

**International Lake Superior
Board of Control
Semi-Annual Progress Report to the
International Joint Commission
Covering the Period March 28, 2007 to September 5, 2007**



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Cover photo: Thundershower over the Sleeping Giant (Sibley Peninsula near Thunder Bay, Ontario). Posted by “ThunderBev” as “Raining on the Giant” at WunderPhotos on 12 July 2007.

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International Lake Superior Board of Control

Canada

David Fay, Member
Rob Caldwell, Interim Secretary

United States

BG Bruce A. Berwick, Member
John W. Kangas, Secretary

5 September 2007

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

Commissioners:

This semi-annual report covers the Board's activities from 28 March to 5 September 2007.

1. Highlights

During the past six months, the water levels of Lakes Superior and Michigan-Huron remained below average and lower than last year. Lake Superior levels in the period were the lowest since the record setting lows of 1926, and a new record low monthly mean level was set in August 2007 (1 cm below the previous record set in 1926). The level of Lake Superior has been consistently below average since April of 1998, which is the longest sustained period of below-average monthly levels in the 1918-2006 period of record. The level of Lakes Michigan-Huron has been below average since January of 1999, the second longest period on record of consistently below average levels.

This period of sustained low water levels and outflows continues to have significant impacts on stakeholders in the upper Great Lakes region. The decline in the water levels of Lake Superior in the past year received significant public and media attention in both Canada and the U.S. The Board has been apprised of detrimental effects to navigation, hydropower, tourism, industrial, and shoreline interests, and anticipates more widespread concerns should these conditions continue or worsen.

The Lake Superior outflows were as specified by Regulation Plan 1977-A. Since March, these monthly outflows have been between 65% and 71% of average. Meanwhile, the monthly outflows from Lakes Michigan-Huron ranged from 84% to 89% of average. Water supplies to lakes Superior and Michigan-Huron were below average except in March. The 12-month average supplies to Lake Superior set new record lows every month during the reporting period.

Ponding by the hydropower entities was restricted on all weekends and holidays during the

reporting period. No new concerns related to peaking and ponding were reported to the Board during the period. Dr. Mark Bain of Cornell University was contracted to do a literature search and technical review of available reports and provide an expert opinion on whether peaking and ponding is affecting the aquatic environment. He visited the site on 14 June 2007. Dr. Bain provided his draft report to the Board at its 5 September meeting. Dr. Bain concluded, "Hydro peaking as practiced is not a significant threat to the river environment and its biota."

As first reported in Spring 2004, a navigation interest proposed that the threshold level at which peaking and ponding is restricted could be lowered 30 cm (1 ft.) now that dredging of the lower River is complete. The Board had previously deferred this decision pending resolution of environmental concerns. The Board revisited the issue at its 5 September meeting and agreed to recommend to the Commission that the threshold level be reset as soon as possible to 176.09 m (577.72 ft.); 30 cm (1 ft.) below chart datum elevation at U.S. Slip gauge. This will extend the range of levels at which peaking and ponding is permitted.

On 16 May, Unit #10 at the U.S. Government Plant was taken out of service due to mechanical problems, impeller cavitation, and failure of structural welds on the turbine. The U.S. hydropower allotment was met by transfer of water to the Edison Sault Electric Company. The unit was temporarily repaired with epoxy and returned to service on 22 August. Plans for permanent repair or replacement are expected to be ready for implementation by May 2008.

The Board held its annual public meeting on the evening of 4 September in Sault Ste. Marie MI. About 42 members of the public and media attended, as well as several members of the International Upper Great Lakes Study Board. Most participants were concerned with the continuing low levels on lakes Superior and Michigan-Huron, and mentioned impacts resulting from the low levels. Though people seem to be aware that ongoing drought, increased evaporation, and decreased snowfall have combined to decrease levels, many thought that other factors (such as regulatory practices, consumptive use, erosion in the St. Clair River, etc.) are adding to the problem significantly. Some participants suspected that some major consumptive uses and diversions are going unreported. Many also voiced their impatience with having to wait at least three years for the International Upper Great Lakes Study Board to resolve whether erosion in the St. Clair River may be impacting levels. People were advised that there were no significant unreported diversions from the upper lakes, that climate change or variability was the cause of the low supplies, and that regulation was of limited benefit in dealing with the widespread drought. After the meeting an opportunity was also provided for the media and people to talk to the Study Board members.

Board representatives also presented information at a public meeting on lake levels in Sault Ste. Marie, Ontario convened by the local Member of Parliament on 13 June and another in Thunder Bay, Ontario organized by the local Conservation Authority on 27 June.

2. Monitoring of Hydrologic Conditions

The Board continuously monitors 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 provide hydrologic assessments and recommendations on the regulation of outflows from Lake Superior. These reports indicate 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 supplies for the basins.

Precipitation over the Lake Superior basin was 93% of average from March through August 2007. The net basin water supplies to Lake Superior, which are the net effect of precipitation, evaporation and runoff to the lake, were slightly above average in March, but have been below average in every month since. The 12-month average supplies have set new record lows every month during the reporting period. On the whole, the March through August net basin supplies to Lake Superior would be expected to be exceeded 98% of the time.

Lake Superior's water levels have been below chart datum (183.2 m or 601.1 ft.) since 14 September 2006 and are currently 20 cm (8 in.) below chart datum. Its levels over the past six months ranged from 42 to 54 cm (17 to 21 in.) below average. On 5 September, its level was at elevation 183.00 m (600.39 ft.), which was 55 cm (22 in.) below average and 24 cm (9 in.) lower than last year. Levels in the period were the lowest since the record setting lows of 1926, and new record low August and beginning-of-September levels were set (1 and 6 cm below the previous records, respectively). The levels of Lake Superior have been consistently below average since April of 1998, which is the longest sustained period of below-average monthly levels in the 1918-2006 period of record.

Precipitation over the Lakes Michigan-Huron basin was 96% of average over the past six months according to provisional data. Net basin water supplies to Lakes Michigan-Huron were above average in March, but have been below average in every month since. On the whole, the March through August net basin supplies to Lakes Michigan-Huron were below average and would be expected to be exceeded about 90% of the time.

Monthly mean Lake Michigan-Huron levels ranged from 39 to 58 cm (15 to 23 in.) below long-term averages. Water levels rose above chart datum (176.00 m or 577.4 ft.) on 9 April and remained above datum until 16 August and have remained near chart datum since. On 5 September, Lakes Michigan-Huron were at elevation 175.98 m (577.36 ft.), 56 cm (22 in.) below average, 9 cm (4 in.) lower than one year ago, and 2 cm (1 in.) below chart

datum. The level of Lakes Michigan-Huron has been below average since January of 1999, the second longest period on record of consistently below average levels.

This period of sustained low water levels and outflows continues to have significant impacts on stakeholders in the upper Great Lakes region. The Board has been apprised of detrimental effects to navigation, hydropower, tourism, industrial, and shoreline interests, and anticipates more widespread concerns should these conditions continue and perhaps worsen.

3. Regulation of the Outflow from Lake Superior

The outflows of Lake Superior were as specified by Regulation Plan 1977-A during the reporting period. Lake Superior outflows were 68% of average over the last six months, with monthly flows ranging from 1,280 to 1,540 m³/s (45,200 to 54,400 cfs). Outflows were limited by Criterion (c) of the Orders from March to June and were otherwise restricted to the normal minimum outflow prescribed by Plan 1977-A from July to August (i.e., 1,560 m³/s or 55,000 cfs).

The gate setting at the Compensating Works supplying the main portion of the St. Marys Rapids was at an equivalent one-half gate open for the past six months. Note that this equivalent gate open setting was altered from Gates 7, 8, 9, and 10 each set at 25 cm (10") to these four gates set at 20 cm (8") at the beginning of May 2007 based on recent flow verification measurements made by the Board. Measurements made in June 2006 demonstrated that the 20 cm opening agreed with the ½ gate equation within ±5%. A 25 cm opening resulted in an additional 12% more flow (i.e., an over-discharge). Gates 7 and 8 followed by Gates 9 and 10 were reset to the new equivalent setting on 2 and 5 May, respectively. To facilitate the Canadian gate refurbishment program, these four gates were closed and Gates 12 to 15 were each opened on 27 June 2007 to the 20 cm equivalent opening. Gate 1, which supplies water to the Fishery Remedial Works, remained set at 15 m³/s (530 cfs) throughout the period.

Several scheduled and a few unexpected flow reductions occurred at the three hydropower plants to facilitate maintenance and make repairs. Details are provided in Section 6. All flow reductions were easily offset by flow increases at other times within each month. When units are taken off-line, water levels at U.S. Slip gauge fall, but quickly rise again as the idled units are brought back on-line. No problems related to water levels were reported as a result of these variations. No ships were reported delayed due to the flow variations.

4. Governing Conditions During the Reporting Period

The monthly mean levels of Lake Superior ranged between 182.79 and 183.01 m (599.7 and 600.4 ft.) during the reporting period, within the limits of 182.76 and 183.86 m (599.6 and 603.2 ft.) specified in the Commission's Orders of Approval.

During the reporting period, the daily mean water levels in the lower St. Marys River at the U.S. Slip gauge downstream of the U.S. Locks, varied between 176.02 and 176.35 m (577.5 and 578.6 ft). Therefore, the requirement for maintaining the level below 177.94 m (583.8 ft.) was satisfied. The daily mean U.S. Slip level was below chart datum (176.39 m or 578.71 ft.) throughout the reporting period.

