LAKE MICHIGAN OVERVIEW

Sea Grant
MICHIGAN

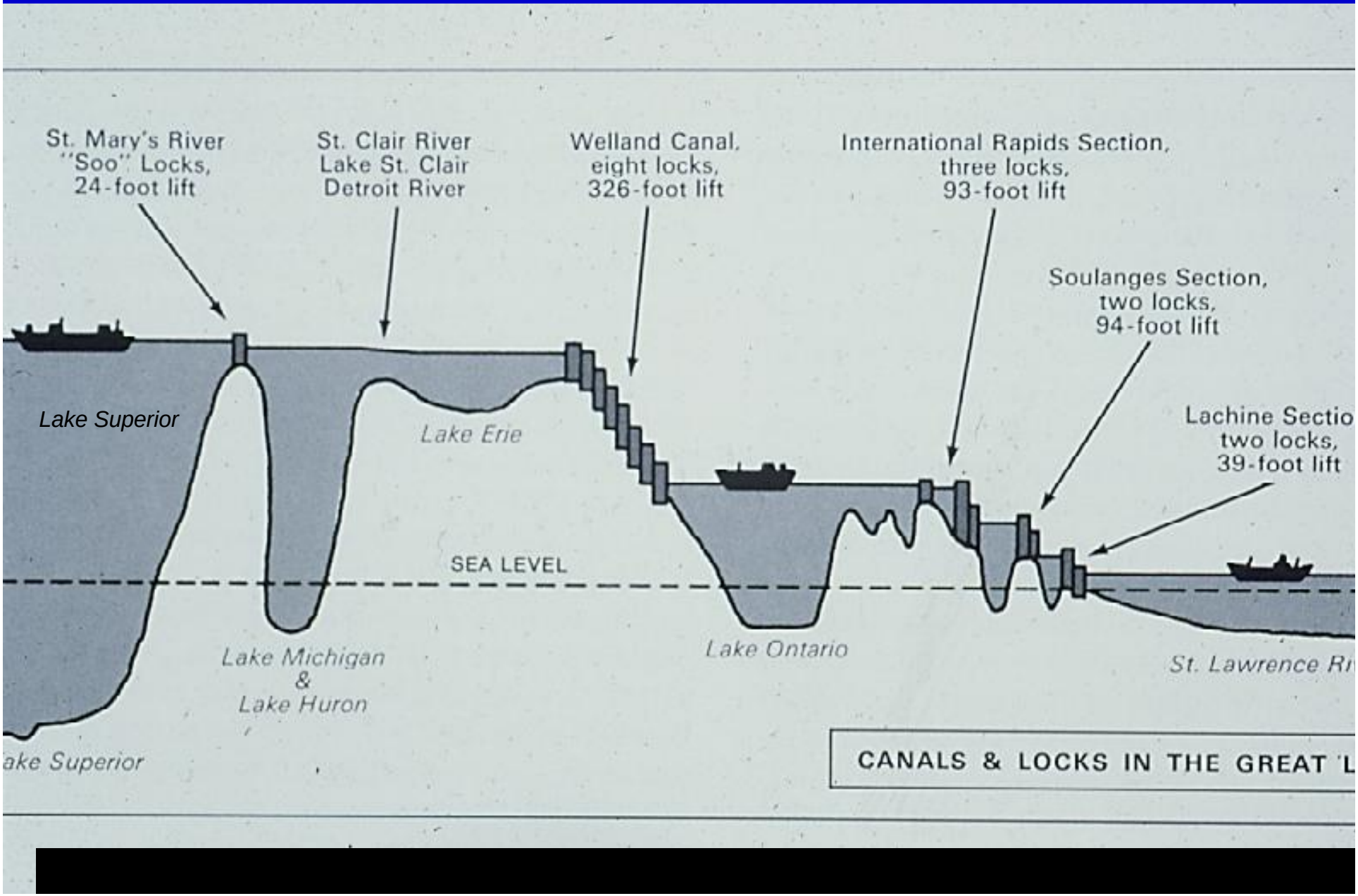
Presented by
Chuck Pistis
Michigan Sea Grant

