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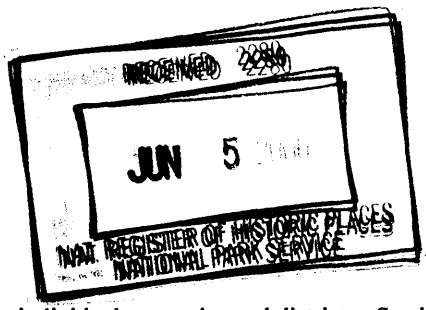
NPS Form 10-900
(January 1992)
Wisconsin Word Processing Format (Approved 1/92)

OMB No. 10024-0018

United States Department of 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 *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an 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. Place additional entries and narrative items on continuation sheets (NPS Form 10-900A). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name "Ocean Wave" Shipwreck
other names/site number N/A

2. Location

street & number	2 miles off Whitefish Point				N/A	**not for publication**	
city or town	Lake Michigan				N/A	**vicinity**	
state Wisconsin	**code** WI	**county** Door		**code**	029	**zip code**	54235

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 _ nationally X statewide _ locally. (See continuation sheet for additional comments.)

[signature] SHPO — June 2, 2006
Signature of certifying official/Title — Date

State or Federal agency and bureau

In my opinion, the property _ meets _ does not meet the National Register criteria.
(See continuation sheet for additional comments.)

Signature of commenting official/Title — Date

State or Federal agency and bureau

"Ocean Wave " Shipwreck	Door County	Wisconsin
Name of Property	County and State	

4. National Park Service Certification

I hereby certify that the property is:

✓ entered in the National Register.
___ See continuation sheet.
__ determined eligible for the National Register.
___ See continuation sheet.
__ determined not eligible for the National Register.
___ See continuation sheet.
__ removed from the National Register.
__ other, (explain:)

Signature of the Keeper — Date of Action: 7.19.06

5. Classification

Ownership of Property (check as many boxes as as apply)

	private
	public-local
X	public-State
	public-Federal

Category of Property (Check only one box)

	building(s)
	district
	structure
X	site
	object

Number of Resources within Property (Do not include previously listed resources in the count)

contributing	noncontributing	
		buildings
1		sites
		structures
		objects
1	0	total

Name of related multiple property listing:
(Enter "N/A" if property not part of a multiple property listing.
Great Lakes Shipwrecks of Wisconsin

Number of contributing resources is previously listed in the National Register
0

6. Function or Use

Historic Functions
Transportation / Water Related

Current Functions
Vacant / Not in use

7. Description

Architectural Classification
n/a

Materials
n/a
Foundation N/A
walls N /A
roof N/A
other N/A

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

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

X 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.)

Property is:

_ 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 of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)

Archaeology / Historic, non-aboriginal
Maritime History

Period of Significance

1860-1869

Significant Dates

1860

Significant Person
(Complete if Criterion B is marked)

N/A

Cultural Affiliation

Euro-American

Architect/Builder

Chambers, Robert

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographic References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous Documentation on File (National Park Service):
- _ 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 #
- _ recorded by Historic American Engineering Record #

Primary location of additional data:
- X State Historic Preservation Office
- _ Other State Agency
- _ Federal Agency
- _ Local government
- _ University
- Other

Name of repository:

10. Geographical Data

Acreage of Property less than one acre

UTM References (Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing
1	16	0487982	4970005
2			
3			
4			

☐ See Continuation Sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet)

11. Form Prepared By

name/title	Keith Meverden, Tamara Thomsen				
organization	Wisconsin Historical Society, Maritime Preservation			**date**	8/9/06
street & number	816 State Street			**telephone**	608.221.5909
city or town	Madison	**state**	WI	**zip code**	53706

"Ocean Wave" Shipwreck	Door County	Wisconsin
Name of Property	County and State	

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs Representative black and white photographs of the property.

Additional Items (Check with the SHPO or FPO for any additional items)

Property Owner

Complete this item at the request of SHPO or FPO.)

name/title	Bureau of Facilities and Lands				
organization	Wisconsin Department of Natural Resources			**date**	2/9/06
street&number	PO Box 7921			**telephone**	608.267.2764
city or town	Madison	**state**	WI	**zip code**	53707

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects, (1024-0018), Washington, DC 20503.

Summary Paragraph

Two miles off shore of Whitefish Point, Town of Sevastopol, Wisconsin, the 73-foot scow schooner *Ocean Wave* lies in Lake Michigan in 110 feet of water. Built in 1860 at Harsen's Island, Michigan, the wreck of the scow schooner is one of the most intact scows discovered to date. Sunk after a collision with a submerged object in 1869, nearly all hull sections of the small schooner are represented, and major hull sections remain intact. The *Ocean Wave* allows historians and archaeologists the rare chance to study Great Lakes scow schooner construction and learn about a little-understood early vessel type. The *Ocean Wave* also represents a rare example of a once common class of vessels on Lake Michigan, the small lakeshoring schooner. Such vessels, averaging 75 feet in length, provided economic and cultural links between Lake Michigan's hinterland communities. Throughout the nineteenth century these small schooners occupied a special niche in the Lake Michigan economy.

Site Description and Investigation

The *Ocean Wave* lies in 110 feet of water two miles off Whitefish Point, Door County, Wisconsin. Located after an accidental encounter with commercial fish nets in 2004, the *Ocean Wave* was documented by Wisconsin Historical Society archaeologists and trained volunteers over several weeks in 2005. The vessels rests upright on the lake bed with its lower hull is embedded in sand. The sand moves about the site from year to year, covering and uncovering different hull structures, rigging, and cargo. Overall, the site exhibits excellent preservation with major hull sections intact, including the bow and stern ramps and the stern cabin. Much of the remaining hull structure above the turn of the bilge is broken into hull sections and somewhat scattered on the lakebed, but all hull sections are represented. Broken hull sections are opened up enough to allow a thorough documentation not possible on more intact vessels, but retain enough integrity to record important construction details.

The *Ocean Wave* capsized near the surface, where her foredeck broke away and spilled a large portion of her cargo onto the lakebed. On her descent she righted herself and drifted slightly northeast, striking the bottom stern first with the bow settling more gently afterward. The collision with the bottom broke her keel and port side hull and dislodged the starboard side. The transom separated and fell astern and the cabin and rear deck collapsed onto the lower hull. Subsequent to striking the bottom, the wreck has been encountered one or more times by commercial fishing nets, which may have contributed to her hull collapse. Structures with both significant relief and laying flat on the bottom are entangled in commercial fishing net. Most of the netting is woven cotton, suggesting that with the exception of the 2003 encounter that led to the wreck's discovery, it has been many years since the *Ocean Wave* was snagged with net.

