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North Central Division

Great Lakes Update

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Lake Superior's Infamous November Storms

The month is November. The lake is Superior. One moment, autumn breezes and quiet water, next, the howling fury of a killer storm. A storm that wreaks havoc on vessels, new and old, and strikes fear into the crews that sail them. Such is Lake Superior at her best and at her worst.

In this century, the single most devastating November storm to hit Lake Superior was the **Mataafa Storm** of 1905. Over three days, November 27-29, more than two dozen ships were sunk or damaged, including the iron ore carrier **Mataafa**, for which the storm was named. The **Mataafa** lost nine of its crew while marooned in the icy waters just yards offshore of Duluth, Minnesota (See Figures 1 and 2). Not until the loss of the **Edmund Fitzgerald**, on November 10, 1975, would a Lake Superior storm and shipwreck receive such wide and continuous media attention.

Figure 1. Duluth Harbor after the storm showing the Mataafa in the background driven nearly onto the beach.

The Mataafa Storm

Let Dr. Julius F. Wolff Jr., Professor Emeritus from the University of Minnesota set the November 1905 stage with these words from his book, Lake Superior Shipwrecks:

"When storm warnings were raised for the western lake on November 23, most captains stayed in port, a wise decision. A tumultuous northeaster with torrents of rain splashed the western lake country on the 23rd, changing to heavy slushy snow. Winds of 60 miles an hour blasted Duluth on the 24th. Decent weather returned on the weekend of the 25th and 26th, continuing through part of the 27th. Accordingly, ships by the dozens steamed out on the lake in the end-of-season rush, particularly since big storms usually have been followed by periods of

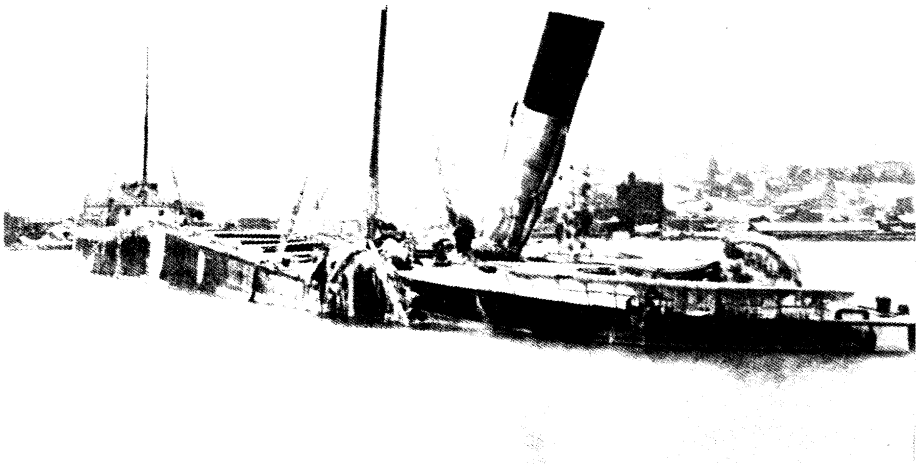

Figure 2. The extent of damage to the Mataafa becomes evident as the spring ice leaves.

relative calm. Then the weather gods threw their most wicked curve. In a phenomenon probably never before nor afterward recorded in American weather annals, rather accurately maintained since the 1870s, a far more violent gale and snowstorm blasted the Lake Superior Country just 3 days after an admittedly wild tumult. The weather forecast on the morning of the 27th was a disconcerting call for fair and cold. Storm signals were hoisted since heavy snow was falling over northern North Dakota, behind which was an enormous cold wave. Of course, this might possibly miss Duluth. It didn't.

"Snow began to fall at Duluth about 6 p.m., November 27. Within an hour, the winds were reaching 44 miles an hour. As the night wore on, winds grew stronger and stronger until 70 miles an hour was officially registered at 5:40 a.m. The tempest raged at higher than 60 miles an hour for more than 12 hours. One official report said 79 miles an hour was reached. Clouds of snow cascaded down. The whole western lake was enveloped, including the Canadian lakehead. St. Paul, Minnesota, was being plastered, and the snow was heading toward Chicago, Illinois. On the morning of the 28th, Duluth weather forecaster H. W. Richardson no longer could get data on the magnitude of the storm mass. Telegraph and telephone communications with the Weather Bureau headquarters in Chicago were out. Train and street car traffic was paralyzed in the upper midwest. Downed telephone and telegraph poles blocked streets and roads, while areas of Duluth near lake level were flooded.

