US Army Corps
f Engineers
North Central Division

Great Lakes Update

Update Letter No. 121 August 3, 1995

The Great Lakes Storm Damage Reporting System: *Its Cyberspace Expansion and Report Update*

The Corps of Engineers, Chicago District's Great Lakes Storm Damage Reporting System (GLSDRS), now has representation on the World Wide Web sector of the global cyberspace communication system known as the Internet. With just a computer and a modem, researchers can now access the storm damage reports and data files being generated by the System, along with a presentation of research methodology.

To access these files on the Internet, an Internet connection and Web Browser software, such as Mosaic or Netscape, are required. The Uniform Resource Locator (URL), or the web address, for the Chicago District and Great Lakes Storm Damage Reporting System home pages is:

http://www.usace.army.mil/ncc/

URL's are case sensitive; therefore, it should be typed exactly as it appears in the text. The home pages provide links to the GLSDRS files. Reduced-in-size samples of the Chicago District (Figure 1) and GLSDRS (Figure 2) home pages are shown on Page 2. Readers may receive further assistance from the Chicago District through points-of-contact shown below.

Regular readers may recall that the last update on the GLSDRS appeared in the December, 1994 issue (Update No. 113). In brief summary, during the introductory field trial period (July 1, 1993 to September 30, 1994), 34 surveys were conducted with about 3,300 respondents participating. These surveys reported storm-related damages of about $1,185,000. When these sample findings are projected to all Great Lakes' residential riparian properties in the sampled counties, extrapolated damages would approximate $11,170,000 during the test period.

The storm damage update presented herein covers a time period of seven (7) months from October 1, 1994 (the conclusion of the field trial period) to

Points-of-Contact for Chicago Distrcit and GLSDRS Internet Files

Contact	Subjects	E-Mail or Telephone
Dr. Dave Wallin	Storm Damage Reports and Supporting Research Design	(312) 886-6079
P.S. Chawla	Storm Damage Reports	Prabhdeep.S.Chawla @ .usace.army.mil
K.W. Farah	Problems/Comments Regarding Accessing Chicago District Internet Home Page	Kirklin.W.Farah @.usace.army.mil
J. Strang	Storm Damage Home Page	JoE.Strang @usace.army.mil

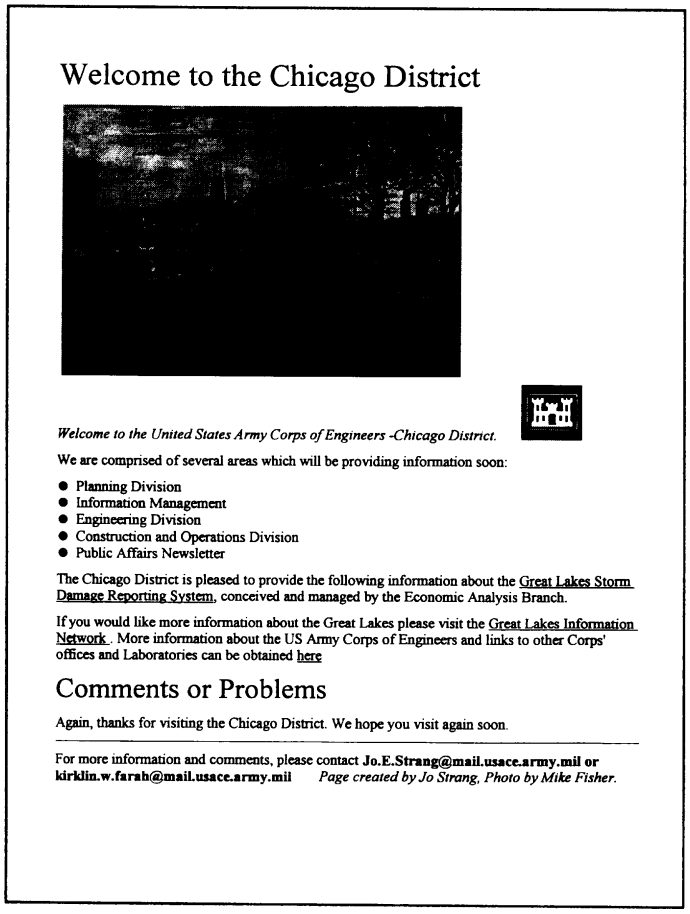


Figure 1: Chicago District Home Page.

