

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name: PEWABIC Shipwreck Site

Other names/site number: 20UH002

Name of related multiple property listing:

(Enter "N/A" if property is not part of a multiple property listing)

2. Location

Street & number: Thunder Bay, 6.5 Miles SE of Thunder Bay Island, Lake Huron

City or town: Alpena Township State: Michigan County: Alpena

Not For Publication: Vicinity:

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this x nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property x meets does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

national X statewide local

Applicable National Register Criteria:

X A B X C X D

<p>_____ Signature of certifying official/Title:</p> <p>_____ MI SHPO</p>	<p>_____ Date</p>
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<p>In my opinion, the property <u> </u> meets <u> </u> does not meet the National Register criteria.</p>	
<p>_____ Signature of commenting official:</p> <p>_____ Title :</p>	<p>_____ Date</p> <p>_____ State or Federal agency/bureau or Tribal Government</p>

PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

4. National Park Service Certification

I hereby certify that this property is:

- entered in the National Register
- determined eligible for the National Register
- determined not eligible for the National Register
- removed from the National Register
- other (explain:) _____

Signature of the Keeper

Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

- Private:
- Public – Local
- Public – State
- Public – Federal

Category of Property

(Check only **one** box.)

- Building(s)
- District
- Site
- Structure
- Object

PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

Number of Resources within Property

(Do not include previously listed resources in the count)

Contributing	Noncontributing	
_____	_____	buildings
<u>1</u>	_____	sites
_____	_____	structures
_____	_____	objects
<u>1</u>	_____	Total

Number of contributing resources previously listed in the National Register _____

6. Function or Use

Historic Functions

(Enter categories from instructions.)

TRANSPORTATION / WATER-RELATED

Current Functions

(Enter categories from instructions.)

LANDSCAPE / UNDERWATER / UNDERWATER SITE

PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

7. Description

Architectural Classification

(Enter categories from instructions.)

Other: Shipwreck-Propeller-Driven Passenger/Package Freight Steamer

Materials: (enter categories from instructions.)

Principal exterior materials of the property: Wooden hull and iron machinery

Narrative Description

Summary Paragraph

The wreck site of the 200-foot long wooden propeller-driven passenger/package freight steamer PEWABIC lies roughly 6.5 miles southeast of Thunder Bay Island and 18 miles east-southeast from the coastal town of Alpena, Michigan, in Lake Huron. PEWABIC was built in 1863 and sank in 1865 following a collision with steamer *Meteor*. The shipwreck site lies in between 155 and 175 feet of water. PEWABIC ran between Cleveland and the Keweenaw Peninsula in Lake Superior, where it dropped off miners, tourists, and supplies, and loaded copper that was strategic to the Union war effort.

Narrative Description

PEWABIC was built in 1863 by Peck and Masters in Cleveland, Ohio. Commissioned by J. T. Whiting, agent of the Pioneer Lake Superior Line, PEWABIC was designed to carry passengers and freight between Cleveland and Michigan's Keweenaw Peninsula, including carrying copper ingots back from the Keweenaw's copper mines in its hold. When launched, PEWABIC and *Meteor* were two of the best outfitted propeller-driven steamers on the lakes with elegant furnishings and the most modern technology and amenities. PEWABIC and *Meteor* departed Cleveland on reciprocal schedules, and often passed each other along Lake Huron (*Cleveland Morning Leader* 1865). Such was the case on the calm evening of August 9, 1865. After signaling to *Meteor* to pass to port, or keeping their left sides parallel, PEWABIC inexplicably heaved to its port side, and oncoming *Meteor* collided with it, its bow driving deep into

PEWABIC Shipwreck Site

Alpena, Michigan

Name of Property

County and State

PEWABIC's hull, just aft of the wheelhouse. PEWABIC and its 250 tons of native copper cargo, many of its 125 passengers, and the rest of its package freight cargo sank to the lake bottom in four minutes (*Erie Daily Dispatch* 1865). The death toll made the collision between PEWABIC and *Meteor* "Lake Huron's Worst Maritime Disaster" (*New York Times* 1865). The shipwreck is located off the northeastern Lower Peninsula of Michigan, 6.5 miles southeast of Thunder Bay Island and 18 miles east of the mouth of the Thunder Bay River in Alpena.

At 200 feet in length and 31 feet in beam, PEWABIC's dimensions were based on the navigable clearance at both the locks at Sault Saint Marie, Michigan, and the winding waters of the Portage River. PEWABIC was built at a cost of \$100,000, builders Peck and Masters providing unusually up-to-date passenger accommodations and the latest in propeller-driven propulsion technology: twin screws (Busch 1975). Henry Hobart, a passenger on an 1864 PEWABIC voyage, recounted his experience in his journal: "We are running fifteen or twenty miles an hour and the spray rolls away from our noble propeller in fine style as she cuts the water with her heavy load ... I should prefer to go on the PEWABIC to any boat on the lake" (Mason 1991:311). Inside, the elaborate main dining area hosted first-class meals and served as a dance floor once tables were cleared. PEWABIC's quality accommodations and cutting-edge propulsion technology made its collision with *Meteor* more tragic and shocking.

An important feature on PEWABIC's main deck are its engines: twin Cuyahoga 26.5" x 30" high pressure, inverted, direct-acting steam engines. The cylinder heads and boiler heads protrude from the main deck. One staircase through a hatch leads to the engine room beneath the main deck. The main deck also still contains material remains from passengers, cargo, and equipment.

PEWABIC's upright hull is buried in the sand and in good condition. The hull is 200' in length with a 31' beam. It rises between ten and eighteen feet above the sandy lake bottom and is largely coated by zebra and quagga mussels. Due to collision damage from *Meteor* and later salvage efforts focused on the bow, the stern section of PEWABIC is in better condition than the bow which features the collision damage and later damage caused by dynamite during salvage expeditions of 1897 and 1917. PEWABIC's two 8.5' square-bladed Loper propellers remain intact along with their vertical and horizontal reinforcing struts and stuffing boxes (Hartmeyer 2014:60). Between the propellers lays the wooden rudder, whose port orientation suggests that second-mate George Cleveland, operator of the vessel when it sunk, attempted to heave PEWABIC hard to port in the final seconds before the collision.

The rapid sinking and subsequent salvage expeditions are responsible for the absence of PEWABIC's first class cabins on the wreck itself. The cabin structure lies in disarticulate piles primarily off the starboard side of the wreck site. The main deck, however, remains intact for most of the vessel's 200' overall length. On the main deck rest two of PEWABIC's important structural features. A massive centerline arch on the vessel provided stem-to-stern rigidity that prevented hogging and sagging, a problem common in long wooden vessels. The arch was secured directly to the keelson assembly by long iron turnbuckles and a series of hanging knee/stanchion arrangements that retained the structure's strength and shape. The centerline arch rises six to eight feet above the main deck and ends abruptly sixty feet from the bow, just at the arch's peak (Hartmeyer 2014:63). The main deck also ends at this point on the shipwreck. The

PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

damage is attributed to dynamite used in 1897 and 1917 salvage expeditions. Looking back towards the stern from the bow, one can access the intact hold (beneath the main deck) which illuminates PEWABIC's construction style and likely contains a plethora of material culture buried beneath 1-4' of silt.