When the *Ocean Wave* struck the bottom she broke her back just aft of the centerboard trunk. The aft cargo hatch, stern cabin and decking, transom, and rudder lie to starboard at an 18 degree angle from the vessel's centerline. The keelson's after end is visible beneath the rear deck and rudder, lying parallel and centered with the aft wreckage and measuring 1 ft. sided by 1 ft. 9-5/8 in. molded. The transom and several feet of stern ramp have fallen away from the hull and are partially buried under several inches of sand. Transom width is 15 ft. 6 in., with a curvature radius of 10-3/4 in. The transom's rail cap measures 7-1/4 in. wide by 2-3/8 in. thick, and has an open chock on either quarter. The chocks are 1 ft. 8 in. long and 7-1/4 inches square, with a 3-5/8 in. opening centered on the chock. The two outermost transom frames are 4-3/4 in. sided by 2-3/8 in. molded; inner frames are slightly smaller at 3-5/8 in. sided by 2-3/8 in. molded. Spacing between the outermost and first inner frame is 2 ft. 4-3/4 in., but narrows to 2 ft. on all inner frames. Transom frames continue uninterrupted from the rail cap to below deck where they are broken approximately 3 ft. below deck level. Much of the transom's and stern ramp's inner planking is missing. Only fragments attached to the frames just below deck level and just below the rail cap remain. Stern ramp ceiling planking is 6 in. wide by 1-3/4 in. thick. Inner bulwark planking is a narrower 4-1/4 in. Transom

outer hull planking measures 4-1/4 in. wide and 1-1/2 in. thick and continues below deck level onto the cross-planked stern ramp.

The rudder lies atop the stern ramp's starboard side, buried under several inches of sand. The rudder post rests on the rear deck, and is 7-1/4 in. in diameter with a 2-3/8 in. iron ring reinforcing the top. Just below the ring is a mortise for the missing tiller. The round rudder post extends 5 ft 9-5/8 in. from the top to where the sides are squared to become the rudder blade. Squared timbers are fastened both fore and aft of the rudder post to create a balanced rudder with a width of 4 ft. ¼ in. before it disappears into the sand.

Forward of the rudder is a 24 ft. section of the aft deck that includes the cabin and aft cargo hatch. The deck lists 13 degrees to starboard. The starboard side is buried in sand up to the cabin's bulkhead. Deck beams remain attached to the underside of the deck and measure 2-3/8 in. sided by 3-5/8 in. molded. They are irregularly spaced at 2 ft. 9-5/8 in., 2 ft. 4-3/4 in., 2 ft. 8-3/8 in., 2 ft. 10-3/4 in., 1 ft. 8-3/8 in., 1 ft. 1-1/4 in., and 2 ft. 4-3/4 in. The deck is longitudinally planked, each plank measuring 2-3/8 in. thick by 7-1/4 in. wide. The cabin's bulkheads are six feet from the transom and three feet from either side bulwark.

The cabin rises 2 ft. 9-5/8 in. from the deck at the port and starboard sides. The roof is cambered, rising 3 ft. 1-1/4 in. from the deck at the center. The roof has 24 longitudinal planks that are 2-3/8 in. thick and average 4-3/4 in. in width. The roof is caulked with no other visible covering. The cabin is supported by five vertical frames along the forward and after bulkheads, and four vertical frames on either side bulkhead (corner frames are counted twice). All frames measure 4-3/4 in. sided by 3-5/8 in. molded. Frames on the forward bulkhead are equally spaced on 2 ft. 6 in. centers, and frames on either side bulkhead are equally spaced at 2 ft. 7-1/4 in. on center. The aft bulkhead framing is somewhat different to accommodate the cabin's hatchway, which is 1 ft. from the starboard side and 2 ft. wide. Framing on the port side of the hatchway is equally spaced on 3 ft. 4-3/4 in. centers. The cabin's hatch cover is absent. The hatch opening is 2 ft. wide by 2 ft. 9-5/8 in. long. The hatch cover slid forward on two wooden guides on either side of the hatch. Each guide is 4-3/4 in. wide by 2-3/8 in. high and 3 ft. 6 in. long. The entire cabin is surrounded by a combing at deck level that is 1 ft. 2-3/8 in tall by 2-3/8 in. wide, rising 8 in. above deck level. Bulkhead planking was absent with the exception of a few fragments that remained nailed to some frames. A 9 in. stove pipe hole is located near the forward port corner of the cabin roof, 2 ft. 6-5/8 in. from the port side and 1 ft. 4 in. from the forward edge. The stove pipe was surrounded by a missing metal collar 3-5/8 in. wide.

Two feet, six inches forward of the cabin is the aft cargo hatch. Headledges are 6 ft. 4-3/4 in. long; combings are 4 ft. 9-5/8 in. long. Both the headledges and the combings rise 8-3/8 in. above the deck. The combing itself is 1 ft. 4-3/4 in. tall and 2-3/8 in. wide, and is butt-joined at the corners. Each combing has three notches on the combing's inside edge for the hatch cover strongbacks, each notch measuring 3-5/8 in. long by 2-3/8 in. square. The forward and after notches are 2 in. from the headledges; the center notch is centered between the outer two notches, 1 ft. 4-3/4 in. on center from either end notch.

The centerboard trunk lies along the vessel's centerline but has fallen to the port side. The trunk measures 20 ft. 1-1/4 in. long by 6 ft. 4-3/4 in. tall, by 1 ft. wide. The trunk is longitudinally-planked with six planks. Widths (from top to bottom) measure 1ft. 3-5/8 in., 1 ft. 2-3/8 in., 10-3/4 in., 10-3/4 in. 1 ft. 1-1/4 in., and 1 ft. 3-5/8 in. All planks are 3-5/8 in. thick and fastened on either end by three 5/8 in. bolts with 1-3/4 in. clinch rings on either end. Bolts are fastened in a triangular pattern that does not alternate from plank to plank. The centerboard is in a retracted position, protruding six inches from the trunk's aft end. The centerboard is 3-5/8 in. thick, and its leading edge is rounded with a shoulder on either side, suggesting

a tongue-in-groove joint with one or more planks missing. The centerboard pivot pin has been dislodged and lies atop the trunk near its former position. The centerboard's pivot hole is 3 ft. 4-3/4 in. on center from the trunk's forward end, and 1 ft. 9-5/8 in. on center from the trunk's lower edge. The pin measures 1 ft. 1-1/4 in. long with a 2-3/8 in. shank. One end is peened onto a washer 4-3/4 in. in diameter. The shank's end opposite the washer has a slot for a forelock pin that is 1-1/4 in. long by ¼ in. wide, ½ in. from the shank's end. The keel, covered by cargo and sand, was not visible beneath the centerboard trunk. A section of decking protrudes slightly from the bottom to the starboard side of the centerboard trunk. Eleven deck planks are visible, averaging 7-1/4 in. wide.