5. Inspection and Repairs at the Compensating Works

Ongoing routine maintenance and inspections of the Compensating Works were undertaken in the past six months. The structure is generally in good condition. Work completed on the American side of the structure this reporting period included replacement of warning signs, touch up painting of bearings and bolt nuts, and repair of a roller assembly. Some brush clearing, minor concrete patching, painting, and installation of new fencing will be completed by next spring..

On the Canadian side of the structure, Brookfield Power's major multi-year repainting and refurbishment program commenced on 3 July, with completion of this year's two-gate phase expected by the end of October. This year's phase was prolonged for approximately a month due to delays in the permit process. A dewatering structure was assembled at Gate 5, followed by a second one at Gate 3. This sequence allowed work, such as blast cleaning and painting, to be carried out continuously. Other activities, such as concrete repairs, were scheduled to accommodate the painting operations.

Underwater inspections of some U.S. gates were completed with a remotely operated vehicle (ROV), and the remaining gates will be inspected if possible before winter, once the Canadian work is completed for the season and the usual gate openings can be re-established.

6. Repairs and Maintenance at the Hydropower Facilities

a. U.S. Government Hydropower Plant

During March and April, Units #2 and #10 at the U.S. Government Plant were taken off line for short periods to perform maintenance. On 16 May, Unit #10 was taken out of service due to mechanical problems, impeller cavitation, and failure of structural welds on the turbine. The U.S. hydropower allotment was met by transfer of water to the Edison Sault Electric Company. The unit was temporarily repaired with epoxy and returned to service on 22 August. Plans for permanent repair or replacement are expected to be ready for implementation by May 2008.

On 23 May, the plant's flow was reduced by half for approximately six hours to allow ESELCO to work on the transmission system.

On 1 June, flow was reduced for 75 minutes to allow repositioning of the log boom in the

main headrace.

b. Brookfield Power

A series of scheduled maintenance outages were undertaken at the Brookfield Power plant. Unit C1 was shut down from 19 March to 27 April, and Unit C3 was shut down from 2 to 30 May. The power entity was able to pass the allotted flows each month. Shutdowns during daylight hours are expected on 6, 7, and 8 October to facilitate the annual underwater cable inspection and maintenance for Lake Superior Power Ltd. as well as a diving inspection of Parks Canada's effluent pipe in the Clergue tail race. Safety booms may also be installed in the Clergue tail race at this time.

c. Edison Sault Electric Company

Other than some anchor ice in March and April, ESELCO experienced no problems with their generator units. Routine maintenance continued.

7. Flow Verification Measurements

No flow verification measurements were performed during the reporting period. The following updates relate to previous measurements.

a. Compensating Works

As previously reported, measurements were made in August 2005 and June 2006 as part of an ongoing program to verify the 1931 discharge equations for standard gate settings. Measured flows for 1-3 gates open were generally within 5% less than the computed flows. Measured flows for 4-7 gates open were generally within 5% more than the computed flows. Measurements for ½ gate open and the long-used equivalent (4 gates, each open 25 cm (10")) did not agree well in 2005. A more detailed analysis in 2006 included measurements at 20, 23, 25 and 28 cm (8, 9, 10, and 11 inches) open to see if one of these settings might agree better with the ½ gate open flow. Measurements at 20 cm (8") open agreed best and were within ±5% of the ½ gate equation. In March, the Board agreed to reset the gates to 20 cm open (after the gates were clear of ice) and to conduct another set of verification measurements at incremental settings at the next opportunity. On 2 and 5 May, respectively, Gates 7 and 8 followed by Gates 9 and 10 were reset to 20 cm open from the long-standing 25 cm setting.

b. U.S. Government Hydropower Plant

The 9% adjustment to the flows to compensate for under-reporting in the plant's calculation system continues. As previously reported, verification measurements were made in June 2005 and June 2006. Very detailed measurements, designed to both investigate possible leakage through dikes around the plant as well as focus on any

potential problems with specific units, showed these two issues were not factors contributing to the under-reporting problem. Though measured flows for Unit 10 agreed very well with plant reports, measured flows at the main plant continued to be significantly higher than the plant reports. It was concluded that measurements were very consistent and accurately represented the flow in the power canal. USACE Soo Area Office personnel reviewed operating software, which was found to be operating correctly. The Corps plans to contract the engineering firm that calibrated the plant for a review of the process in light of the detailed field data. Adjustments can be made to the operating software to compute more accurate flows. Once these have been made, another set of verification measurements is planned.

USACE Detroit District is developing details for the permanent repair or replacement of Unit #10. Flow verification measurements will follow its permanent return to service.

8. Water Usage in the St. Marys River

Table 3 (Table 4 in cubic feet per second) lists the distribution of outflows from Lake Superior for January 2006 to August 2007. 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 is shared equally between the U.S. and Canada for hydropower purposes. Any remainder, beyond the flow capacity of the hydropower plants, is discharged through the Compensating Works into the St. Marys Rapids.

As shown in the tables, water used for domestic and industrial purposes ranged from 9 to 11 m³/s (318 to 389 cfs), or 0.6 to 0.7% of the total monthly outflow.

The monthly flow through the U.S. and Canadian locks depends on traffic volume and varied from 4 to 17 m³/s (141 to 600 cfs). As a percentage of the total river flow, water allocated for navigation varies seasonally from 0.2% (when the locks are closed for the winter) to 1.1% in the busiest part of the navigation season.

The U.S. locks opened, as scheduled, on 25 March. The Canadian lock opened, as scheduled, on 15 May, and is expected to close for the season in mid October.

In accordance with the Commission's Orders to fulfill the fishery needs in the main rapids, a minimum gate setting of one-half gate open is required at all times at the Compensating Works. A setting equivalent to one-half gate open for the main rapids is maintained by having four gates partially open to supply the same quantity of water as one gate half open. This spreads the flow more evenly across the main rapids, and is thought to reduce potential damage from ice floes impacting the gate in the winter. In addition, a flow of at least 15 m³/s (530 cfs) is maintained in the Fishery Remedial Works (through Gate 1). The flow in the St. Marys Rapids, including that through the Fishery Remedial Works, ranged from 82 to 96 m³/s (2,900 to 3,390 cfs) over the last six months, or approximately 5 to 7%

of the total monthly outflow.

The hydropower plants passed an average of 1,346 m³/s (47,500 cfs) from March to August 2007 for electric power production, or 92.5% of the total river flow. The allocation for this period averaged 1,362 m³/s (48,100 cfs). Usages at each plant are shown in Tables 3 and 4.

9. Long Lac and Ogoki Diversions

Ontario Power Generation (OPG) 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 135.6 m³/s (4,790 cfs) and the Long Lac Diversion averaged 40.5 m³/s (1,430 cfs) from March through August. Combined, these diversions were about 105 percent of average for the period 1944-2006.

Since 1999, a continuous flow of at least 2 m³/s (70 cfs) is maintained during the summer (mid-May through about Labour Day) from the north outlet of Long Lake. This agreement between OPG and the local First Nations provides water for environmental enhancement of the Kenogami River, and reduces the amount diverted to Lake Superior. Additional average monthly discharges of 21.9 m³/s (770 cfs) and 62.1 m³/s (2,190 cfs) were spilled northward from Long Lake in June and July due to unusually heavy rainfall in the immediate area. Both the diversion and the reservoir were at their capacities and this action needed to be taken to prevent local flooding.

10. Peaking and Pondering Operations at Hydropower Plants

a. Operations

Peaking and pondering operations are the within-day and day-to-day flow variations that enable the hydropower plants to better match their electricity production with demand. However, these variations (along with pondering, when permitted) cause the water levels in the St. Marys River downstream of the plants to fluctuate more than they otherwise would. The Commission has approved guidelines within which the Board may restrict peaking and pondering operations by the hydropower entities under certain conditions. Specifically, if the minimum level at the U.S. Slip gauge on the lower river is expected to be below chart datum as a result of pondering operations, then the power entities are required to pass peak flows for at least an 8-hour period each day to provide periods of relatively higher levels on the lower St. Marys River each day. The Board provides summaries of peaking and pondering in its semi-annual reports. The Commission's guidelines are to be examined on a five year basis by the Board, starting with the last year of the International Upper Great Lakes Study or 2010, whichever comes first.

During the reporting period, the power entities undertook peaking and pondering operations under the supervision of the Board. From March through September, the weekend minimum levels at the U.S. Slip site were expected to be below chart datum. As a result,

the hydropower companies have been required to restrict ponding operations on weekends and holidays since the opening of the Soo Locks on 25 March.

To continue to provide timely information on expected flow variations to the users, the Corps distributes monthly notices during the shipping season (March through January) on expected Lake Superior outflows, and a schedule of flow variations at the hydropower plants.

No concerns related to peaking and ponding were reported to the Board during the period. Board staff spoke to the Director of the Eastern Upper Peninsula Transportation Authority, who indicated that peaking and ponding operations do not impact the Sugar Island, Neebish Island, or Drummond Island ferries (though low levels have hampered operations at certain ramps somewhat).