Great Lakes Fishery Leadership Institute
Oct. 4, 2003
Manitowoc , WI

Great Lakes Sea Grant Fisheries Leadership Institute

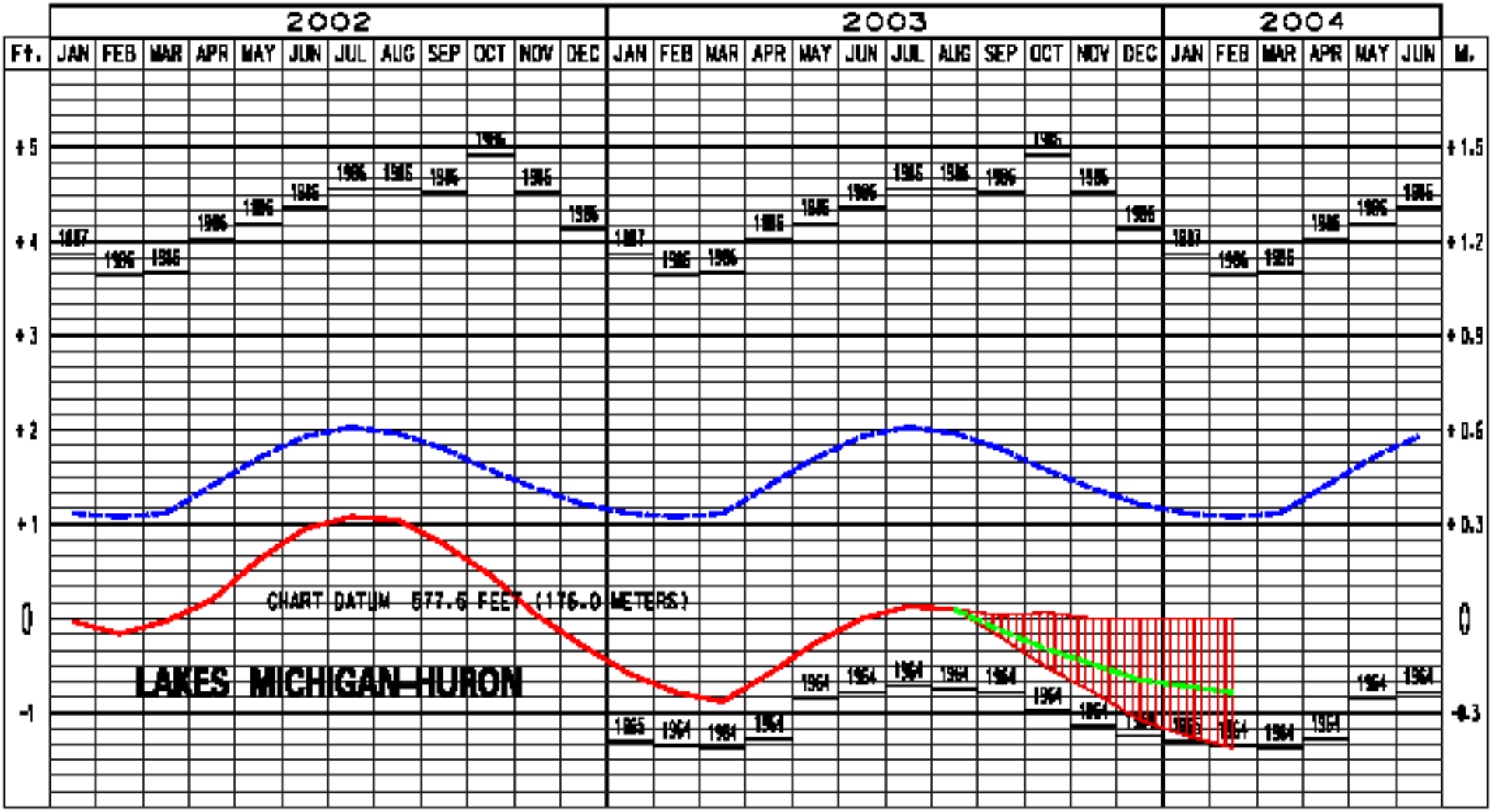
Great Lakes Basin
Ogoki Lake
Lake Nipigon
Long Lac
Thunder Bay
Minnesota
Ontario
Canada
United States
Lake Superior
Duluth
Houghton
Marquette
Sault Ste. Marie
St. Marys River
Sault Ste. Marie
North Channel
Straits of Mackinac
Manitoulin Island
Georgian Bay
Escanaba
Wisconsin
Menominee River
Green Bay
Lake Michigan
Traverse City
Alpena
Lake Huron
Canada
United States
Collingwood
Quebec
Massena
Kingston
St. Lawrence River
Ontario
Saginaw Bay
Michigan
Bay City
Toronto
Lake Ontario
Canada
United States
Rochester
Hamilton
Niagara Falls
Buffalo
New York
Milwaukee
Grand Rapids
Lansing
Port Huron
St. Clair River
Sarnia
Detroit
Windsor
Detroit River
Ann Arbor
Lake Erie
Canada
United States
Erie
Chicago
South Bend
Gary
Toledo
Cleveland
Pennsylvania
Fort Wayne
Indiana
Ohio
Legend
Great Lakes Basin
Lake Basin Boundary
International Boundary

