



US Army Corps
of Engineers
North Central Division

GREAT LAKES LEVELS

Update Letter No. 88 November 3, 1992

Shipwrecks of the Great Lakes

Fall is a beautiful time of the year. The leaves turn color and nature seems to be at its best. Nevertheless, the fall can also signify a period of storms and rough seas (Figure 1) which have sometimes been the scourge of the sailors and ships that sail the Great Lakes. This article is dedicated to these sailors and

their ships.

Early Ship Navigation on the Great Lakes

Following the retreat of the glaciers and the subsequent creation of the Great Lakes as we know them now, the natives of North America had exclusive

boating rights. Eventually, explorers began accessing midland America through Hudson's Bay and the St. Lawrence River, and in the mid-1600's, Champlain discovered Lake Huron while he was seeking the outlets of the French River. This is the earliest recorded discovery of the Great Lakes by a

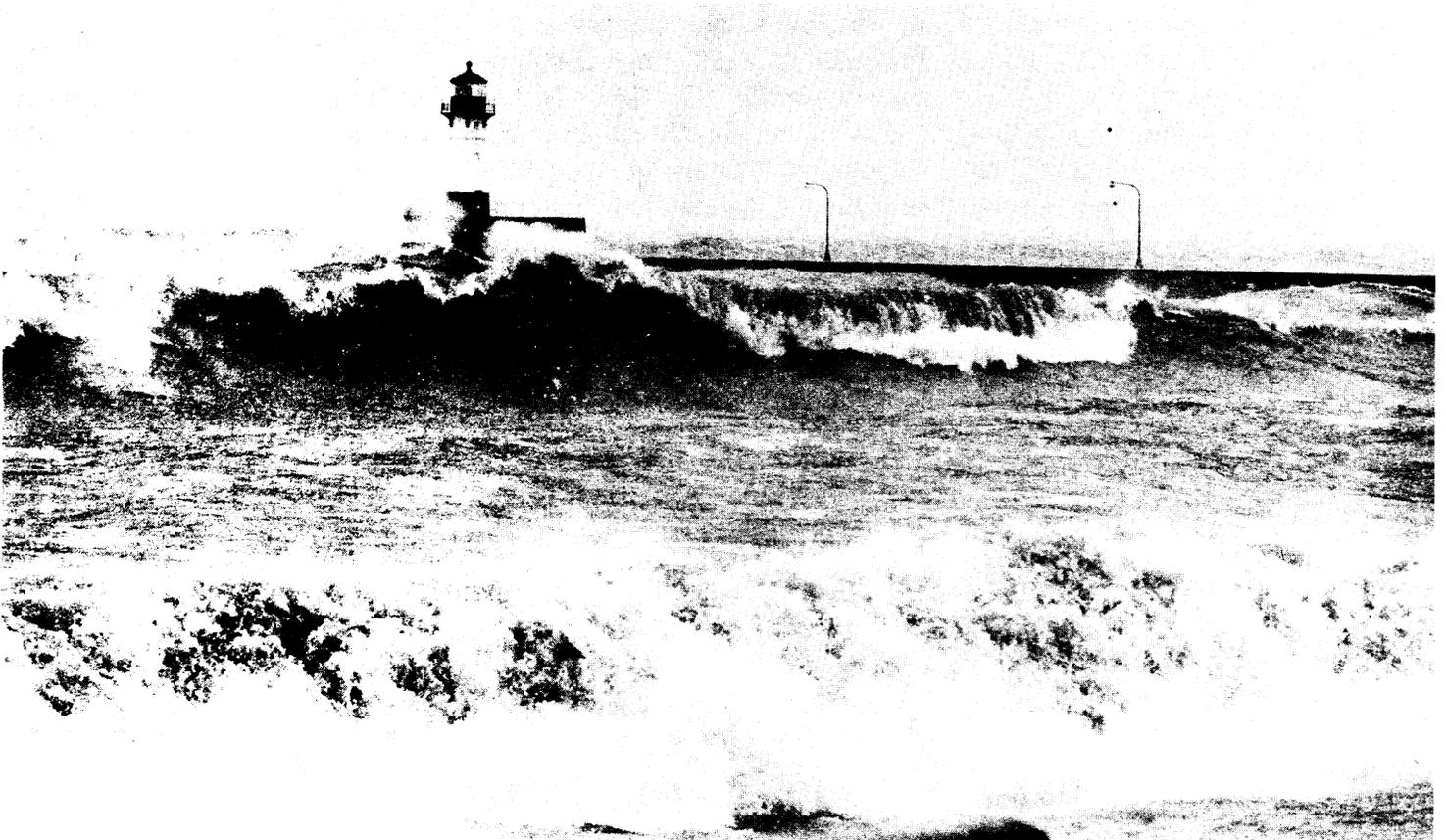


Figure 1. Storm induced waves at Duluth, Minnesota.
(Jack Rendulich photo, Canal Park Visitor Center Collection)

person of European origin. In 1678, LaSalle, another Frenchman, took the first Great Lakes voyage by sailing across Lake Ontario. The first known shipwreck on the Great Lakes was the Griffon, lost in 1679. Another 100 years passed before the first vessel (Sloop Otter) navigated Lake Superior. Some 30 years later, commercial activities began in earnest, and developed into a prosperous business. The opening of the Erie Canal in New York State in 1825 helped industry and the Great Lakes fleet grow by leaps and bounds. In 1847, the St. Lawrence River Canal system was completed, allowing ships of shallow draft to sail from the Great Lakes to the Atlantic Ocean. The first State Lock at the Soo (Sault St. Marie, Michigan) was completed in 1855. The era of sailing schooners on the Great Lakes began in the mid-1860s, reaching a peak in 1868. The first coal cargo was taken to Duluth, Minnesota, in 1871 and the Lake Carriers' Association was founded in 1880. The Lake Carriers represent companies operating bulk freighters on the Great Lakes. To further expand commerce, the Weitzel Lock (No. 1) opened at the Soo in 1881 and the first Great Lakes car-ferry started on Lake Michigan in 1892.

Shipwrecks