Figure 4 compares the hourly Lake Superior outflow and the hourly levels at U.S. Slip on the lower St. Marys River. In general, outflows and U.S. Slip levels were significantly lower than during the same period last year. New record low monthly mean levels at U.S. Slip were set during March, July, and August.

b. Related Issues

As discussed in previous reports, the Board agreed to seek a report from a recognized scientific expert on the significance of the effects of water level fluctuations in the lower St. Marys River caused by peaking and ponding on the aquatic environment. Dr. Mark Bain, Director of the Cornell University Center for the Environment, was contracted (under the auspices of the Board) on 27 May 2007. Dr. Bain has recent experience in assessing peaking and ponding impacts on biota and defining peaking and ponding strategies at hydropower plants to limit potential impacts on fish. Dr. Bain toured the St. Marys River by boat on 14 June with Board representatives and hydropower officials. Dr. Bain provided a preliminary summary of his work to Board representatives on 9 August and a draft report to the Board at its 5 September meeting. A literature review was undertaken and 43 case studies were analyzed statistically with regard to aquatic species impact versus peaking ratio (highest flow divided by lowest flow; typically about 2 for the St. Marys River). Published impact ratings are based on a severity scale from 1 (no impact) to 6 (severe, with major ecosystem losses). Peaking ratio is a much stronger predictor than fluctuations in water levels. The St. Marys River fell into the “none to low” impact range. Dr. Bain concluded, “Hydro peaking as practised is not a significant threat to the river environment and its biota.”

As first reported in Spring 2004, a navigation interest proposed that the threshold level for peaking and ponding decisions could be lowered 30 cm (1 ft.) now that dredging of the lower River is complete. The Board had previously deferred this decision pending resolution of environmental concerns. After consideration of Dr. Bain’s findings, the Board revisited the issue at its 5 September meeting and agreed to recommend to the

Commission that the threshold level be reset as soon as possible to 176.09 m (577.72 ft.; 30 cm (1 ft.) below chart datum elevation) at U.S. Slip gauge. This will extend the range at which peaking and ponding is permitted. If the lower threshold were in effect, ponding could have been permitted throughout the reporting period.

11. Annual Meeting with the Public and Public Information

The Board has been unusually busy with public information activities during the past several months. Board and Commission representatives presented information and answered questions at a public meeting on low lake levels in Sault Ste. Marie, Ontario convened by the local Member of Parliament on 13 June. This meeting, chaired by the local MP, was attended by about 120 members of the public as well as a Chief from the Batchewana First Nation, the Executive Director of the Lake Superior Conservancy, the heads of several other regional environmental conservation organizations, and local media. People spoke with passion about their concerns with the low levels of the lakes and especially the significant decline in Lake Superior in the past year. Although it was explained that the reason for the decline in the lake level was the continued lack of precipitation and increased evaporation from the lake, several remained unconvinced and suggested other causes, such as too much water being released from Lake Superior or unreported water diversions from the lakes.

Board and Commission representatives presented similar information at another public meeting concerning Lake Superior levels on 27 June in Thunder Bay, Ontario, organized by the local Conservation Authority. This meeting was attended by about 40 people including local municipal politicians. Questions included several regarding diversions from the lakes and the effects of climate change on lake levels.

The Board held its annual meeting with the public on the evening of 4 September at Lake Superior State University, Sault Ste. Marie, Michigan. About 42 members of the public and the media, plus Board, Commission, and International Upper Great Lakes Study Board (IUGLSB) representatives, were in attendance. A presentation was given that described the IJC, the Board, the regulatory structures, the regulation plan, and the current and expected water levels. The meeting was then opened for public comment, questions, and concerns, with U.S. Alternate Member, COL John D. Drolet, chairing. Most participants were concerned with the continuing low levels of the Upper Great Lakes, and mentioned impacts resulting from the low levels of Lake Superior. Though people seemed to be aware that ongoing drought, increased evaporation, and decreased snowfall have combined to decrease levels, many thought that other factors (such as regulatory practices, consumptive use, erosion in the St. Clair River, etc.) are adding to the problem significantly. Some participants suspect that some major consumptive uses and diversions are going unreported. Many also voiced their impatience with having to wait at least three years for the International Upper Great Lakes Study Board to be able to answer if, and how much, erosion in the St. Clair River may be impacting levels. People were advised that there were no significant unreported diversions from the upper lakes, that climate change or variability

was the cause of the low supplies, and that regulation was of limited benefit in dealing with the widespread drought. The Board also assured participants that they treat water as a resource, and not a commodity. After the meeting an opportunity was also provided for the media and people to talk to the Study Board members.

The Board continues to recognize the need to coordinate its public communication activities with the IUGLSB to avoid possible confusion of the roles and responsibilities of the two Boards by stakeholders. The date and location of its next meeting with the public will be set by the Board at its spring business meeting.

The Board continues to issue, at the beginning of each month, news releases informing the public about Lake Superior regulation and water level conditions. The Board provides monthly media releases and hydrologic update information to the Commission to maintain a Board web site. Content includes information on Board members and responsibilities as well as news releases, semi-annual reports, meeting minutes and hydrologic data summaries. In addition, in support of the Board and the Commission, the Detroit District Corps of Engineers maintains additional technical information on its own Board Web site.

12. Related Items for Interest

a. Great Lakes / St. Lawrence Seaway Study

Work is almost complete on the Great Lakes / St. Lawrence Seaway Study. This binational Study, being co-managed by Transport Canada and the U.S. Army Corps of Engineers, and being overseen by a Steering Committee consisting of several U.S. and Canadian agencies, is looking at the engineering aspects and cost of maintaining the present navigation system over the next 50 years. The Study is also looking at the implication this has on the region's economy and environment. No expansion of locks or connecting channel size is being considered. Engineering investigations of the locks on the system have been completed, and the analysis of the infrastructure has resulted in final criticality rankings of various components in order to focus more detailed reliability analyses on the most critical components.

FY07 funding is being used to complete integration of the engineering/economic model output, develop future operation and maintenance scenarios and costs, and assess the environmental implications associated with these scenarios. These scenarios will ultimately be evaluated to determine the most cost effective plan to ensure the continued safe, reliable, and environmentally sustainable operation of the navigation system for the next fifty years. A final summary report will be completed by Fall 2007, the results of which will be shared with stakeholders throughout the region. FY08 funding, when available, would be used to complete the Corps of Engineers' supplemental reconnaissance report which will build upon the bi-national system assessment to revisit the various improvements identified in the original reconnaissance report. A final determination will be made as to the Federal interest in proceeding with any feasibility efforts, including the

formalization of the scope and cost sharing requirements of any follow-on efforts.

b. Lock Replacement at Sault Ste. Marie, Michigan

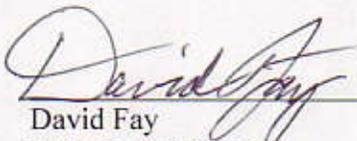
A new "Poe sized" lock is proposed to replace the existing Davis and Sabin Locks at the Soo Locks complex at Sault Ste. Marie, MI. The purpose of this project is to provide for more efficient movement of waterborne commerce. The Assistant Secretary of the Army for Civil Works (ASA(CW)) has reviewed the Limited Re-evaluation Report (LRR). The revised LRR that includes responses to the ASA(CW) comments was forwarded to Headquarters USACE on 30 September 2005. On 30 August 2006, the revised LRR plus letters of support from the Departments of Transportation and Homeland Security were provided to the ASA (CW) for approval. Upon approval of the LRR, efforts for execution of the Project Cooperation Agreement (PCA) with the non-Federal sponsor, the Great Lakes Commission, will be re-initiated. The ASA(CW) has directed that the economics be reviewed to see if there are any areas that can be revised. However, due to limited funding in FY07, detailed design of the channel deepening, guide walls, and lock chamber activities continue to be on hold. The FY08 President's Budget did not contain funding for this project.

13. Board Membership and Meetings

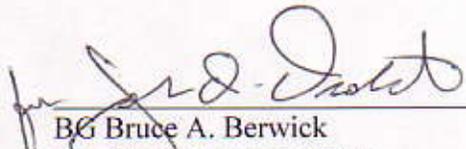
On 2 May 2007, the Commission appointed Mr. David Fay as the Canadian Member of the Board, replacing Mr. Carr McLeod. Mr. McLeod retired from Environment Canada on 24 April 2007. Mr. Rob Caldwell replaced Mr. Fay as Canadian Secretary and Regulation Representative on an interim basis.

The Board held a meeting on 5 September in Sault Ste. Marie, Ontario, with the Canadian Member and U.S. Alternate Member, COL John D. Drolet, in attendance.

