

INTERNATIONAL LAKE SUPERIOR BOARD OF CONTROL

Minutes of the 30 August 2011 meeting

The International Lake Superior Board of Control met on 30 August 2011 in the Anchor Room at Lake Superior State University, Sault Ste. Marie, Michigan. Mr. Fay convened the meeting at 1:10 p.m. The attendees were:

United States

COL J. Drolet (Alt.)

Mr. J. Kangas

LTC. M. Derosier

Mr. M. Steeves
Mr. E. Tauriainen
Mr. J. Allis
Mr. K. Kompoltowicz

Board Members

Secretaries

Regulation Representatives

Associates

Canada

Mr. D. Fay

Mr. R. Caldwell

Mr. R. Caldwell

Mr. R. Stefano
Mr. J. Deluzio
Mr. T. McAuley

Item 1. Approval of Agenda

The agenda was approved.

Item 2. Hydrologic Conditions and Regulation Update

The Board was provided with the following update on hydrologic conditions for lakes Superior, Michigan-Huron, and Erie. Mr. Caldwell also presented slides showing recent net basin water supplies, levels (observed and forecasted), and Lakes Superior/Michigan-Huron water balance parameters.

- Over all, water supplies to the Lake Superior basin for the past six months were below average while supplies to the Lakes Michigan-Huron basin were above average.
- Lakes Superior and Michigan-Huron levels remain below average, but similar to levels of last year. Lake Superior was 25 to 36 cm (10 to 14 in.) below average during the past six months. Lakes Michigan-Huron were 32 to 50 cm (13 to 20 in.) below average. Levels of Lake Superior have been consistently below average since April 1998, while levels of Michigan-Huron have been consistently below average since January 1999.
- Lake Superior outflows were 76% of average over the past six months, and ranged from 1,470 to 1,750 m³/s. Outflows were as specified by Regulation Plan 1977-A, except in June to facilitate sea lamprey control tests. The gate setting at the Compensating Works remained at the equivalent of ½ gate open.
- With average supplies, Lake Superior's level is expected to remain below average and fall below its chart datum by winter. Michigan-Huron levels are very likely to remain below average for the next six months, and are expected to fall below their chart datum by winter as well.
- The 1900-1986 "standardized departure" data as used in Plan 1977-A show that Lake Superior's level was significantly lower relative to Lakes Michigan-Huron at the beginning of September. Lake Superior was about 1.7 standard deviations below its mean level, while Michigan-Huron was about 1.0 standard deviations below its mean level.
- Since last year, Lake Superior has received about 50 mm (2") more total precipitation than normal.
- According to the NOAA drought monitor, much of the upper Great Lakes basin remains abnormally dry.
- The NOAA and Environment Canada climatological outlooks for September-November were consistent (warmer than normal) for temperature, but differed on precipitation (NOAA → equal chances of above, below, or normal precipitation; Environment Canada → above normal precipitation for Superior and below normal for some of Lake Huron).

The Board agreed that outflows specified by the regulation plan be continued.

Item 3. Update on Long Lac and Ogoki Diversions

Mr. Caldwell reported that Ontario Power Generation (OPG) continues to provide the Board with information on the operations of the Long Lac and Ogoki Diversions. The Ogoki Diversion into Lake Nipigon (which flows into Lake Superior) averaged 137.5 m³/s (4,860 cfs) and the Long Lac Diversion averaged 41.5 m³/s (1,460 cfs) from March through August. Combined, these diversions were about 106 percent of average for the period 1944-2010.

Slots cut into Waboose Dam provide a minimum flow northward to the Ogoki River of approximately 2 m³/s (to meet fisheries requirements). This slot flow averaged 2.7 m³/s (95 cfs) during March through August.

Continuous minimum flows of 2 m³/s (70 cfs) are maintained from the Saturday of Victoria Day weekend (in May) through Labour Day from the northern outlet of Long Lake (Kenogami Dam) for environmental enhancement. An average of 30.2 m³/s (1,070 cfs) was spilled during May and June following a period of wet weather.

Item 4. Flow Verification Measurements

LTC Derosier noted that no hydropower flow verification measurements were performed this year. Measurements continue on a five-year cycle and are expected to be next completed in 2015.

Compensating works flow verification measurements are scheduled for next year. Flow measurements were made on 23 and 24 August on model sections in the lower St. Marys River. Additional measurements will be made the week of 3 October. These measurements are for use in the calibration of hydraulic models and are not related to the power plant or compensating works flow verification programs. Mr. Fay noted that shortly, United States Geological Survey (USGS) acoustic Doppler velocity meter (ADVM) data will be available as a second means of estimating the total flow in the river.