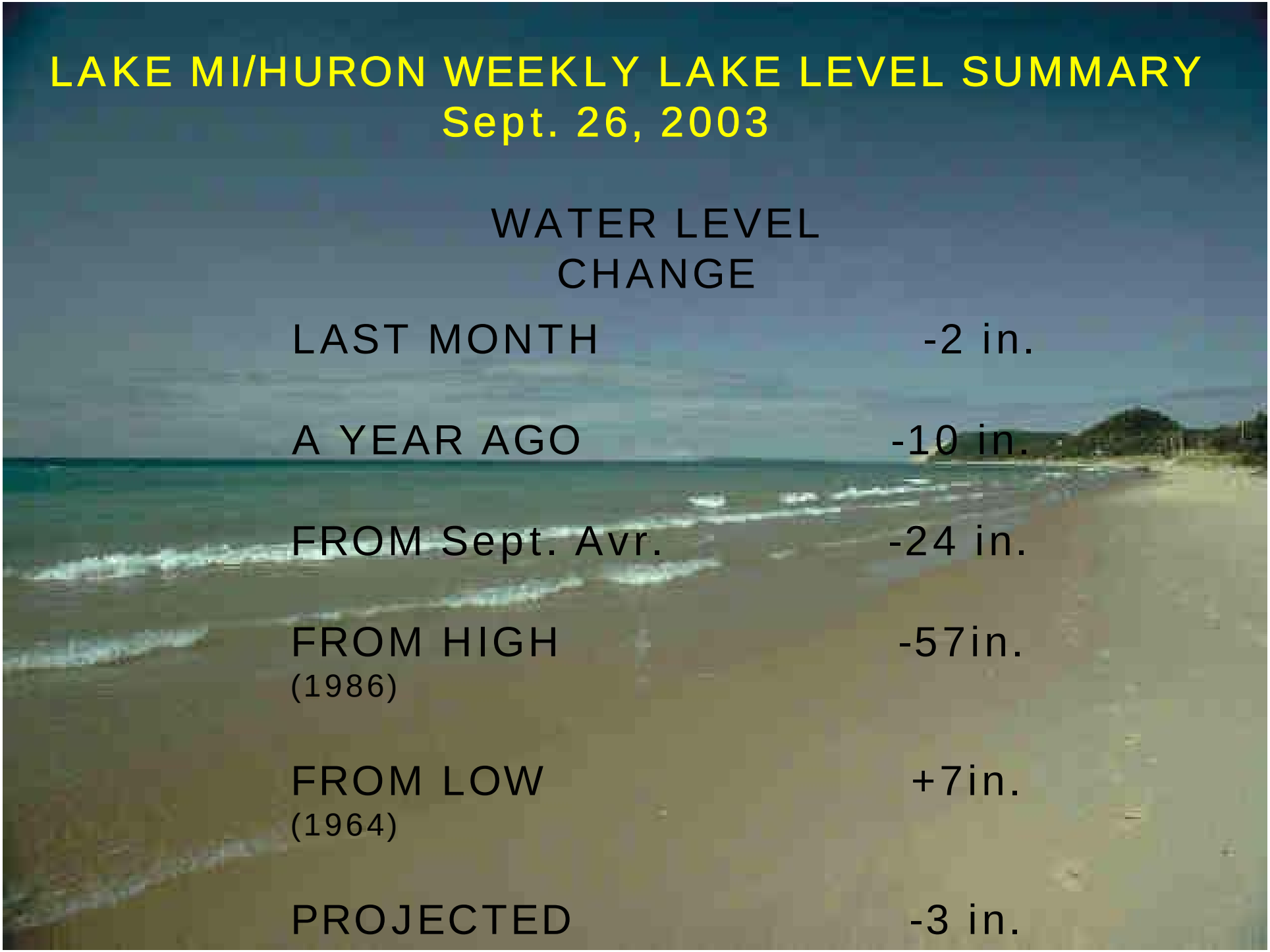
The Great Lakes Hydrologic System



Great Lakes Diversions

CURRENT L. MICHIGAN WATER LEVELS

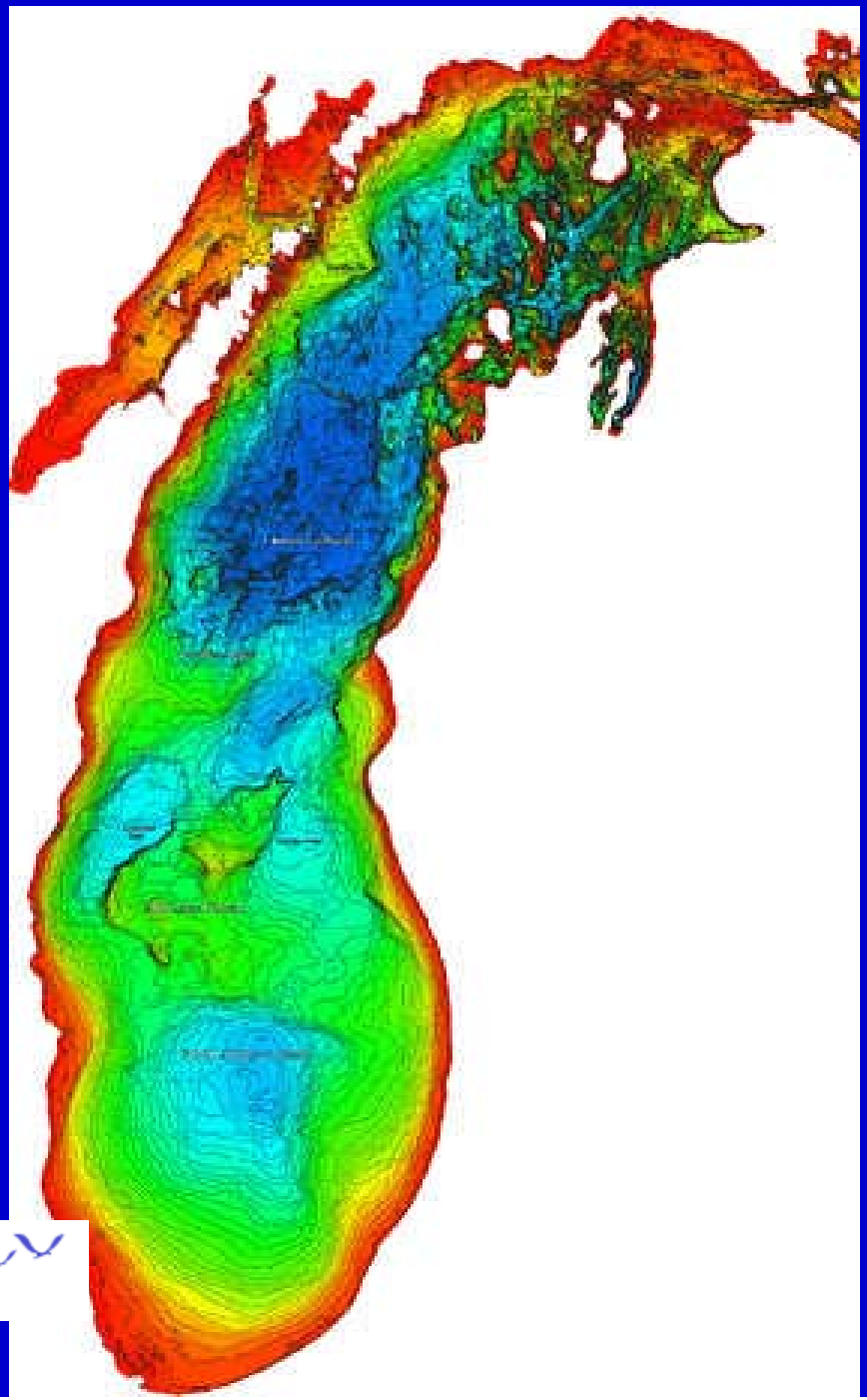




LAKE MI/HURON WEEKLY LAKE LEVEL SUMMARY
Sept. 26, 2003

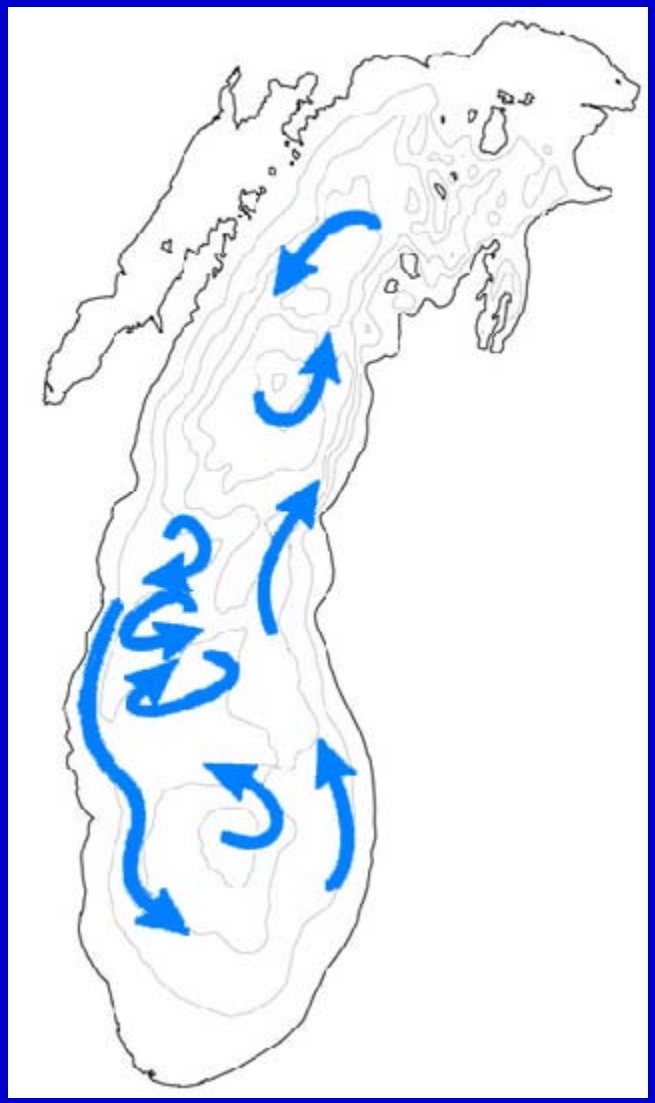
	WATER LEVEL CHANGE
LAST MONTH	-2 in.
A YEAR AGO	-10 in.