Respectfully submitted,



David Fay
Member for Canada



BG Bruce A. Berwick
Member for United States

TABLE 1. 2006-2007 Lake Superior Hydrologic Factors

Month	Levels				Net Basin Supplies			Outflows		
	Monthly Mean Recorded ¹		Difference From Average ²		Monthly Mean Recorded		Exceedence Probability ³	Monthly Mean Recorded		Percent of Average ⁴
	metres	feet	metres	feet	m3/s	tcfs	(%)	m3/s	tcfs	
Apr-06	183.16	600.92	-0.11	-0.36	3640	129	64	1890	67	97
May-06	183.24	601.18	-0.13	-0.43	5040	178	52	1910	67	90
Jun-06	183.30	601.38	-0.16	-0.52	2170	77	95	2150	76	98
Jul-06	183.31	601.41	-0.21	-0.69	2900	102	74	2140	76	94
Aug-06	183.30	601.38	-0.25	-0.82	-750	-26	>99 **	2180	77	92
Sep-06	183.20	601.05	-0.35	-1.15	-810	-29	98	1770	63	75
Oct-06	183.13	600.82	-0.39	-1.28	-1000	-35	95	1570	55	68
Nov-06	183.04	600.52	-0.44	-1.44	-370	-13	75	1570	55	69
Dec-06	182.98	600.33	-0.43	-1.41	-370	-13	37	1570	55	76
Jan-07	182.92	600.13	-0.42	-1.38	-1050	-37	84	1540	54	79
Feb-07	182.83	599.84	-0.45	-1.48	-1530	-54	>99	1360	48	71
Mar-07	182.79	599.70	-0.46	-1.51	1530	54	39	1280	45	68
Apr-07	182.85	599.90	-0.42	-1.38	3230	114	74	1390	49	71
May-07	182.87	599.97	-0.50	-1.64	2360	83	97	1490	53	70
Jun-07	182.94	600.20	-0.52	-1.71	4070	144	56	1510	53	69
Jul-07	183.00	600.39	-0.52	-1.71	2440	86	86	1530	54	67
Aug-07 *	183.01	600.43	-0.54	-1.77	630	22	97	1540	54	65

Notes: m3/s = cubic metres 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 1918-2006, based on a mean of five gauges. Differences computed as metres and then converted to feet.

³ Exceedence probabilities are based on the period 1900-1999.

⁴ Average flows are for the period 1900-1999.

* Provisional estimates

** New record low supply

August monthly mean level was a new record low

TABLE 2. 2006-2007 Lakes Michigan-Huron Hydrologic Factors

Month	Levels				Net Basin Supplies			Outflows		
	Monthly Mean Recorded ¹		Difference From Average ²		Monthly Mean Recorded		Exceedence Probability ³ (%)	Monthly Mean Recorded		Percent of Average ⁴
	metres	feet	metres	feet	m3/s	tcfs		m3/s	tcfs	
Apr-06	176.01	577.46	-0.40	-1.31	6860	242	67	4640	164	90
May-06	176.09	577.72	-0.41	-1.35	7340	259	42	4690	166	87
Jun-06	176.14	577.89	-0.43	-1.41	2690	95	96	4750	168	87
Jul-06	176.14	577.89	-0.46	-1.51	4000	141	39	4710	166	85
Aug-06	176.13	577.85	-0.45	-1.48	-1390	-49	96	4720	167	85
Sep-06	176.04	577.56	-0.49	-1.61	-680	-24	77	4570	161	83
Oct-06	175.99	577.40	-0.47	-1.54	1290	46	23	4560	161	84
Nov-06	175.94	577.23	-0.46	-1.51	3040	107	16	4520	160	84
Dec-06	175.98	577.36	-0.38	-1.25	4310	152	4	4450	157	86
Jan-07	176.00	577.43	-0.32	-1.05	2520	89	27	4420	156	98
Feb-07	175.91	577.13	-0.40	-1.31	-1140	-40	>99	3700	131	84
Mar-07	175.92	577.17	-0.40	-1.31	6170	218	33	4230	149	87
Apr-07	176.02	577.49	-0.39	-1.28	6390	226	74	4560	161	89
May-07	176.06	577.62	-0.44	-1.44	4460	158	89	4520	160	84
Jun-07	176.08	577.69	-0.49	-1.61	2730	96	96	4600	162	84
Jul-07	176.06	577.62	-0.54	-1.77	2350	83	79	4680	165	84
Aug-07 *	176.00	577.43	-0.58	-1.90	960	34	63	4640	164	84

Notes: m3/s = cubic metres 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 1918-2006, based on a mean of six gauges. Differences computed as metres and then converted to feet.

³ Exceedence probabilities are based on the period 1900-1999.

⁴ Average flows are for the period 1900-1999.

* Provisional estimates

Table 3

INTERNATIONAL LAKE SUPERIOR BOARD OF CONTROL

MONTHLY DISTRIBUTION OF LAKE SUPERIOR OUTFLOW

OUTFLOW IN m ³ /s THROUGH														
YEAR AND MONTH	POWER CANALS				NAVIGATION CANALS				DOMESTIC USAGE			FISHERY	TOTAL LAKE SUPERIOR OUTFLOW m ³ /s	
	US GOVT HYDRO	EDISON SAULT EL. CO	US TOTAL	GREAT LAKES POWER	TOTAL POWER CANALS	UNITED STATES	CANADA	TOTAL NAV. CANALS	S.STE MARIE US+CAN	ALGOMA STEEL	ST MARYS PAPER	TOTAL DOM. USAGE	STE. MARY'S RAPIDS	
2006														
JAN	400	464	864	985	1849	5.7	0.0	6	0.3	9.4	0.3	10	101	1966
FEB	391	467	858	972	1830	2.8	0.0	3	0.3	9.1	0.3	10	100	1943
MAR	399	453	852	875	1727	4.5	0.0	4	0.3	9.2	0.3	10	99	1840
APR	393	436	829	938	1767	11.1	0.0	11	0.3	9.6	0.3	10	99	1887
MAY	364	563	927	858	1785	12.5	0.3	13	0.3	10.1	0.3	11	101	1910
JUN	393	578	971	1050	2021	13.4	1.8	15	0.4	10.3	0.3	11	106	2153
JUL	400	611	1011	1005	2016	14.4	2.0	16	0.4	8.5	0.3	9	102	2143
AUG	382	643	1025	1031	2056	14.0	2.1	16	0.3	8.8	0.3	9	102	2183
SEP	389	434	823	824	1647	13.3	1.3	15	0.3	10.7	0.3	11	100	1773
OCT	396	328	724	721	1445	11.4	0.5	12	0.3	10.5	0.3	11	100	1568
NOV	395	333	728	725	1453	10.4	0.0	10	0.2	10.3	0.3	11	99	1573
DEC	395	330	725	726	1451	10.3	0.0	10	0.2	9.5	0.3	10	98	1569
2007														
JAN	398	320	718	710	1428	5.0	0.0	5	0.2	9.4	0.3	10	97	1540
FEB	296	319	615	643	1258	2.1	0.0	2	0.2	8.0	0.3	8	96	1364
MAR	338	248	586	585	1171	4.0	0.0	4	0.2	8.3	0.3	9	94	1278
APR	379	251	630	641	1271	11.3	0.0	11	0.2	8.8	0.3	9	96	1387
MAY	368	341	709	671	1380	12.9	0.5	13	0.3	9.7	0.3	10	83	1486
JUN	348	341	689	709	1398	14.3	1.6	16	0.4	10.1	0.3	11	82	1507
JUL	346	351	697	722	1419	14.6	2.2	17	0.4	8.3	0.3	9	83	1528
AUG	360	353	713	721	1434	14.8	2.1	17	0.4	8.5	0.3	9	83	1543

NOTE: POWER CANALS COLUMNS INCLUDE FLOWS THROUGH POWER PLANTS AND SPILLWAYS

Table 4

INTERNATIONAL LAKE SUPERIOR BOARD OF CONTROL

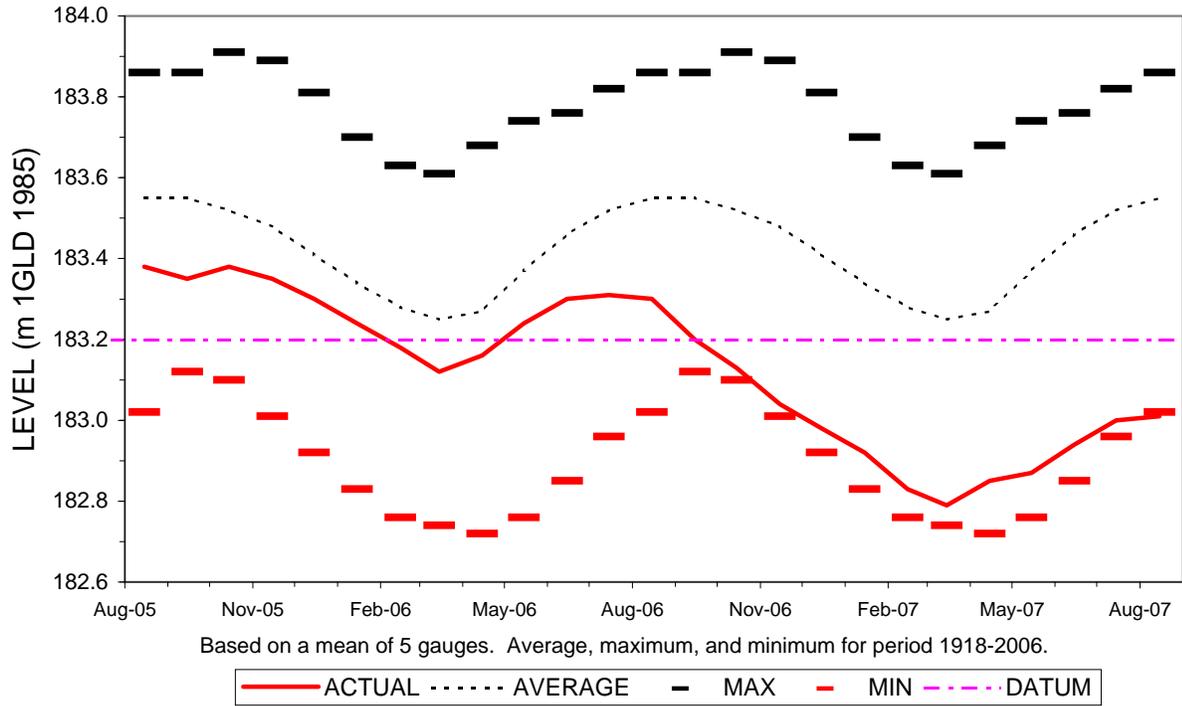
MONTHLY DISTRIBUTION OF LAKE SUPERIOR OUTFLOW