"As bad as things were on land, this experience was sheer hell for sailors. Snow cut all visibility. Waves seemed to run higher than pilothouses or smokestacks. Even new 1,8[illegible] horsepower, 478-foot steel sh[illegible] were stopped cold when fully loaded. Some days elapsed before the full story was known. When the toll was tallied, 18 ships were discovered to be disabled or destroyed by stranding, one had foundered with all hands and nearly a dozen others suffered various degrees of injuries to hulls or superstructures. All except two had come to grief west of Keweenaw Point, Michigan. Five of the mishaps had fatalities. In lake history, this is called the **"Mataafa Blow"**, in memory of a major steel carrier wrecked at the Duluth pierhead."

The worst two hours in shipping history at the port of Du[illegible] occurred on November [illegible]. Shortly after noon the year-old, 363-foot steel steamer **R.W. England**, under Captain Richard England, approached the Duluth Ship Canal. Seeing he would miss the Canal, Captain England tried to turn back into the open lake, only to be caught by the shrieking winds and driven aground 2-½ miles south of the Canal (See Figure 3).

During the next half hour, the larger, 478-foot steel ship **Isaac L. Ellwood**, only five years old and boasting 1,800 horsepower, also experienced the full wrath of the storm while trying to enter the Canal. The **Ellwood**, loaded with iron ore, had left Duluth Harbor the previous day ur[illegible] Captain C.H. Cummings.

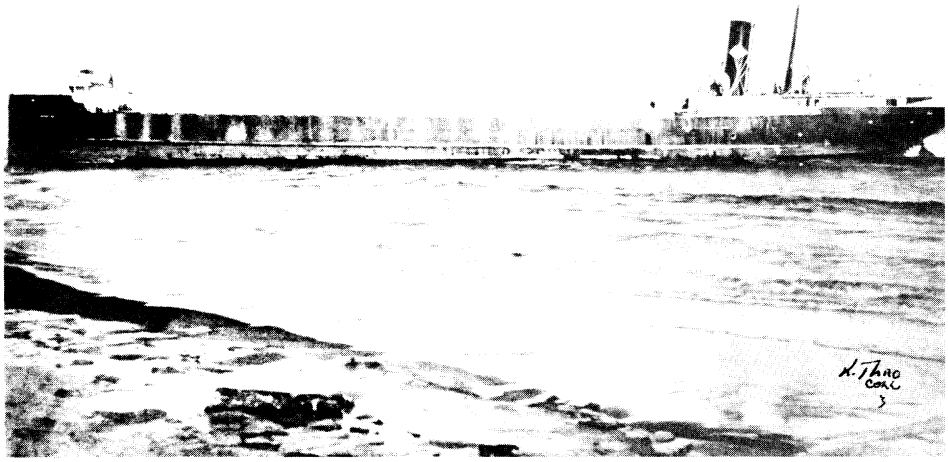

Figure 3. R.W. England aground on Minnesota Point.

ship was bound for Two Harbors to pick up the barge **Bryn Mawr**. Unable to make Two Harbors due to the storm, Captain Cummings returned to Duluth, reaching the Canal shortly after 1:00 p.m. The **Ellwood** entered the Canal and was near safety when the seas caught the ship, slamming her against the north pier, then into the south pier, both times ripping hull plates. Finally, she made it through to the cheers of spectators lining the Canal Park piers. Tugs waiting inside the Harbor were able to push the **Ellwood** into the shallows, just off the Duluth Boat Club where she settled in 22 feet of water. All hands were saved (See Figure 4).

The Mataafa's Fate

The events which befell the **England** and **Ellwood** were only a prelude to the fateful drama awaiting the **Mataafa**. The 430-foot steamer **Mataafa,** under Captain R.F. Humble and a crew of 24, cleared Duluth Harbor the afternoon of November 27. She had the 366-foot barge **James Nasmyth** in tow. Conditions on the Lake were cold, but relatively calm. Barometric pressure was rising. That evening off Two Harbors calm changed to raging fury, subjecting the two vessels to a severe battering. After fighting the storm for ten hours, and making virtually no headway, despite the **Mataafa's** 1,400 horsepower, Captain Humble was forced to come about on the morning of November 28 and start the return to Duluth Harbor and safety.