FROM Sept. Avr.	-24 in.
FROM HIGH (1986)	-57in.
FROM LOW (1964)	+7in.
PROJECTED	-3 in.

Bathymetry of Lake Michigan



National Geophysical Data Center (NGDC)
NOAA Satellites and Information

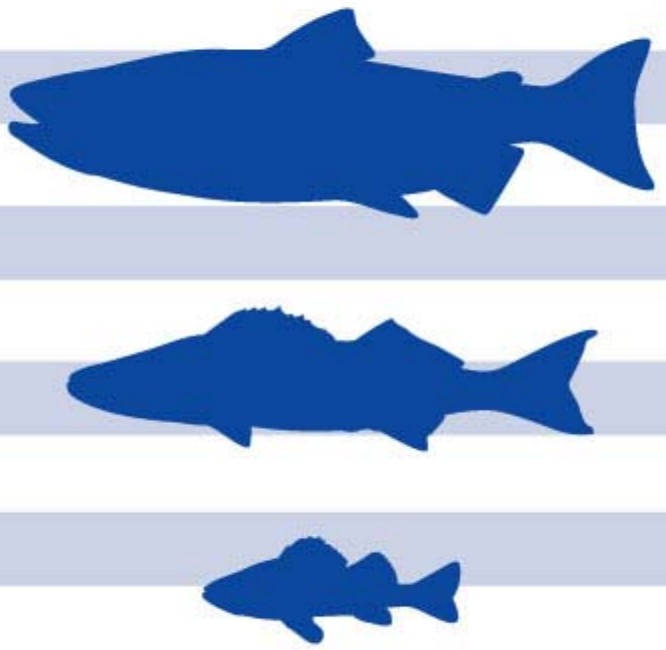
Mean summer circulation in L. Michigan.



From Beletsky et al. JGLR 25(1):78-93 (1999).