Both the vessel's port and starboard sides have fallen outward from the hull. The starboard side is buried under several inches of sand with the exception of the forward 12 feet and a small section that projects from the sand four feet off the wreck's starboard quarter. Given the angle of the starboard side in relation to the main hull, it is likely that the starboard side remains intact and unbroken. The site should be monitored yearly as shifting sand may uncover the starboard side and allow a complete survey. The exposed portion of the starboard side hull is longitudinally planked with three visible planks measuring 2-3/8 in. thick with widths from the deck down of 9-5/8 in., 10-3/4 in., and 8-3/8 in. The upper hull plank joins a 3 in. thick covering board. Visible frames are 4-1/4 in. sided by 3-5/8 in. molded. Spacing on center from the bow aft is 1 ft. 3-5/8 in., 1 ft. 9 in., 1 ft. 7-3/4 in., and 2 ft. 11-3/8 in. A rail cap is fastened to the top of the bulwark stanchions that measure 8-3/8 in. wide by 2-3/8 in. thick. Bulwark height, from the covering board to the top of the rail cap, is 2 ft. 6 in. No bulwark planking is extant.

Three foremast chainplates are attached to the starboard side hull. Deadeyes are 6 in. in diameter and 5 in. thick. All three chainplates are constructed of iron strap 2-1/2 in. wide by ½ in. thick. The first chainplate is 9 ft. 1-3/8 in. aft of the bow. Spacing on center between chainplates is unequal, being 2 ft. 2-1/2 in. between the forward two chainplates, and 3 ft. 1-3/8 in. between the aft chainplates. Side hull height is 3 ft. 3-5/8 in. just forward of the chainplates.

The port side hull is much more exposed, but is less intact than the starboard side. On impact with the bottom, the port side hull broke 35 feet aft of the bow (measured at deck level). The aft section of the port side hull followed the vessel's stern as the keel broke, resulting in the two port side sections laying at an angle to one another.

It appears the *Ocean Wave* borrows from a variety of construction techniques, being somewhat of a cross between gunnel-built and traditionally framed vessels. The outer hull is longitudinally planked and measures 2-3/8 in. thick. Evidence of edge-bolting is visible at the hull break, but it was impossible to determine bolt spacing or how many planks the bolts passed through. Remnants of a chine log are visible along a short hull section, but are buried under several inches of sand, cargo, and other hull structure. The lower outer hull plank joins the chine log 1-1/4 in. in from the chine log's inner edge. Side frames are not pocketed into the chine log, but rather are fastened inboard of the chine log. The chine log tapers at an angle towards the lower outside edge, with no visible evidence of how it fastened to the lower hull. Molded dimension appears to be 6 in. Vessel sheer was difficult to determine due to the break in the hull side, but it appears the vessel carried a slight sheer that became more pronounced nearer the bow. The port side's forward fragment sheer radius measured 3-1/8 in.; the stern side fragment had a sheer radius of 2-3/8 in. There was no evidence of side hull ceiling planking.

The hull sides are supported by both frames and bulwark stanchions. Frames begin at the chine log and extend 3 ft. vertically to the underside of the covering board. The frames are 4-3/4 in. square and vary in spacing from 2 ft. 10-3/4 in. to 3 ft. 3-5/8 in. No pattern was detected in the variable frame spacing, which appears to be random. Between each frame set is a bulwark stanchion that passes through a mortise in the covering board. The covering board is extant aft of the break on the port side hull, but all bulwark stanchions are broken just beneath the covering board along the entire port side. Several bulwark stanchions are extant on the starboard side near the foremast chainplates, extending 2 ft. 3-5/8 in. above the covering board and 2 ft. below. The stanchions taper near the bottom and are fastened to the hull sides with two through

bolts with clinch rings spaced 9-5/8 in. on center. Atop both the frames and bulwark stanchions is a deck shelf 1 ft. wide by 2-3/8 in. thick. The deck shelf has irregularly spaced notches for the deck beams that measure 2-3/8 in. deep and 4-3/4 inches wide. The irregular spacing is similar to that found in the deck beams that remain attached to the aft deck section. Two foremast chainplates remain intact on the portside hull, 1/2 in. thick and 2 in. wide, ½ in. narrower that the starboard foremast chainplates.

Outboard of the port side hull are two fragments of the forward deck and cargo hatch. One deck section lies inverted on the bottom, the other upright. The upright section retains one side of the forward hatch combing, which is an unusual 18 ft. 9-3/4 in. long. Hatch width could not be determined as the headledges were broken. The combing measures 9 in. tall by 3 in. wide. Like the aft cargo hatch combing, the forward combing is notched for 9 hatch cover strongbacks. Each of the nine notches are 3 inches long and irregularly spaced from the stern at 2 ft. 2-3/8 in., 1 ft. 4-1/4 in., 2 ft. 4-3/4 in., 1 ft. 4-3/4 in., 2 ft. 4-3/4 in., 1 ft. 4-3/4 in., 2 ft. 5-3/8 in., 1 ft. 4-1/4 in., and 2 ft. 1-1/4 in. Three deck beams cross the hatch's center, irregularly spaced at 2 ft. 10-1/4 in. on center between the forward two beams, and 1 ft. 9-5/8 in. on center between the aft two beams. Deck planking is longitudinal and 1 in. thick. The plank nearest combing is 8 in. wide, with other planks averaging 6 in. wide. Deck planks are fastened ¼ in. square by 3 in. long rose-head, chisel-point nails. There are two nails per plank at each deck beam at a 45 degree angle to the vessels centerline. Deck beams on the inverted deck section measure 4-5/8 in. sided by 5-1/4 in. molded, with an irregular spacing of 2 ft. 10-3/4 in., 3 ft., and 3 ft., 2-3/8 in. Two sets of small lodging and bosom knees are present, each knee measuring 13 in. along both the arm and body, and with a gap of 4-1/2 in. between each lodging and bosom knee. Spacing between the two sets is 2 ft 2 in. on center. Deck planking averages 5 in. wide and 1 in. thick.

The upright bow is the wreck's most dramatic feature. Listing nine degrees to starboard, the forward hull, bowsprit, jib boom, planking and framing remain upright and mostly intact, held up by the stem post which gently curves upwards from the keel to the bowsprit, ending in a crude eagle figurehead with an open mouth and extended tongue. Traces of red paint are visible on the eye and tongue. The starboard bow remains wholly intact, but the port side has collapsed with the exception of the bow and port side rail caps. The stempost is constructed from one large timber, measuring 1 ft. 4-1/4 in. sided by 2 ft. molded at the waterline. On either side of the stempost is a knighthead measuring 7-1/4 in. sided by 4-3/4 in. molded. The knighthead begins at the underside of the rail cap and extends downward for 5 ft. 8-3/8 in. The stempost is not rabbeted for the outer hull planking. Below the knighthead's terminus there is no visible support where the planking abuts the stempost. The bow is cross planked, and the cross planking continues down the bow, curving towards the horizontal where it disappears into the lake bottom. There is no evidence of a hard chine-type edge between the bow and hull bottom. The bow curves towards the horizontal to become the vessel's bottom with no visible transition.

The bow's upper edge is covered by a one-piece head rail that is 10-3/4 in. wide 3-1/2 in. thick, and curves aft from the stempost with a radius of 1 ft. 8-3/8 in. The bow is 16 ft. 9-5/8 in. wide at its widest point, and the ends of the head rail are notched to form a lap joint with the side hull's rail cap, the side rail resting atop the head rail. This lap joint is reinforced by a small horizontal knee that measures 1 ft. 8-3/8 in. along the head rail and 1 ft. 6 in. along the side rail. Atop this lap-joint, sandwiching the side rail, is a double open chock on either end of the bow rail. The chock block is 5 ft. 3-5/8 in. long with two 2-3/8 in. openings, the outermost opening is 2 ft. 1-1/4 in. inboard from the side, the next is 2 ft. inboard of that.