This was not to be. A few miles from the Duluth Ship Canal in the early afternoon of November 28, Captain Humble, realizing the high winds and heavy seas would not allow him to bring his tow into the Canal, ordered the towline dropped, leaving the **Nasmyth** to fend for herself. The **Mataafa**, making for the Canal was stopped by a tremendous wave and slammed into the Canal's north pier. Rudder gone and propeller disabled, merciless waves turned **Mataafa** sideways to the Canal, further pushing her against the pierhead. The battering waves persisted, turning the vessel 270 degrees before sending her

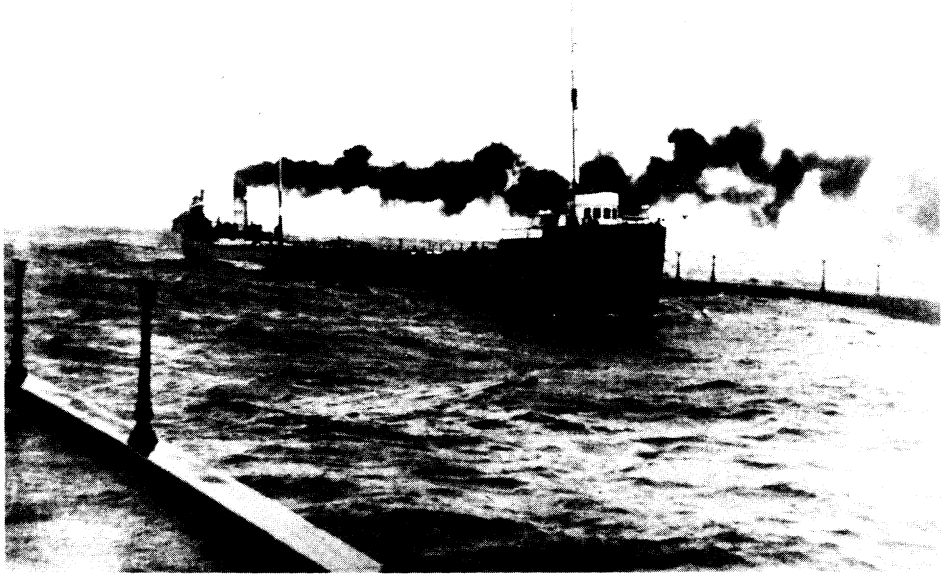

Figure 4. Isaac Ellwood surfing through the 300-foot wide Duluth Ship Canal, but not quite out of harms way.

aground only a few hundred feet offshore. The constant pounding continued wracking the broken hull.

Mataafa Rescue Attempts

Although close to shore, the **Mataafa** was isolated. Crowds of Duluth residents watched from the shore, unable to render assistance. The U.S. Life-Saving Service crew stationed on Minnesota Point in Duluth, was already occupied in a hazardous breeches buoy rescue of the crew of the **R. W. England**, which had previously run aground in the breakers just offshore. This rescue took all night. However, within an hour and a half of being notified of the **Mataafa** wreck, the lifesaving crew under command of Captain M.A. McLennan, was on the scene. To do this, they had to haul their rescue cart and equipment over 2 miles of shoreline through sand, snowdrifts and ponded water. To be within reach of the wreck, the crew were still required to be ferried across the Canal. Rescue lines were fired from shore to the wreck, to no avail. It wasn't until nearly midnight, after receiving word that Captain Humble had shouted from the **Mataafa** that all the men were safe in the forward part of the ship, that the lifesavers, except for Captain McLennan, rested.

Rescue operations continued at daybreak. Captain McLennan's crew reached the wreck to find 15 weary survivors (See Figure 5). The remaining nine had perished, having been trapped aft or washed overboard during the storm.

Figure 5. The U.S. Life-Saving Service crew in Duluth rescued 15 from the Mataafa, but nine sailors were lost to the elements.

Removal of the dead was a gruesome task. Four were recovered on board, their bodies frozen into positions of agonized despair. One washed ashore and a second was recovered later. The grim task of searching the wreck and surrounding waters for the remaining missing bodies of First Assistant Engineer C.A. Farringers, Second Assistant Engineer James Early, and Oiler William Gilchrist fell to hard-hat diver W.E. Hoy and dive tender William Hargreaves. Among the lost, the ship's cook Walter Bush of Amherstburg, New York, was perhaps, the only black sailor to fall victim of the storm.

The U.S. Life-Saving Service crew was later faulted in the press for not promptly rescuing the entire **Mataafa** crew since the ship lay just offshore. An investigation following the disaster showed that this was not possible, as the lifesavers were already engaged in the rescue o the **England's** crew. Captai. England credited the efficient, intelligent and rapid action of Captain McLennan and his men for their miraculous effort in reaching his vessel through the snow, fallen trees and downed telegraph poles while the storm raged.