Number of Fish Species Found in the Great Lakes Basin*

Basin	Number of fish species
Erie	129
Ontario	119
Huron	117
Michigan	136
Superior	83
Lake Nipigon	39
St. Lawrence River	105
Total 5 lakes and tributaries	172
Total basin	179



Source: Coon 1999 in Taylor and Ferreri 1999 *Includes tributaries

Popularity of Fish Species for Anglers in U.S. Waters of the Great Lakes 2001

Species	Anglers	Days spent angling
Yellow Perch	693,000	6,597,000
Bass	589,000	6,355,000
Walleye	571,000	5,521,000
Salmon	516,000	3,985,000
Lake Trout	349,000	3,605,000
Steelhead	338,000	3,698,000

Number of Anglers Fishing in U.S. Waters of the Great Lakes

State	Anglers	Days spent angling
Illinois	120,000	756,000
Indiana	45,000	721,000
Michigan	680,000	7,002,000
Minnesota	60,000	603,000
New York	368,000	6,324,000
Ohio	430,000	4,241,000
Pennsylvania	80,000	1,406,000
Wisconsin	198,000	2,085,000

Source: U.S. Dept of Interior, U.S. Fish and Wildlife Service and U.S. Dept. of Commerce, 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

Number of Anglers Fishing in U.S. Waters of the Great Lakes

Lake/Waters	Anglers	Days spent angling
Erie	645,000	7,748,000
Huron	155,000	1,171,000
Michigan	561,000	4,836,000
Ontario	241,000	3,560,000
Superior	93,000	601,000
St. Clair	96,000	524,000
St. Lawrence	111,000	905,000
Tributaries	284,000	3,331,000

Source: U.S. Dept of Interior, U.S. Fish and Wildlife Service and U.S. Dept. of Commerce, 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

Lake Michigan
Recreational Fishery Harvest

Species	Peak Yr.(1986) CATCH	2001 CATCH
Brook Trout	4,523	178
Brown Trout	148,046	38,871
Chinook Salmon	931,905	264,703
Coho Salmon	334,771	221,680
Lake Trout	210,861	73,932
Rainbow Trout	93,027	114,371
Smallmouth Bass	7,916	7,869
Splake	891	2,060
Walleye	56,930	61,916
Yellow Perch	5,925,379	800,811
Total	7,714,249	1,586,390

Source: Lake Michigan Recreational Fishery Database: Summary by Management Zones, 1974-2001 by Dale Hanson, U.S. Fish & Wildlife Service

Lake Michigan
Recreational Fishery Harvest

Species	PEAK YR. (1986) Catch in Lbs.	2001 Catch in Lbs.
Brook Trout	6,681	1,163
Brown Trout	694,215	219,171
Chinook Salmon	9,508,943	2,751,805
Coho Salmon	1,057,419	802,086
Lake Trout	1,219,035	461,682
Rainbow Trout	414,421	658,526
Smallmouth Bass	13,050	44,768
Splake	0	4,117
Walleye	146,605	142,404
Yellow Perch	1,479,691	284,775
Total	14,540,061	5,370,498

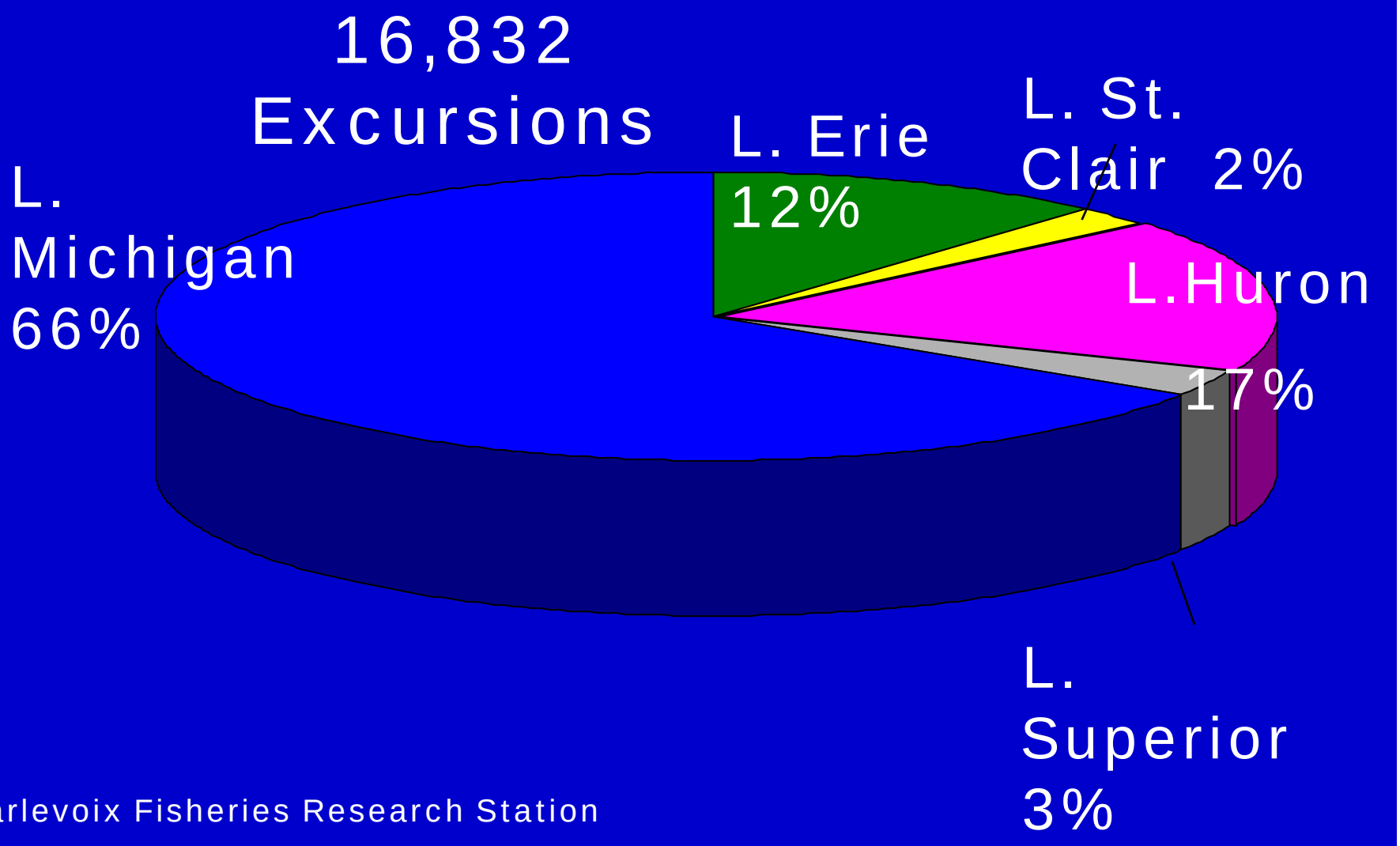
Source: Lake Michigan Recreational Fishery Database: Summary by Management Zones, 1974-2001 by Dale Hanson, U.S. Fish & Wildlife Service

