Photo of Fisher Dock ....................................................................................... 6
Figure 6: Photo of Fisher Mill ......................................................................................... 6
Figure 7: Photo of D. H. Day Dock (a.k.a. Glen Haven Dock) ......................................... 7
Figure 8: Photo of D. H. Day Dock (a.k.a. Glen Haven Dock) ......................................... 8
Figure 9: Photo of Steamer Leaving Glen Haven Dock .................................................... 8
Figure 10: Photo of Glen Haven Dock ............................................................................. 8
Figure 11: Photo of Lumber Dock—Believed to be Nessen Dock .................................... 9
Figure 12: Plat Map from Leelanau County Atlas, 1881 .................................................... 10
Figure 13: Map of Docks in Sleeping Bear Bay ............................................................... 11
Figure 14: Photo of Local Historian John Triss ............................................................... 11
Figure 15: Photo of Team Members with Historian John Triss ....................................... 12
Figure 16: Photo of Team Member Kristin Sweeting Studying a Map ............................... 12
Figure 17: Map of Great Lakes in North America ........................................................... 13
Figure 18: Map of Michigan—Both Upper and Lower Peninsula .................................... 13
Figure 19: Map of Michigan—Lower Peninsula ............................................................. 14
Figure 20: Map of Northern Michigan ........................................................................... 14
Figure 21: Map of Glen Arbor Area ............................................................................... 15
Figure 22: Map of Sleeping Bear Bay ............................................................................ 15
Figure 23: Map of Sleeping Bear Bay—Close-up ............................................................ 16
Figure 24: Map of Docks in Sleeping Bear Bay ............................................................. 16
Figure 25: Photo of Dry Team Surveying Sleeping Bear Bay Shoreline ............................. 18
Figure 26: Photo of Team Members Surveying Nessen Dock ......................................... 19
Figure 27: Photo of Current Boat Ramp in Sleeping Bear Bay ........................................ 20
Figure 28: Photo of Glen Haven Dock Pilings ............................................................... 21
Figure 29: Photo of Team Member Dr. Mark Holley Surveying Piles of Central Dock ........ 22
Figure 30: Photo of Piles of Glen Haven Dock ............................................................... 23
Figure 31: Photo of Pile from Central Dock .................................................................24
Figure 32: Photo of Pile from Central Dock .................................................................25
Figure 33: Photo of Pile from Nessen Dock .................................................................26
Acknowledgments

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Northwestern Michigan College
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Survey Team

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Project Introduction

In 2012, local historian John Triss approached Northwestern Michigan College’s (NMC) Nautical Archaeology Society (NAS) field school with a project proposal. Sleeping Bear Bay in Glen Arbor, Michigan, is home to four docks that date back to the 1800s, and Mr. Triss had in his possession historical mapping depicting the approximate locations of these piers.

While Glen Haven Dock has been well documented, the other three—Central Dock, Nessen Dock, and Fisher Dock—have yet to be surveyed to an archaeological standard (Vrana 1995). The latter three docks are located in approximately 15 feet of water near public beaches commonly used for recreational activities, and are easily accessible by shore or boat. It is the focus of this project to conduct an in depth archaeological survey on these lesser documented piers.

Figure 1: Map of Sleeping Bear Bay; Leelanau County Atlas, 1881. (Courtesy of John Triss)
The Settlement of Glen Arbor

The Manitou Islands served as the first ports in the area as early as 1834, at which time the only inhabitants on the mainland were Native Americans (Rader 18). These ports were quite close to the shipping lanes, and began as “wooding station[s] for the steamers,” but were quickly settled after docks were installed making supplies more accessible (Rader 18). The Manitou Passage continued to gain importance as a vital waterway, hosting an array of merchant ships, and offering travelling routes to settlers (Rader 18). Sleeping Bear Bay is a natural harbor, and created a “refuge for ships entering the Manitou Passage,” the size of which was “large enough to protect a fleet of ships” (Rader 9-10). By about 1850, the water was crowded by vessels, and white settlers began to find their way to the mainland, making their homes in what would become known as Glen Arbor Township (Rader 18).

