

**International Lake Superior
Board of Control
Semi-Annual Progress Report to the
International Joint Commission
Covering the Period September 18, 2002 to March 4, 2003**



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International Lake Superior Board of Control



United States
COL Mark A. Roncoli, Alt. Member
John W. Kangas, Secretary

Canada
G. Carr McLeod, Member
David Fay, Secretary

March 4, 2003

International Joint Commission
Washington, D.C.
Ottawa, Ontario

Commissioners:

This semi-annual report covers the Board's activities from September 18, 2002 to March 4, 2003.

1. Highlights

On March 4, 2003 the lake was about 23 cm (9 inches) below the average for that time of year, and 6 cm (2 inches) lower than a year ago. During the past six months Lake Superior water levels were below their monthly averages by between 9 and 22 cm (4 and 9 inches). During the reporting period, Lake Superior levels remained above chart datum during most of the navigation season, but fell below datum early in January. Water supplies to Lake Superior were above average in September and October and below average from November through February.

On March 4, 2003 the level was about 60 cm (24 inches) below the average for that time of year, and 24 cm (9 inches) lower than a year ago. During the past six months Lakes Michigan-Huron water levels were below their monthly averages by between 31 and 57 cm (12 and 35 inches). During the reporting period Lakes Michigan-Huron levels remained above chart datum until mid-November. Water supplies to Lakes Michigan-Huron were below average from September through February.

Lake Superior outflows were as specified by Regulation Plan 1977-A during the reporting period except for September and October during the Compensating Works gate seal replacement. The Compensating Works gates were maintained at a setting equivalent to one, or one-half gate open for the main rapids. The Board suspended ponding during the first portion of December. The Board submitted its interim report on peaking and ponding to the Commission in December 2002.

The automation of the U.S. government hydropower plant was substantially completed by the end of February 2003. Recalibration of the system to assure proper reporting of flows through the plant is scheduled to take place this spring and summer.

2. Monitoring of Hydrologic Conditions

During the reporting period, the Board, through its staff, continuously monitored the water levels of Lakes Superior and Michigan-Huron, and the water levels and flows in the St. Marys River. The Regulation Representatives' monthly reports to the Board provided a hydrologic assessment, as well as recommendations on the regulation of outflows from Lake Superior. These reports also indicated the amount of water available for hydropower purposes, after the requirements for domestic use, navigation, and the fishery (St. Marys Rapids) were met.

Tables 1 and 2 list the recent monthly water levels, net basin supplies, and outflows for Lakes Superior and Michigan-Huron, respectively. Figure 1 compares the monthly water levels for this period to long-term averages and extremes. Figure 2 shows the monthly precipitation over the Lakes Superior and Michigan-Huron basins. Figure 3 shows the monthly net basin supply comparisons.

Precipitation over the Lake Superior basin for the reporting period was slightly below average, with September and October being above average and November through February below average. The water supply to Lake Superior was below average for the six-month period, with September and October being above average, and the remaining months below average. Except for December, the monthly outflows from Lake Superior were below average during the reporting period. While monthly mean lake levels remained below average they ranged from about 7 cm (3 inches) below, to about 14 cm (6 inches) above levels of a year earlier. Levels fell below chart datum in early January and remained there as of the date of this report. Snow survey flights were scheduled to be made from March 10 to March 13, 2003 to determine the water equivalent of the snow pack on the basin. As of the date of this report, snow survey information was not yet available. On March 4, Lake Superior was at elevation 183.04 m (600.52 ft), about 23 cm (9 inches) below average for that time of year and 6 cm (2 inches) lower than one year ago.

Precipitation over the Lakes Michigan-Huron basin was below average in each of the reporting period months of September through February. The water supply to Lakes Michigan-Huron including inflows from Lake Superior was below average for the entire reporting period. While monthly mean Lake Michigan-Huron levels remained below average they ranged from about 19 cm (7 inches) below, to about 23 cm (9 inches) above levels of a year earlier. Water levels fell below chart datum in mid-November and remained there as of this reporting date. On March 4, Lakes Michigan-Huron was at elevation 175.72 m (576.51 ft), 60 cm (24 inches) below average for that time of year and 26 cm (10 inches) lower than one year ago.

3. Regulation of the Outflow from Lake Superior

During the reporting period, the outflows of Lake Superior were as specified by Regulation Plan 1977-A except in September and October during replacement of the bottom seals on the eight U.S. gates. Plan 1977-A called for a one-half gate setting during this period, however, it was necessary to raise each of the U.S. gates to a full open position, one at a time, while seal replacement was being done. The Compensating Works were returned to an equivalent one-half gate open setting on October 11, 2003 where it has remained to the end of the reporting period. During the gate seal repair period it was expected that the Lake Superior outflow would be increased by an additional 130 m³/s-months over the two month period due to each gate being

fully open during its repairs. However, the U.S. and Canadian hydropower plants were not able to utilize their full flow allocations during this period and this coincidentally completely offset the expected $130 \text{ m}^3/\text{s}$ -month increase. The hydropower plant capacity was reduced due to the installation of automation equipment in the U.S. government hydropower plant, which required up to two generators at a time to be taken out of service. The Edison Sault Electric Company utilized the U.S. plant's unused allocation up to its capacity. Great Lakes Power Limited was operating at capacity during this time and could not utilize the remaining U.S. allocation. As a result, the total release from Lake Superior during the gate repairs was as called for by Plan 1977-A.