On the bow's starboard side, four frames run from the underside of the head rail and follow the stempost's curve towards the horizontal near the bottom. Three inner frames measure 3-5/8 in. square. The fourth, outermost frame measures 4-3/4 in. sided by 3-5/8 in. molded. This larger, fourth frame supports the bow / side interface. The three inner frames consist of two futtocks; the uppermost futtock is 8 feet long, lap-joined with the next futtock with an overlap of 1 ft. 2 in. The outermost frame has no visible joint or scarph before it disappears into the lakebed.

Starboard bow planking is intact, 2-3/8 in. thick and varying in width from 3-5/8 in. to 9-5/8 in. The planks are butted to the starboard side of the stempost, and fastened to each frame with three square-head nails in a triangular pattern. Above deck level, the outer hull planks terminate flush with the outer edge of the frame, allowing the side hull's bulwark planking to fit flush with the forward edge of the bow planking. Below deck level the pattern reverses, with the bow planking extending 3-5/8 in. beyond the frames outer edge, allowing it to overlap and fit flush with the outer edge of the side hull planking.

A 7-1/2 in. by 1-1/2 in. breasthook is located 2 ft. 2-3/8 in. below the rail. The breasthook is parallel with the deck and notched to fit around the frames. Directly beneath the breasthook a deck beam was fastened that measures 8-3/8 in. sided by 7-1/4 in. molded. This beam follows the bow's curvature and rides atop, rather than notched into, the bow frames, and is fastened to the frames with 5/8 in. bolts. Deck planking is attached atop the beam and fits flush with the top of the breasthook. The deck beam, with decking attached, has become dislodged from the bow and lies just below its former location.

Atop the breasthook, between the knighthead and the first frame, is a large wooden block with the hawse hole. The block measures 1 ft. 10-3/4 in. long by 7-1/4 in sided and 1 ft. 3-5/8 in. molded. The block is notched to fit onto the knighthead, overlapping the knighthead by 2 in. An iron hawse pipe is attached to the outside of the hawse hole. The hawse pipe is 10-3/4 in. in diameter with a 4-3/4 in. hole. The hawse pipe does not extend all the way through the hawse hole; rather, the inside of the hawsehole is unprotected wood, with a 5-3/8 in. diameter.

The bowsprit is sandwiched between the top of the stempost and the head rail and measures 1 ft. 4-3/4 in. square. The bowsprit angles upward at five degrees, originating at the sampson post 6 ft. 3-5/8 in. aft of the stempost, and extends 14 ft. 7 in. forward of the head rail. The jib boom is attached to the top the bowsprit, fastened by two 2 in. iron rings, one 8 in. forward of the head rail, the second at the bowsprit's tip. The jib boom has a slight taper; its base diameter is 7-5/8 in., narrowing to 6-7/8 in. at the tip; overall length is 29 ft. 1-1/4 in. The jib boom is loose and rocks back and forth inside the iron rings. Two 1 ft. 3-5/8 in. fairleads are fastened to either side of the bowsprit, 3 ft. 3-5/8 in. from the bow. Beneath the fairleads is the eagle figurehead, 6 in. in diameter at the head, and extends 5 ft. 8-3/8 in. from the bow. A deadeye hangs beneath the bowsprit 11 ft. 10-3/4 in. from the head rail, and an 8 in. remnant of the bobstay hangs from the bowsprit's underside 15 ft. 7-1/4 in. from the head rail.

The sampson post is intact on the bowsprit's aft end, stepped into the keelson and rising 8 ft. from the top of the step. The sampson post step is 2 ft. 1-1/4 in. long by 1 ft. 1 in. wide, and rises 5 inches above the keelson. The sampson post tapers towards the step, measuring 4-3/4 in. sided by 1 ft. molded at the step. The top of the sampson post measures 1 ft. 2-3/8 in. sided by 1 ft. 6 in. molded. There is no evidence of purchase rims or cross head for the windlass, and the windlass pawl is absent. Anchors were weighed with hand spikes inserted into the windlass. The windlass barrel has become dislodged from the sampson post but remains attached to the carrick bitts. The windlass and carrick bitts have fallen approximately 2 ft. towards the port quarter. The windlass is 12 ft. 10-3/4 in. long and 1 ft. 2 in. in diameter at the pawl rim. The carrick bits are 6 ft. apart and measure 3-5/8 in. molded. Both port and starboard anchor chains remain wrapped around the whelps on either side of the windlass, between the carrick bitts and the pawl rim. Outside of either carrick bitt is an 8 in. diameter gypsy head that extends 1 ft. 6 in. from the carrick bitt.

The chain locker is beneath the windlass, and anchor chain spills onto surrounding wreckage. On either side of the chain locker are partial sections of the port and starboard foredeck, dislodged and fallen onto the lower hull and remaining cargo. Foredeck plank widths vary from 6 in. to 9-5/8 in. Plank length varies from 4 ft. to 12 feet. Atop the starboard side foredeck

is a small kedge anchor that is missing its stock and one fluke. The shank is 2 ft. 8-3/8 in. long, and the arms measures 2 ft. 3-5/8 in. from bill to bill. The existing fluke measures 8-3/8 in. across its widest part. Aft of the chain locker is a wooden-barreled, single-acting bilge pump. The pump barrel is 6 in. in diameter and 7 ft. 1-1/4 in. long. The pump shaft is beginning to deteriorate, and is approximately ½ in. thick. A wooden pump handle, 4 ft. 6 in. long, is fastened to the upper end of the pump barrel.

Two identical iron stock anchors lie partially buried at the bow. Each stock measures 4 ft. 9 in. long, each shank is 5 ft. long, and the arms measure 5 ft. long from their shanks to fluke tips. The anchors were carried by hooking their arms on the bobstay that ran from the foot of the stempost to the end of the bowsprit. Two forestays were fastened to two iron eyes on either side of the bow. The first eye is fastened 2 ft. 4-3/4 in. down from the head rail, and 4-3/4 in. from the vessel's side. The second forestay eye is located 2 ft. 2 in. inside of the first. Neither bobstays nor forestays are extant.

No wire rope was located at the site, suggesting the *Ocean Wave* was rigged with natural fiber rope. The mast that was pulled to the surface by fisherman lies nearby on the lakebed, but has yet to be relocated. Two gaffs and one boom lay off the port side. The only indication of the forward mast's location are the forward chainplates, but without historic photographs to indicate the amount of mast rake, if any, it is difficult to pinpoint the forward mast's location without locating the foremast step. The mainmast step and mainmast chainplates were not visible.