Figure 2: Topographical Map of North & South Manitou Islands in Relation to Sleeping Bear Bay. Note Manitou Passage. (Courtesy MyTopo.com)
A Growing Community

Founded by John E. Fisher in 1856, Glen Arbor Township had grown to about 200 residents by 1867, and had expanded to include “three docks, two hotels, four stores, a blacksmith shop and the cooper shop” (“History”). In 1899, J.O. Nessen built “a steam-powered lumber mill,” and around this time wood became the area’s first major commodity (“Glen Arbor”). While lumber was a major export for the area, it also provided the community with numerous jobs and building materials, such as wooden roofing shingles (“Glen Arbor”).

Due to the heavy traffic of ships through the Manitou Passage, a Coast Guard Station was erected north of Sleeping Bear Dunes (“Glen Arbor”). The early 1900s ushered in a rise of tourism, with families travelling by steamship and vacationing in the area throughout the summer (“Glen Arbor”). The National Park Service bought the village of Glen Haven and some of the surrounding areas in the mid-1970s, and it remains a popular destination for visiting tourists and locals alike (Cockrell 37).

Figure 3: The "D. B. Harrington." A Train that Transported Lumber from Big Glen Lake to Central Dock. (Courtesy Empire Museum).
Central Dock

In 1855, John Fisher persuaded his good friend, Dr. William Walker, to purchase land in the Glen Arbor area (Rader 20). Walker, in turn, convinced his brother-in-law, George Ray, to consider inspecting the opportunities available in the region (Rader 21). An Ohio native, Ray visited and prospected the forests and Sleeping Bear Bay, going home only to tie up his affairs; he returned with a group of thirteen workers, and began erecting a lumber mill (Rader 21).

In 1856, the first dock was built in Sleeping Bear Bay (Rader 7). Central Dock (also known as Glen Arbor Dock) was a joint endeavor, constructed by Georgy Ray and Erasmus Nutt (Rader 21). According to some sources, the main reason for Central Dock to be built was to ease the process of loading wood onto the steamers travelling through Manitou Passage. The exact date of the dock’s first usage remains unknown, although it is believed to be prior to 1925 (Vrana 1995).

Figure 4: Central Dock in 1926. (Courtesy John Triss)
Fisher Dock

One of the founders of Glen Arbor, John Fisher, arrived in the area in 1851 (Rader 7). Originally from Wisconsin, Fisher was blown off course on his way to look for prospective land in Manistee, Michigan (Rader 18-19). Landing in the yet to be named Glen Arbor, he quickly realized that the thickly forested land had not yet been claimed by anyone, and the resources were plentiful enough to suit his needs (Rader 19). He made the decision to set up a sawmill, and purchased a one-thousand-acre tract of land along Crystal River (Rader 20).

After tying up his affairs in Wisconsin, Fisher returned to the Glen Arbor area, and in 1859, built a sawmill on Crystal River (Rader 7). He built Fisher Dock the same year in order to service the lumber mill (Rader 20). The dock was last used in 1933, however, it could not be confirmed if the sawmill was active for that entire period or if the purpose of the dock had changed over time.

Figure 5: Fisher Dock in Background, July 1912. (Courtesy Manitou Island Archives)

Figure 6: Fisher Sawmill. (Courtesy Manitou Islands Archives)
Glen Haven Dock

Glen Haven Dock was built in 1865 by Glen Arbor founder John Fisher’s brother-in-law, Charles C. McCarty (NPS.gov). Additionally, McCarty owned a sawmill located on Little Glen Lake, and transferred all of his processed lumber to Glen Haven Dock for loading (NPS.gov). The Northern Transit Company (NTC) bought McCarty’s land in 1868, and in the next few lands had purchased upwards of two thousand acres of the surrounding area, including Glen Haven Dock (NPS.gov).