During early December the Board curtailed ponding as the level in the Lower St. Marys River was below chart datum. Ponding was allowed to resume effective the weekend of December 21-22 following passage of the last ocean-going vessel.

4. Governing Conditions During the Reporting Period

The monthly mean levels of Lake Superior were within the limits of 182.76 and 183.86 meters (599.6 and 603.2 feet) specified in the Commission's Orders of Approval.

The daily mean water levels in the lower St. Marys River at the U.S. Slip Gage down stream of the U.S. lock varied between elevation 176.08 m and 176.71 m (577.69 and 579.76 feet respectively). Thus, the requirement for maintaining the river level at that location below 177.94 meters (583.8 feet) was satisfied. Low Water Datum for this gage is 176.39 m (578.7 feet).

5. Repairs, Inspection and Flow Calibration Measurements at the Compensating Works

Replacement of the bottom gate seals on the U.S. Compensating Works gates started on August 20, 2002 and was completed October 20, 2002. During repairs, one gate at a time was raised to a full open position to facilitate repairs. Replacement of the bottom gate seals has substantially reduced the leakage under these gates.

Flow measurements to verify or update the stage-discharge rating relationships at the Compensating Works are planned for the summer of 2003.

6. Repairs, Maintenance and Flow Determination at the Hydropower Facilities

a. U.S. Government Hydropower Plant

The automation project at the U. S. Government hydropower plant was considered substantially complete at the end of February 2003. The time required to modify each generating unit has been greater than expected. The work included replacing the existing analog meters with digital instrumentation to continuously record, and to give instantaneous readings of power production and plant operating head. It also included replacing the existing rotating exciters with solid-state exciters. With the new System Control and Data Acquisition (SCADA) system in place, flow measurements will be made from which new discharge tables will be developed that relate actual water flow with turbine gate openings, power generated and plant head. This is scheduled for the

spring and summer and is expected to resolve the problem of under-reporting of flows through this plant.

b. Great Lakes Power Limited

There were no significant repairs or interruptions to operations during the reporting period.

c. Edison Sault Electric Company

Flow measurements are planned for the summer of 2003 in the Edison Sault Electric Company (ESEC) power canal to verify the accuracy of the flow calculation method implemented by ESEC in the summer of 2001. The U.S. Government hydropower plant was unable to utilize its full allocation as discussed above under Item 3. ESEC's plant was using the U.S. plant's unused allocation up to its available capacity during the August 2002 flow measurement period. As a result the data points obtained were primarily in the high flow range. Flow verification measurements are planned for summer 2003 when it is hoped a wider range of data points will be obtainable.

7. Water Usage in the St. Marys River

Table 3 (Table 4 in U.S. Customary Units) lists the distribution of the outflows from Lake Superior for January 2002 through February 2003. Water uses are divided into four categories: domestic, navigation, fishery, and hydropower. According to the 1979 Supplementary Order, after the first three water requirements are satisfied, the remaining outflow from Lake Superior is shared equally between the U.S. and Canada for hydropower purposes. Any remaining flow allotment, beyond the discharge capacity of the hydropower plants, is normally discharged through the Compensating Works into the St. Marys Rapids.

As shown in the tables, the amount of water used for domestic purposes averaged about $4 \text{ m}^3/\text{s}$ (141 cfs).

The flow through the locks depended on traffic volume and varied from $18.4 \text{ m}^3/\text{s}$ to $2.1 \text{ m}^3/\text{s}$ (650 to 74 cfs respectively). The U.S. locks were closed on January 15, 2003 and are expected to open on March 25, 2003. The Canadian lock closed for the season October 15, 2002 and is expected to reopen in mid-May 2003.

In accordance with the Commission's Orders to fulfill the fishery needs in the Rapids, a minimum gate setting of one-half gate open, or its equivalent, is required at all times at the Compensating Works. In addition, a flow of at least $15 \text{ m}^3/\text{s}$ (530 cfs) in the Fishery Remedial Works (through Gate No. 1) must be maintained. A one full gate open setting was maintained in the Compensating Works between August 20 and October 20 to facilitate replacement of bottom seals on the U.S. gates. A setting equivalent to one-half gate open was maintained in the Compensating Works during the remainder of the reporting period. The flow in the St. Marys Rapids, including that through the Fishery Remedial Works, averaged about $113 \text{ m}^3/\text{s}$ (3,990 cfs) for the reporting period. Gate No. 1 remained set at $15 \text{ m}^3/\text{s}$ (530 cfs). This setting is expected to continue.

The hydropower plants used an average of 3,600 m³/s (127,100 cfs) for the period September 2002 through February 2003 for electric power generation. The allocation for this period averaged 1,950 m³/s (68,900 cfs). Usage at each plant is shown in Tables 3 and 4.

8. Long Lac and Ogoki Diversions

Ontario Power Generation continued to provide the Board with information on the operations of the Long Lac and Ogoki Diversions. The Ogoki Diversions into Lake Nipigon (which flows into Lake Superior) averaged 88 m³/s (3,100 cfs) and the Long Lac Diversion averaged 27 m³/s (950 cfs) over the reporting period. Combined, these diversions were about 83 percent of average for the period.