A collection of artifacts is accumulating on the cabin's roof through the actions of recreational divers who locate, excavate, and transport the artifacts to the cabin for display. A small coal shovel with an approximately 3 ft. long wooden handle was moved to the cabin from an unknown location; its handle was subsequently broken. Two whiteware plate fragments have also been relocated to the roof from an unknown location. The two plate fragments were brought to the surface for documentation and identification of any maker's marks, and immediately returned to the bottom. The fragments are two nearly equal halves from two separate plates measuring 9 in. in diameter. The plates had no maker's marks, and exhibited a large amount of crazing.

Two artifacts were found that had not been displaced. Twenty-seven feet off the transom's port chock, and fifty-eight feet from the boom's aft end, is a small cast iron cooking pot. The pot measures 1 ft. 9 in. tall and 9-5/8 in. in diameter. The pot is filled with silt and exhibits a large amount of surface corrosion. A two gallon, salt-glazed stoneware jug was located inside the bow. Resting atop a ceiling plank and leaning against the outer hull planks immediately to starboard of the stempost, it appeared as if someone had set it there just prior to abandoning ship. The jug was brought to the surface for documentation and identification of any maker's marks, and immediately returned to the bottom. The jug was marked with a "2" and a decorative pattern in cobalt blue. The jug's base was 6 in. in diameter with no markings. The circumference was 2 ft. 6-3/4 in. at the center, and 14 in. tall. The neck was 2 in. in diameter, chipped and angled slightly to one side. The stopper was missing and the jug was filled with mud. The jug's side had a shallow 2 in. diameter chip.

Summary Paragraph

Two miles off Whitefish Point, Town of Sevastopol, Wisconsin, lie the remains of the scow schooner *Ocean Wave* in 110 feet of water. Built in 1860 and sunk in 1869, the scow *Ocean Wave* is representative of a little-understood vessel type that was once common throughout the Great Lakes, the scow schooner. Little historical documentation exists on scow schooners' construction and operation. Much of our understanding of this vessel type, and the lakeshoring trade in which they operated, has come from archaeological data recovered from wreck sites. Well preserved, the *Ocean Wave*'s hull is opened up enough to allow a thorough documentation not possible on more intact vessels, but is intact enough to allow the documentation of nearly all vessel components. The *Ocean Wave* meets the registration requirements for Criterion D at the state level for the property type sailing vessel as described in the Multiple Property Documentation *Great Lakes Shipwrecks of Wisconsin* (Cooper and Kriesa 1992). The *Ocean Wave* was discovered in 2004 and documented in 2005. Due to its remote location, the *Ocean Wave* remains lightly visited by divers. Large portions of the lower hull and associated debris field are covered by shifting sands, protecting many associated artifacts from looting and damage from divers visiting the site. The *Ocean Wave* site has already produced a wealth of archaeological knowledge on scow schooner construction and use, and as shifting sands continue to uncover undocumented hull sections and artifacts, it will continue to produce important archaeological data.

Scow Schooners and the Lake Michigan Economy

Scow schooners were vital to many smaller Lake Michigan communities, connecting them with regional markets through the lakeshoring trade. As Great Lakes schooners grew in size throughout the nineteenth century, so too did their draft, making stops at small lakeshore communities with shallow harbors difficult or impossible. The flat-bottomed scows, however, were well-suited to shallow harbors. Inexpensive transportation, the scow schooner was the life-blood of many lakeshore communities and immigrant families, providing an entry point for many into the Great Lakes maritime trades as sailors, masters, and vessels owners.

The Great Lakes scow schooner first appeared in the mid-1820s on Lake Ontario, Lake Erie, and New York's Finger Lakes. By the 1840s, scows were common throughout the Great Lakes, and survived into the twentieth century and the last days of lake sail (Labadie and Herdendorf 2004:5; Martin 1991:4). The term "scow" refers to hull form rather than the rig type. Despite a wide range of regional variation, the scow is defined as a vessel with a flat bottom, vertical sides, and a hard chine. They more closely resembled a barge than conventional sailing craft. There was wide variation in scow construction techniques, and the term "scow" was used to describe variety of vessels. One of the clearest contemporary definitions is found in Merchant Vessels of the United States (1885):

> Scows are built with flat bottoms and square bilges, but some of them have the ordinary schooner bow....The distinctive line between the scow and the regular-built schooner is, in the case of some larger vessels, quite obscure but would seem to be determined by the shape of the bilge, the scow having in all cases the angular bilge instead of the curve (futtock) bilge of the ordinary vessel.

As the above definition points out, there was occasional difficulty in distinguishing conventional craft from scows. Scow construction varied from hull to hull and included obvious features such as sheer lines, transoms, and bows, in addition to less obvious features like cross or diagonal planking and longitudinal framing. Several bow variations are visible in historic photographs (Labadie and Herdendorf 2004:8).

It is open to debate whether the scow's development and popularity resulted from a need for vessels capable of transiting shallow waters or because their unsophisticated hull form was economical to build and maintain (Labadie and Herdendorf

2004:8; Inches and Partlow 1964:290). It is certain, however, that scows required the simplest construction techniques of any freight-carrying vessels. The great variation in construction and appearance is likely a combination of the builder's shipbuilding skill, the type and quality of construction materials available, and available funding.

Scows were generally considered good sailors and were as fast, or faster, than conventional schooners, perhaps with the exception of sailing in heavy seas. Their shallow draft and flat bottoms created little water drag. Sailing to windward was their worst point of sail. The wide, flat bows took a beating in head seas and their shallow draft allowed considerable leeway in strong winds (Chapelle 1951:50; Inches and Partlow 1964:292; Kristiansen 1981:3; Olmsted 1988:19). Despite how seaworthy a scow may or may not have been, insurance companies held little faith in the scow's seaworthiness, and even less confidence in cross-planked bottoms and gunnel-built sides. Construction rules for 1866 note:

> Frame built scows, well constructed and of good material, with fore-and-aft bottom planking, may be entitled to Class B1, [for] five years, but in no case will scows be entitled to the B1 grade if built with gunwale sides or athwartships bottom" (Board of Lake Underwriters 1866:14).

Vessels built according to underwriters' rules were given a classification rating that determined a vessel's insurance premium. Ratings of A1, A2, B1, B2, C1, C2, or "not insurable" were assigned, A1 being the highest rating with the lowest premium - a rating scow schooners never achieved. In 1876, the Board of Lake Underwriters (1876:74) categorized scows with barges and even describes them as "of unseaworthy form."

Discussion of Wisconsin's maritime heritage is difficult without including the eastern Great Lakes of Huron, Erie, and Ontario. Many of Wisconsin's commodities were shipped beyond Lakes Michigan and Superior to eastern Great Lakes ports such as Buffalo, New York, and Kingston, Ontario. These distant ports returned goods, supplies, and immigrants to Wisconsin, creating a diverse economic universe. Separating Wisconsin from the eastern Great Lakes frequently results in a fragmented understanding of Wisconsin's maritime heritage as a whole. There is evidence, however, that a more localized maritime trade developed that was confined to Lake Michigan with the lake's western shoreline at its core. This lakeshoring trade connected communities in Wisconsin, Illinois, Indiana, and Michigan in a discrete local economy, transporting cargo from one Lake Michigan port to another where it could be sold for profit. While only a fraction of Great Lakes tonnage, this trade was the lifeblood of many smaller communities, one in which the scow schooner played a vital role. Worked in no small part by immigrant Scandinavian sailors, Lake Michigan's lakeshoring trade was an entry point for many immigrants into Great Lakes maritime commerce, not only as sailors, but also as vessel owners and masters (Hirthe and Hirthe 1986:97; Gjerset 1928:11).