YEAR AND MONTH	POWER CANALS					NAVIGATION CANALS				DOMESTIC USAGE			FISHERY	TOTAL LAKE SUPERIOR OUTFLOW CFS
	US GOVT HYDRO	EDISON SAULT EL. CO	US TOTAL	GREAT LAKES POWER	TOTAL POWER CANALS	UNITED STATES	CANADA	TOTAL NAV. CANALS	S.STE MARIE US+CAN	ALGOMA STEEL	ST MARYS PAPER	TOTAL DOM. USAGE	STE. MARY'S RAPIDS	
2006														
JAN	14100	16400	30500	34800	65300	201	0	201	11	332	11	354	3570	69400
FEB	13800	16500	30300	34300	64600	99	0	99	11	321	11	343	3530	68600
MAR	14100	16000	30100	30900	61000	159	0	159	11	325	11	347	3500	65000
APR	13900	15400	29300	33100	62400	392	0	392	11	339	11	361	3500	66700
MAY	12900	19900	32800	30300	63100	441	11	452	11	357	11	379	3570	67500
JUN	13900	20400	34300	37100	71400	473	64	537	14	364	11	389	3740	76100
JUL	14100	21600	35700	35500	71200	509	71	580	14	300	11	325	3600	75700
AUG	13500	22700	36200	36400	72600	494	74	568	11	311	11	333	3600	77100
SEP	13700	15300	29000	29100	58100	470	46	516	11	378	11	400	3530	62500
OCT	14000	11600	25600	25500	51100	403	18	421	11	371	11	393	3530	55400
NOV	13900	11800	25700	25600	51300	367	0	367	7	364	11	382	3500	55500
DEC	13900	11700	25600	25600	51200	364	0	364	7	335	11	353	3460	55400
2007														
JAN	14100	11300	25400	25100	50500	177	0	177	7	332	11	350	3430	54500
FEB	10500	11300	21800	22700	44500	74	0	74	7	283	11	301	3390	48300
MAR	11900	8800	20700	20700	41400	141	0	141	7	293	11	311	3320	45200
APR	13400	8900	22300	22600	44900	399	0	399	7	311	11	329	3390	49000
MAY	13000	12000	25000	23700	48700	456	18	474	11	343	11	365	2930	52500
JUN	12300	12000	24300	25000	49300	505	57	562	14	357	11	382	2900	53100
JUL	12200	12400	24600	25500	50100	516	78	594	14	293	11	318	2930	53900
AUG	12700	12500	25200	25500	50700	523	74	597	14	300	11	325	2930	54600

NOTE: POWER CANALS COLUMNS INCLUDE FLOWS THROUGH POWER PLANTS AND SPILLWAYS

NOTE: 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.

LAKE SUPERIOR MONTHLY WATER LEVELS



LAKES MICHIGAN-HURON MONTHLY WATER LEVELS

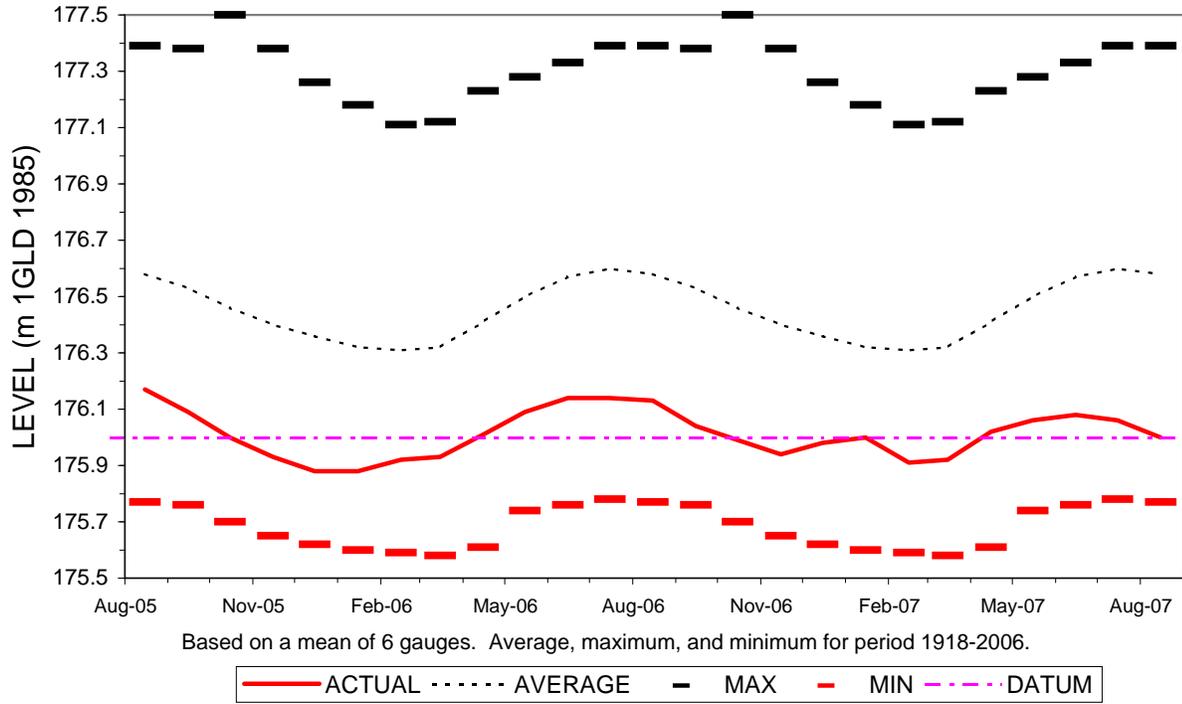
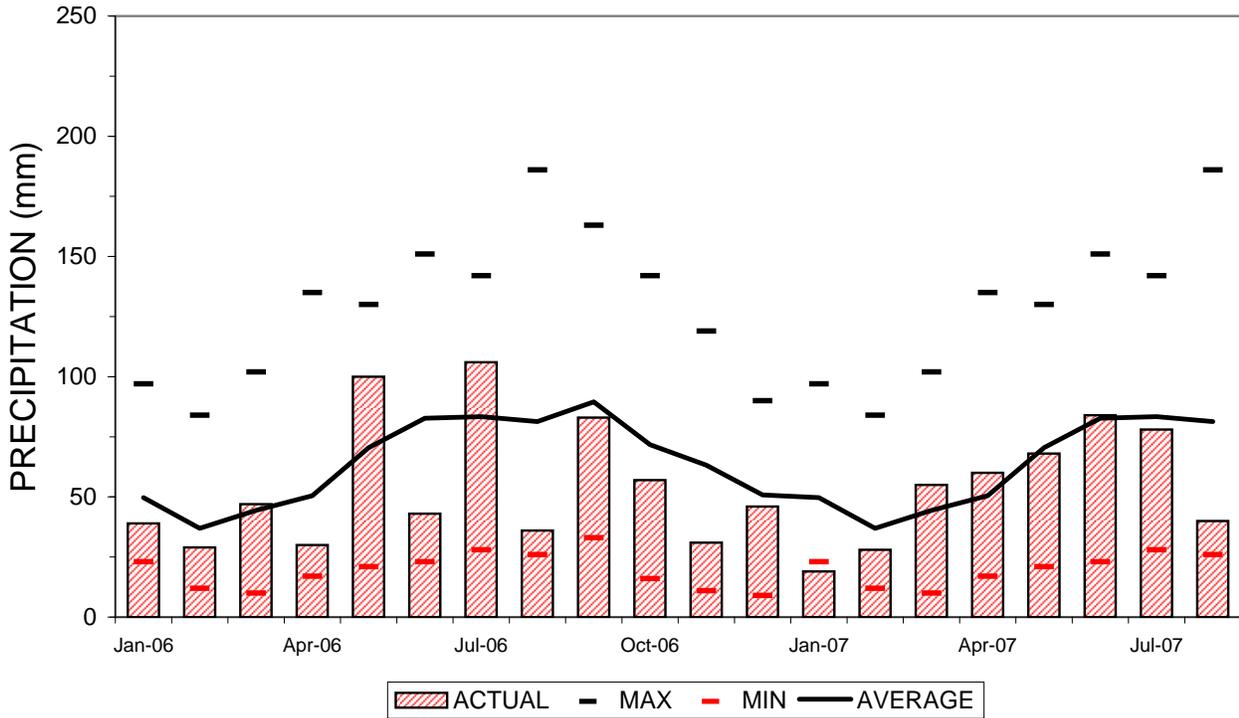
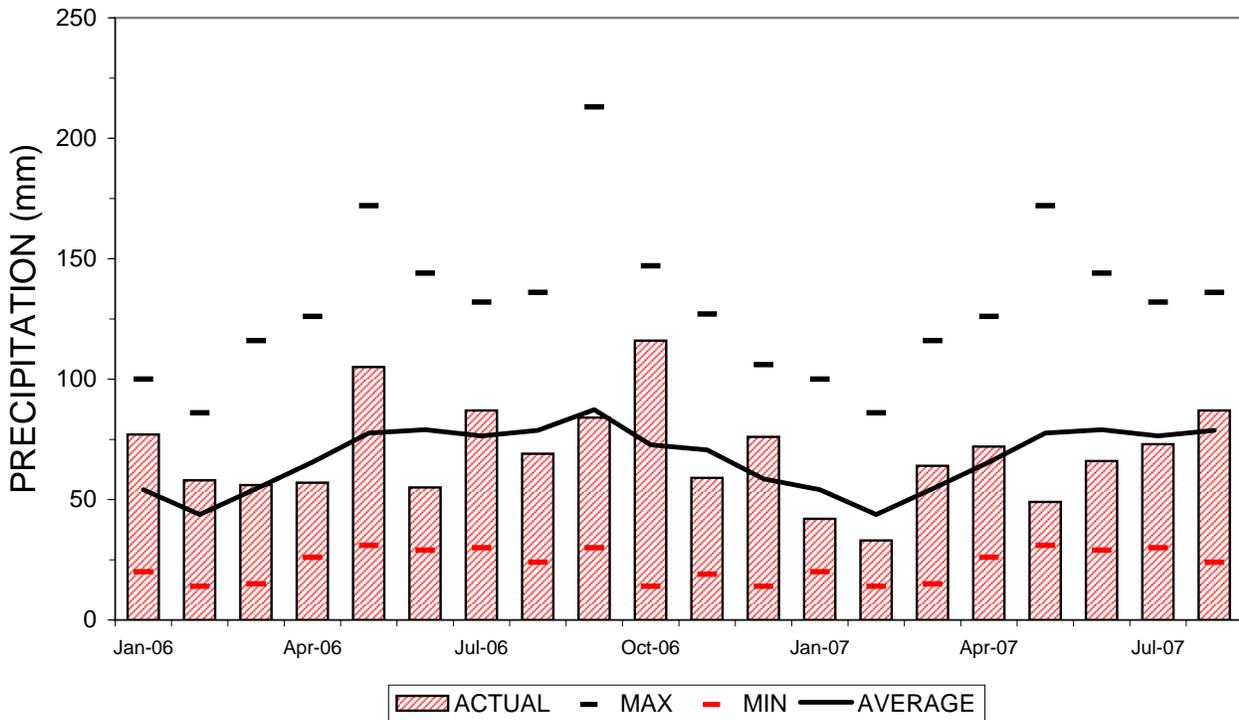