9. Peaking and Ponding Operations at Hydropower Plants

Flow variations from day-to-day and during the day at the hydropower plants at Sault Ste. Marie cause the water levels to fluctuate in the St. Marys River downstream of the plants. With the water levels and Lake Superior outflows below average, the fluctuations have become a subject of concern for the commercial navigation users. At the request of the Commission, the Board reviewed peaking and ponding operations at the hydropower plants, and submitted a report to the Commission in February 2002. The report recommended that peaking and ponding operations be authorized for one more year under guidelines proposed by the Board. On March 15, 2002, the IJC approved peaking and ponding until March 20, 2003, subject to prior approval of the Board at the beginning of each month.

During the reporting period, the power entities undertook peaking and ponding operations under the supervision of the Board. During the reporting period ponding operations were suspended for the weekends of December 7-8 and 14-15 while ocean-going vessels were still in the St. Marys River system. This was done as U.S. Slip Gauge levels were expected to be below chart datum in December. All ocean-going vessels had cleared the St. Marys system as of December 18, 2002 and weekend and holiday ponding operations were then permitted again for the remainder of December.

To provide timely information to the users, the Corps has begun distributing monthly notices on expected Lake Superior outflows, and a schedule of flow variations at the hydropower plants. The notices also contain instructions for mariners on who to contact to obtain additional information related to water levels and flows.

As requested by the Commission in their March 15, 2002 letter, the Board submitted a follow-up report on December 13, 2002 discussing its findings and experiences regarding peaking and ponding in 2002. In summary the Board found that the interim guidelines and the mechanism for disseminating information to the public appeared to be working very well. The Board recommended that the Commission extend the authority given to the power entities to conduct peaking and ponding operations for another year through the winter of 2003-2004. The Board will continue to collect data and continue development of a St. Marys River flow model.

The IJC issued a public notice on January 23, 2003 inviting comment on its proposal to extend the authority for peaking and ponding operations in the St. Marys River until March 20, 2004.

10. Navigation Improvements and Studies

a. Vidal Shoals Dredging

The previously reported dredging of the Vidal Shoals in the St. Marys River began in June, 2001 following approval from the U.S. State Department which had consulted with Canada's Department of Foreign Affairs and International Trade. This dredging project consists of deepening and modifying widths in existing channels in the Upper St. Marys River between Pointe Louise Turn and the South Canal to the navigation locks, upstream of Sault Ste. Marie, Michigan and Ontario. Dredging in the Canadian waters areas was done by Soo Area Office equipment and personnel and is complete. Any remaining work in these areas will be handled as Operations and Maintenance work. Of the dredging done under contract, the contractor has essentially completed the 500-foot wide southern portion of the channel area. The 300-foot wide northern channel area portion remains to be dredged. The contractor contends that he has dredged the amount called for and the job is complete. The Corps has conducted cross-section surveys of the channel areas and will be entering negotiations with the contractor in March to resolve the differences. Pending resolution of the dispute it is estimated that the remaining dredging could be completed in the summer of 2003.

b. Little Rapids Cut Dredging

The Corps of Engineers plans to dredge approximately 57,300 cubic meters (100,000 cubic yards) of material from the Lower St. Marys River navigation channel extending from the south approach of the Soo Locks to the northern end of the Rock Cut on the west side of Neebish Island. The required depth will be 8.5 meters (28.5 feet) below Low Water Datum with an allowable shoal tolerance of 0.3 feet. This work will be entirely in U.S. waters. The U.S. State Department and Canadian Department of Foreign Affairs and International Trade have indicated they have no objection to the project provided it does not cause any transboundary impact on water levels and flows.

The environmental assessment process was completed with the signing of a "Finding of No Significant Impact" on September 30, 2002. Proposals for doing this dredging contract were opened January 28, 2003 and the contract was awarded on February 26, 2003 for \$1.9 million to MCM Marine.

Environment Canada has raised questions about the impact of the dredging on trans-boundary water levels and the flow distribution around Sugar Island. A 2-dimensional model of the St. Marys River is being developed by the Corps to study this question. Development is being coordinated with Environment Canada. Completion of the model analysis is expected by early June. Results will be provided to Environment Canada for their review and comment. Comments are expected back by mid-June. The preliminary model analysis is expected by July 2003.

c. Great Lakes / St. Lawrence Seaway Review

In 1999, the U.S. Congress authorized the Corps of Engineers to review the feasibility of improving commercial navigation on the Great Lakes - St. Lawrence Seaway system, including

locks, dams, harbors, ports, channels and other related features. The first phase of the review, a reconnaissance study, was completed and submitted to Corps Headquarters in June 2002 for review and approval for further study. The recon report was approved on February 13, 2003. Prior to initiation of a feasibility study a supplemental report will be prepared. This may take 2 - 3 years and will look at the current (baseline) economic, environmental and engineering conditions in the system. This work will support a Federal decision to proceed with such a study.

Canada is currently assessing several strategies including the possibility of engaging in a collaborative process with various U.S. partners to determine future infrastructure requirements for the Great Lakes and St. Lawrence Seaway navigation system.

d. Lock Replacement at Sault Ste. Marie, Michigan

The construction of a new lock at Sault Ste. Marie, Michigan to provide for a more efficient movement of waterborne commerce was initially authorized by the U.S. congress in 1986, with continuation of authorization in 1990 and 1996.