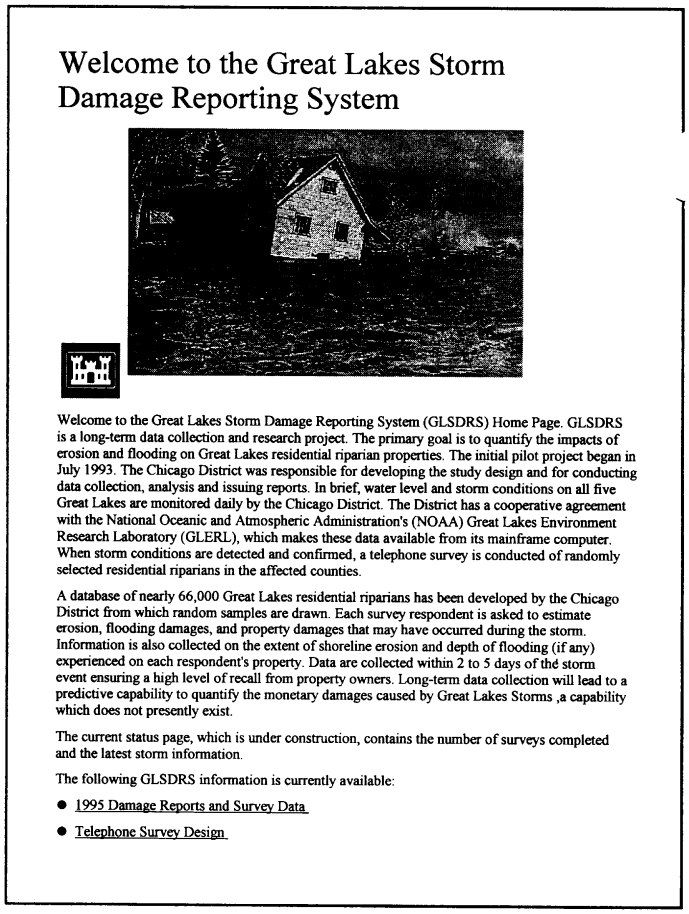


Figure 2: GLSDRS Home Page.

April 30, 1995, and the geographic area covers storm-impacted, riparian counties in each of seven (7) states. During the 7 month period 38 surveys were conducted, in 45 (about 55%) of 81 riparian counties. The results are shown in Table 1. Reported storm-related damages totalled $332,650. When these findings are extrapolated to all Great Lakes riparian properties in the sampled counties, damages are projected to be $3,408,700.

Table 2 presents the same findings classified by lake. The footnote for Table 1 serves to reconcile the disparity in the "Number of Total Surveys" column between the two tables.

Tables 3 and 4 reflect identical underlying data, but the presentations are organized differently by state and lake, respectively. Both tables, show the dominant property damage categories as "Structure and Contents" (33.8% of total) and "Other" (26.7%), which includes dock, boat, vehicles, and miscellaneous damages.

Further, the GLSDRS map, shown on Page 5, presents a summary view of surveys conducted per county from the time of System origination on July 1, 1993. Periodical updating of the riparian records has shown that there are no riparians who permanently reside in Iron County, Wisconsin and Lake County, Indiana. Thus, these counties have not been surveyed and are not in the System. Of the remaining 81 counties, all but 19, or slightly less than one-quarter, have been surveyed at least once. A quick tabulation reveals the following:

Number of Counties at Each Incidence Level

Incidence of Surveys	Number of Counties
One	27
Two	14
Three	14
Four	4
Five	2
Six	1

Table 1
Number of Riparian Homeowners and Property Damages by State for the Period October 1, 1994 to April 30, 1995

State	Number of Total Surveys	Number of Different Counties Surveyed	Number of Owners Surveyed	Total Reported Damages	Projected Damages for all Riparians
IL	2	1	30	$100	$800
IN	2	2	27	$2,300	$9,100
MI	13	24	1,001	$192,880	$1,998,000
NY	8	8	503	$102,810	$1,057,200
OH	6	4	214	$24,300	$232,100
PA	3	1	157	$7,830	$82,600
WI	4	5	125	$2,430	$28,900
Total	38	45	2,057	$332,650	$3,408,700

Note: Storm survey reports numbers 34, 41, and 59 contain counties in multiple states, those surveys are counted for each state in which they were conducted.