Also criticized for not launching their boat, McLennan stated that the boat was necessarily of light construction and would have broken on the rocks or would have been crushed in the debris. Even the tugmasters would not venture out into the storm to tow a boat out to the wreck. A Pittsburgh Steamship Company official, formerly a lifesaver himself, said, "The bo has not yet been built whic.

could have reached the men on the **Mataafa** on the day of the wreck. In the first place, I be-ve it utterly impossible to have unched the boat, let alone get it to the stricken vessel afterwards."

Lighthouse Heros

Local lighthouse keepers were among the unsung heros of the storm. At the storm's onset Assistant Lighthouse Keeper Thomas White made his way to his station at the Duluth Entry to tend the light and foghorn. He became marooned there, spending the duration of the storm at his post, where he kept the light burning. The Lighthouse Keeper, Captain James Prior, although prevented by high waves and a flooded access tunnel from reaching the lighthouse station, was able to keep the inner range light urning. To do so, he spent two ours clearing ice from the structure in order to pry open the lower door.

Lighthouse Keeper Thomas Doody and his assistant Harry Baker faced equally severe conditions at the Superior Entry, Wisconsin. Eventually they were forced to abandon the station to the storm's violence.

Within 5 years of the **Mataafa Storm**, two badly needed lighthouses were constructed to assist mariners along the Minnesota north shore: Rock of Ages in 1908 and Split Rock in 1910. Both structures remain, but only Rock of Ages is operational, albeit with a tiny solar wered lamp.

The Edmund Fitzgerald

Seventy years later, on November 10, 1975 a storm of comparable catastrophic fame occurred, when the **Edmund Fitzgerald** (See Figure 6) foundered and sank suddenly, in the stormy waters of eastern Lake Superior north of Whitefish Point. All 29 crew members perished with her. To this day, despite two formal casualty investigations, the cause of the loss remains a mystery. Underwater investigations have included the following: by Jacques Cousteau in 1980; the Office of Sea Grant at Michigan State University and the University of Michigan in 1989; and, most recently, during the summer of 1994, by Canadian and American teams using manned submersibles. The recent dives did obtain valuable video footage of the site for future television documentaries. The "Metro Section" of the July 5, 1994 Detroit News featured a story about scientists from the Great Lakes Shipwreck Historical Society and the Harbor Branch Oceanographic Institution of Ft. Pierce, Florida, aboard the 140-foot research vessel **Edwin Link**. They viewed the **Fitzgerald's** exterior from the **Clelia**, a 22-foot research submarine, 535 feet below Lake Superior's surface.

According to the article, it is believed that the 90 mph winds and 30-foot waves that occurred in November 1975 forced the ship underwater and the momentum acquired from its 7,500 horsepower engines and the forward surge of its 26,116-ton taconite pellet cargo caused the ship to drive itself to the bottom. The research submarine found the bow and stern sections, but a large portion of the 729-foot ship's cargo area is missing.

Figure 6. Edmund Fitzgerald downbound with taconite for Toledo.

Many theories exist for the loss of the **Fitzgerald** that fateful day, including one that the ship struck a shoal north of Caribou Island, and another that the hatch covers failed. Which story is true? We may never know.

Today, safety is a priority to those who sail the Great Lakes. Exposure survival suits, Emergency Position Indicating Radio Beacons (EPIRB), improved weather forecasts and more reliable navigation instruments and systems are all meant to reduce the risk to life and equipment should bad weather be encountered. Sadly, however, the chance that similar catastrophies could occur are still very real and ever present.

References

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Acknowledgment

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Photographs used in this article were provided from the Corps of Engineers' Canal Park Marine Museum Collection.

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Colonel, EN
Commanding

Table 1

Possible Storm Induced Rises (in feet) at Key Locations on the Great Lakes
August 1994