A simple, yet comprehensive, definition of lakeshoring is difficult. Contemporary authors of Great Lakes maritime commerce frequently glossed over sailing vessels, devoting most of their efforts to the new steam technology that it was thought would make sail technology quickly obsolete. Defining lakeshoring today is an even greater challenge, as sail's role changed dramatically during the nineteenth century. The beginning of the nineteenth century found a wilderness frontier populated by a handful of hardy European fur traders, but by the century's close Lake Michigan boasted one of the busiest shipping ports in the world (Karamanski 2000:69). Lake Michigan schooners were subject to rapidly evolving trade patterns, requiring them to be highly adaptable to shifting markets and technologies. The small lake schooner survived this entire period despite increasing pressure from larger vessels, both sail and steam. Given that these small vessels were still sailing into the twentieth century suggests they were one of the most hardy and adaptable vessel types on the lake. This adaptability required these vessels to quickly change routes and cargoes, making a simple description of their trade difficult. As more information is uncovered on this maritime subculture, particularly from archaeological sites such as the *Ocean*

Wave, it will become easier to explain the scow schooner's role in lakeshoring.

Despite its survival into the twentieth century, lakeshoring was often neglected by maritime authors. These small vessels set no records for the fastest passage, or for the largest tonnage carried. They were not the products of fierce competition between wealthy or powerful men. Typically well-used vessels, they were owned and sailed by common men supporting local economies. If lost, even with all hands, they were soon forgotten. They operated alongside the more glamorous sail and steam vessels, but always in their shadows. This lack of recognition does not make the historian's job an easy one. What we know of these vessels is far from complete. Overlooked and underappreciated, much of how the lakeshorers operated is lost to us today. What little we know comes from occasional newspaper articles and the archaeological record. These bits and pieces are all we have to reconstruct the life and times of the small lakeshorers that were vital to many Wisconsin communities.

Vessel History
The *Ocean Wave* was built in 1860 as a two-masted scow schooner by Robert Chambers at Harsens Island, Michigan, for George Fish and John Abrams, each equal owners. The *Ocean Wave* measured 71 feet 5 inches in length, 20 feet in beam, and 7 feet 2 inches in depth, with a tonnage of 89 and 37/95^{ths}. She was built with an unique eagle figurehead, rare for any Great Lakes vessel, especially a scow. Her first enrollment was entered on 17 May 1860 at Detroit with George Fish as master and hailing from Harsens Island (Bureau of Navigation 1860).

George Fish was born in England on 11 May 1812, and emigrated to the United States in 1833, reaching Port Huron in the spring of that year. Fish was one of Port Huron's original settlers; on his arrival Port Huron had only three houses. In 1839 he married Mary Rattray of Scotland, and soon had five children: William, Mary Jane, Thomas, George Jr., and John. When Fish's daughter Jane turned eighteen years of age she was wed to thirty-three year old John Abrams on 16 May 1858 in Fish's home (Wedge and Whiting 2005). During this time Fish spent two years working as a clerk in a local store, learning much about business and saving his money to purchase a small farm (Andreas 1883). By 1860, Fish had moved his family south to Harsens Island, where the St. Claire river empties into Lake St. Claire, and entered into a partnership with John Abrams in the *Ocean Wave* (Bureau of Navigation 1860).

For the next eight years, the *Ocean Wave* helped George Fish build a prosperous local business. During the 1864 season John Abrams became more involved in the *Ocean Wave*'s operation and bought out George Fish's share to become sole owner and master, with Harsens Island remaining as the hailing port (Bureau of Navigation 1864). Soon after this transaction, both Fish and Abrams moved from Harsens Island across the St. Claire River to the growing community of Algonac. The year 1865 brought changes in admeasurement rules, and the *Ocean Wave* was readmeasured on 10 May 1865, decreasing her tonnage to 73.72 tons and her measurements to 71 .5 feet in length, 19.7 feet in beam, and 6.8 feet in depth (Bureau of Navigation 1865; Thompson 1869:122). With the move and the admeasurement changes, Fish bought back his half share in the *Ocean Wave* from Abrams. Capt. Abrams remained master, and the new enrollment reflected the move across the river, with Algonac now listed as hailing port. In 1867, Algonac was officially incorporated as village and fell within the Port Huron Customs district rather than the Detroit district. This required a new enrollment that was entered on 16 April 1867 in the Port Huron district, everything else remaining unchanged (Bureau of Navigation 1867). Following the move to Algonac, Fish began a grocery and provisions business called George Fish & Company, which grew to include several goods stores and farms in the Port Huron area (Andreas 1883).

With the Fish business taking off, the nine-year-old *Ocean Wave* was sold to Captain Fletcher Hackett of Milwaukee on 16 April 1869. Receiving a temporary enrollment, Hackett sailed the *Ocean Wave* to his hometown of Milwaukee (Bureau of

Navigation 1869a). The temporary enrollment was surrendered at Milwaukee on 5 June 1869, and Capt. Hackett received a permanent enrollment listing himself as sole owner and master (Bureau of Navigation 1869b). Capt. Hackett was a prudent sailor. In anticipation of the strong winds and heavy seas that visit Lake Michigan every fall, Capt. Hackett purchased a $3,000 insurance policy on the *Ocean Wave* in early September, $2,000 less than her $5,000 value (Milwaukee Sentinel 1869). It would prove a wise decision. On 23 September 1869, the *Ocean Wave* departed Mud Bay (now Moonlight Bay) on the Door Peninsula with 23 cords of stone consigned to a harbor improvement project at White Lake, Michigan. At three o'clock the following morning, the *Ocean Wave* ran hard upon something in the water and immediately began settling at the bow. The crew scrambled to launch their small boat, and were just clear of the *Ocean Wave* when she slipped beneath the waves. The crew rowed to shore, landing safely at Whitefish Point several hours later. Capt. Hackett reported the *Ocean Wave* had struck a deadhead or floating piece of wreckage fifteen to twenty miles southeast of Baileys Harbor, approximately twelve miles offshore in 360 feet of water. Sinking within minutes of the collision, the crew barely had time to launch the small boat and all the crew's possessions were lost, including $160 in cash that Captain Hackett reportedly left in his room (Milwaukee Sentinel 1869).