Table 2
Number of Riparian Homeowners and Property Damages by Lake for the Period October 1, 1994 to April 30, 1995

Lake	Number of Total Surveys	Number of Different Counties Surveyed	Number of Owners Surveyed	Total Reported Damages	Projected Damages for all Riparians
Superior	2	7	140	$10,890	$123,900
Michigan	11	17	432	$17,500	$147,600
Huron	6	7	421	$166,130	$1,733,100
St. Clair	1	1	190	$3,190	$32,200
Erie	10	7	586	$97,270	$976,300
Ontario	4	6	288	$37,670	$395,600
Total	34	45	2,057	$332,650	$3,408,700

Table 3
Types of Reported Property Damage for Surveyed Riparians by State for the Period October 1, 1994 to April 30, 1995

State	Structure and Contents	Landscaping	Shore Protection Structures	Other	Total Property Damages
IL	$0	$100	$0	$0	$100
IN	$2,100	$200	$0	$0	$2,300
MI	$88,800	$39,270	$24,380	$40,430	$192,880
NY	$19,250	$25,380	$19,000	$39,180	$102,810
OH	$2,020	$8,710	$8,000	$5,570	$24,300
PA	$150	$470	$6,000	$1,210	$7,830
WI	$0	$100	$0	$2,330	$2,430
Total	$112,320	$74,230	$57,380	$88,720	$332,650
Percent of Total Damages	33.8%	22.3%	17.2%	26.7%	100.0%

Table 4
Types of Reported Property Damage for Surveyed Riparians by Lake for the Period October 1, 1994 to April 30, 1995

Lake	Structure and Contents	Landscaping	Shore Protection Structures	Other	Total Property Damages
Superior	$0	$2,060	$2,000	$6,830	$10,890
Michigan	$3,850	$4,610	$3,780	$5,260	$17,500
Huron	$87,000	$29,860	$18,600	$30,670	$166,130
St. Clair	$50	$3,140	$0	$0	$3,190
Erie	$13,600	$19,260	$27,000	$37,410	$97,270
Ontario	$7,820	$15,300	$6,000	$8,550	$37,670
Total	$112,320	$74,230	$57,380	$88,720	$332,650
Percent of Total Damages	33.8%	22.3%	17.2%	26.7%	100.0%

The survey, then, is broad, but uneven. This, of course, is a result of the fact that the number of surveys conducted in any given county is directly dependent on the incidence and location of storms that meet the criteria to do a survey in the local area.

Finally, the storm damage data base continues to expand with the incidence of new surveys. For additional specific information on the GLSDRS, note the Internet access instructions presented above, or write to:

LTC Robert Slockbower
Commander, Chicago District
U.S. Army Corps of Engineers
111 North Canal Street
Chicago, IL 60606-7206

For telephone inquiries, contact Dr. Dave Wallin at the Chicago District's Economic Analysis Branch, (312) 886-6079.

Do You Know?

The answer to last month's question is: Approximately one-seventh of the US population is contained within the Great Lakes basin.

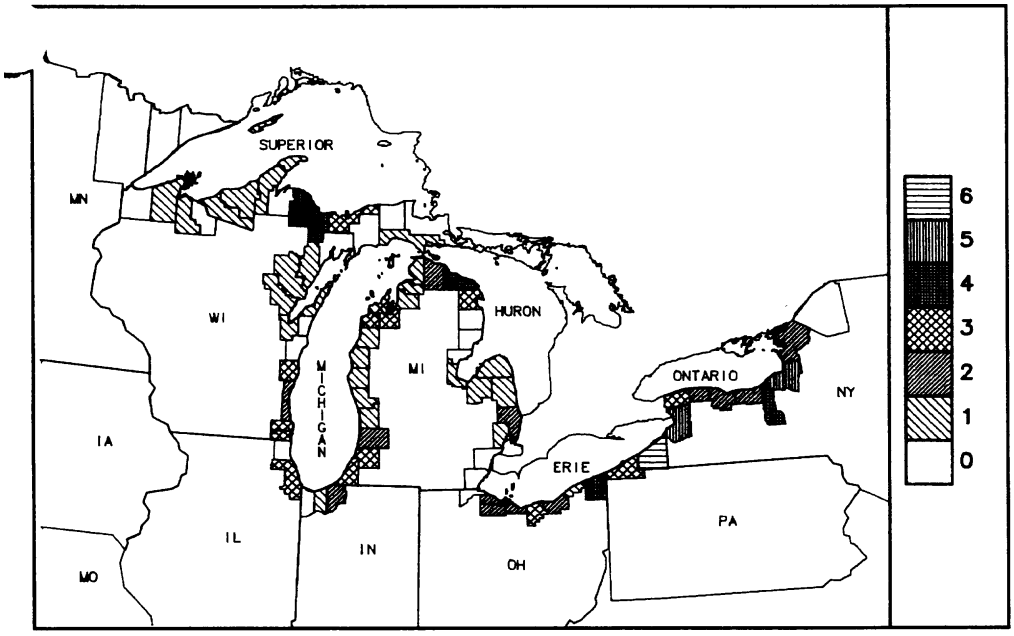
This month's query is: Approximately how many cubic miles of water is contained in Lake Superior?