With the expansion in marine traffic and the unpredictability of weather in the vast water bodies making up the Great Lakes, the opportunities for shipwrecks grew. Within this century, some of the better known wrecks include the Mataafa, Bradley, Fitzgerald and

Steinbrenner. The November 1905 storm on Lake Superior was one of the most violent. More than twenty-five vessels were lost or damaged, among them, the Mataafa, (Figure 2) for which the storm is named. That ship lost nine of its crew while marooned in the icy waters just yards offshore at Duluth, Minnesota. In the next half of this century subsequent storms were compared to it, but most fell short of its ferocity.

Most of us in the Great Lakes region are familiar with the plight of the Edmund Fitzgerald which sank in a storm on Lake Superior on November 10, 1975. It is memorable, partially because of the popular ballad, "The Wreck of the Edmund Fitzgerald," by pop singer Gordon Lightfoot. Each year on the anniversary of its sinking, church bells ring at Detroit's Mariners Church for each of the 29 lives lost. A story by J.P. Furst in the Duluth News-Tribune, on November 10, 1990, recalls the wrecks of both the Edmund Fitzgerald and the Henry Steinbrenner. Chances are, fewer of us are aware of other shipwrecks such as the ore boat Henry Steinbrenner. On May 11, 1953, the 52-year-old steamer sank in a storm near Isle Royale, Michigan in Lake Superior. The storm had winds of 70 m.p.h., heavy snow, and 19-foot waves. Fourteen men survived the wreck, while three died of exposure, and seven were lost at sea.

Investigation of Shipwreck Remains

On June 24, 1988, an accidental discovery of the remains of a shipwreck occurred when the U.S. Army Corps of

Engineers, Detroit District, was making repairs to the entry piers at St. Joseph, Michigan. During the rehabilitation work, a backhoe was used to dig exploratory holes in the sand alongside the North Pier. After a considerable quantity of oak timber was removed, a cast iron propeller wheel and a section of shafting were brought to the surface, and the excavation was stopped. Corps personnel, several local historians, and elderly residents were consulted in order to obtain information about any shipwrecks in the vicinity, all without positive results. It was also learned that it was not uncommon for vessels to be scuttled after it was felt they were no longer useful or safe.