A small stone scow in 360 feet of water was beyond consideration for salvage, and the *Ocean Wave* was quickly forgotten until August 2003, when the fish tug *Robin B* discovered a ship's mast tangled in its nets in 110 feet of water two miles east of Whitefish Point (Thomsen and Meverden 2005:59). The tug's crew cut the mast free and it sank to the lake bottom, but the crew recorded its location. The hang numbers circulated amongst the diving community, but the wreck was not located and dived until June 2004 by Randy Wallander. The *Ocean Wave* was relocated in 110 feet of water two miles east of Whitefish Point in Door County. A local group of divers headed by Jon Paul Van Harpen dived the site in July of 2005, noting the vessel was a small scow schooner of approximately 75 feet in length and carried a cargo of stone. At this time a small kedge anchor was located on the foredeck, and was chained and padlocked to the starboard side anchor chain to prevent theft. No other artifacts were located. Historical research by Jon Paul Van Harpen and Russell Leitz of WUAA made a tentative identification based on cargo, vessel size, and a search of historic records that showed no other scows lost in the area. Divers from the WHS, with assistance from the Great Lakes Shipwreck Research Foundation, Inc., made an initial site visit on 8 August 2004 when a crude bird-like figurehead was discovered. Subsequent examination of the *Ocean Wave*'s enrollment documents discovered that the *Ocean Wave* indeed had an eagle figurehead. Given the rarity of figureheads on Great Lakes vessels, the cargo, and the fact that no other scow schooners were reported lost in the vicinity, this vessel is likely the scow schooner *Ocean Wave*.

Archaeological Significance

The *Ocean Wave* is an excellent example of Great Lakes scow construction. She is intact enough to have nearly all hull sections represented, yet opened up enough to allow close examination of construction features that would be obscured in more intact vessels. Archaeological documentation has already provided a wealth of information on Great Lakes scow schooners, and retains unlimited archaeological potential as structures buried beneath the sand become exposed as the sands shift in lake bottom's currents. The *Ocean Wave* possesses several construction quirks that may have resulted from a lack of construction materials or funding, and others that tailored her to specific trades and cargoes. At the least, these quirks made for an interesting vessel that had a character all her own. At most, they nearly cost the crew their lives.

The *Ocean Wave*'s first unusual feature is the best indicator of her identity: her eagle figurehead. Unlike their ocean counterparts, figureheads were uncommon on Great Lakes schooners of any size. Pragmatic vessels, Great Lakes schooners had little room for decorative niceties that didn't help the bottom line. Those owners whose pride necessitated a figurehead would likely not even consider owning a scow. The *Ocean Wave*, however, has a screaming eagle carved into her bowsprit. However crude, it set her apart from her counterparts.

The *Ocean Wave* appears to be constructed of whatever material was available for the least expense. This is evident in two locations. First is the foremast chainplates. All three starboard chain plates measure 2-1/2 in. wide. The portside chainplates, however, are only 2 in. wide or ½ in. narrower than those on starboard. Given a choice of materials, one would imagine that chainplates of equal strength would be used for a single mast, especially considering how disastrous a dismasting could be. A second location is deck beam spacing, where no patterns to the irregular spacing could be deciphered. Apparently random, the irregular spacing may have been due to varying availability of appropriately dimensioned or quality timber, the builders closing the spacing near suspect timbers and widening where timber quality was assured.

It does not appear the *Ocean Wave* is the result of sloppy workmanship or lack of carpentry skills. Several of the *Ocean Wave*'s features suggest the builders were master craftsman skilled in woodworking. First is the aforementioned figurehead. It is unlikely that anyone not comfortable working with wood would attempt an adornment even as crude as the eagle. The figurehead is carved into one of the largest, and most expensive, timbers on the vessel. An error would have resulted in badly scarred bowsprit, rather than a new replacement. Other hull areas demonstrate fine joinery, such as the intact cabin that survived capsizing, falling cargo breaking away the deck, and a tremendous impact with the bottom that shattered the vessel's backbone. Even steel vessels frequently lost their superstructure in the tremendous forces involved in sinking. It is obvious the *Ocean Wave* was not spared these destructive forces, yet her cabin survived nearly unscathed, testament to her fine construction.

Despite an expertise in woodworking skills, however, the shipwrights allowed one error in their construction that may have resulted in the *Ocean Wave*'s quick descent to the bottom. All scows, with their flat bows, are vulnerable to frontal impacts. Unlike conventional vessels, with a fine entry that deflects much of a frontal impact force into a glancing blow, scows take the full force of impact straight on, resulting in greater damage. The *Ocean Wave* had one additional problem with her bow design. Cross-planked, the *Ocean Wave*'s outer hull planking ran over four frames before abutting the stempost. The problem occurred where the outer hull planks met the stempost. There was no rabbet to accept the plank's end. The knighthead provided a strong backing for the bow planking, but ended just below the waterline. Where the lower bow planks met the stempost there was no support whatsoever, making the *Ocean Wave* extremely vulnerable to holing in the event of a collision with a partially submerged object. Striking an object between the stempost and the first frame, below the knighthead, could easily break one or more hull planks to create a large hole. The vessel's forward motion would then force even more water through the hole, causing the *Ocean Wave* to quickly flood. Given that all starboard bow planks are intact, but none on the port side above the hull's bottom, it appears this is exactly what happened to the *Ocean Wave* that early September morning. She was an accident waiting to happen.

The *Ocean Wave* had an unusual deck layout with an elongated forward hatch. Not typical of Great Lakes sailing vessels, this large hatch must have been specially constructed for a specific trade or cargo, but it is not certain for what cargo or trade. It is unknown if the *Ocean Wave* was originally constructed with the elongated cargo hatch or if it was a later adaptation. It is equally unusual that the elongated cargo hatch would then be obstructed by three deck beams traversing its center. A large cargo hatch would have been more susceptible to leaking, or even crushing, from boarding waves. With the *Ocean Wave*'s low freeboard, boarding waves were probably not uncommon, and perhaps the deck beams supported the center of the cargo hatch. It is more likely they helped support the centerboard trunk, which was routinely subjected to large torsional stresses while underway. Further research into scow schooners and the stone trade may illuminate the elongated hatch's advantages.

The final, and most confounding, aspect of the *Ocean Wave*'s construction is her bottom profile. The *Ocean Wave*'s lower hull is completely obscured by sand, cargo, and hull structure, making examination of her lower hull impossible without excavation. From the hull's side construction and registered depth of hold, however, it is possible to estimate the bottom profile and how much, if any, deadrise, was present. Following the 1865 admeasurement changes, the *Ocean Wave* was registered with a 6.8 foot depth. This is consistent with height of the centerboard trunk, which is 6 ft. 4-3/4 in. tall. Considering the height of the hull's sides, however, a problem is encountered. The height of the hull side, from the top of the chine log to the underside of the covering board, is only three feet. This measurement was taken from amidships, outboard of the centerboard trunk. A hull side only three feet tall, coupled with a depth of hold of nearly seven feet, would require a very sharp deadrise angle, so much so that the *Ocean Wave* would have been a V-bottom boat. This seems unlikely.