In 1878, David H. Day was appointed the role of foreman for NTC, and shortly thereafter, Day purchased many of the NTC’s holdings, which included the village of Glen Haven, Glen Haven Dock, and two steamers, the Lawrence and the Champlain (NPS.gov, Cockrell). Using these two steamers, Day began a “freight and passenger service operating from Chicago and Cheboygan called the Northern Michigan Line” (Cockrell 10). Day continued building up the area, opening a general store, running a lumber mill, building roads and paying for telegraph lines to be installed (Cockrell 10-12). By the early 1920s, Day had also opened Glen Haven Canning Company, and the lumber which once frequented the dock was replaced by canned apples and cherries (NPS.gov). Eventually, the “improvements in the roads and rail service [diminished] the importance of Glen Haven Dock,” and in 1931, it was closed (NPS.gov).

Considering the varied uses of Glen Haven Dock over the years, it is hardly surprising that it has been known by several names, including the D. H. Day Dock, Northern Michigan Transportation Company Dock, as well as the Northern Michigan Line Dock.

Figure 5: D. H. Day Dock (Glen Haven Dock) circa 1930. (Courtesy "Beautiful Glen Arbor Township")
Figure 8: D. H. Day Dock (Glen Haven Dock) circa 1910.  
(Courtesy Manitou Islands Archive)

Figure 9: Steamer Leaving Glen Haven Dock in 1925.  
(Courtesy of the National Park Service)

Figure 10: Glen Haven Dock, 1918.  
(Courtesy Manitou Islands Archive)
Nessen Dock

John O. Nessen was a prominent figure in the lumber industry and in transportation (“History”). A well-known and highly respected resident of Manistee, MI, Nessen also “left his imprint on a number of northern Michigan counties… including Leelanau” (“History”). Sometimes counted amongst the “lumber barons” of the time, Nessen owned and operated several sawmills in various locations throughout Northern Michigan, one of which was the Glen Arbor Lumber Company situated on Big Glen Lake (“History”, Wheeler, Rader 7).

Information on Nessen Dock is scarce, but it appears that it may have been built around 1899, in conjunction with Glen Arbor Lumber Company, which was originally owned and operated by Gordie Earl (Rader 40). Using a steam-powered locomotive, Earl brought lumber from deep within the forest to the dock in Sleeping Bear Bay. Earl sold the lumber company, locomotive, and dock to Nessen in 1907, who would eventually sell all, and pass the locomotive on to D. H. Day (Rader 40).

Figure 11: Lumber Dock, 1924. Believed to be Nessen Dock. (Courtesy John Triss)
Locating the Docks

The locations of Central, Fisher, and Nessen Docks was unknown. The team studied historic maps of the area, as well as consulted with local historian John Triss and the park rangers of Sleeping Bear Dunes National Park to establish the general location of each dock.

Figure 12: Plat Map from Leelanau County Atlas, 1881, Showing both Glen Haven Dock and Glen Arbor Dock. (Courtesy John Triss)
Figure 13: Map Showing Glen Haven Dock, Nessen Dock, and Fisher Dock. (Courtesy John Triss)

Figure 14: Local Historian John Triss, Providing Information Regarding Locations of the Docks. (Courtesy Kristin Sweeting)
Figure 15: Team Members Jeanise Dobski and Kristin Sweeting with Historian John Triss (Courtesy Ian Cundy)

Figure 16: Team Member Kristin Sweeting Studying a Map of Leelanau County (Courtesy Ian Cundy)
Location on the Map

Figure 17: The Great Lakes in North America. (Courtesy Google Earth 2016)

Figure 18: Michigan—both Upper and Lower Peninsulas (Courtesy Google Earth 2016)
Figure 19: Michigan—Lower Peninsula
(Courtesy of Google Earth 2016)

Figure 20: Northern Michigan (Courtesy Google Earth 2016)
Figure 21: Glen Arbor Area (Courtesy Google Earth 2016)

Figure 22: Sleeping Bear Bay (Courtesy of Google Earth 2016)
Figure 23: Close-up of Sleeping Bear Bay with General Locations of Docks Marked. (Courtesy Google Earth 2016)

Figure 24: Map of Docks in Sleeping Bear Bay (Courtesy of Empire Museum in Michigan)
**Access to Sites**

All four docks are available by land and/or boat. There are no obstacles that prevent or restrict access to any of the sites, though each has its own unique entrance point.