The Limited Re-evaluation Report (LRR) was originally submitted to the Great Lakes and Ohio River Division Headquarters in fall 2002. It is being rewritten to reflect the additional engineering detail that has been developed over the last several years and incorporate new economic analysis and cost estimates. The LRR is expected to be complete by the end of calendar year 2003.

The local share and total costs are to be determined. Lock design is contingent on LRR approval, obtaining local cooperation agreements and availability of funds. Completion is expected to take six years from the start of construction. The Great Lakes Commission has agreed to be the local sponsor and is working with the Great Lakes states to obtain Local Cooperation Agreements.

The Board will continue to update the commission on the progress of this project.

11. Sea Lamprey Control

By letter dated June 17, 2002, the Great Lakes Fishery Commission (GLFC) requested the Board's assistance in carrying out a sea lamprey trapping experiment immediately below the ice spillway at the Great Lakes Power Limited (GLPL) hydropower plant. The experiment was to take place for about one-half of the time during the months of July and August. The proposed opening of the ice spillway would incur an additional flow in the power canal. IJC approval to deviate from the regulation plan flow was requested by the Board. The experiment did not take place following GLPL's decision not to proceed due to operational considerations.

Biologists and fishery experts of GLFC and the Sea Lamprey Control Centre in Canada (SLCC) were invited to the Board's September 17, 2002 meeting to explore alternatives where the Board could provide assistance. GLFC and SLCC representatives were unable to attend. Mr. Gavin Christie attended the Board's March 4, 2003 semi-annual Board meeting and discussed sea lamprey control efforts.

12. Annual Meeting with the Public and Public Information

The board will hold its 2003 annual meeting in Sault Ste. Marie, Ontario on Wednesday evening June 25, 2003.

The Board continues to issue, at the beginning of each month, news releases informing the public about Lake Superior regulation and water level conditions. In support of the Board and the Commission, the Detroit District of the Corps of Engineers maintains a Board home page on the Internet. Content includes information on Board members and responsibilities as well as news releases, semi-annual reports, meeting minutes and hydrologic data summaries.

13. Board Membership and Meetings

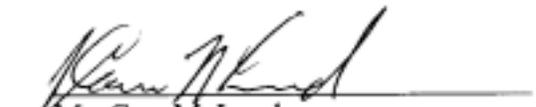
Colonel Mark A. Roncoli is the acting U.S. Member while BG. Steven R. Hawkins is on special assignment overseas. Mr. Peter Yee replaced Mr. Doug Cuthbert on November 26, 2002 as the Canadian Member of the Board. Mr. Carr McLeod was appointed to replace Mr. Yee upon his retirement on February 12, 2003 as the Canadian Member of the Board. Mr. David Fay replaced Mr. Yee as the Canadian Secretary of the Board on December 23, 2002.

The Board met on March 4, 2003 in Chicago, Illinois with both the U.S. alternate member, Colonel Mark Roncoli and Mr. Carr McLeod the Canadian member, in attendance.