Once it was determined that this was the remains of a ship, the backhoe was again used to explore the excavation, to clarify the size and orientation of the remaining wreckage. The remains appeared nearly flat, with no signs of any large parts projecting more than a foot or two above the keel. There were no indications of the boiler, engine, condenser, or any large sections of superstructure. The wreck appears to lie directly in the protection stone which was laid during the 1930s pier construction. The vessel was most likely a steam fishtug about 65 feet long, built around or just before the turn of the Century. It seems to have been in service until at least the 1920s and perhaps as late as the Depression years. It appears that the tug was stripped and abandoned in some backwater area. After several years of abandonment, it was taken out in Lake Michigan and scuttled, probably not long after

Figure 2. Mataafa, wrecked at Duluth Ship Canal, November 1905 storm.
 (Canal Park Visitor Center Collection)

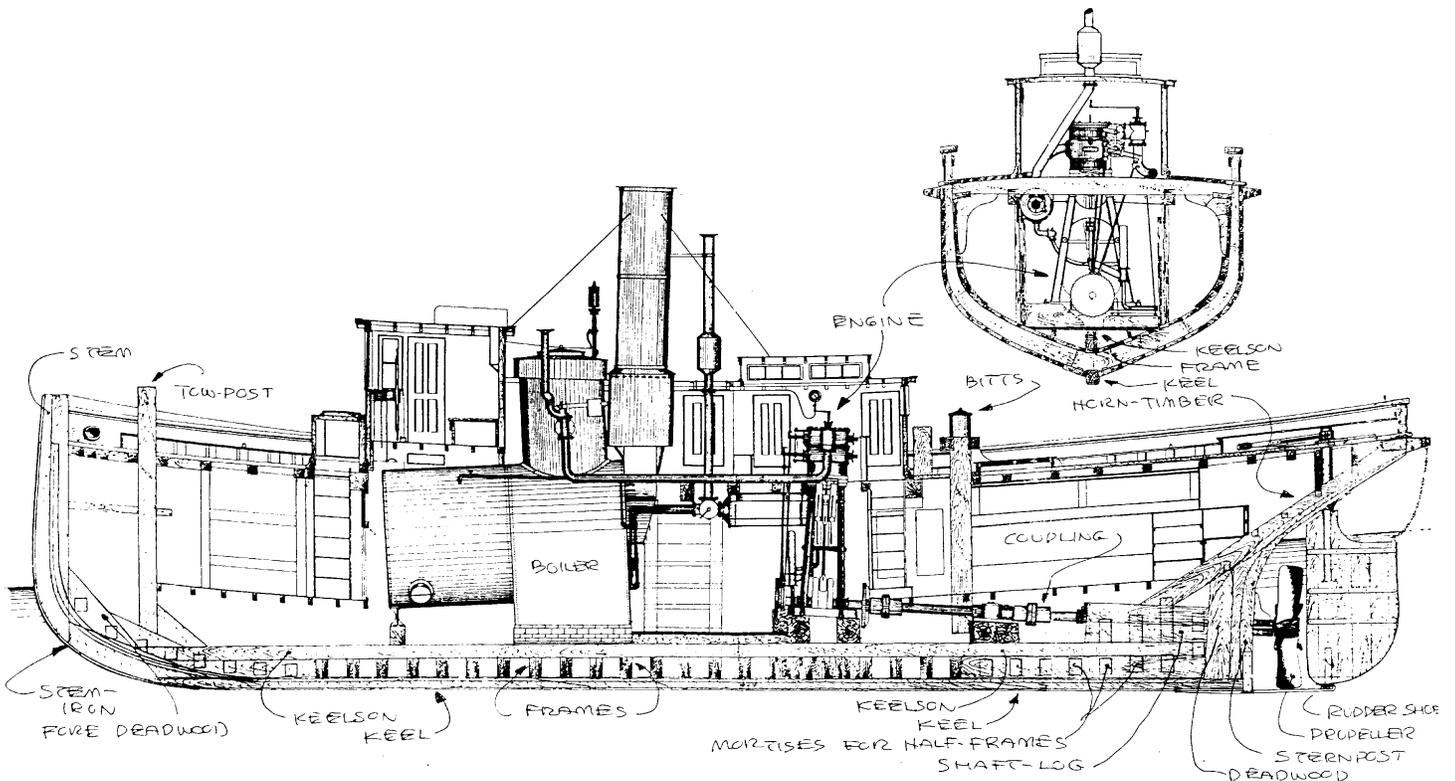
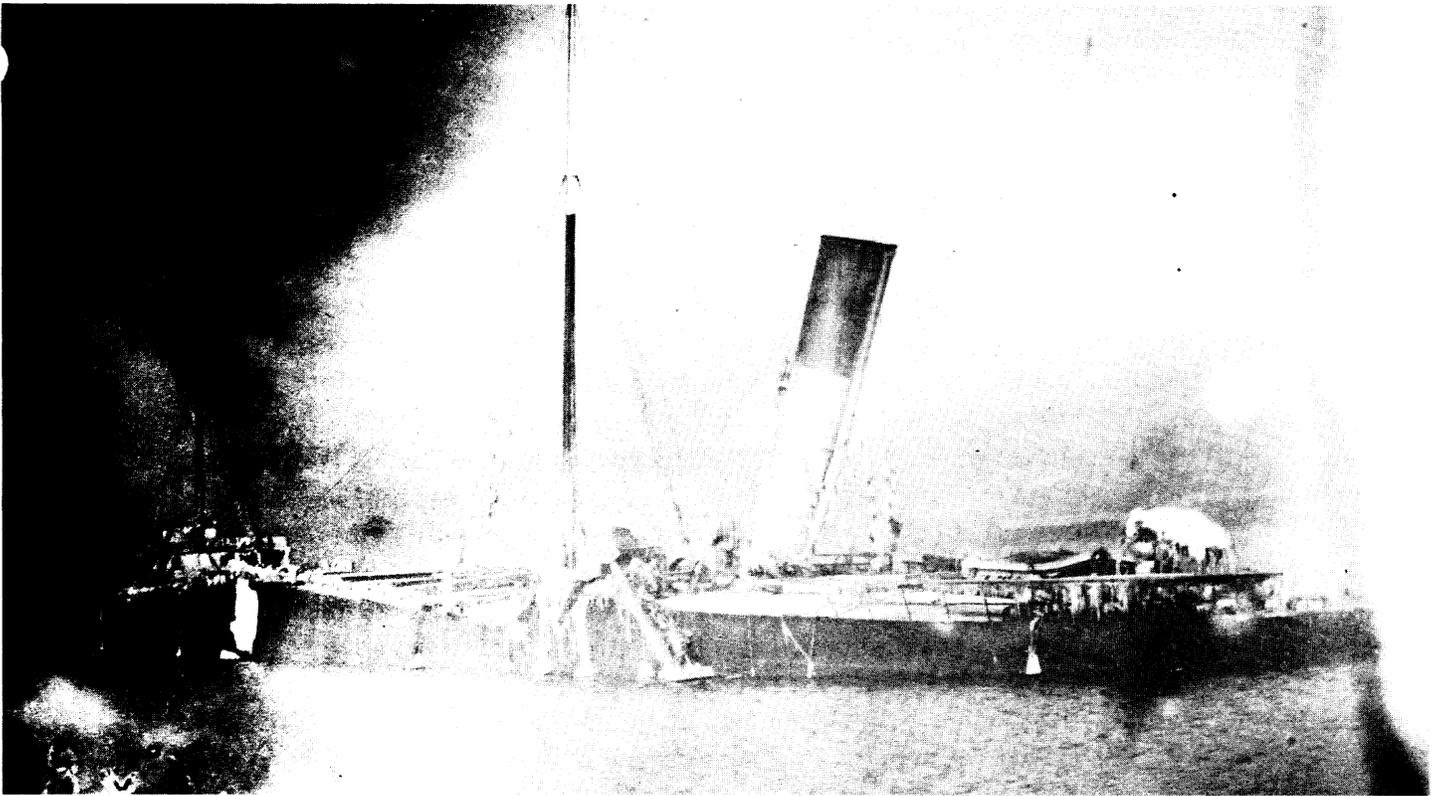


Figure 3. Inboard profile drawing of typical steam tug shows arrangement of structural features like those seen in St. Joseph wreck. Plan represents tug JULIAN V. O'BRIEN, built in 1888 at Buffalo, New York. (Institute for Great Lakes Research)

the construction of the present piers, when the beach line was at least 200 feet inside its present location. Figure 3 is a drawing of a steam tug typical of this wreck.