(a) 500
(b) 1,500
(c) 2,500

Mailing List Changes

As indicated in the previous two issues, the mailing list for the Monthly Bulletin of Lake Levels for the Great Lakes and the Great Lakes Update is being revised. If your mailing address changes during the year please take a few minutes to review the information provided on Page 6, fill out the form provided and return it to the address shown. If you have already done so, or your mailing address does not change during the year, you do not need to take any action.

RICHARD W. CRAIG
Colonel, EN
Commanding



Map: Great Lakes Storm Damage Reporting System (GLSDRS) - Frequency of Surveys Conducted Per County July 1, 1993 to April 30, 1995.

Dear Reader:

During the winter months many readers head for warmer climates without notifying us of their new address. As a result their copies of the Monthly Bulletin are returned marked **"Postage Due"**. To eliminate the additional cost to the Government and/or delay in receiving your copies, we are modifying our mailing list to allow a reader to specify two seasonal addresses, if necessary.

Let us know what address(es) you would like your copy of the Monthly Bulletin to be delivered to during the months **May through October** and **November through April**. Please take a few moments to fill in the information requested in the blanks below and return this form to the following address: **Department of the Army, Detroit District, Corps of Engineers, ATTN: CENCE-EP-HI (Bulletin), P.O. Box 1027, Detroit, MI 48231-1027**. Please note that if you have already responded, or your address does not change during the year, it is not necessary to return this form.

	MAY -- OCTOBER	**NOVEMBER -- APRIL**
Name:	_____	_____
Street Address or P.O. Box:	_____	_____
City, state and ZIP Code:	_____	_____

Table 1

Possible Storm Induced Rises (in feet) at Key Locations on the Great Lakes August 1995

	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	0.5	0.6
Marquette	0.9	1.2	1.4	1.6	1.8
Ontonagon	0.6	0.7	0.8	0.9	1.0
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	1.1
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	0.8
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	2.3	2.6	2.9	3.1
Cleveland	1.1	1.3	1.5	1.7	1.9
Erie	0.9	1.1	1.3	1.4	1.6
Fairport	0.6	0.7	0.9	1.0	1.1
Fermi Power Plant	1.1	1.3	1.4	1.5	1.6
Marblehead	1.0	1.2	1.5	1.8	2.0
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	0.7
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 was above average on the Lake Superior and Michigan-Huron basins, at average on the Lake Ontario basin and below average on the Lake Erie basin. For the year to date, precipitation is about 7% below average for the entire Great Lakes basin. The net supply of water to each of the Great Lakes in July was below average. Ta' 2 lists July precipitation and water supply information for all of the Great Lakes.

In comparison to their long-term (1918-1994) averages, the July monthly mean water level of Lakes Superior and Ontario were 7 and 3 inches below average respectively, Lake Michigan-Huron was at its average and Lakes St. Clair and Erie were 6 and 5 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			
	1995[2]	Average (1900-1994)	Diff.	% of Average	1995[2]	Average (1900-1994)	Diff.	% of Average
Superior	3.5	3.3	0.2	106	15.2	16.3	-1.1	93
Michigan-Huron	3.2	3.0	0.2	107	17.0	17.6	-0.6	97
Erie	2.5	3.3	-0.8	76	19.8	20.4	-0.6	97
Ontario	3.1	3.1	0.0	100	15.8	19.8	-4.0	80
Great Lakes	3.2	3.1	0.1	103	16.7	17.9	-1.2	93

LAKE	JULY WATER SUPPLIES[3] (CFS)		JULY OUTFLOW[4] (CFS)	
	1995[2]	Average (1900-1989)	1995[2]	Average (1900-1989)
Superior	165,000	130,000	60,000	81,000
Michigan-Huron	118,000	127,000	190,000[5]	195,000
Erie	4,000	4,000	217,000[5]	211,000
Ontario	16,000	24,000	235,000	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.

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

For NY, PA, and OH:
COL Walter C. Neitzke
Cdr, Buffalo District
U.S. Army Corps
of Engineers
1776 Niagara Street
Buffalo, NY 14207-3199
(716) 879-4200

For IL and IN:
LTC Robert E. Slockbower
Cdr, Chicago District
U.S. Army Corps
of Engineers
111 North Canal Street
Chicago, IL 60606-7206
(312) 353-6400

For MI, MN, and WI:
COL Randolph O. Buck
Cdr, Detroit District
U.S. Army Corps
of Engineers
P.O. Box 1027
Detroit, MI 48231-1027
(313) 226-6440 or 6441