Respectfully submitted,



Col. Mark A. Roncoli
Alternate Member for United States


Mr. Carr McLeod
Member for Canada

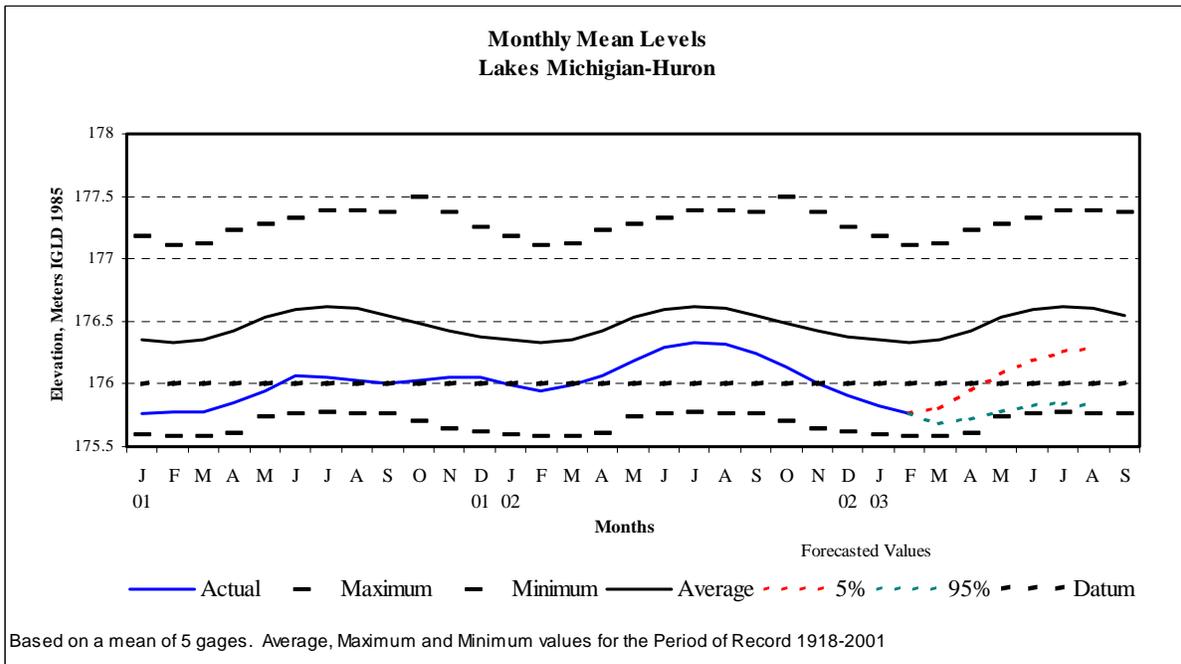
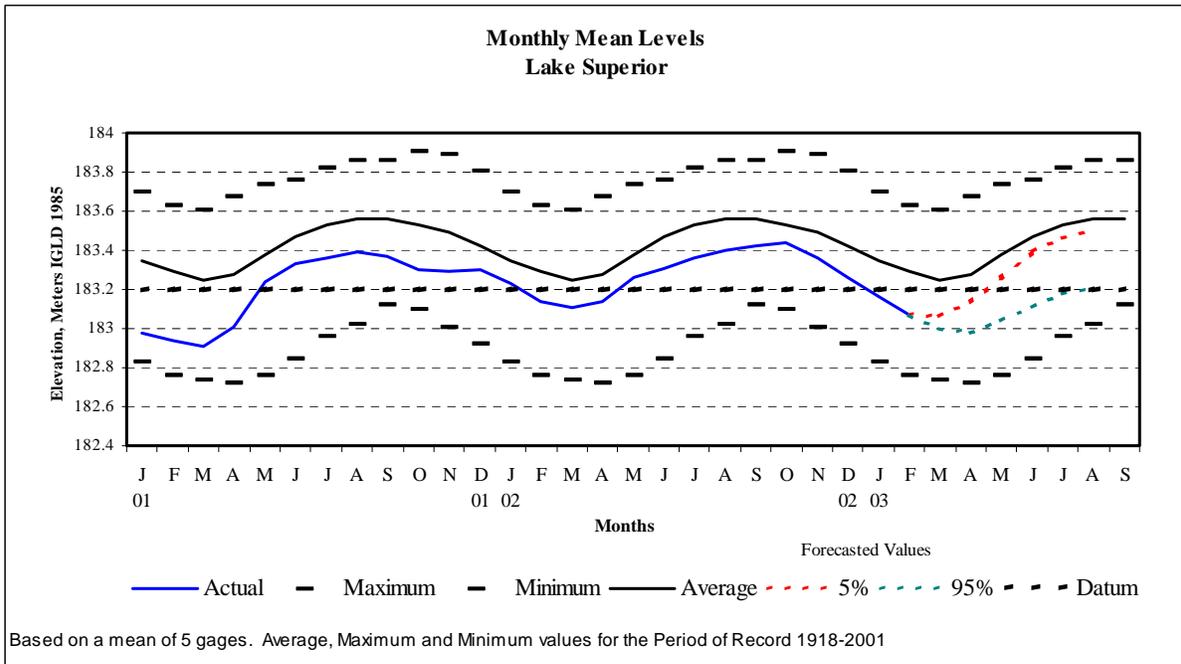


Figure 1

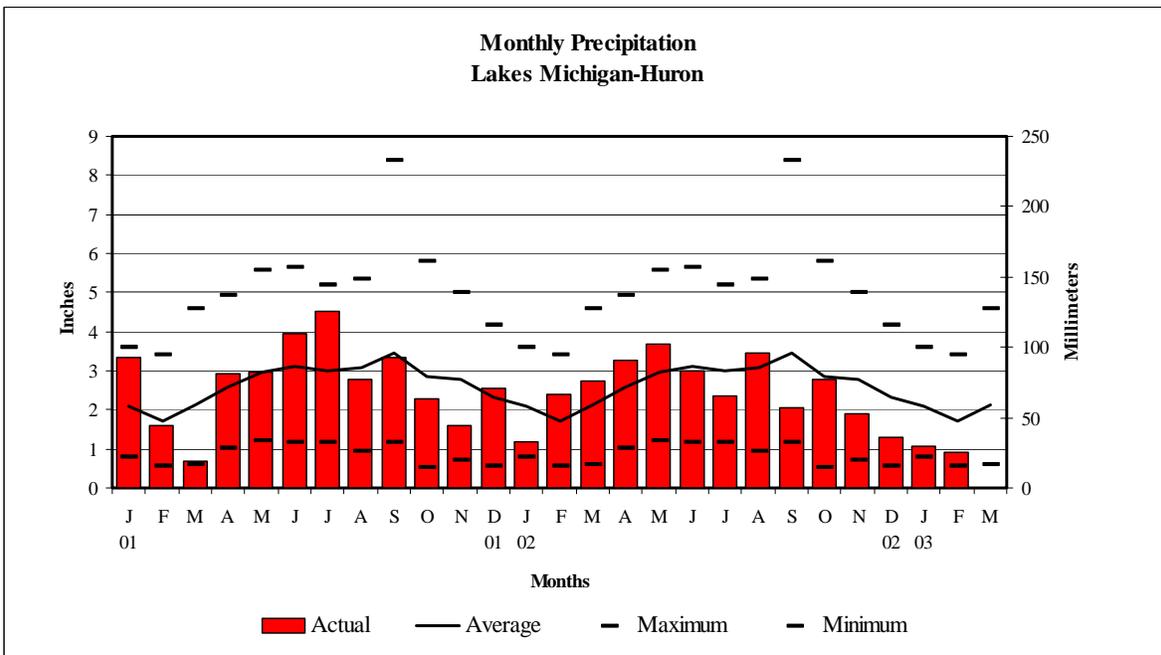
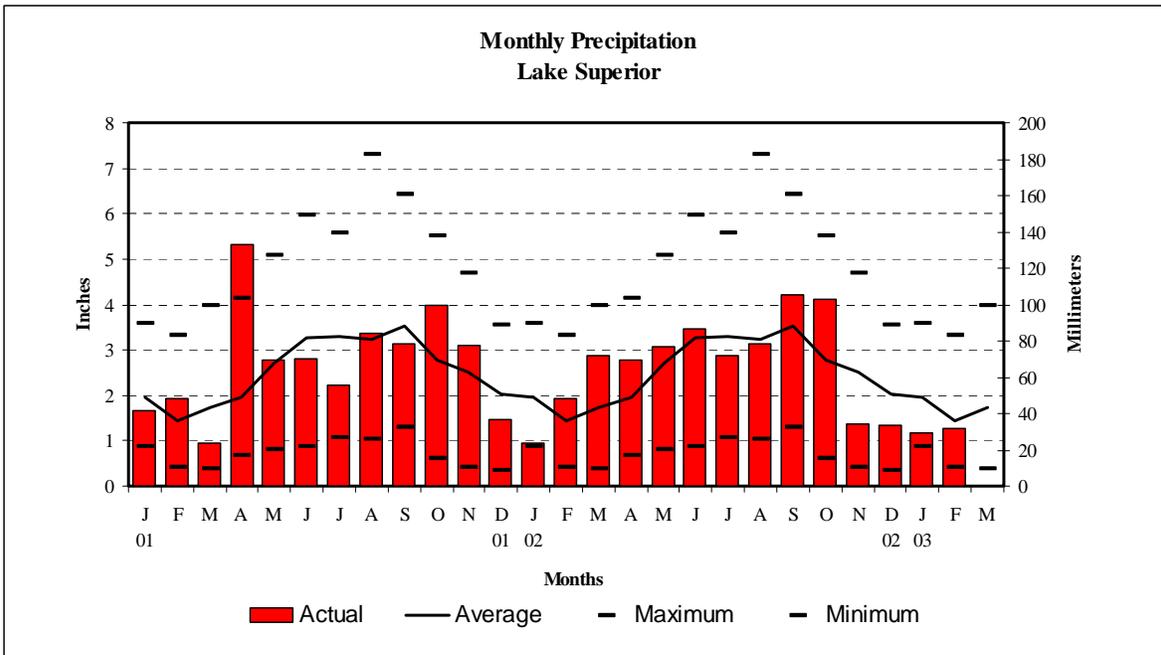