Great Lakes Charter Business by State

Region/Body of Water	# of Charter Businesses	Est.Total Sales (millions)
All GL States	1,746	34.5
New York	305	7.0
Pennsylvania	28	0.4
Ohio	651	10.4
Michigan	468	10.4
Illinois-Indiana	64	1.0
Wisconsin	209	4.7
Minnesota	44	0.6

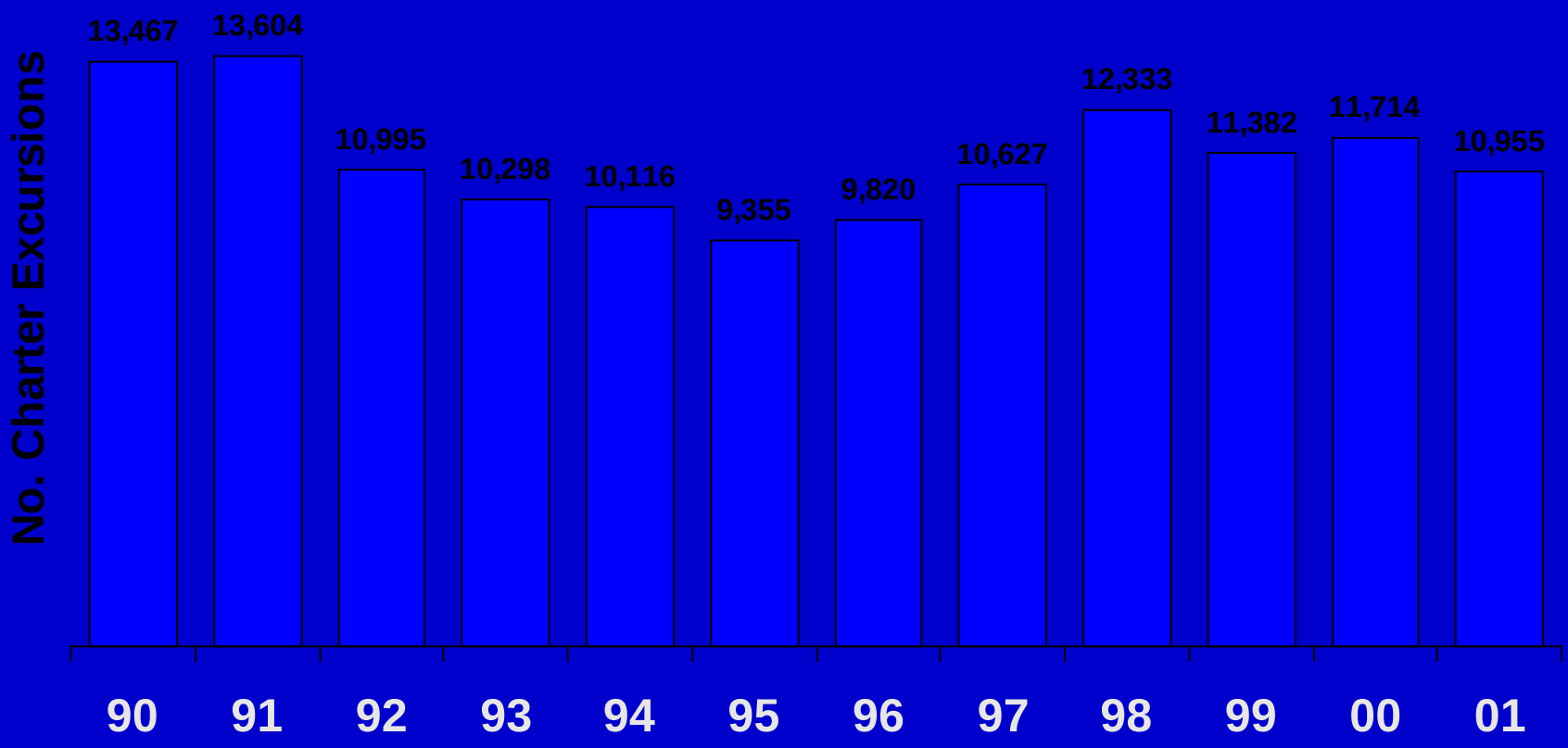
Source: Table 8, The Great Lakes Charter Fishing Industry in 2002 by Frank R. Lichtkoppler, Ohio Sea Grant Extension; Chuck Pistis, Michigan Sea Grant Extension; and Diane Kuehn, New York Sea Grant Extension