Figure 1

LAKE SUPERIOR MONTHLY PRECIPITATION



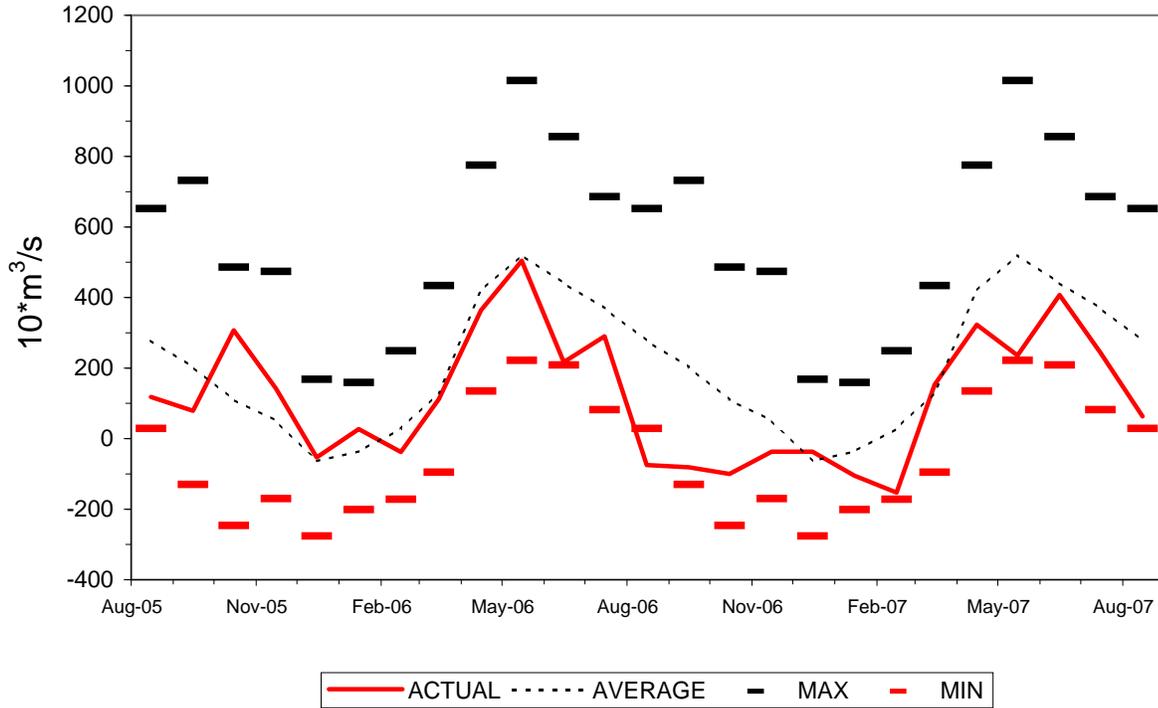
LAKES MICHIGAN-HURON MONTHLY PRECIPITATION



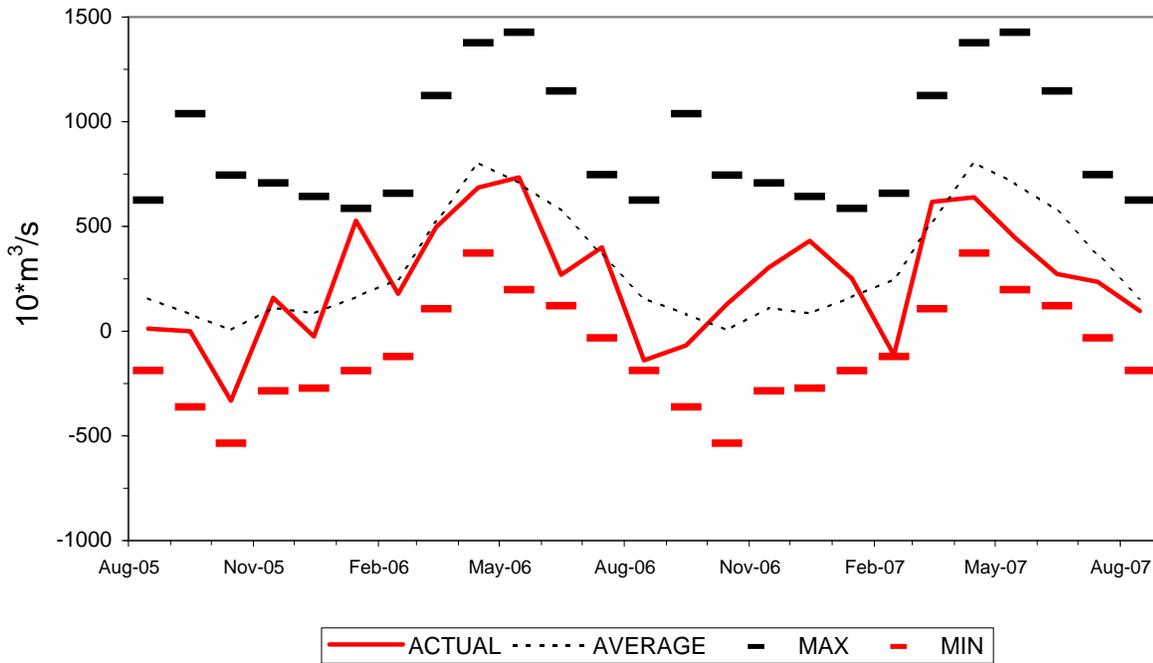
Average, maximum and minimum values based on period of record 1900-2006.