Figure 2

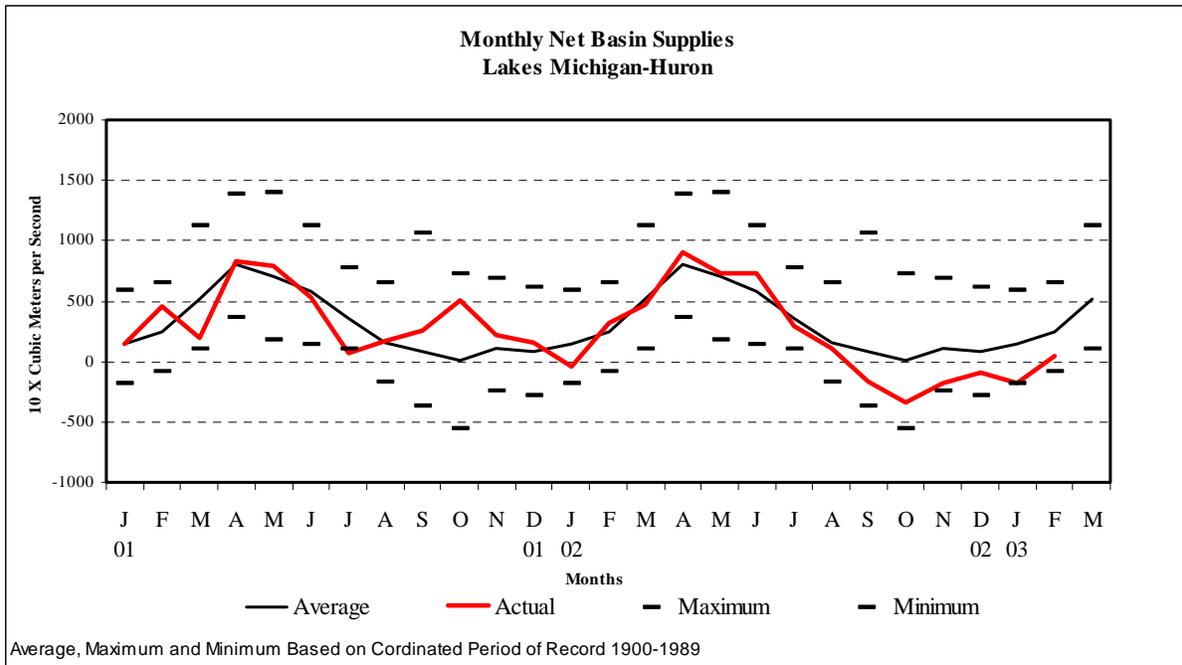
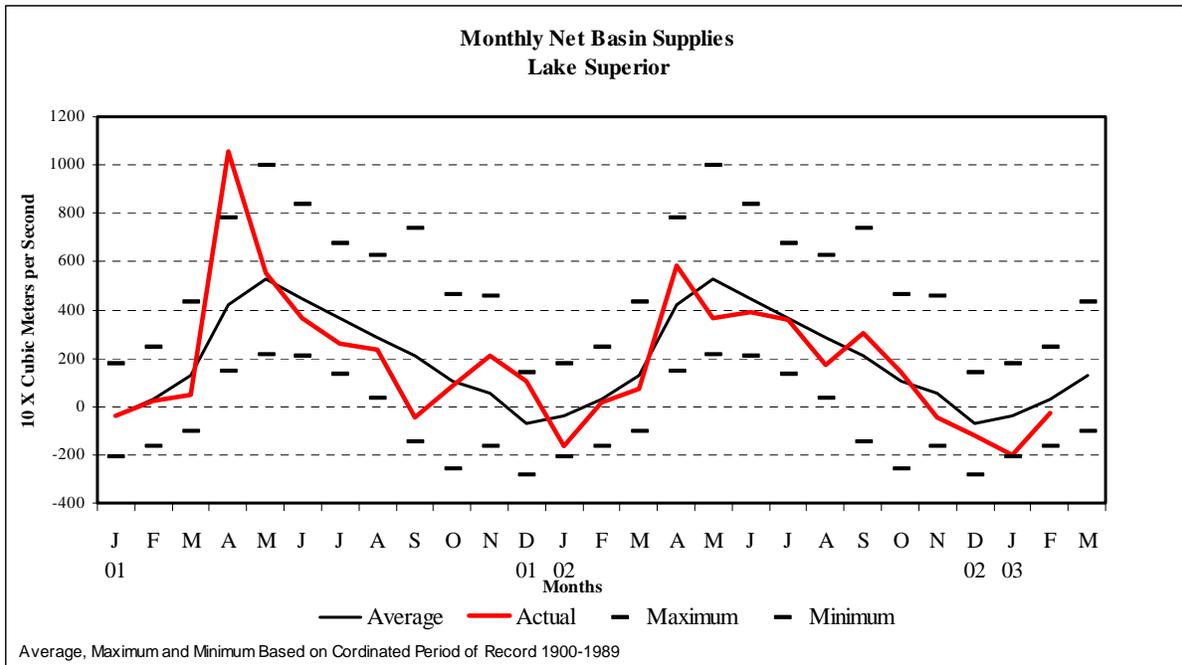