It has been observed that submerged wrecks often retain enough buoyancy to migrate along the lake bottom until they are blocked by some fixed obstruction such as a pier or breakwater, when they become covered and fixed in place, more or less permanently. No artifacts were found with any obvious monetary value, and few with any historical worth. However, several features could have interpretive significance to local agencies.

The Corps also investigated the remains of the Schooner S.P. Ely shipwreck at Two Harbors, Minnesota. The S.P. Ely was a 200-foot wooden sailing ship built at Detroit in 1869. She was among the largest Lake craft of her day, and represented the highest development of merchant sailing ships on the Great Lakes. The Ely was wrecked in a storm on October 29, 1896, on the way from Duluth to Two Harbors, Minnesota. The ship ran into the west breakwater at Two Harbors, which was under construction at the time.

Subsequent work on the breakwater buried about 30 feet of the ship's wreckage under stone rubble and 2-ton rip rap. The wreck lies in water which has a depth of about 35 feet. In the vicinity of the Ely wreck are other historical/archeological remains related to the ship's sinking, including several sections of oak and yellow pine cribbing.

The Ely wreck has been known to sports divers since the 1950s. Local historians and divers

recalled that many artifacts were removed from the ship, including at least one of the wood stock anchors which presently decorates a lawn in Superior, Wisconsin, and the deck capstan, which was presented to the Canal Park Museum in Duluth. The stripping of the ship has been slowed by changes in state regulations and in diver attitudes. There is, however, little left that can be easily taken. Nonetheless, it is estimated that the wreck is 70 percent complete. The wreck has sufficient structural integrity to be a fair representative of an important vessel type.

While the Corps did not have sophisticated equipment in its investigation of the shipwrecks at St. Joseph Harbor or Two Harbors, Minnesota, many institutions employ such equipment. Among them is the University of Michigan. A remotely operated camera system was used to probe the wreck of the Schooner Newel A. Eddy. Documentation of the study is found in a report entitled "Investigation of the Sunken Schooner Barge Newel A. Eddy in Lake Huron," by Guy Meadows of the University of Michigan's Department of Naval Architecture and Marine Engineering. The previously undiscovered wreck, which is in 168 feet of water, was found by an acoustic image recorded on July 25, 1992, during a student demonstration cruise on a University of Michigan research vessel. The schooner's rigging, vessel dimensions, location, analyses of the initial side scan sonar records, and further investigation by the Great Lakes Historical Society helped in pinpointing the Newel Eddy as

the ship.

The September 1992 issue of "Water Impacts," from Michigan State University's Institute of Water Research, highlights the "Video Mosaic Imaging (VMI) system", a new technology which produces a video map of shipwrecks. VMI will be used to map a site in the Thunder Bay Underwater Preserve located near Alpena, Michigan, where the New Orleans, an early side-wheel steamer, is believed to have sunk in 1849. The site was discovered by John McConnell and Ruthann Beck of the Thunder Bay Underwater Preservation Committee. They later explored the shipwreck using scuba gear.

Laws Concerning Shipwrecks

At federal and state levels, it is necessary to very carefully evaluate any antiquities, structures, or historic sites discovered in lands or waters during the course of construction projects. This is required in order to establish their historical or recreational value and to determine the probability of impacting or affecting these resources by completion of the project. Section 106 of the National Historic Preservation Act of 1966 provides that:

"...Prior to the approval of expenditures of any Federal funds on an undertaking, or prior to the issuance of any license, as the case may be, [any affected party must] take into account the effect of the undertaking on any district, site, building, structure, or object

that is included in, or eligible for inclusion in, the National Register [of Historic Sites]."

In addition, Public Act 184 of 1980, passed by the State of Michigan, establishes state title to "abandoned property of historical or recreational value... on the bottomlands of the Great Lakes..." within the state, regulates the "taking of aboriginal records and antiquities...", and "provides penalties for the violation" of the Act. Section 4a of the Act specifies that:

"...A person shall not recover, alter, or destroy abandoned property which is in, on, under or over the bottom lands of the Great Lakes, including those within a Great Lakes bottomlands preserve, unless the person has a permit issued jointly by the Secretary of State and the Department of Natural Resources pursuant to Section 4c."