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B. Property is associated with the lives of persons significant in our past.
- C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

- A. Owned by a religious institution or used for religious purposes
- B. Removed from its original location
- C. A birthplace or grave
- D. A cemetery
- E. A reconstructed building, object, or structure
- F. A commemorative property
- G. Less than 50 years old or achieving significance within the past 50 years

PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

Areas of Significance

(Enter categories from instructions.)

MARITIME HISTORY

COMMERCE

ENGINEERING

ARCHAEOLOGY - HISTORIC

Period of Significance

1863-1865

Significant Dates

1863 (Launch)

8/9/1865 (Sinking)

Significant Person

(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

Non-Aboriginal

Architect/Builder

Peck and Masters, Cleveland

Statement of Significance Summary Paragraph

PEWABIC is eligible under Criterion A for its role in carrying passengers and freight — in the early years of the Keweenaw copper boom in Michigan’s Upper Peninsula, a nationally significant industrial period. PEWABIC helped facilitate the peopling of the Keweenaw region with Finnish, Irish, and Cornish immigrants. PEWABIC was one of few conveyance systems that Keweenaw mines could regularly rely on for copper and provision deliveries. During the Civil War, copper was an important wartime commodity that was only transported by Lake Superior-going vessels like PEWABIC. Part of PEWABIC’s significance lies in the survival of part of the cargo of Keweenaw copper ingots from its last voyage down bound toward Cleveland. Its final cargo spurred a century-long history of salvage as famous divers and inventors competed over dive suit designs that were all built to salvage PEWABIC. PEWABIC is also eligible under Criterion C as a rare example of a unique Great Lakes vessel type, the wooden passenger/package freight propeller. The hull structure and machinery remains have the potential

PEWABIC Shipwreck Site

Alpena, Michigan

Name of Property

County and State

to yield important information about Great Lakes' wooden passenger/package freight propeller vessels, once a prominent feature of Lake Superior shipping but now non-existent except for a very few preserved as shipwrecks in deep waters in the Great Lakes. Therefore, PEWABIC is also eligible under Criterion D for its potential to yield additional historical and archaeological information about this transitional vessel type.

Narrative Statement of Significance

Criterion A: Maritime History

Though PEWABIC only had a two year career, its valuable copper cargo kept the steamer in the media limelight throughout the nineteenth and twentieth centuries. Marine salvagers arrived in Alpena within months after the collision. Due to its inherent danger, lucrative payouts, and competitive market, deep water marine salvage in the nineteenth and early twentieth centuries attracted vibrant personalities who vied for investor attention with homebuilt equipment. High profile shipwrecks like PEWABIC attracted salvagers from across the country and after the first few dives ended in fatalities, salvaging the copper cargo was as much about bravado as financial gain.

Billy Pike was the first diver on scene but died from decompression illness after his surface crew rapidly brought him to the surface after a twenty-minute dive (Richards 1939). Pike was using traditional hard-hat dive equipment developed in the 1830s. Unfortunately for Pike, the general lack of knowledge surrounding deep diving and the physiological effects of breathing air under extreme pressure were directly responsible for his death.

Pike's death left PEWABIC undisturbed until 1891, when inventor and Minnesota native Oliver Pelkey revealed his patented dive suit developed specifically for the PEWABIC salvage. The suit was constructed of an inner layer of metallic armor rings, which were shaped to fit the contours of the body. Screws then attached metallic armor plates over the ring skeleton. Lastly, a thick outer layer made of vulcanized rubber covered the metallic skeleton (Pelkey 1889:3). Pelkey's strategy was to keep the diver dry, and be able to retain flexibility with the many moving parts. During his first dive, however, Pelkey became tragically entangled in the wreck. After not responding to surface signals on his umbilical hose, the surface crew cleated off his air supply line and wrenched him from the wreck. They quickly recovered the suit, and Pelkey died on the wrecking barge in front of investors.

One of Pelkey's rival marine inventors, E. H. Brault, arrived with his own patented dive-suit in 1892. PEWABIC had become a salvage training ground. With each fatality came more reward and glory for the inventor to reach PEWABIC first. Like Pelkey's suit, Brault's invention featured a layered design with an inner metallic skeleton, but the armor plates were fewer in number. Brault's patent illustrates the rising concern over pressure at depth. His breastplate and torso assembly is much stronger than Pelkey's, and was built with fewer interlocking pieces (Brault 1891:1). Additional upgrades include the helmet-mounted incandescent light and speaking tube. Brault became the first diver to see PEWABIC after a dive to 147 feet for 43 minutes but came up due to frigid water temperatures and a poor air-delivery system. Despite his

PEWABIC Shipwreck Site

Alpena, Michigan

Name of Property

County and State

success, Brault mysteriously disappeared days after the dive. Rumors hold financial complications between Brault and his chartered wrecking barge responsible. While Brault became the first diver to see PEWABIC, it remained unclear how salvagers were to extract the copper.

Gordon W. Smith is credited as the first person to salvage PEWABIC in an expedition during the summers of 1896, 1897, and 1898. Smith designed a two-person diving bell specifically for PEWABIC. Outfitted with grapple hooks, adjustable iron feet, and thick glass portholes, the bell successfully recovered 50 tons of copper. Smith used the bell as a director for clam-bucket operators at the surface. Smith watched the bucket descend on the wreck and guided the surface crew around different parts of the vessel. Smith's luck ended when one of the portholes cracked and flooded the bell (*Alpena Weekly Argus* 1898). The double fatality promptly ended the three-year expedition and PEWABIC remained in the shadows until high copper prices during World War I brought B. F. Leavitt to Alpena.

Benjamin F. Leavitt was PEWABIC's most enterprising suitor. In October 1916 he set the world diving record to 361 feet in Grand Traverse Bay in Lake Michigan (*Scientific American* 1920:46). Leavitt quickly received investor backing to head to Alpena. Nicknamed the "iron duke," Leavitt's suit was cast of manganese bronze and was a true one-atmosphere suit. The one-piece dive suit kept the diver inside at surface pressure, allowing him to remain at the lake bottom for extended periods. Leavitt also installed an air-recycling system mounted on the back of the suit; it operated similar to a modern-day closed-circuit rebreather. Exhaled air traveled through a caustic medium that absorbed carbon dioxide and the air mixture was then supplemented by oxygen stored in a small pony tank (Leavitt 1920). The rebreather system sustained life for four hours. Leavitt's suit was just the second one-atmosphere suit developed in the United States and represents a breakthrough in deep diving technology and understanding of pressure (Figure 1).