**Location of Central Dock:**
The access point is at the end of Lake Street in Glen Arbor, Leelanau County, Michigan. The dock can be located to the left (West) of the public boat ramp.

**Location of Nessen Dock:**
The access point is at the end of Lake Street in Glen Arbor, Leelanau County, Michigan. The dock can be located down the beach to the left (West) Central Dock. Piles protruding above the water are visible from shore.

**Location of Fisher Dock:**
The access point is at the end of Bay Lane in Glen Arbor, Leelanau County, Michigan. The dock is located just off the North edge of the public beach.

**Location of Glen Haven Dock:**
The access point is at the end of County Road 109 by the Great Lakes Boat Museum. Piles protruding above the water are visible from shore.

**Important Terms**

The following terms are relevant to this monograph, and are listed below as defined by Meriam-Webster Dictionary:

Dock: a usually wooden pier used as a landing place or moorage for boats

Pier: a structure that goes out from a shore into the water

Pile: a large stake or pointed post (as of wood or steel) driven into the ground to support a foundation

Township: a division of territory in surveys of United States public lands containing 36 square miles; a 6 mile by 6-mile parcel of land
Survey Journal

Preparation
Dry and wet survey teams were formed and given precise directions on what their duties and responsibilities would be. As always, safety was considered the top priority for all team members, and safety briefings were held prior to the beginning of any work.

The responsibilities of the wet team included the selection of detail points, communicating effectively via hand signals or walkie-talkies, and the documentation of any relevant features using underwater photography.

The dry team's responsibilities included effective communication using hand signals or walkie-talkies, recording points accurately, and continual monitoring of the wet team as to ensure their safety.

When this project was proposed, the size of the potential survey area was unknown. Local historian John Triss, along with park rangers, provided the general location of the piers based on historical maps and personal observations. This project sought to locate each pier, assess the extent of their remains, and create a site plan based on findings.
**Assessment Surveys**

An assessment survey was made of each pier upon its discovery, and used to create the most efficient field study plan possible. Risk assessments for all sites were identical. Hand sketched assessment surveys can be found in Appendix B.

**Nessen Dock Assessment Survey**

The first assessment survey conducted was the western and central portion of Sleeping Bear Bay, which contains Glen Haven Dock and Nessen Dock. The access points and weather conditions were inspected to ensure that the survey could be safely completed. The team assessed the extent to which each pier is exposed to the elements. Both Glen Haven and Nessen Docks are exposed to winds from the North through the Northeast.

Following the initial shore assessment, the team discussed possible risks in the water using the NAS Risk Assessment Form as a guide. Hazards in the water for the first two docks were found to be minimal, with the main factors being the risk of hypothermia, boat traffic, and possible underwater wildlife.

A plan to survey Nessen Dock was created based on the results of the assessment survey. The decision was made to survey the dock from West to East, with the wet team starting at the farthest point out and working their way toward shore. This method was chosen to maximize the safety of the wet team. By finishing the survey closest to shore, the divers would have an easy exit, and the risk of injury due to exhaustion or hypothermia could be minimized.

![Image of Team Members Jeanise Dobski and Troy Wilson Surveying Nessen Dock](Source ??)
Central Dock and Fisher Dock Assessment Surveys

The second assessment survey was conducted in the central and eastern portion of Sleeping Bear Bay, which contains Central Dock and Fisher Dock. The access points and weather conditions were inspected to ensure that the survey could be safely completed. Again, the team assessed the extent to which each pier is exposed to the elements. It was determined Central Dock is exposed to winds from the Northwest through the Northeast and Fisher Dock is exposed from the West through the North.

Following the initial shore assessment, the team discussed possible risks in the water using the NAS Risk Assessment Form as a guide. Hazards in the water for the second two docks were found to be minimal, with the main factors being the risk of hypothermia, boat traffic, and possible underwater wildlife.