An article on The State of Michigan's Shipwreck Protection Laws, by Bob Campbell, published by the Detroit Free Press on April 6, 1987, mentions that the State of Michigan rarely allows sport divers to remove valuable or historic articles from shipwrecks. Currently, Michigan has nine designated underwater shipwreck diving areas with tough standards. Seven of these are:

*The Alger Preserve in Lake Superior near Munising and the Pictured Rocks shoreline.

*The Whitefish Point Preserve near Whitefish Bay - Lake Superior.

*The Keweenaw Preserve near the heart of the Copper Country on Lake Superior.

*The Marquette Preserve near Marquette on Lake Superior.

*The Thunder Bay Preserve near Alpena on Lake Huron.

*The Straits of Mackinac Preserve on Lake Michigan and Lake Huron.

*The Thumb Area Preserve between Port Austin and Harbor Beach on Lake Huron.

The article goes on to say that many of the ships in Lakes Superior and Huron are preserved quite well due to the extremely cold fresh water.

Where to Find Information About Shipwrecks

Visitors to the Canal Park Marine Museum in Duluth, Minnesota, can learn more about shipwrecks. The Canal Park Marine Museum is a service of the U.S. Army Corps of Engineers and part of the Corps' nationwide "Visitor Center" program. The museum is located alongside the Duluth Ship Canal and Duluth's Aerial Bridge in Canal Park, immediately adjacent to the Corps' Duluth Area Office building (600 Lake Avenue South; telephone (218) 727-2497), just a few blocks from downtown. The principal focus of the museum is on the commerce and history of Duluth-Superior Harbor, and the

Great Lakes/St. Lawrence Seaway system. Principal exhibits feature cargos (ore, grain, coal, fur, lumber, passengers, and package freight) and ship cabins (1870 schooner, 1900 passenger steamer, and 1910 bulk freighter). There are also exhibits on shipwrecks and many other navigation related topics. Several dozen models of Great Lakes vessels, ranging from the Griffon of 1679 to modern-day 1,000-footers, are on display.

The museum's reference library contains useful and valuable resources. Among these are 120 linear feet of material with about 30,000 photographs and over 5,000 vessel histories. Photographic collections are strongest for pre-1900 vessels and the period from 1960 to the present, and are geographically focused on Lake Michigan, Lake Superior, and the Soo Locks. Another major part of the reference collection includes several hundred historic harbor charts and surveys for the U.S. Lake Superior ports, dating from about 1860 to the present time; many have never been reproduced.

Another maritime museum is the Dossin Museum located on Belle Isle in Detroit, Michigan, telephone (313) 267-6440.

Thom Holden, Assistant Director at the Canal Park Marine Museum, has authored and co-authored the following books on shipwrecks:

ABOVE AND BELOW: A History of Lighthouses and Shipwrecks of Isle Royale (66 pages), by Thom Holden, is available through the Isle Royale Natural History Association at 87

North Ripley Street, Houghton, Michigan 49931. It describes the event of loss of the island's ten major shipwrecks and its four major lighthouses.

LAKE SUPERIOR SHIP-WRECKS (282 pages), by Dr. Julius F. Wolff, Jr. and Thom Holden, Contributing Editor is available from the Lake Superior Marine Museum Association (LSMMA) at P.O. Box 177, Duluth, Minnesota 55802-0177, telephone (218) 727-2497. Part of the proceeds from every book sold goes to LSMMA to further its work in assisting the Corps of Engineers to interpret and preserve the maritime history of Lake Superior and the Great Lakes - St. Lawrence Seaway System.

The softcover book **Great Lakes Shipwrecks** (400 pages), by William Ratigan is available from Michigan Book Central of the Michigan Department of Natural Resources. The telephone numbers are: in Michigan: 1-800-292-2525; other states, 1-800-248-5848.

A source of information which may be of interest to scuba divers is "Wreck Information." This Automated Wreck and Obstruction Information System (AWOIS) contains written information on more than 3,600 wrecks and obstructions in U.S. waters. Requests for AWOIS information and document copies should be addressed to the following:

Operations Section, N/CG241
National Ocean Service
NOAA
Rockville, MD 20851

Diving maps of the Great Lakes are available at most dive shops in the region.