Figure 2

LAKE SUPERIOR MONTHLY NET BASIN SUPPLIES



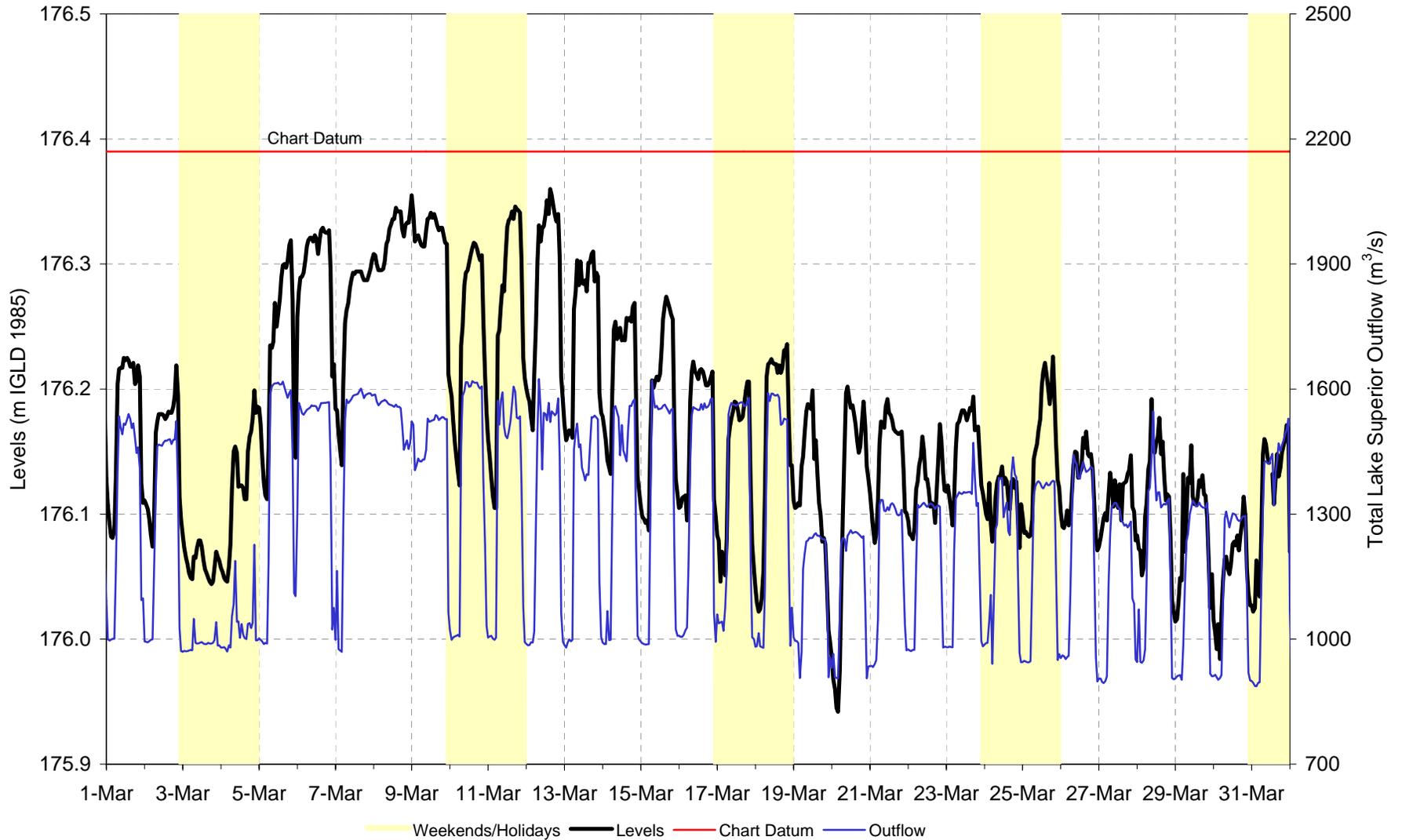
LAKES MICHIGAN-HURON MONTHLY NET BASIN SUPPLIES



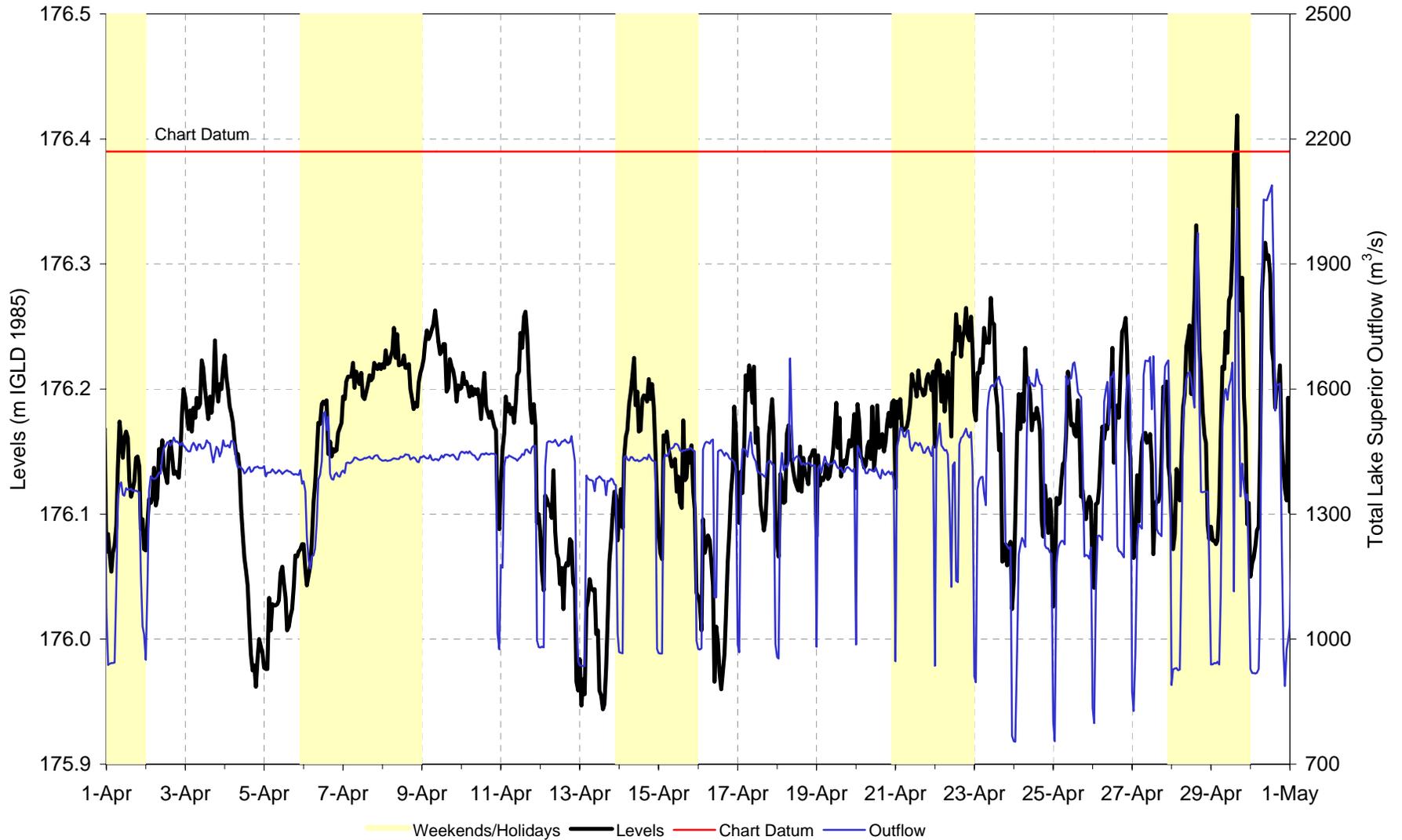
Average, maximum and minimum values based on coordinated period of record 1900-1999.

Figure 3

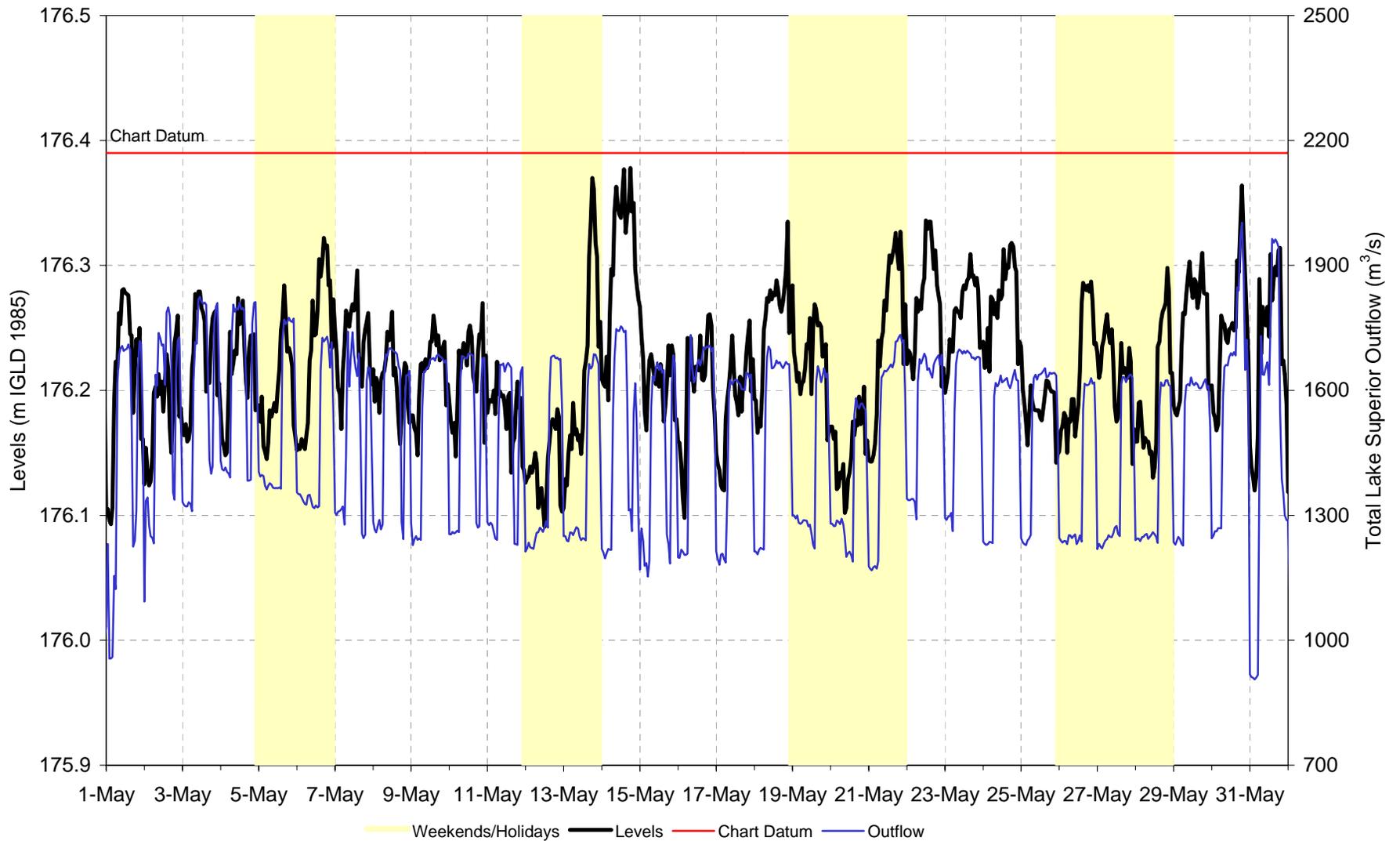
Hourly U.S. Slip Levels & Lake Superior Outflows
Figure 4a - March 2007