Over the course of the summer 1917 Leavitt salvaged 70 tons of copper, 50 tons of iron ore, 140 sides of leather, and a vast collection of cultural material (*Alpena News* 1917f). Leavitt also utilized a clam bucket that was responsible for most of the recovered items. Leavitt used his success on PEWABIC as a springboard into further salvage ventures and went on to conduct noteworthy cargo recoveries in deep waters off Alaska and Chile including an expedition to RMS LUSITANIA off Old Head of Kinsale, Ireland (*Bridgeport Telegram* 1922).

PEWABIC's longest dormant stage was between 1918 and 1974, when Michigan's Department of Natural Resources granted Saginaw resident Gregory Busch a salvage permit for PEWABIC (Busch 1975:75). Using modern scuba equipment Busch recovered most of the remaining copper and some significant artifacts including the anchor.

PEWABIC's century-long salvage history kept the vessel in the forefront of local, regional, and national media outlets with each diving fatality and salvage attempt. National headlines "The Curse of the Copper" and "Lake Huron's Death Ship" kept the shipwreck in the forefront of American marine exploration and treasure hunting.

PEWABIC Shipwreck Site

Alpena, Michigan

Name of Property

County and State

As a salvage training ground PEWABIC attracted inventors from all parts of the country to test their dive apparatuses. PEWABIC's location in freshwater and valuable copper cargo made it the perfect site to demonstrate their units and win investor support for future salvage projects. Due to the early lack of salvage infrastructure and appropriate equipment and extreme risk, the marine salvage industry remains a close-knit industry. Throughout the nineteenth and twentieth centuries marine salvagers and undersea exploration inventors have needed to travel all over the world in search of potentially-profitable shipwreck sites in the safest-possible environments. Significant historical data can be gleaned on the equipment, players, and industry climate from future research into PEWABIC's salvage history.

Since 1974 PEWABIC has been visited and occasionally pilfered by wreck divers. Maritime archaeologists became interested in PEWABIC as it lay within the boundaries of the Thunder Bay National Marine Sanctuary. Recent research efforts have focused on video, photo, and manual documentation, and remote sensing surveys (Figures 2, 3, 4, 5, 6). Sanctuary personnel visit the site every few years for additional monitoring, but its location near the western Lake Huron shipping lane presents additional problems for site visitation. Research has focused on monitoring site preservation and deducing effects of particular salvage expeditions from the status of the shipwreck.

Criterion A: Commerce

PEWABIC and other passenger/package freight propellers were essential to the commercial, social, and industrial development of the Keweenaw Peninsula, an isolated region with national economic importance. Railroads through the Keweenaw Peninsula did not arrive until the 1880s, leaving regional development and provisioning between 1843-1880 up to Lake Superior-bound vessels. PEWABIC was one of the few vessels serving this northern maritime frontier and thus facilitated development along the southern Lake Superior coast. It connected urban America with the northern frontier by bringing tourists, immigrant laborers, and provisions north and returning with profitable copper and other cargoes in considerable quantities. Most importantly, PEWABIC made stops at both large (Houghton, Copper Harbor) and small (Ontonagon, Bayfield) ports, servicing the needs of both developed copper towns and rural hamlets.

On August 9, 1865, PEWABIC was steaming downbound off Alpena, Michigan, on its seventh trip of the summer season after a successful trip to the Keweenaw. First class excursionists were the primary passenger class on board. Beneath the first class cabins lay PEWABIC's mixed cargo of copper (131 tons from Quincy Mine, 45 tons from Ontonagon, 25 tons from Central Mine, 65 tons from the Portage Lake Smelting Works, 1 ton from Smith Harris), 179 tons of iron ore, half barrels of fish (202 from Detour, 20 from Ontonagon), 200 ships knees, 2 ½ tons of potash from Portage, and 27 rolls of leather from Ontonagon (Dismond 1955). The copper on board PEWABIC alone was worth \$195,000 in 1865. That evening PEWABIC collided with METEOR and dozens of passengers and the valuable mixed freight cargo were sent to the lake bottom.

PEWABIC Shipwreck Site

Name of Property

Alpena, Michigan

County and State

PEWABIC carried a variety of goods north bound and south bound. Its copper cargo on its final voyage was worth \$195,000 in 1865 alone. Coupled with the value of other cargoes such as iron ore, leather, ship knees, and barreled fish, PEWABIC was laden with market goods that facilitated continued growth along the Keweenaw Peninsula. PEWABIC contributed to the Great Lakes economy in cultural ways as well. It brought numerous Finnish, Cornish, and Irish immigrants to the Copper Country to work in the region's mining operations. Profits were made from first class passengers as well, who stayed in hotels while at port. Unlike most vessels that specialized in carrying one type of good, whether iron ore, grain, or people, PEWABIC profited from many industries and carried a wide range of consumables and people on every voyage. Thus its fingers of influence stretched far and wide as a carrier for multiple interests.

PEWABIC is nationally significant and eligible under Criterion A for its direct role in facilitating copper transport for the Union war effort between 1863 and 1865. The metal was used for canteens, buttons, pots and pans, and wooden vessel sheathing. Despite the geographical separation between the Keweenaw Peninsula and the front lines, copper's importance was so great that Confederate sabotage operations were a constant threat to merchant vessels on the lakes. Since railroads did not connect the Keweenaw Peninsula with the Lower Lakes until the 1880s, passenger/package freight propellers like PEWABIC were one of few means for Keweenaw copper to reach the mills and factories that produced goods vital for the Union war effort (Figure 7).

Criterion C: Engineering

Because PEWABIC was tasked with facilitating numerous cargo types as well as conveying passengers, builders Peck and Masters outfitted the vessel with cutting-edge technology while partitioning passenger and cargo spaces to maintain both the comfort and amenities of a passenger line and the utility of a freighter. Each square foot of the vessel was utilized by passenger accommodations, cargo space, or vessel equipment. Its sleek dimensions permitted PEWABIC to pass through the locks at Sault Ste. Marie connecting the lower Great Lakes with Lake Superior. Due to the increased risk of leaking, wooden steamers were rarely outfitted with twin screws, which PEWABIC features. To date, PEWABIC is the only known passenger/package freight propeller surviving with a centerline arch in a high level of historic preservation.

Wooden hulls with twin screws were a transitional vessel design on the lakes that were only built between 1860 and 1880. Though steam propulsion was not as quickly adopted on the Great Lakes as it was on the Atlantic seaboard, engine technology evolved at a rapid pace. Between 1818 when WALK ON THE WATER was launched as the first steamer on the Great Lakes and 1863 when PEWABIC was launched in Cleveland, several significant developments occurred in engine technology that had national implications on shipbuilding on the east and west coasts of the United States. First, early to middle nineteenth century sidewheel steamers, or sidewheelers, utilized walking beam low pressure engines which were very large, consumed substantial amounts of fuel, and had wide beams that prevented them from entering most locks and canals.