Figure 3

TABLE 1
2002 - 2003 Lake Superior Hydrologic Factors

Month	Levels				Net Basin Supplies			Outflows		
	Monthly Mean Recorded ¹		Difference From Average ²		Monthly Mean Recorded		Exceedance Probability (%)	Monthly Mean Recorded		Percent of Average ³
	meters	feet	meters	feet	m3/s	tcfs		m3/s	tcfs	
2002										
Jan	183.23	601.15	-0.12	-0.39	-1620	-57	97	2020	71	104
Feb	183.14	600.85	-0.15	-0.49	190	7	52	1900	67	100
Mar	183.11	600.75	-0.14	-0.46	750	26	64	1810	64	96
Apr	183.14	600.85	-0.14	-0.46	5820	206	14	1830	65	94
May	183.26	601.25	-0.12	-0.39	3650	129	82	2040	72	96
Jun	183.31	601.41	-0.16	-0.52	3930	139	61	2150	76	98
Jul	183.36	601.57	-0.17	-0.56	3570	126	50	2230	79	97
Aug	183.40	601.71	-0.16	-0.52	1740	61	82	2260	80	95
Sep	183.42	601.77	-0.14	-0.46	3030	107	24	2260	80	95
Oct	183.44	601.83	-0.09	-0.30	1410	50	39	2180	77	94
Nov	183.36	601.57	-0.13	-0.42	-80	-3	66	2220	78	98
Dec	183.26	601.25	-0.16	-0.52	-1450	-51	83	2090	74	101
2003										
Jan	183.16	600.92	-0.19	-0.62	-1980	-70	>99	1880	66	97
Feb	183.07	600.62	-0.22	-0.72	-250	9	75	1740	61	92

Notes: m³/s = cubic meters per second tcfs = 1000 cubic feet per second

¹ Water Levels are a mean of five gauges on Lake Superior, IGLD 1985

² Average levels are for period 1918-2001, based on a mean of five gauges.

³ Average flows and exceedance probabilities are based on a period of record 1900-1989.

TABLE 2
2002 - 2003 Lakes Michigan-Huron Hydrologic Factors

Month	Levels				Net Basin Supplies			Outflows		
	Monthly Mean Recorded ¹		Difference From Average ²		Monthly Mean Recorded		Exceedance Probability (%)	Monthly Mean Recorded		Percent of Average ³
	meters	feet	meters	feet	m ³ /s	tcfs		m ³ /s	tcfs	
2002										
Jan	175.99	577.40	-0.36	-1.18	-370	-13	92	4690	166	105
Feb	175.95	577.26	-0.38	-1.25	3140	111	30	4500	159	103
Mar	175.99	577.40	-0.36	-1.18	4670	165	57	4600	162	95
Apr	176.06	577.62	-0.37	-1.21	9080	321	32	4570	161	89
May	176.19	578.05	-0.34	-1.12	7320	258	43	4800	170	90
Jun	176.29	578.38	-0.30	-0.98	7330	259	18	4920	174	90
Jul	176.33	578.51	-0.29	-0.95	2910	103	65	5050	178	91
Aug	176.32	578.48	-0.28	-0.92	1120	40	58	5080	179	92
Sep	176.24	578.22	-0.31	-1.02	-1660	-59	90	4980	176	91
Oct	176.14	577.89	-0.35	-1.15	-3430	-121	98	4910	173	90
Nov	176.01	577.46	-0.42	-1.38	-1800	-64	94	4820	170	90
Dec	175.91	577.13	-0.47	-1.54	-960	-34	82	4610	163	89
2003										
Jan	175.82	576.84	-0.53	-1.74	-2200	-78	New Rec'd	4060	143	91
Feb	175.76	576.64	-0.57	-1.87	-140	-5	98	3740	132	86