A plan to survey both Central and Fisher Docks was created based on the results of the assessment survey. The decision was made to survey the dock from West to East, with the wet team starting at the farthest point out and working their way toward shore. This method was chosen to maximize the safety of the wet team. By finishing the survey closest to shore, the divers would have an easy exit, and the risk of injury due to exhaustion or hypothermia could be minimized.
Surveying the Sites
After assessing the four piers, it became apparent that the docks should not be surveyed as separate, unrelated sites, but rather as one larger and more complex site. This conclusion spurred the team to survey all four locations in a single data file using a Leica Total Station, staff, and prism. The resulting data would show the docks’ positions and relationships to one another as accurately as possible. This was achieved by using the extended range of the Total Station.

Control points were established for each portion of Sleeping Bear Bay; each of these control points were within range of at least one other control point using the Total Station equipment. Once positioned, four-foot-long pieces of re-rod were driven into the ground—these remain at the site to this day. Control point locations were specifically placed in less frequented areas to minimize public interference that could potentially skew future survey data, as well as maximize safety. Figures depicting control point locations in relation to the shoreline and docks can be found in Appendix C.

After becoming acquainted with the piers and their locations, a survey plan was created. The team would begin the survey from a primary control point at Nessen Dock, continuing to Central Dock which is closest in proximity, before moving on to Fisher Dock, and completing the survey with Glen Haven Dock.

Figure 28: Glen Haven Dock Pilings, 2012. (Courtesy Ian Cundy)
Surveying began by setting the primary control point—control point one—which was placed near the public access between Nessen Dock and Central Dock. Control points two and three were then set in relation to control point one, and used to establish and anchor the site in space.

By setting these control points, the data became fixed and can now be read using compass headings. Control point two was set as accurately as possible at due south, with control point three set as an additional point of reference. The team surveyed Nessen Dock first, using the Total Station to create data points for all of its piles. Upon completion of Nessen Dock, the team turned to the shoreline and then to Central Dock without having to relocate any of the survey equipment.

The team captured all data points in this central location before moving to the public access area directly inland from Fisher Dock to establish control point four. Wanting to create an accurate depiction, not only of the location of each of the four docks, but of their relation to each other, the team repositioned the Total Station over control point four, and shot control point one to anchor their location. Once the sites were spatially tied together, the piles of Fisher Dock and the surrounding shoreline were surveyed much the same as Central Dock and Nessen Dock were.

To complete the survey, the team repositioned the equipment to establish control point five, which lies directly inland from the Glen Haven Dock. After anchoring control point five to control point one the piles of Glen Haven Dock and the surrounding shoreline were shot in as data points. Glen Haven Dock had already been surveyed in the 1990s, therefore, it was a lower priority in the research plan (Vrana 1995). The decision was made to take only perimeter points of the dock at this time. In doing so, the previous survey can be overlaid into a complete data file and remain in an accurate spatial position via the anchored control points.
**Total Station Data**

The survey plans—one for each dock along with surveys of the complete shoreline—were created using CAD software, called Site Recorder 4, and have been provided in Appendix D. They are color coded for easier understanding as follows:

- **Brown points:** piles of each dock
- **Blue points:** current path of the shoreline
- **Black points:** present day public access boat ramp for Sleeping Bear Bay

**Measurements**

While surveying the piers, measurements were taken of the diameters of individual piles in order to determine if a rate of deterioration could be detected. The base, middle, and top of five piles from Nessen Dock were measured; the data from those measurements is as follows:

<table>
<thead>
<tr>
<th>Pile</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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<tr>
<td>Base</td>
<td>2.4</td>
<td>2.8</td>
<td>2.85</td>
<td>2.3</td>
<td>2.95</td>
</tr>
<tr>
<td>Middle</td>
<td>1.9</td>
<td>2.4</td>
<td>2.45</td>
<td>1.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Top</td>
<td>1.7</td>
<td>2.1</td>
<td>2.3</td>
<td>1.4</td>
<td>1.8</td>
</tr>
</tbody>
</table>

The team concluded that the piles deteriorate in diameter and condition as they near the surface of the water. This is most certainly due to the increased water and ice movement on the water’s surface. This deterioration pattern appeared to be similar at each dock.