PEWABIC Shipwreck Site

Name of Property

Alpena, Michigan

County and State

After the Panic of 1857 these luxurious passenger carriers were too expensive to maintain and most were scrapped.

The issues of engine size, required fuel caches, and wide profiles led shipbuilders to experiment with screw propellers whose engines were more space and fuel efficient which granted more room for profitable passengers and package freight cargoes especially. The adoption of the screw propeller was especially popular for the Lake Superior trade which was only made accessible in 1855 with the construction of the locks at the Saint Mary's River. The locks had major implications for the iron ore and copper industries of Michigan's Upper Peninsula and within weeks shipbuilders were contracted to build sleek wooden propellers that were built to the dimensions of the locks and could carry both passengers and package freight. The most elegant of this new purpose-built vessel was PEWABIC. Built just 8 years after the locks opened, PEWABIC was bringing east coast mining investors, provisions, and excursionists during Lake Superior's frontier settlement phase.

PEWABIC was equipped with a rare screw propeller system that had two independent engines, and not the conventional one. The two screws provided redundant propulsion systems should one engine malfunction in the remote Lake Superior region. Twin screw vessels also drew less water, or had a shallower draught than comparable single screw vessels. Propellers on a twin screw were smaller in diameter and could be "tucked" higher underneath the stern. Reduced draught was advantageous in the sandbar-ridden small ports that PEWABIC visited that were not regularly dredged or had federal appropriations to do so. These advantages of twin screws illustrate that PEWABIC was built specifically for the wild, remote Lake Superior landscape.

Twin screws did not get popular until they were outfitted in steel-hulled vessels. The sternpost is the strongest aft timber on wooden vessels and was the logical choice to be bored through with a single propeller shaft. Twin screws are offset from the centered sternpost and require more creativity in how they are supported internally. Internal support systems were crucial in harnessing and deflecting shaft vibration to the hull and preventing friction. Propeller shafts on wooden hulls required constant attention and lubricating as minutes of dry friction could produce enough heat to start a fire. Little has been researched on the mechanical arrangement of twin screws on wooden hulls and the subject poses an excellent research question for future inquiry on PEWABIC.

Twin screws did not become popular on the Great Lakes until the advent of the steel hull. Steel-hulled designs were much stronger and could withstand the torque and power generated by twin engine systems that were increasing in horsepower and complexity. PEWABIC was built at the onset of twin screw technology, but still with a wooden hull: a rare combination illustrative of PEWABIC's transitional vessel identity. Because few of these vessels were built, little is known about their construction. The engineering features make PEWABIC exceptionally unique, possessing high levels of integrity and worthy of National Register nomination. Its unique design, significant workmanship as a transitional vessel with a rare combination of technologies, and consistent materials that were used in PEWABIC's initial construction in 1863 highlight its high level of integrity under Criterion C. Because PEWABIC was only afloat for three years its physical remains, as a shipwreck site, visually convey its significance as a transitional vessel

PEWABIC Shipwreck Site

Name of Property

Alpena, Michigan

County and State

type with few other examples in existence. Further study will contribute to our national understanding of the evolution of steamship technology as outlined in Criterion D below.

Criterion D: Historical and Archaeological Potential

Due to its long documented salvage history, PEWABIC is of notable archaeological interest. The available salvage records allow the archaeologist to retrace significant events in PEWABIC's post-wrecking history. Plenty of artifacts remain buried in the silt on the wreck site as well, particularly off the starboard side. Disarticulate boards, planking, and cabin remains suggest this debris pile was created by dynamite usage in the salvages of 1897 and 1917.

PEWABIC is also a gravesite. Conservative death estimates range between 33 and 40, while inflated numbers cite up to 125 persons died in the collision. Even the conservative estimates, however, give PEWABIC's collision with *Meteor* the title of "Lake Huron's Worst Maritime Disaster" (*New York Times* 1865). Passenger remains and personal effects are likely buried under the debris pile beside the hull and would provide insights into the people that walked its decks on its last voyage in 1865. Champagne bottles, silver spoons, and elegant personal effects have already been recovered from PEWABIC (Figure 8).

Few examples of wooden passenger/package freight propellers exist because the vessel class was built during the transition from wood to metal hulls. They were made obsolete by 1900 and many were converted into barges, floating docks, or dismantled altogether. PEWABIC is a unique example of this vessel class, frozen in time by deep, cold water in excellent preservation. Its combination of rare structural features like the twin screws and centerline arch further elevate its importance in the catalog of nineteenth-century Great Lakes vessels.

Unfortunately, PEWABIC is still negatively impacted by the sport diving community. During dives in July 2014, archaeologists from the Thunder Bay National Marine Sanctuary recreated photographs taken on the shipwreck site from 2005 and 2013. Their objective was to obtain comparable visual data of the site's formation process. Among other observations of quagga mussel colony expansions and evidence of rogue mooring systems was the disturbing reality of artifacts being moved and/or taken from the site. Figure 5 shows a human bone next to a block, five copper ingots, a broken pitcher base and some tableware resting on part of the railing amidships. This photograph was taken in 2005. In 2014 archaeologists took another photograph of the same area and discovered that the five ingots, block, pitcher base, tableware and human bone have been moved or taken from the site.

These two photographs offer evidence that despite present levels of federal (NOAA) and state (Michigan) legislative protection, PEWABIC (and others) continue to be disturbed. PEWABIC's position on the National Register of Historic Places adds an additional level of protection and further recognizes PEWABIC as a site of historical and archaeological importance.

PEWABIC retains excellent physical integrity and presents a rare opportunity to answer important archaeological questions about the short-lived wooden passenger/package freight propeller vessel class. How did builders integrate twin screws in wooden hulls? Are the propeller

PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

shafts considerably higher on the vessel than a contemporary single screw bored out the sternpost? How were centerline arches anchored to the keelson assembly? Did centerline arches present any additional fire threat to the vessel? How did shipbuilders consolidate twin boilers out to one smokestack? How does PEWABIC's twin screw arrangement compare with steel-hulled twin screws that became popular on the Great Lakes in the early twentieth century? These questions have national importance to grow our understanding of the evolution of the steamship.

There is no official record of Great Lakes wooden shipbuilding or construction plans for PEWABIC and its sister vessels. Information gathered from PEWABIC's shipwreck site has, and will continue to produce a wealth of knowledge about this transitional vessel type that had regional importance as a deliverer of settlement provisions and workers and national importance as a vessel that brought Keweenaw copper into the national market for wartime, domestic, and industrial uses.

PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

9. Major Bibliographic References

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- 1917b Leavitt Locates Hulk of Pewabic, Brings Up Pieces of Sunken Treasure Ship Off Thunder Bay. *Alpena News* June 26.
- 1917c Raise Stove from Pewabic, BF Leavitt and Crew Are Pleased at Progress Made on Treasure Ship. *Alpena News* June 29.
- 1917d Pewabic Curios Attract Many, Bottom of Diving Bell Used in Previous Expedition Is Recovered By Leavitt. *Alpena News* June 30.
- 1917e The Scow Meagher Just Back from Scene of the Pewabic Wreck with Fresh Load of Curios of Many Kinds Was the Center of Attention Along Riverfront. *Alpena News* July 7.
- 1917f Pewabic Safe Is Brought Up, Contains Paper Money and Jewelry. *Alpena News* July 10.
- 1917g Old Newspapers Tell of Loss of Steamer Pewabic. *Alpena News* July 14.
- 1917h Five Tons of Pewabic Copper Lifted in One Solid Mass. *Alpena News* July 26.
- 1917i Woman on Sugar Island at Time of Wreck First to Visit Pewabic Show. *Alpena News* July 27.
- 1917j Leavitt Quits Pewabic Work, Gets 70 Tons Copper, Unclear Weather Conditions Hampering Operations. *Alpena News* August 17.
- 1918 Arrive to Go After Pewabic Copper Again, Leavitt Diving Armour Co. Brings Own Steamer This Year. *Alpena News* June 27.
- 1934 Storms Rode the Lakes with Heavy Toll. *Alpena News* November 21.
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- 1974a Launch New Effort to Recover Copper from Pewabic. *Alpena News* July 12.
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PEWABIC Shipwreck Site

Name of Property

Alpena, Michigan

County and State

Alpena Weekly Argus

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PEWABIC Shipwreck Site

Name of Property

Alpena, Michigan

County and State

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PEWABIC Shipwreck Site

Alpena, Michigan

Name of Property

County and State

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Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # _____

PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

_____ recorded by Historic American Engineering Record # _____
_____ recorded by Historic American Landscape Survey # _____

Primary location of additional data:

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository: Charles P. Labadie Collection at the Alpena County Public Library

Historic Resources Survey Number (if assigned): 20UH002

10. Geographical Data

Acreage of Property: 33.42 acres

Latitude/Longitude Coordinates

Datum if other than WGS84: _____

(enter coordinates to 6 decimal places)

- | | |
|--------------------------------|-----------------------|
| 1. Latitude: 44.965061 (Bow) | Longitude: -83.102437 |
| 2. Latitude: 44.965390 (Stern) | Longitude: -83.102846 |

Boundary Box Coordinates:

- | | |
|---|-----------------------|
| 1. Latitude: 44.966656 (Northwest Corner) | Longitude: -83.104825 |
| 2. Latitude: 44.963373 (Southwest Corner) | Longitude: -83.104726 |
| 3. Latitude: 44.963444 (Southeast Corner) | Longitude: -83.100037 |
| 4. Latitude: 44.966772 (Northeast Corner) | Longitude: -83.100180 |

Verbal Boundary Description

PEWABIC rests 18 miles east of the mouth of the Thunder Bay River in Alpena, Michigan and 6.5 miles southeast of Thunder Bay Island at a depth of 155-175 feet of water and. The vessel's remains lie in Michigan waters and are in the boundaries of the Thunder Bay National Marine Sanctuary. The bow is located at latitude 44.965028 longitude -83.102015 and the stern is located at latitude 44.965390 longitude -83.102846. The boundaries of the wreck site are defined by a rectangle extending out from the tip of the bow and stern and out

PEWABIC Shipwreck Site

Alpena, Michigan

Name of Property

County and State

from the edges of the vessel's sides amidships. This rectangle surrounds all sides of the main hull structure, encapsulates the vessel's original dimensions of 200' long by 31' of beam, and marks the entirety of the vessel's remains including hull structure, machinery, artifacts, and debris field associated with the sinking event. The area of the boundary box is 33.42 square acres. The northwest corner is located at longitude -83.104825 latitude 44.966656. The southwest corner is located at longitude -83.104726 latitude 44.963373. The southeast corner is located at longitude -83.100037 latitude 44.963444. The northeast corner is located at longitude -83.100180 latitude 44.966772.

Boundary Justification (Explain why the boundaries were selected.)

The National Register boundaries of the PEWABIC shipwreck encompass the footprint of its articulated remains within the coordinates listed above to capture the wreck site, hull structure, machinery, associated artifacts, and debris field. Side scan sonar, remotely operated vehicle, and diver surveys conducted by the Thunder Bay National Marine Sanctuary revealed the extents of the PEWABIC's hull structure, machinery, and associated artifacts are centralized in the coordinates previously listed. The justification for the 1300' x 1300' boundary box surrounding the main hull structure is that the PEWABIC, like the majority of vessels involved in collisions that resulted in a sinking event, has a scattered debris field that disperses away from the main hull as the ship settled in deeper water. The examination of this debris field in the future may yield information important to history, and provide information about shipboard life, vessel design, use, adaptation, cargo stowage, and PEWABIC's wrecking event.

11. Form Prepared By

name/title: Philip A. Hartmeyer/Maritime Archaeologist
organization: Thunder Bay National Marine Sanctuary
street & number: 500 West Fletcher
city or town: Alpena state: Michigan zip code: 49707
e-mail: phil.hartmeyer@noaa.gov
telephone: (925) 286-9648
date: January 11, 2016

PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A USGS map or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Additional items:** (Check with the SHPO, TPO, or FPO for any additional items.)

Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

- | | |
|---------------------|---|
| Photograph/Figure 1 | B. F. Leavitt, Historic Photograph
Name of Photographer: <i>Thunder Bay Sanctuary Research Collection</i> , Alpena, MI
Date of Image: 1917
Location of Digital Image: Patrick C. Labadie Collection, Alpena, MI
MI_Alpena_Pewabic Shipwreck Site_0001 |
| Photograph/Figure 2 | PEWABIC, Site Plan
Name of Author: Patrick C. Labadie
Date of Image: 2009
Location of Digital Image: Thunder Bay National Marine Sanctuary, Alpena, MI
MI_Alpena_Pewabic Shipwreck Site_0002 |
| Photograph/Figure 3 | PEWABIC, Side Scan Sonar Image
Name of Author: National Oceanic and Atmospheric Administration
Date of Image: 2013
Location of Digital Image: Thunder Bay National Marine Sanctuary, Alpena, MI |