Composition (%) of Charter Boat Effort & Number of Excursions During 2001



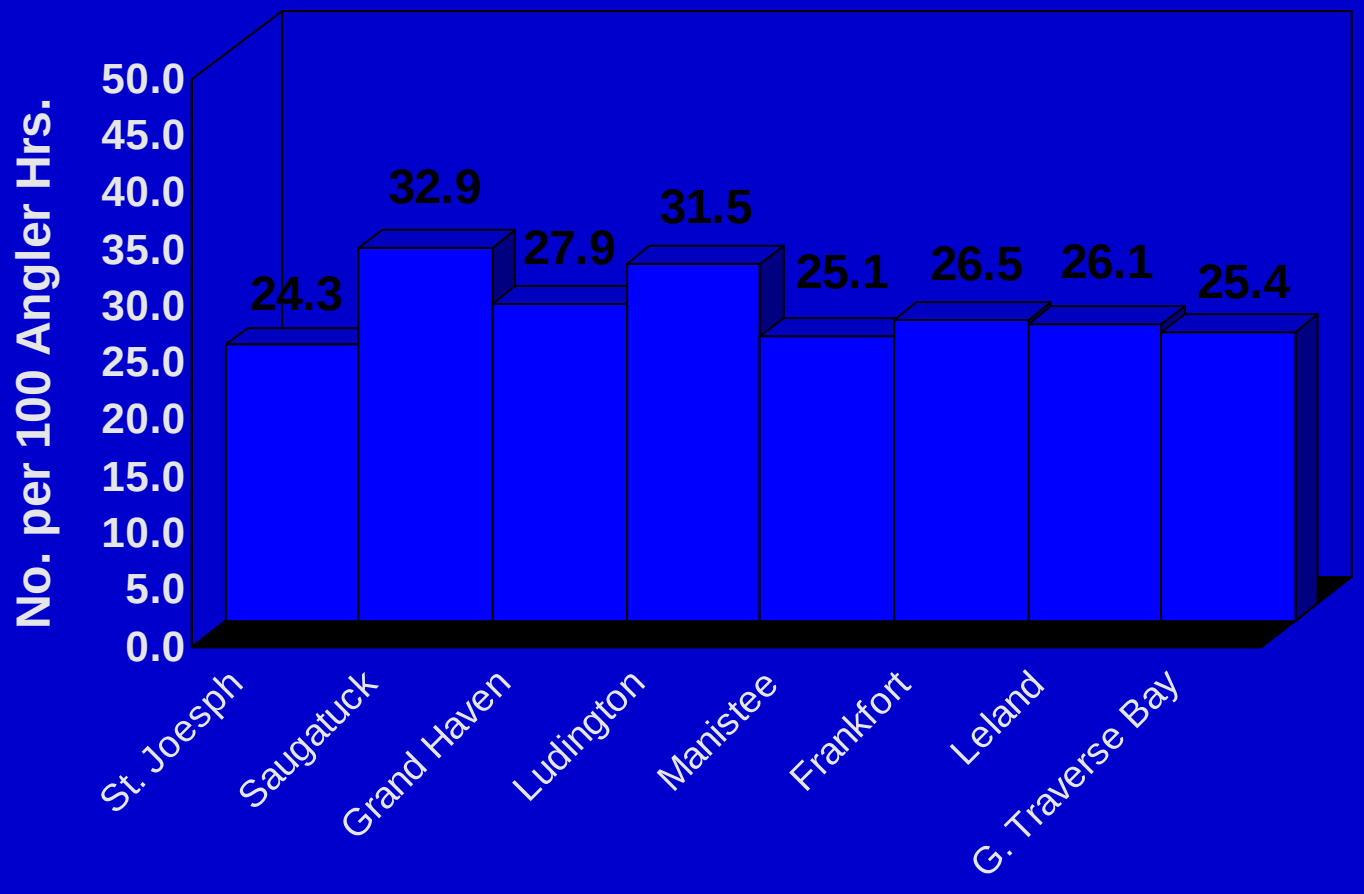
Charlevoix Fisheries Research Station

Number of Charter Fishing Excursions on Lake Michigan



Charlevoix Fisheries Research Station

Catch Rates by Charter Anglers for all Salmonines Combined at Various Lake Michigan Ports