Item 5. Hydropower Plant Maintenance & Other Outages

U.S. Government Hydropower Plant

LTC Derosier reported that several scheduled and unscheduled outages have occurred since March. In March and April, small outages were reported due to ice and various instrument faults. Most outages occurred as a result of planned work in the main power canal and unexpected seepage through the adjacent timber crib dam. On 19 April, work began to refurbish the timber crib dam on the south side of the power canal and address ongoing seepage through the crib dam. On 13 May, workers noted a significantly increased rate of seepage through the crib dam. Divers investigated and on 20 May, the cause of the increased seepage was determined to be a punctured concrete liner caused by a spud (0.3 m x 0.3 m I-beam) used in the repair. The seepage issue was remedied on 21 May by placement of 3.4 m³ of fill and a large steel plate. Work resumed on 24 May.

Units 1, 2, 3 and 3a were down in May to July for a combined total of 2,586 hours for various reasons related to the crib dam project. Unit 10 was offline for 17 hours in July due to the work. The U.S. plant returned to normal operation on 26 July. There was a total downtime of 175 hours in August of Units 1, 2, 3, and 3a. Flow allocations were met during the reporting period. Cloverland Electric Coop (CEC) used all of the allocation that the government plant was unable to use. Unit 1 is scheduled to be offline in early September for routine maintenance.

Brookfield Renewable Power

Mr. Stefano reported that scheduled maintenance outages continued and Unit G1 was shut down from 25 May to 6 June for annual inspections. Unit G3 will be shut down for about ten days in September. A series of unscheduled outages also occurred. Unit G2 tripped off-line from 17 to 21 June due to a blade tilt sensor malfunction. Unit G3 tripped off-line on 8 August for several hours due to an off-site problem and transmission officials reviewed the protection scheme. The plant was shut down temporarily on 8 May to aid in the recovery of a body following a suicide, and on 28 May, 10 July, and 14 August to permit lamprey control test instrumentation installation/removal, and on 7 June due to a city-wide transmission outage. During the 14 August shutdown, the annual underwater cable inspection and maintenance for Lake Superior Power Ltd. was also performed, along with a diving inspection by Canadian National Railway on the train trestle piers. The power entity was able to pass the allotted flows each month.

Cloverland Electric Co-op

Mr. Caldwell reported that work in the CEC power canal continued from 13 April to 29 June. 424 m (1,392 ft.) of precast barriers were placed at the toe of the northern bank and 12,100 m³ (15,830 cubic yards) of rip rap (stone) were placed in the canal. 8,540 m³ (11,175 cubic yards) of rip rap and 707 m (2,320 ft.) of barriers will be placed between September and early November. As divers place the barriers, the plant shuts down temporarily. During the reporting period, all allocations were used.

Item 6. Compensating Works

Item 6a. Inspections

Ongoing, routine, monthly inspections of the Compensating Works occurred in the past six months.

Mr. Stefano noted that the 23 August 2011 inspection conducted on the Canadian portion by Brookfield Renewable Power (BRP) found the Compensating Works facilities to be in good condition.

LTC Derosier reported that the 10 August inspection conducted on the U.S. portion jointly by the U.S. Army Corps of Engineers (USACE) Soo Area Office and Cloverland Electric Co-op found the Compensating Works facilities to be in good condition. It was recommended that Gates 12 to 15 be cycled through their full range of motion in 2012 to facilitate cranking by permitting grease to reach the lower babbitt bearings.

Item 6b. Maintenance: Recent & Planned

The major refurbishment of the Canadian portion concluded on 28 July with the completion of work at Gate 1 above the water line that was initiated in 2010 but delayed due to weather.

Ongoing routine maintenance continued. Rotting sheathing on an American storage shed will be replaced and painted. A comprehensive, binational, periodic maintenance plan will be developed prior to the Spring 2012 Board meeting.

Item 7. Peaking and Ponding Update

Mr. Caldwell reported that, due to higher levels in the lower St Marys River and adequate monthly outflows most of this reporting period, the Board only needed to restrict ponding operations from 2 to 24 April. No shipping delays due to ponding operations have been reported. The Board continues to include a semi-annual update on peaking and ponding in each progress report to the Commission, and Mr. Caldwell noted that the IJC agreed in April 2010 to postpone a full review that had been scheduled for 2010, to await a review of peaking and ponding within the International Upper Great Lakes Study (IUGLS). The Board requested a summary report from the Study team on its findings and recommendations, and should receive it in late September.