PEWABIC Shipwreck Site

Alpena, Michigan

Name of Property

County and State

MI_Alpena_Pewabic Shipwreck Site_0003

Photograph/Figure 4

PEWABIC, Photo Mosaic

Name of Author: National Oceanic and Atmospheric Administration

Date of Image: 2005

Location of Digital Image: Thunder Bay National Marine Sanctuary, Alpena, MI

MI_Alpena_Pewabic Shipwreck Site_0004

Photograph/Figure 5

PEWABIC, Photograph of copper and human remains on deck

Name of Author: National Oceanic and Atmospheric Administration

Date of Image: 2005

Location of Digital Image: Thunder Bay National Marine Sanctuary, Alpena, MI

MI_Alpena_Pewabic Shipwreck Site_0005

Photograph/Figure 6

PEWABIC, Photograph of fan-tail stern

Name of Author: National Oceanic and Atmospheric Administration

Date of Image: 2012

Location of Digital Image: Thunder Bay National Marine Sanctuary, Alpena, MI

MI_Alpena_Pewabic Shipwreck Site_0006

Photograph/Figure 7

PEWABIC, Historic Photograph

Name of Author: *Thunder Bay Sanctuary Research Collection*

Date of Image: 1864

Location of Digital Image: Patrick C. Labadie Collection, Alpena, MI

MI_Alpena_Pewabic Shipwreck Site_0007

Photograph/Figure 8

PEWABIC, Excursion Advertisement

Name of Author: *Thunder Bay Sanctuary Research Collection*

Date of Image: 1864

Location of Digital Image: Patrick C. Labadie Collection, Alpena, MI

MI_Alpena_Pewabic Shipwreck Site_0008

PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

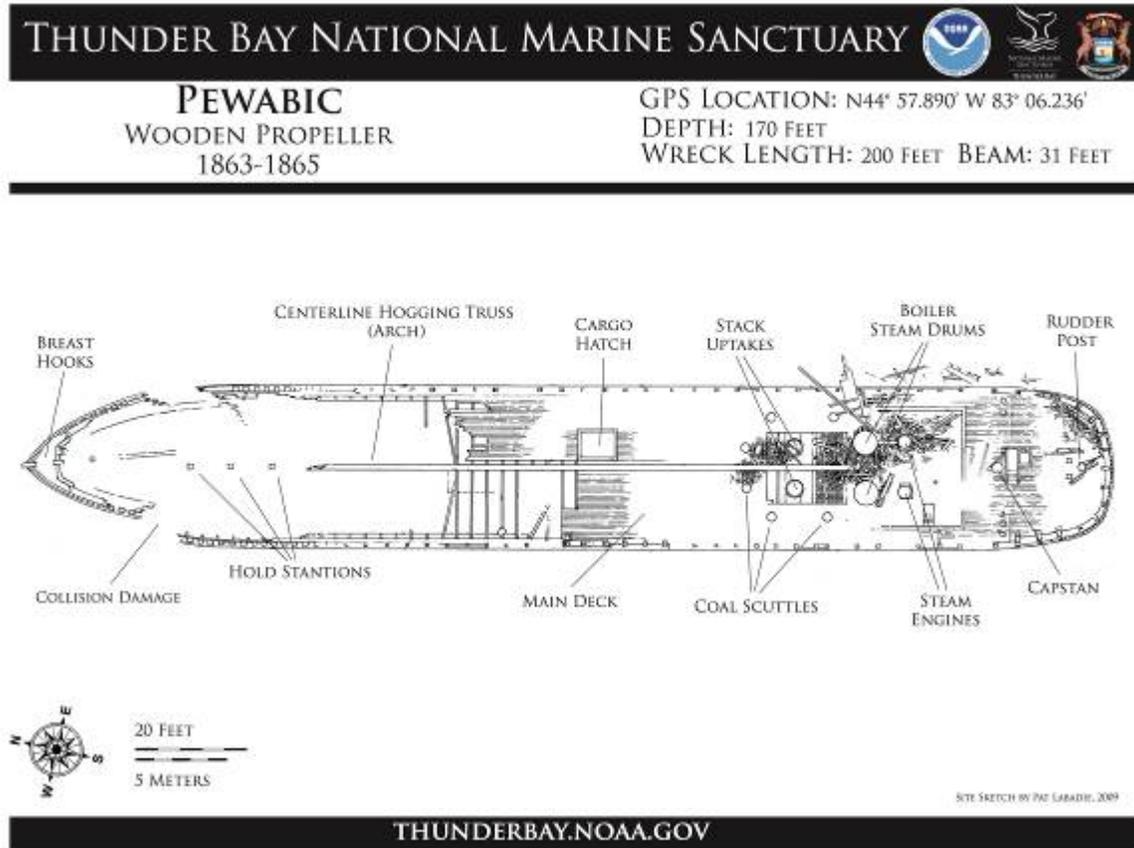
Figure 1:



PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

Figure 2:



PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

Figure 3:

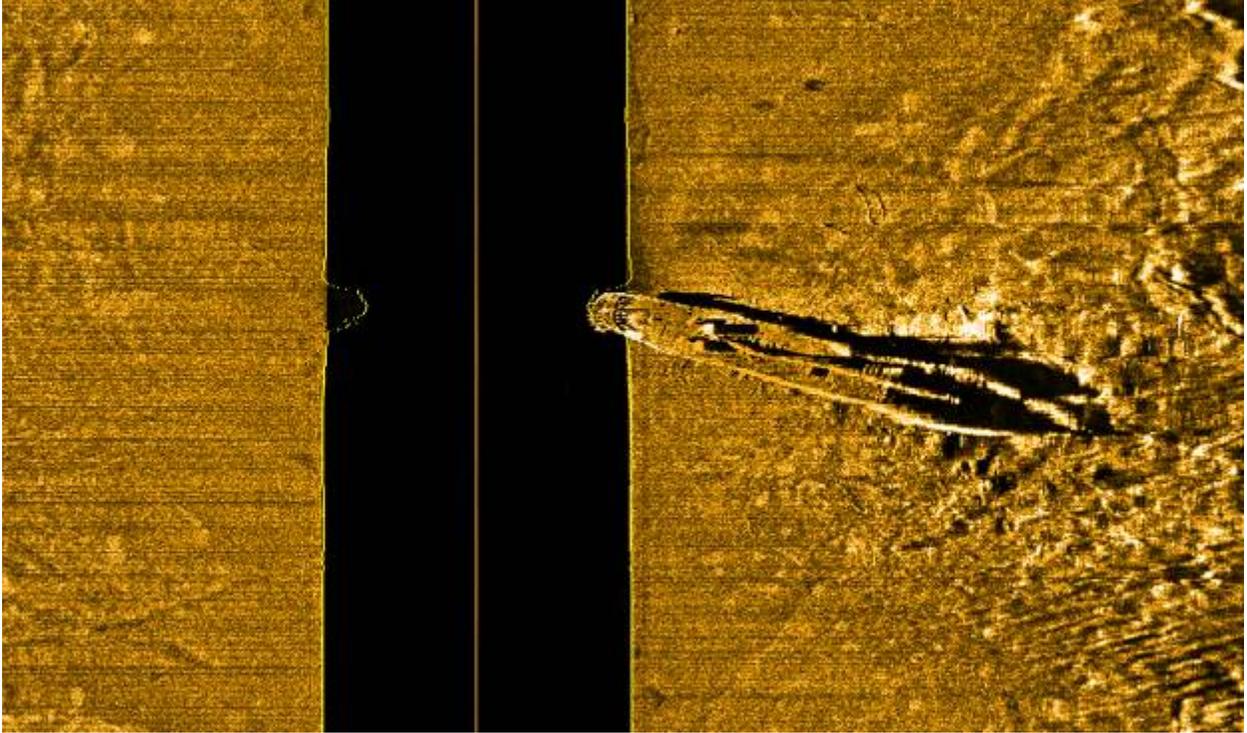
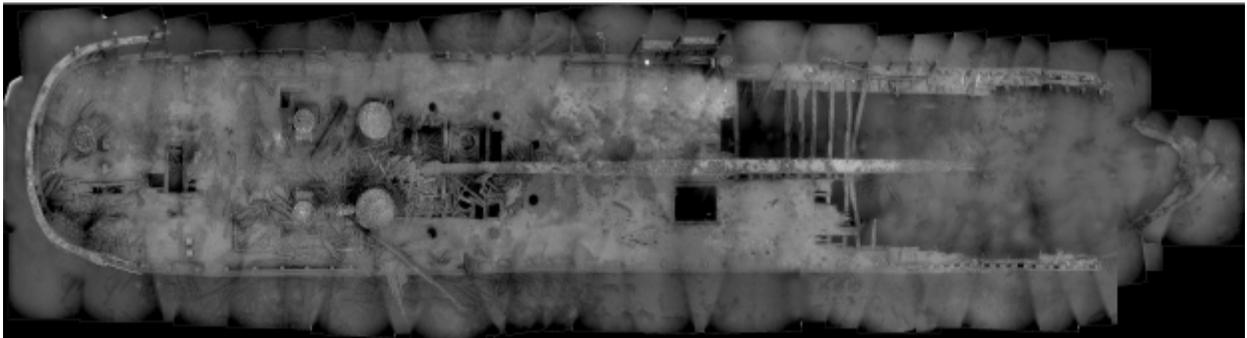


Figure 4:



PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

Figure 5:



PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

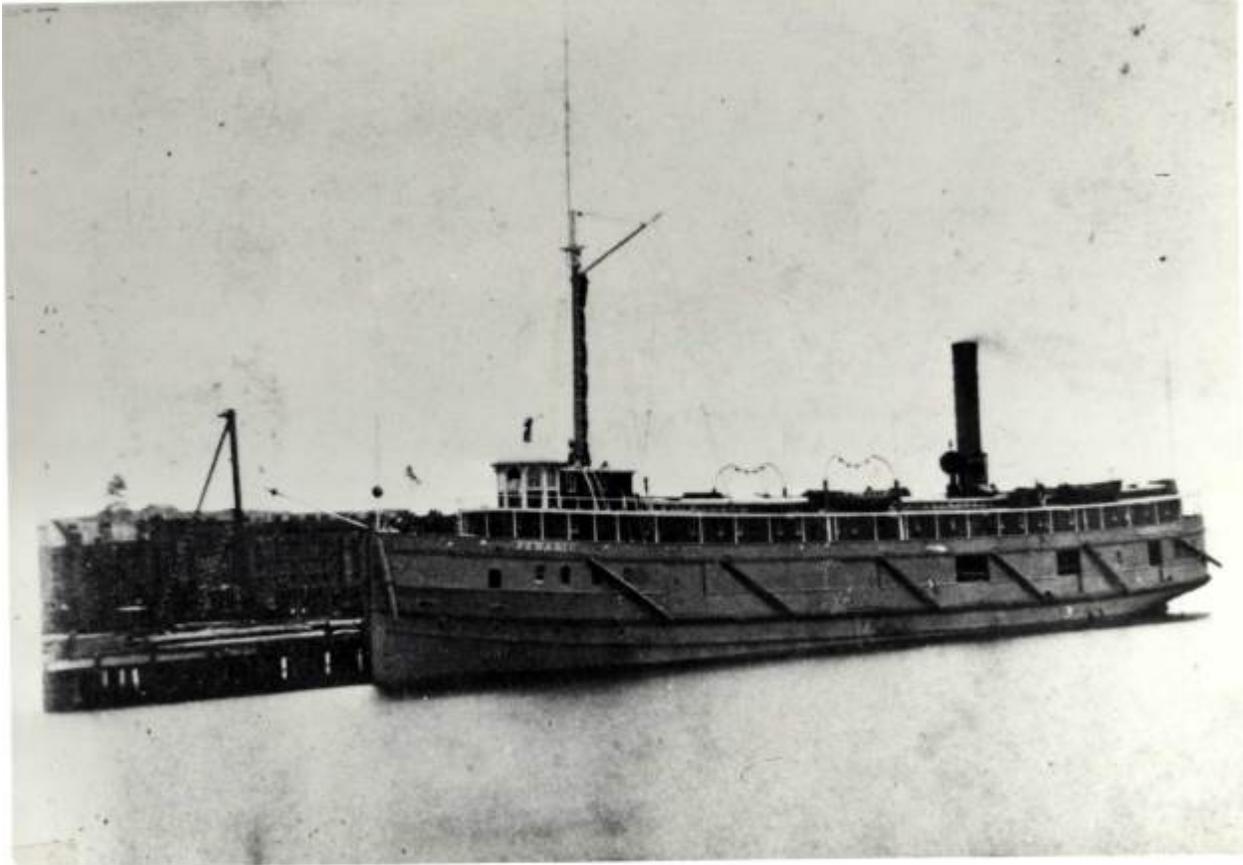
Figure 6:



PEWABIC Shipwreck Site
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Alpena, Michigan
County and State

Figure 7:



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Alpena, Michigan
 County and State

Figure 8:

174 STEAMBOAT ROUTES.

PIONEER LAKE SUPERIOR LINE.



The New and Magnificent Upper Cabin Steamers

METEOR,	PEWABIC,
THOS. WILSON, Master,	GEO. McKAY, Master.
Will leave Cleveland, 8 P. M. Mondays.	Will leave Cleveland, 8 P. M. Mondays.
June..... 26	July.....3, 17, 31
July.....10, 24	August..... 14, 28
August..... 7, 21	September..... 11, 25
September..... 4, 18	October..... 9
October..... 2	

Leaving DETROIT on the day following the above named, at 2 O'CLOCK P. M., calling at PORT HURON and SARNIA the same evening.

This is the most pleasant, healthful, and cheapest trip on the American Continent.

The within-named favorite boats will run as advertised during the season of 1865. They are officered by men of long experience on the route, who will devote themselves to the comfort and safety of passengers.