*Figure 30: Piles of Glen Haven Dock, Present Day. (Courtesy of Ian Cundy)*
Summary and Conclusions
Surveying and researching the historical piers in Sleeping Bear Bay has produced a wide variety of archaeological findings, from new data collection techniques, to insights into economic history of the Sleeping Bear Bay region.

Most importantly, perhaps, this survey pinpointed the exact locations of Nessen Dock, Central Dock, and Fisher Dock. The Glen Arbor Community will be able to provide added safety precautions for boaters and other recreational users of the Sleeping Bear Bay. Due to constantly shifting shorelines and water levels, the docks could have posed serious safety hazards had their whereabouts remained unknown to the public.

Figure 31: Pile from Central Dock. (Courtesy of Ian Cundy)

From a data collection standpoint, this study played an integral part in educating and expanding the survey techniques available to both NMC’s Archaeology Club and the individual archaeologists working on the project. Through this study, the survey team and the club were exposed to the kind of planning and efficiency necessary for surveying exceptionally large sites, as well as a forum in which to practice these new techniques.
This study included four piers, spaced anywhere from a few hundred feet to nearly two miles apart, as well as a detailed documentation of approximately five miles of the Sleeping Bear Bay shoreline. All information gathered was used to create a single data file, representing an accurate spatial relationship between the piers. This aspect is typically not present when a complex site is broken down into simpler individual sites.

Additionally, this study provided a clearer understanding of the historical relationships and significance of the piers, not only to each another, but to the economic history of the Sleeping Bear Bay region as well. Together, the piers served mainly to service local lumber mills, at a time when the lumber industry was highly profitable. It is worth noting that for a large part of the history of these piers, all four were operating at the same time, with each utilized by a different lumber company.

Several lumbering endeavors were successful in this small, out of reach area—a feat largely attributable to the role of these docks within the community. As lumber’s economic impact on the region dwindled, the docks began changing hands as well as purpose. Ultimately, they fell out of use, all within a short period of one another.

If used properly, the results of this study of the historic piers in Sleeping Bear Bay and the opportunities it presents are quite promising. The piers that once helped drive the region’s economy in the 19th century can potentially offer renewed opportunities in the 21st century as an environmental and historic tourism attraction to the area, as the sites are just a snorkel away.

Figure 32: Unfavorable weather conditions made it difficult to capture a clear image of this pile from Central Dock. (Courtesy of Source ??)
Timeline of Survey

All surveying and associated fieldwork took place during June 2012

June 10:
Assessment of the first portion of the bay where the first dock was believed to be located. Upon discovering the remains of the dock, an assessment survey of the site was created, followed by a recording survey. Successfully surveyed Nessen Dock. Additionally, the team began surveying the shoreline of Sleeping Bear Bay on this day.

June 13:
Assessment survey of the second portion of the bay, where the second and third pier were rumored to be. After locating the docks, an assessment survey of the sites was created, followed by a recording survey for each dock. Both Fisher and Central Docks were successfully surveyed. The team continued survey of the Sleeping Bear Bay shoreline, as well.

June 14:
Weather conditions were not favorable, but the team was able to get measurements of the piles closer to shore, along with some underwater photography of the remnants of the piers. The team also surveyed four points of the previously surveyed Glen Haven Dock to use as reference points for the other docks.

June 15:
Shoreline survey completed successfully.

Figure 33: Pile from Nessen Dock, Present Day. (Courtesy of Ian Cundy)
Appendix A

Project Outline

Primary Goal:
To complete a detailed survey of the historic piers of Sleeping Bear Bay.

Objectives:
• Create safety plan that encompasses the entire project
• Locate and complete assessment surveys of each pier
• Adjust plan based according to findings
• Set up Total Station, ready equipment, and reassess safety plan
• Survey and photograph each pier
• Survey entire Sleeping Bear Bay shoreline
• Research local history of the area and of each pier
• Compile data into a monograph suitable for submitting to NAS

Tasks:
Dry Tasks:
• Consistently monitor safety procedures and conduct safety briefings
• Set up Total Station
• Choose and record the control points
• Survey the shoreline
• Photograph team, site, and items of interest
• Obtain oral histories from the locals regarding the piers
• Interview local historian John Triss for information regarding the piers
• Contact the lead historian at Empire Museum for additional information
• Create a log of dive records and document all other information in the field