Notes: m³/s = cubic meters per second tcfs = 1000 cubic feet per second

¹ Water Levels are a mean of six gauges on Lakes Michigan-Huron, IGLD 1985

² Average levels are for period 1918-2001, based on a mean of six gauges.

³ Average flows and exceedance probabilities are based on a period of record 1900-1989.

TABLE 3
MONTHLY DISTRIBUTION OF LAKE SUPERIOR OUTFLOWS (cubic meters /second)

		POWER CANALS				NAVIGATION CANALS			DOMESTIC USAGE				Fishery St. Marys Rapids	Total Lake Superior Outflow m ³ /s
Year and Month	US Govern't Hydro.	Edison Sault Electric	US Total	Great Lakes Power	Total Power Canals	United States	Canada	Total Navigation Canals	Sault Ste. Marie US+Can.	Algoma Steel	St. Marys Paper	Total Domestic Usage		
2002														
JAN	408	549	957	951	1908	4	0	4	0.3	3.2	0.3	4	102	2018
FEB	408	485	893	897	1790	2.1	0	2	0.3	3.3	0.3	4	102	1898
MAR	405	450	855	854	1709	4.1	0	4	0.3	3.3	0.3	4	92	1809
APR	406	457	863	860	1723	10.3	0	10	0.3	3.4	0.3	4	95	1832
MAY	407	558	965	958	1923	12.5	0.7	13	0.4	3.5	0.3	4	102	2042
JUN	352	665	1017	1005	2022	15	2.0	17	0.4	3.4	0.3	4	103	2146
JUL	306	759	1065	1041	2106	15.8	2.6	18	0.4	3.5	0.3	4	104	2232
AUG	277	767	1044	1071	2115	15.7	2.5	18	0.4	3.6	0.3	4	125	2262
SEP	271	761	1032	1039	2071	14.1	1.8	16	0.4	3.5	0.3	4	170	2261
OCT	255	750	1005	1034	2039	12.2	0.6	13	0.3	3.2	0.3	4	125	2181
NOV	307	752	1059	1047	2106	11.2	0	11	0.3	3.4	0.3	4	99	2220
DEC	348	637	985	990	1975	10.4	0	10	0.3	3.5	0.3	4	98	2087
2003														
JAN	299	568	867	906	1773	5	0	5	0.4	3.4	0.3	4	95	1877
FEB	325	492	817	827	1644	2.1	0	2	0.4	3.2	0.3	4	94	1944

TABLE 4
MONTHLY DISTRIBUTION OF LAKE SUPERIOR OUTFLOWS (cubic feet / second)

Year and Month	US Govern't Hydro.	POWER CANALS				NAVIGATION CANALS			DOMESTIC USAGE				Fishery St. Marys Rapids	Total Lake Superior Outflow m ³ /s
		Edison Sault Electric	US Total	Great Lakes Power	Total Power Canals	United States	Canada	Total Navigation Canals	Sault Ste. Marie US+Can.	Algoma Steel	St. Marys Paper	Total Domestic Usage		
2002														
JAN	14400	19400	33800	33600	67400	141	0	141	11	113	11	135	3600	71300
FEB	14400	17100	31500	31700	63200	74	0	74	11	117	11	139	3600	67000
MAR	14300	15900	30200	30200	60400	145	0	145	11	117	11	139	3250	63900
APR	14300	16100	30400	30400	60800	364	0	364	11	120	11	142	3350	64700
MAY	14400	19700	34100	33800	67900	441	25	466	14	124	11	149	3600	72100
JUN	12400	23500	35900	35500	71400	530	71	601	14	120	11	145	3640	75800
JUL	10800	26800	37600	36800	74400	558	92	650	14	124	11	149	3670	78900
AUG	9780	27100	36900	37800	74700	554	88	642	14	127	11	152	4410	79900
SEP	9570	26900	36500	36700	73200	498	64	562	14	124	11	149	6000	79900
OCT	9010	26500	33500	35500	72000	431	21	452	11	113	11	135	4410	77000
NOV	10800	26600	37400	37000	74400	396	0	396	11	120	11	142	3500	78400
DEC	12300	22500	34800	35000	69800	367	0	367	11	124	11	146	3460	73800
2003														
JAN	10600	20100	30700	32000	62700	177	0	177	14	120	11	145	3350	66400
FEB	11500	17400	28900	29200	58100	74	0	74	14	113	11	138	3320	61600

NOTES 1. Flows for individual users were originally coordinated in m3/s, and are converted here to U.S. customary units (cfs) and rounded to 3 significant figures. Total flow for each category and total Lake Superior flow in this table are computed from the individual flows in cfs.