No one should fail to visit this new, growing, and wonderful country. Its immense mineral deposits are attracting the attention of the whole scientific world. Its immense mountains of almost pure Iron, its inexhaustible Native Copper and Silver Mines, the new discoveries of Silver Lead, and that magnificent and singular formation, the Pictured Rocks, form a series of irresistible attractions to the speculator and geologist. The cool and bracing atmosphere suggests recovery of perfect health to the invalid, and the sportsman, with his rod and line, will find abundant recreation in angling for the beautiful speckled trout, in the finest fishing streams in the world.

This Trip, of over 1,000 miles, embraces six degrees of latitude and eleven of longitude, and includes in its circuit Lakes Erie, St. Clair, Huron, and Superior, and the beautiful rivers Detroit, St. Clair, and Ste. Maries.

Grand Pleasure Excursions to all points of interest on Lake Superior will be made through the months of July and August—leaving Cleveland and Detroit on the days as before stated.

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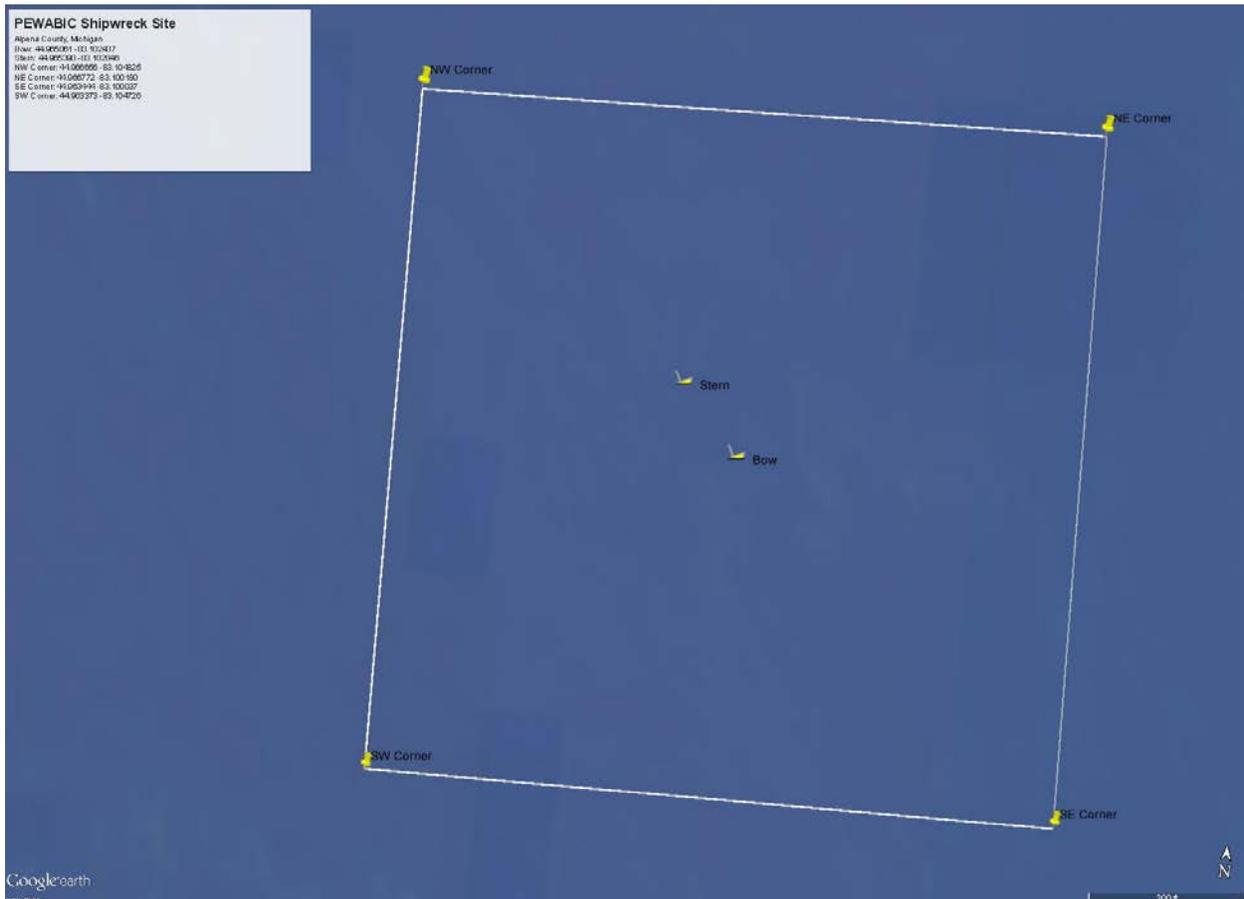
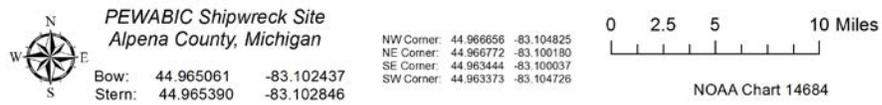
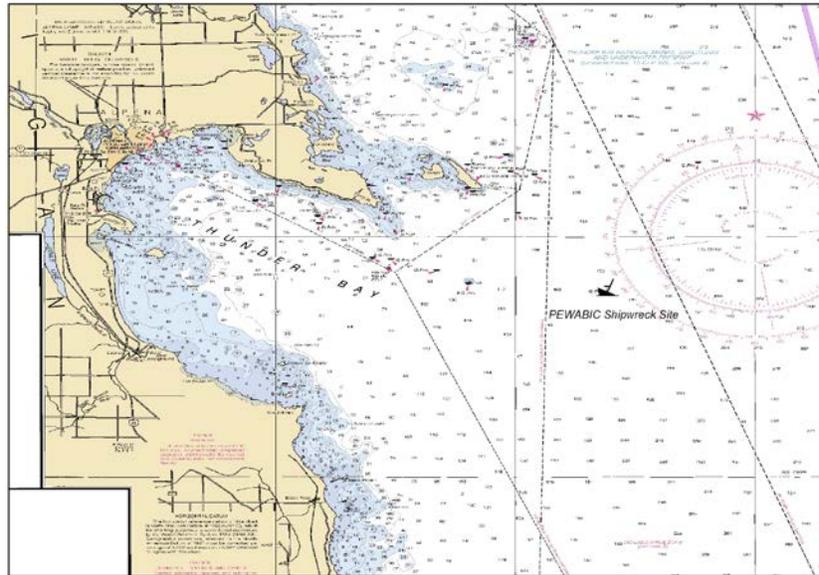
GARRETSON & CO.,
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PEWABIC Shipwreck Site
 Name of Property

Alpena, Michigan
 County and State



PEWABIC Shipwreck Site
Name of Property

Alpena, Michigan
County and State

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