Wet tasks:
• Conduct safety briefings
• Make sure everyone knows their diving buddy.
• Complete an assessment survey and draw up findings
• Create a plan to survey the site
• Photograph sites with scale when feasible
• Measure selected remnants for general size/diameter
• Survey as accurately as possible
Risk Assessment

- A risk assessment will be performed at the beginning of the project by Project Leader, Kristin Sweeting and Dive Safety Officer, Tim White.
- Risk assessments and safety briefings are to be conducted each time a new pier is surveyed to ensure the highest safety level possible throughout the project.
- Diving protocols will be followed, though this is a snorkeling site and no dive equipment will be used.

Equipment and Necessities

- Total station, staff and prism
- Google Earth
- Underwater drawing paper, clipboard, and pencil
- Underwater digital cameras and photo scales
- Walkie-talkies
- Dry suits/wet suits and snorkeling equipment
- Survey stakes
- Bottled water
- First Aid kit
- Oxygen kit

Publication and Presentation

- The results of these surveys will be distributed via the Internet on the [www.nasnmc.com](http://www.nasnmc.com) website.
- Copies will also be made available to Northwestern Michigan College and the state of Michigan.
Appendix B
Assessment Surveys

Assessment Survey of Glen Haven Dock (Courtesy Kristin Sweeting)
Assessment survey of Nessen Dock (Courtesy of Kristin Sweeting)

Sketch of pile at Nessen Dock (Courtesy of Kristin Sweeting)
Assessment survey of Central Dock (Courtesy of Kristin Sweeting)
Assessment survey of Fisher Dock
(Courtesy of Kristin Sweeting)
Appendix C
Control Point Positioning

Control Points 1, 2, and 3 in Relation to Central Dock

Control Point 4 in Relation to Fisher Dock
Control Point 5 in Relation to Glen Haven Dock
Appendix D
Total Station Data

Total Station Survey of Central Dock
Total Station Survey of Nessen Dock
Total Station Survey of Fisher Dock
Only the perimeter of the dock was surveyed given the extent of the project and the fact that it had already been surveyed. The black represents the pilings of the perimeter of the dock, and the blue represents the shoreline of Sleeping Bear Bay.
Total Station Survey of All Three Previously Unknown Docks

Key:
- Nessen Dock
- Central Dock
- Fisher Dock
- Boat Ramp
- Control Points
Total Station Survey of the Shoreline of Sleeping Bear Bay & All Four Docks

Key:
- Glen Haven Dock
- Nessen Dock
- Central Dock
- Fisher Dock
Appendix E
Additional Material

Nessen's Train. Later bought by D. H. Day and used to transport lumber.
(Source Unknown)

MISCELLANEOUS INTERESTS.

J. O. NESSEN.

Few men in the business world of Manistee are held in higher regard than the subject of this sketch, J. O. Nessen, president and general manager of the Nessen Transportation Co., with offices and docks at the foot of Oak street and greatly does he merit the high esteem in which he is held, for during his career in this vicinity he has illustrated what energy, ambition and perseverance can accomplish.

It would be difficult to find a transportation company which has attained success more rapidly than the Nessen Transportation Co. which owns and operates the steamers, Nessen, Neff, Rietz, Wente, Soper and others, including the well known and up-to-date Manistee Steamer which was recently purchased for the lake passenger service. In connection with passenger service this company makes a specialty of carrying freight and is noted for the quick service which is rendered. Only sixteen hours is consumed in the transportation of freight between points on the M. & N. E. R. R. and Milwaukee. This company is indeed a boon to this portion of the state and shippers are fortunate in being able to obtain such up-to-date service. Mr. Nessen is a friend to the laboring man and you will make no mistake in giving him your patronage.

Short article regarding J.O. Nessen. (Courtesy of “Official Year Book: Michigan Federation of Labor, 1906”)
Works Cited


Other References

Meriam-Webster Dictionary

Michigan Federation of Labor Yearbook, 1906