Item 8. Communications

Item 8a. 2011 Meeting with the public – final planning

Mr. Kangas thanked Mr. Kompoltowicz for undertaking much of the planning for the meeting. He noted that the Board will host its annual public meeting and teleconference on the evening of 30 August in Sault Ste. Marie, MI. U.S. Alternate Member, COL Jack Drolet, will present information describing the IJC, the Board, the control structures, the regulation plan, and the current and expected water levels. Mr. Michael Steeves, Great Lakes Fishery Commission (GLFC), will provide a brief summary of the sea lamprey control testing conducted in the St. Marys River this year. COL Drolet will also provide a brief summary of the Great Lakes and Mississippi River Interbasin Study (GLMRIS) aquatic nuisance species study being lead by the USACE. The meeting will then be opened for public comment, questions, and concerns, with COL Drolet, chairing. The slide presentation to be shown at the meeting hall was made available online to callers beforehand (on 25 August), and callers will be able to interact with the chairman and other participants during the event.

Mr. Kompoltowicz pointed out that only about 20 Board brochures are left, and it was agreed to hold off on printing lots more until the IUGLS findings are released and any new proposed approach is finalized. The brochure may

be refreshed and a small number printed in the interim. Mr. Kangas added that the USACE now has a new employee that has communication and technical writing expertise.

Item 9. Other Business

Item 9a. Sea Lamprey Control Trapping Tests

Mr. Caldwell noted that the GLFC (with U.S. Environmental Protection Agency's Great Lakes Restoration Initiative (GLRI) funding approval) tested the potential for improving sea lamprey trapping efficiencies at the traps located immediately downstream of the hydropower plants. Trapping efficiency was tested by altering the temporal distribution of St. Marys River flows during the lamprey spawning season (late May through July for approximately eight weeks, depending on water temperatures). The experiment tested whether trapping of sea lampreys would be improved by changing both the timing and rate of releases through the hydropower plants and possibly the rapids. Previous analyses suggested that maintaining high hydropower releases (i.e., on-peak flows) during nighttime improves trapping efficiency.

The timeline was modified (at the EPA's request, from the proposed 2010 initiation) and the field-work was completed in 2011. Objectives included evaluation of how changes in hydropower outflows affects water levels (plus turbulence and air entrainment) at the traps, observation of behaviour near the traps (to assess those that may be exploited to improve efficiencies) and distribution of fin-clipped lampreys (to ascertain whether all lampreys migrate to trap sites), evaluation of the feasibility and efficiency of traps at the Compensating Works, and assessing the feasibility of manual removal by divers. Alternating nighttime with on-peak (on odd nights) and off-peak (on even nights) flows at both BRP and CEC were undertaken to test the hypothesis regarding nighttime flow effects on trapping success.

The Board and power entities cooperated with the proponents to vary the flow releases during the sea lamprey spawning period to facilitate experiments. At the 13 April semi-annual meeting in Washington, DC, and by letter dated 18 April, the Board requested that the IJC consider approval of discretionary deviations during the period from 15 May through 31 July up to the Criterion (c) flow limits. The IJC approved this request on 25 April. The flow manipulations included minor deviations from plan flow during June only.

Due to low water temperatures initially, the spawning run was delayed, so no deviations were necessary in May. An average of 100 m³/s above the Plan-prescribed outflow was passed in June but plan flow proved sufficient in July. On 1 June, at the request of the GLFC, the Compensating Works gate setting was altered from the customary setting of Gates 7 to 10 partially open to Gates 12 to 15 partially open in an effort to improve trapping below Gate 16 and to hopefully aid with nest surveys in the rapids. On 1 July, this was altered again to Gates 13 to 16 partially open to further improve the trapping efficiency. The gates will be reset to their typical setting in early September. The half-gate-open-equivalent setting was maintained in all cases.

Mr. Michael Steeves, GLFC, presented a summary of the tests and provisional findings and noted that overall trapping efficiency was estimated at 32%, which was a 3% increase from 2010. The portable traps downstream of Gate 16 captured 112 sea lampreys, which was a significant increase over last year's catch of just five. He added that a full analysis will be completed over the winter and results will be provided to the Board.