Additional References

Bowen, Dana Thomas, **Lore of the Lakes**, Freshwater Press, Inc., Cleveland, Ohio, 1940.

Holden, Thom, "Lake Superior's Wicked November Storms", **Mariners Weather Log**, Fall 1991, pp. 4-23.

Labadie, C. Patrick, **Investigation of Shipwreck Remains at St. Joseph, Michigan**, U.S. Army Corps of Engineers, Detroit District, June 1988.

Labadie, C. Patrick, **Investigation of Schooner S.P. Ely Shipwreck Remains at Two Harbors, Minnesota**, U.S. Army Corps of Engineers, Detroit District, Draft March 1989.

Lesstrang, Jacques, **Lake Carriers**, Salisbury Press Books, Seattle, Washington, 1977.

IJC Study Activity

From time to time I have been providing updates on the International Joint Commission's Great Lakes Levels Reference Study, now in its final phase. The Board is analyzing 24 structural (regulation) and non-structural measures plus three (3) incentives to alleviate the adverse effects of fluctuating water levels. A series of public forums will begin on November 30 to present the Board's preliminary results.

The dates and locations are as follows:

Thunder Bay, Ontario
Landmark Inn Nov 30

Milwaukee, Wisconsin
War Memorial Hall Dec 1

Sarnia, Ontario
Drawbridge Inn Dec 2

Watertown, New York
Holiday Inn Dec 3

Lakewide Management Plan (LaMP) Workshops

Last month's feature article discussed the U.S. Environmental Protection Agency's proposed plan to identify ways to reduce and prevent pollution in the Great Lakes. Public workshops on the Lake Michigan LaMP are scheduled at the following locations and times:

Hammond, IN
Milwaukee Clipper Nov 17
Chicago, IL
Shedd Aquarium Nov 19

Workshops begin at 1:00 p.m.
Public meetings for comment begin at 6:00 p.m.



Russell L. Fuhrman
Brigadier General, USA
Commanding

Great Lakes Basin Hydrology

The precipitation, water supplies, and outflows for the lakes are provided in Table 1. Precipitation data include the provisional values for the past month and the year-to-date and long-term averages. The provisional and long-term average water supplies and outflows are also shown.

**Table 1
Great Lakes Hydrology¹**

PRECIPITATION								
BASIN	OCTOBER				YEAR-TO-DATE			
	1992 [*]	AVG.**	DIFF.	% OF AVG.	1992 [*]	AVG.**	DIFF.	% OF AVG.
Superior	1.9	2.7	-0.8	70	26.4	25.7	0.7	103
Michigan-Huron	2.2	2.8	-0.6	79	26.4	26.9	-0.5	98
Erie	2.6	2.7	-0.1	96	34.0	29.5	4.5	115
Ontario	2.6	3.0	-0.4	87	32.5	29.1	3.4	112
Great Lakes	2.2	2.8	-0.6	79	28.2	27.2	1.0	104

LAKE	OCTOBER WATER SUPPLIES***		OCTOBER OUTFLOW ³	
	1992 ²	AVG. ⁴	1992 ²	AVG. ⁴
Superior	49,000	38,000	81,000	82,000
Michigan-Huron	18,000	1,000	183,000 ⁵	192,000
Erie	-20,000***	-23,000***	224,000 ⁵	199,000
Ontario	22,000	7,000	288,000	240,000

^{*}Estimated (inches)

^{**}1900-90 Average (inches)

^{***}Negative water supply denotes evaporation from lake exceeded runoff from local basin.

¹Values (excluding averages) are based on preliminary computations.

²Cubic Feet Per Second (cfs)

³Does not include diversions

⁴1900-89 Average (cfs)

⁵Reflects effects of ice/weed retardation in the connecting channels.

For Great Lakes basin technical assistance or information, please contact one of the following Corps of Engineers District Offices:

For NY, PA, and OH:
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(716) 879-4200

For IL and IN:
LTC David M. Reed
Cdr, Chicago District
U.S. Army Corps
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River Center Bldg (6th Flr)
111 North Canal Street
Chicago, IL 60606-7206
(312) 353-6400

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Detroit, MI 48231-1027
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