One possibility is that the centerboard trunk rose above deck level, which was not unheard of on Great Lakes scows. However, there are no pockets or fasteners for deck beams on the side of the centerboard trunk to indicate this was the case, and the resulting depth of hold would have been less than the registered 6.8 feet. A second possibility is that researchers did not measure the full hull side but only a fragment. There was no evidence this was the case, but if so it would mean the *Ocean Wave* is constructed in a way that is yet to be documented on the Great Lakes. The best hope to resolve this dilemma is to monitor the site yearly. Shifting sands will likely uncover the more intact starboard side in future years, allowing researchers to revisit the site and more fully record construction details that were obscured by sand in 2005.

The *Ocean Wave* is the best location in Wisconsin to study Great Lake scow construction, and quite possibly one of the best locations in all the Great Lakes. It is deep enough to allow large hull structures to remain intact, yet within a reasonable diving depth to allow accurate and comprehensive diver-conducted research. The bow and stern, often missing on shallower wrecks, are complete on the *Ocean Wave*, yet opened up enough to allow easy access for study and documentation. The 2005 *Ocean Wave* project collected a large amount of documentation, some of which has not been documented before on Great Lakes' scows including bow, stern, and side construction details. Despite this documentation, there remains a large amount of information yet to be collected on the *Ocean Wave* site, specifically on the lower hull and starboard side.

Registration Requirements

The *Ocean Wave* meets the registration requirements for Criterion D at the state level, as established in the Multiple Property Documentation *Great Lakes Shipwrecks of Wisconsin* (Cooper and Kriesa 1992). The *Ocean Wave* is a rare example of a vessel type that was vital to Wisconsin's economic and transportation infrastructure prior to the development of road and rail networks. Scow schooners like the *Ocean Wave* were an important link for small northeastern Wisconsin communities, connecting them economically and culturally with the wider regional markets through the lakeshoring trade. Though partially broken up, the *Ocean Wave* retains excellent archaeological integrity. The *Ocean Wave* is representative of the scow schooner vessel type, a vessel that was often crudely built by carpenters rather than skilled shipwrights. Scow schooners were not built to any plans, and there was a large amount of variation in construction between hulls. No historical record of their construction exists today, making archaeological examples particularly significant. The techniques employed in their construction and the economic rational behind their design and operation are not fully understood today. The *Ocean Wave* is one of the best preserved examples of a scow schooner discovered to date anywhere on the Great Lakes. Information gathered from the *Ocean Wave* site has filled many gaps in the scow schooner's incomplete historical documentation and has vastly increased our understanding of scow schooner construction and use on the Great Lakes. The *Ocean Wave* site retains the potential to yield even greater insight into this rare vessel type as undocumented hull sections are uncovered in future years.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

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Boundary Description
The area included in the site is a circle with a 250 foot diameter centered on the UTM coordinates 0487982 Easting, 4970005 Northing, Zone 16.

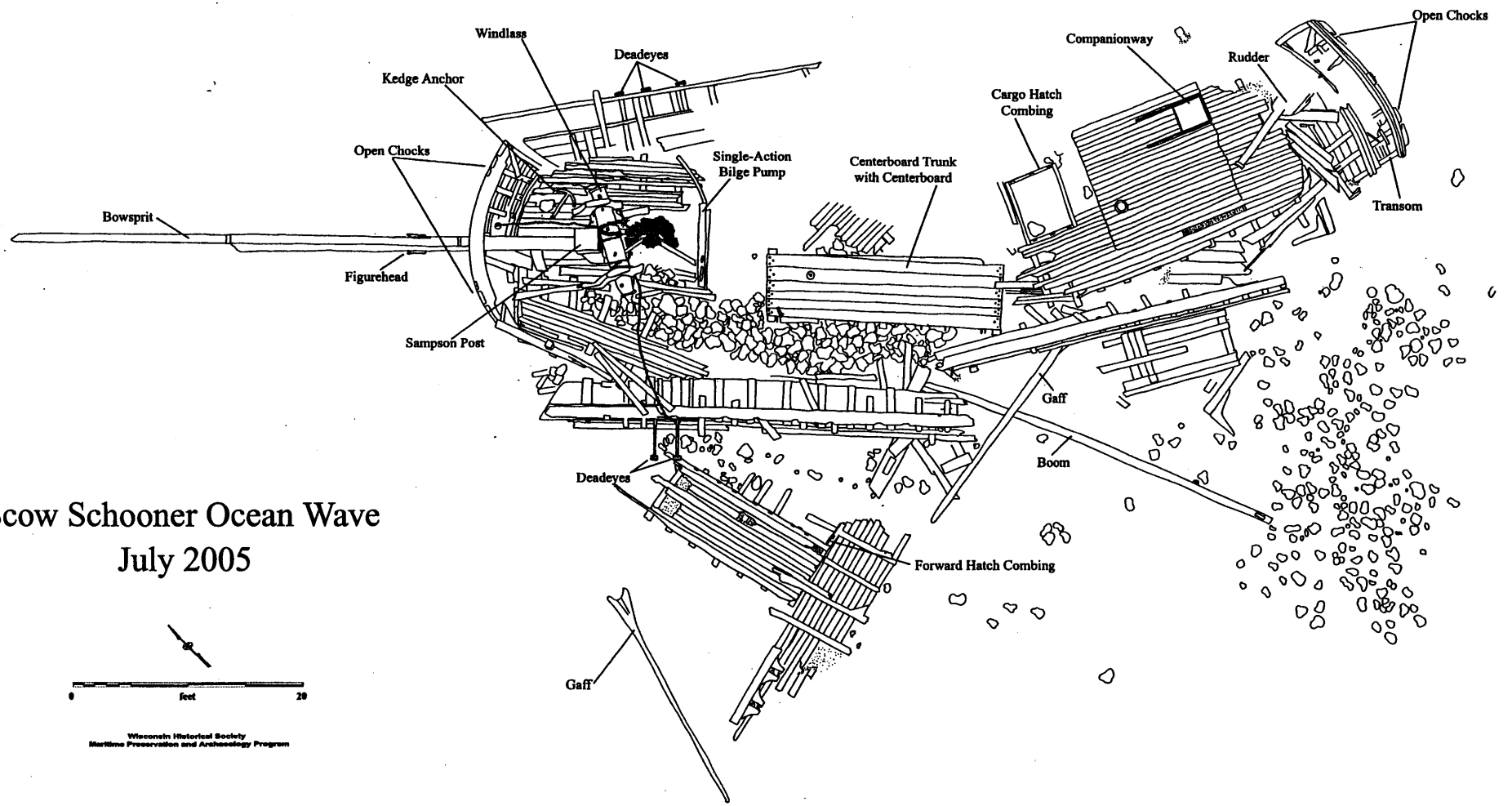
Boundary Justification
The boundary was drawn to encompass the extent of the shipwreck and associated debris field.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Photo #1 of 1
Ocean Wave
Door County, Wisconsin
Photo by Tamara Thomsen
20 June 2005
Facing Northwest

"Ocean Wave" Shipwreck
Lake Michigan
Door County, Wisconsin



Scow Schooner Ocean Wave
July 2005

Wisconsin Historical Society
Maritime Preservation and Archaeology Program