Item 9b. Inventory and Verification of Diversion Intakes/Outfalls

Mr. Caldwell summarized discussions he had had with Mr. Dan French, the acting Site Manager at the Canadian locks. Mr. French had indicated that a penstock, originally built in 1895 to provide water to drive power turbines and dewatering pumps, was closed on 23 August 2010, but had been fully reopened from 4 December 2010 to 20 January 2011, when it was closed again. Previously, Mr. French believes it had been fully open for an unknown period of time. Mr. Caldwell reviewed past water usage reports. The file starts on 27 July 1975. Sporadic usage was noted in 1983 and in 1985, with the last reported usage on 30 November 1985 (28.3 m³/s). The lock was closed from 23 July 1987 until 15 July 1998 due to a major structural failure. Penstock usage has not been reported since 1985. It is therefore unclear as to when the penstock was reopened up until its closure on 23 August 2010. It is expected that the flowrate through the current system is far less than that reported in 1985, as one of

the two outfall pipes previously employed were apparently removed thereafter. Mr. Fay and Mr. Caldwell will tour the facility on 31 August to better understand the usage of the penstock.

Mr. Caldwell indicated that he and Mr. Kangas discussed the need for a full inventory and verification of such water diversion intakes and outfalls. It was agreed that Mr. Caldwell and Mr. Kompoltowicz undertake such an audit following next year's meeting with the public in the Sault Ste. Marie area. They will develop a list of contacts by early 2012 in order to facilitate tours and meetings with each entity.

Item 9c. 13-14 September Joint Oil Spill Response Workshop

In an e-mail message from IJC Engineering Advisor, Tom McAuley, on 12 July, it was recommended to the Board that someone participate in this upcoming exercise. Mr. Caldwell spoke to the Canadian facilitator of the workshop, Ms. Joanne Munroe, Canadian Coast Guard, on 20 July, and he provided her with some information relating to the potential for the Board to assist in terms of flow management. The Board's U.S. on-site representative, Mr. Kevin Sprague, USACE Soo Area Office, intends on participating, and Mr. Kompoltowicz will be available to participate by phone. It was agreed that the two Board Members have the authority to exercise emergency authority to alter flows, and that the IJC would be kept apprised in a timely manner of any need to exercise such authority in the future. Ms. Munroe intends to follow up with the Board Secretaries after the workshop and ensure that contact information is kept updated.

Item 9d. Use of Social Media – Review of Draft IJC Guidance

In a letter dated 4 August, the IJC requested that each Board of Control review a new IJC draft guidance document on use of social media (e.g., Facebook and Twitter) to communicate with stakeholders. The IJC wishes to ensure any such initiatives are effective, coordinated, and consistent. The Board discussed the draft guidelines and agreed that it was important that such initiatives be maintained and kept current. Given the Board's regulatory operations primarily follow a monthly routine, it was agreed that a static Website will likely remain sufficient for the Board's needs, at least for the time being.

Item 10. Review Semi-Annual Progress Report

The Board reviewed and made some changes to the draft Semi-Annual Progress Report.

The Canadian Secretary will incorporate the changes, update the data, and distribute advance copies to the IJC prior to its October meeting.

Item 11. Next Meeting and IJC Appearance

The IJC Appearance has been scheduled for 10:45 a.m. on 19 October. The reception is scheduled for 6:30 p.m. that evening. The Spring meeting will likely take place between 26 and 30 March 2012 in Chicago, IL. The Spring IJC Appearances in Washington, DC, are scheduled for 24 to 25 April 2012.

There being no other business, the meeting adjourned at 4:25 p.m.

INTERNATIONAL LAKE SUPERIOR BOARD OF CONTROL

BOARD MEETING

30 August 2011
1300-1600 hours

Lake Superior State University
Cisler Center
Anchor Room
650 West Easterday Ave.
Sault Ste Marie, Michigan

Agenda

1. Approval of agenda
2. Hydrologic conditions and regulation update
3. Long Lac and Ogoki diversions
4. Flow verification measurements
5. Hydropower plant maintenance and other outages
6. Compensating works
 - a. Inspections
 - b. Maintenance: recent and planned
7. Peaking and ponding update
8. Communications
 - a. 2011 Meeting with the public – final planning
9. Other business:
 - a. Sea lamprey control trapping tests
 - b. Inventory and verification of diversion intakes/outfalls
 - c. 13-14 September joint oil spill response workshop
 - d. Use of social media – review of draft IJC guidance
10. Review semi-annual progress report
11. Next meeting and IJC appearance