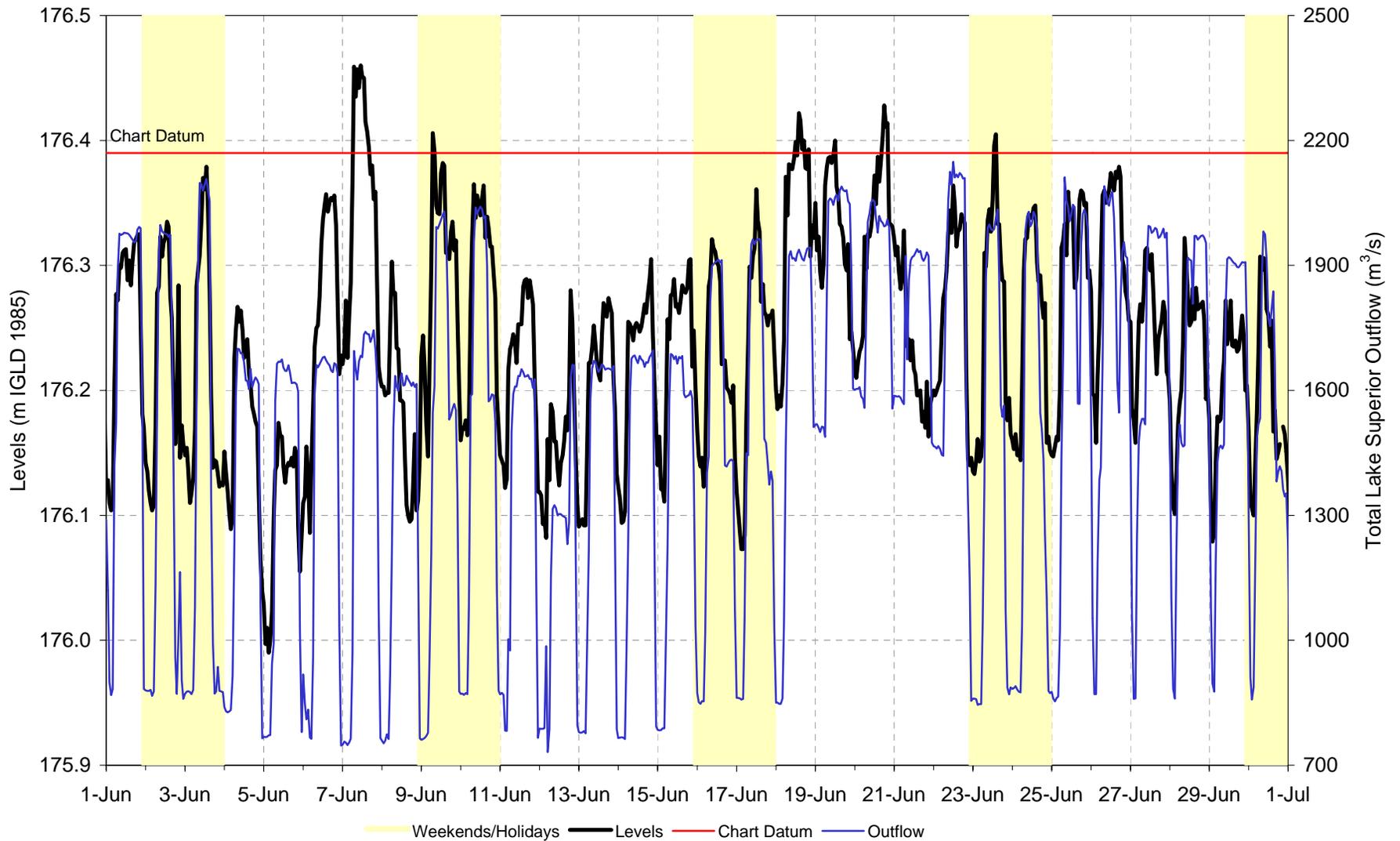
Hourly U.S. Slip Levels & Lake Superior Outflows
Figure 4b - April 2007



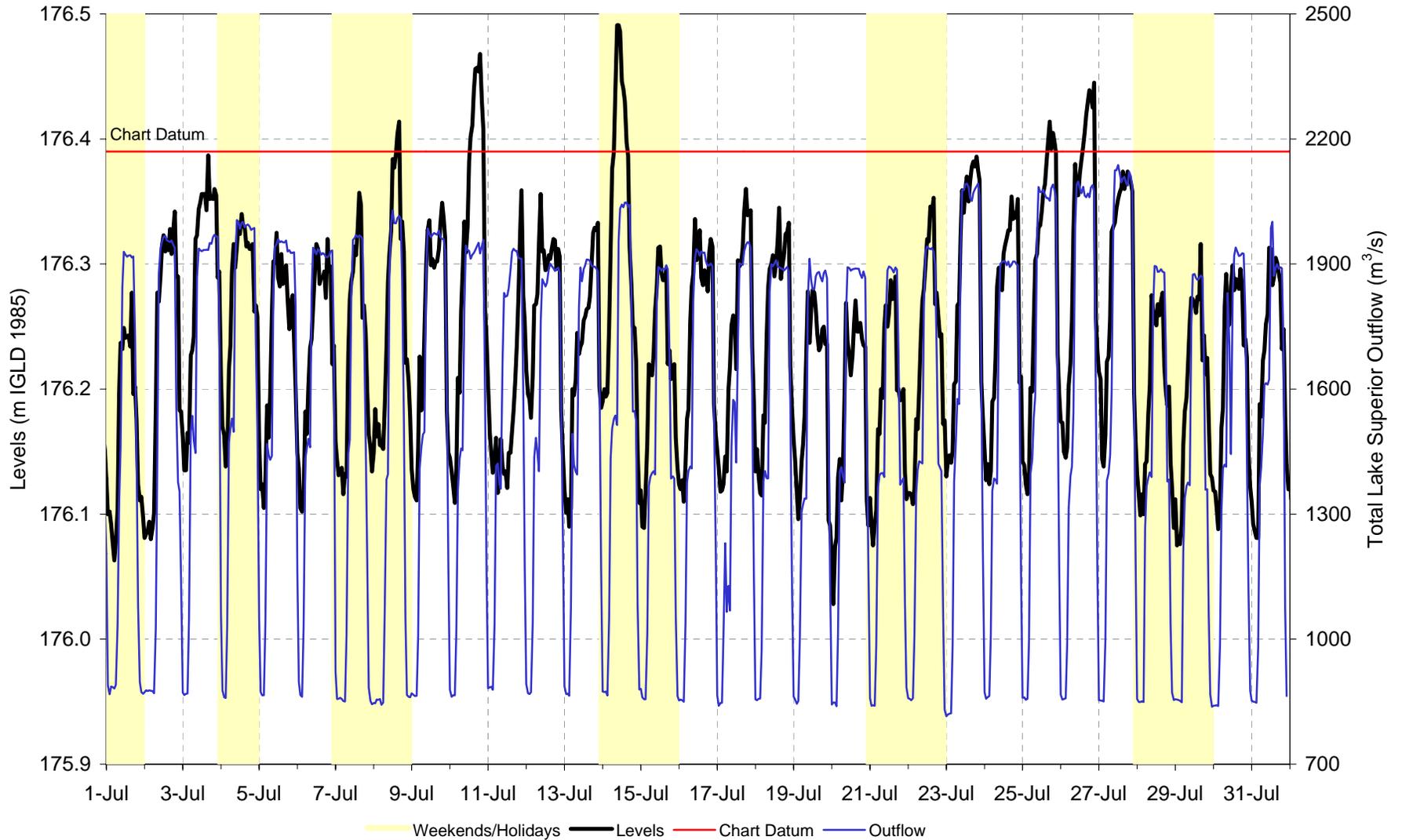
Hourly U.S. Slip Levels & Lake Superior Outflows
Figure 4c - May 2007



Hourly U.S. Slip Levels & Lake Superior Outflows
Figure 4d - June 2007



Hourly U.S. Slip Levels & Lake Superior Outflows
Figure 4e - July 2007



Hourly U.S. Slip Levels & Lake Superior Outflows
Figure 4f - August 2007