	Degrees of Possibility				
	20%	10%	3%	2%	1%
LAKE SUPERIOR					
Duluth	0.6	0.7	0.8	0.9	1.0
Grand Marais	0.4	0.4	0.5	0.6	0.6
Marquette	1.0	1.2	1.4	1.6	1.8
Ontonagon	0.6	0.7	0.8	0.9	1.7
Point Iroquois	0.7	0.8	0.9	1.0	1.1
Two Harbors	0.5	0.7	0.8	0.9	1.0
LAKE MICHIGAN					
Calumet Harbor	1.1	1.3	1.6	1.8	2.0
Green Bay	1.6	1.9	2.2	2.4	2.6
Holland	0.5	0.6	0.7	0.7	0.8
Kewaunee	0.5	0.6	0.7	0.7	0.8
Ludington	0.6	0.6	0.8	0.8	0.9
Milwaukee	0.7	0.8	1.0	1.1	1.2
Port Inland	0.8	0.9	1.0	1.1	1.2
Sturgeon Bay	0.5	0.6	0.7	0.7	0.8
LAKE HURON					
Detour Village	0.4	0.4	0.4	0.5	0.5
Essexville	1.3	1.4	1.6	1.7	1.8
Harbor Beach	0.5	0.6	0.8	0.9	1.0
Harrisville	0.4	0.5	0.6	0.7	0.8
Lakeport	0.9	1.1	1.3	1.4	1.6
Mackinaw City	0.5	0.6	0.7	0.7	0.7
LAKE ST. CLAIR					
St. Clair Shores	0.3	0.3	0.4	0.5	0.5
LAKE ERIE *					
Barcelona	1.1	1.3	1.5	1.6	1.7
Buffalo	2.0	2.2	2.6	2.8	3.1
Cleveland	1.1	1.3	1.5	1.7	1.9
Erie	0.9	1.1	1.3	1.5	1.6
Fairport	0.6	0.7	0.9	1.0	1.2
Fermi Power Plant	1.2	1.3	1.4	1.5	1.6
Marblehead	0.9	1.1	1.3	1.4	1.6
Sturgeon Point	1.5	1.7	2.0	2.1	2.3
Toledo	1.5	1.7	1.8	1.9	2.0
LAKE ONTARIO					
Cape Vincent	0.5	0.6	0.6	0.7	0.8
Olcott	0.4	0.5	0.5	0.6	0.6
Oswego	0.5	0.6	0.7	0.8	0.9
Rochester	0.5	0.6	0.7	0.7	0.8

* The water surface of Lake Erie has the potential to tilt in strong winds, producing large differentials between the ends of the lake.

Note: The rises shown above, should they occur, would be in addition to the still water levels indicated on the Monthly Bulletin. Values of wave runup are not provided in this table.

Great Lakes Basin Hydrology

During the month of July precipitation on the Lake Superior basin was near average, and that to the Lakes Michigan-Huron basin was well above average. The Lake Erie and Lake Ontario basins experienced below average precipitation. For the year to date, precipitation on the entire Great Lakes basin has been about 2% above average. The net supply of water to Lakes Sup and Ontario was near average in July, while that to Lakes Michigan-Huron was above average and that to Lake Erie was be average. Table 2 lists July precipitation and water supply information for all of the Great Lakes.

In comparison to their long-term (1918-1993) averages, the July monthly mean water level of Lake Superior was at its long-term average, and the levels of Lakes Michigan-Huron, St. Clair, Erie and Ontario were 7, 12, 11 and 2 inches above average respectively. Shoreline residents are cautioned to be alert whenever adverse weather conditions exist, as these could cause rapid short-term rises in water levels. Should the lakes approach critically high levels, further information and advice will be provided by the Corps of Engineers.

TABLE 2
GREAT LAKES HYDROLOGY[1]

PRECIPITATION (INCHES)								
BASIN	JULY				YEAR-TO-DATE			
	1994[2]	Average (1900-1991)	Diff.	% of Average	1994[2]	Average (1900-1991)	Diff.	% of Average
Superior	3.4	3.2	0.2	106	15.8	16.3	-0.5	97
Michigan-Huron	4.4	3.0	1.4	147	18.0	17.6	0.4	102
Erie	2.6	3.3	-0.7	79	19.6	20.4	-0.8	96
Ontario	2.4	3.1	-0.7	77	19.6	19.8	-0.2	99
Great Lakes	3.7	3.1	0.6	119	18.1	17.8	0.3	102

LAKE	JULY WATER SUPPLIES[3] (CFS)		JULY OUTFLOW[4] (CFS)	
	1994[2]	Average (1900-1989)	1994[2]	Average (1900-1989)
Superior	131,000	130,000	80,000	81,000
Michigan-Huron	232,000	127,000	199,000[5]	195,000
Erie	-2,000	4,000	227,000[5]	211,000
Ontario	24,000	24,000	278,000	259,000

[1]Values (excluding averages) are based on preliminary computations.
[2]Estimated.
[3]Negative water supply denotes evaporation from lake exceeded runoff from local basin.
[4]Does not include diversions.
[5]Reflects effects of ice/weed retardation in the connecting channels.

CFS = cubic feet per second.

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