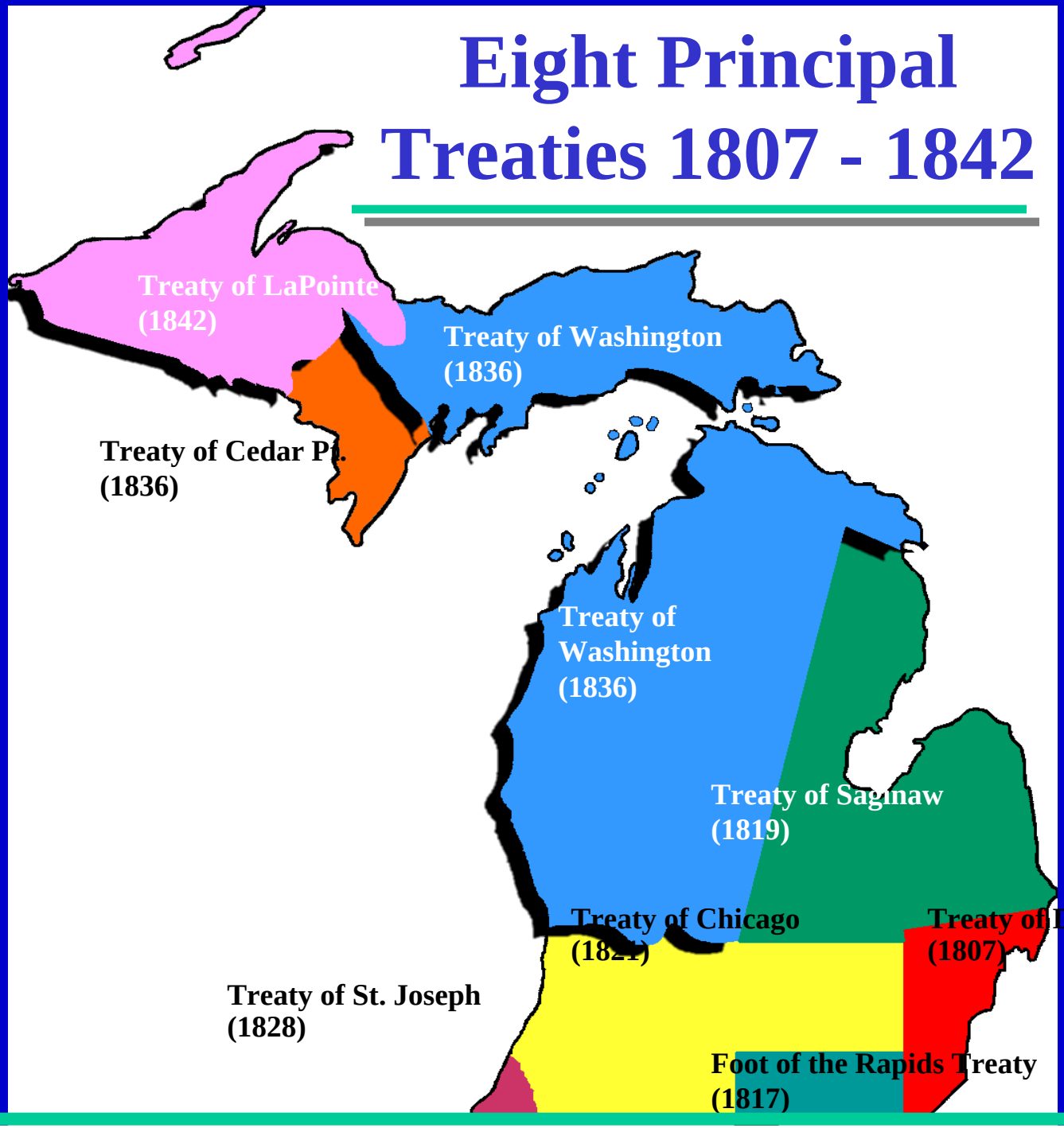
Charlevoix Fisheries Research Station

Charter vs. Non-Charter Sport Catch from Lake Michigan, 2001

Species	Charter	%	Sport	%
Coho salmon	10,157	22%	36,673	78%
Chinook s.	34,339	22%	121,728	78%
Rainbow trout	12,911	21%	48,688	79%
Brown trout	1,792	10%	16,612	90%
Lake trout	14,661	31%	32,372	69%
Angler Hours	296,936	10%	2,741,132	90%

Charlevoix Fisheries Research Station

Eight Principal Treaties 1807 - 1842



U.S. and Canadian Great Lakes Commercial Fishing Statistics in Great Lakes

Species/Lake	U.S. Total lbs.	U.S. $Value	Canada Total lbs.	CDN $Value	Grand Total lbs.	Grand Total Value*
Erie	3,929,459	3,400,527	23,089,000	30,999,800	27,018,459	24,170,393
Huron	4,819,119	4,517,486	10,472,000	12,270,190	15,291,119	12,738,513
Michigan	7,541,800	7,988,721	0	0	7,541,800	7,988,721
Ontario	70,260	111,401	914,000	1,324,670	984,260	998,929
Superior	2,459,256	1,827,273	1,489,000	1,227,830	3,948,256	2,649,919
Totals	18,819,894	17,845,408	35,964,000	45,822,490	54,783,894	48,546,476

Source: Great Lakes Fisheries Commission, United States Geological Survey, Ontario Commercial Fisheries' Association *Value in U.S. dollars

U.S. and Canadian Great Lakes Commercial Fishing Statistics in Great Lakes

U.S. and Canadian Great Lakes Commercial Fishing Statistics in Great Lakes

Species/Lake	U.S. Total lbs.	U.S. $Value	Canada Total lbs.	CDN $Value	Grand Total lbs.	Grand Total Value*
Lake Whitefish	9,886,310	10,256,122	11,167,000	12,507,040	21,053,310	18,635,838
Yellow Perch	1,169,422	3,034,896	4,004,000	11,771,760	5,173,422	10,921.975
Walleye	22,891	38,851	7,269,000	15,046,830	7,291,891	10,120,227
White Bass	320,895	258,530	127,000	2,908,110	3,447,895	2,206,963
Chubs	1,625,614	1,88,906	300,000	450,000	1,925,614	1,890,406
Smelt	460,842	751,793	7,190,000	1,653,700	7,650,842	1,859,772
Lake Trout	994,087	531,462	563,000	43,430	1,557,087	761,560
Lake Herring	667,584	270,657	793,000	459,940	1,460,584	578,816
Channel Catfish	507,294	299,270	31,000	14,570	538,294	309,031
Pacific Salmon	519,338	262,333	5,000	1,800	524,338	263,539
White Perch	188,275	107,027	313,000	228,490	501,275	260,115
Carp	1,304,048	140,837	197,000	29,550	1,501,048	160,635

Lake Michigan Lake Whitefish Harvest

- Most harvested fish in Lake Michigan in 2000
- Almost 4.8 million pounds harvested with a dock side value of just over $5.1 million

Lake Michigan Chub Harvest

- Second most harvested fish in Lake Michigan in 2000
- 1.5 million pounds harvested with a dock side value of just over $1.5 million

Lake Michigan Lake Trout Harvest

- Just over 620 thousand pounds harvested with a dock side value of almost $340 thousand in 2000

Sea Grant
MICHIGAN

Lake Michigan
QUESTIONS?