Adopted Regulation Strategy
LWCB Regulation Meeting - March 14, 2008

The Lake of the Woods Control Board held its spring Regulation Meeting in International Falls, MN on March 14, 2008 and adopted the following strategy. The strategy was formulated considering basin conditions, hydrological and meteorological forecasts, and the input of the various interests concerned with basin management. Input was provided in written and verbal reports as well as from the Board's Regulation Guide (http://www.lwcb.ca/reg-guide/index.html) .

For an update on current conditions, please refer to the Basin Data section of the Board's web site at http://www.lwcb.ca/waterflowdata.html . For regulation actions and directives taken under the strategy please see the Regulation Actions at http://www.lwcb.ca/regulation/index.html .

Lac Seul

A) Seasonal Considerations

Lac Seul regulation over the near term will be influenced by the wetter than normal conditions across the basin and the above normal level of Lac Seul. While end of winter water levels should be very good from a fisheries perspective, it is still highly desirable to have levels rising after mid-April and outflow reductions will likely be needed to ensure this. Navigation problems early in the season for tourist outfitters should also be reduced this spring, but rising lake levels must be balanced against a future risk of high water. The points below reflect a number of ideal or desirable regulation objectives over the next few months, based on input provided to the Board.

- Lac Seul level and outflow should be managed to reduce flood risk on the lake and downstream in Ontario and Manitoba.
- Attempt to meet the preferred Lac Seul, Pakwash Lake and English River levels for the fishery and tourist outfitter interests, to provide good spring spawning conditions and adequate navigation levels at the start of the walleye fishing season.
- Lac Seul level should be constant or rising after April 15 for spring spawning fish.
- The minimum spring lake level should be no more than 1.5 m (5 ft) below the November 1 level for whitefish. For spring 2008, this level is 355.25 m (1165.5 ft).
- The desirable lake level on May 15 is no less than 355.1 m (1165 ft) for navigation for the start of the walleye fishing season.
- The tourist outfitters preferred summer maximum level is 356.6 m (1170 ft).
- Supply water requested by Ontario Power Generation and Manitoba Hydro for hydroelectric energy generation; avoid spill in wet conditions and violation of low flow constraints in dry conditions.
- A minimum flow of 180 m^3/s below Manitou Falls is desirable during spring spawning. If there is not sufficient water to meet this criteria, Lac Seul discharge should be set to maintain a uniform flow through the spawning period.
- River flows at Grassy Narrows should be less than 550 m^3/s.
- Use Lac Seul storage to offset Lake of the Woods high/low outflows for the benefit of users of the Winnipeg River in Manitoba.
- Avoid closing the Lake St. Joseph diversion with resulting spill down the Albany River.

B) Strategy

To April 15 (Drawdown Period)

Lac Seul outflow should be reduced in steps to as low as Ear Falls generating capacity (230 m^3/s) to target for an end of winter level (April 15) of about 355.3 m (1165.7 ft), while considering flows in the Winnipeg River in Manitoba and hydropower requirements. Note that an end of winter level of 355.25 m (1165.5 m) would satisfy the fishery goal of a maximum 1.5 m (5 ft) drawdown from November 1.

After April 15 (Refill Period)

i) Low Inflow Conditions
- Outflow should be managed to ensure that Lac Seul level does not decline, and preferably rises, while providing sufficient outflow to meet downstream hydropower generation and fishery requirements.
- Target for an end of June level no lower than lower quartile (355.46 m / 1166.2 ft) with an outflow no lower than 100 m^3/s, provided that flows in Manitoba are no lower than 600 m^3/s.
- Target for an end of June level no lower than 355.1 m (1165 ft) with an outflow no lower than 25 m^3/s, provided that flows in Manitoba are no lower than 300 m^3/s.
- Consultation with interests, including OMNR staff, tourist outfitters and the provincial hydro utilities, may be necessary to arrive at the appropriate balance between lake levels and outflows.
- If inflow remains low throughout the refill period, outflow should be adjusted to maintain a balance between upstream and downstream interests. Note that a lower decile outflow for May for the 1970-1999 period was approximately 40 m^3/s while a 5%ile outflow was below 20 m^3/s.

ii) Moderate Inflow Conditions
- Generally target for lake levels between lower and upper quartile, while supplying water for efficient hydropower production and for English River fishery concerns.
- Use additional water to maintain desired fishery flows in the English River below Manitou Falls, provided this does not cause high flow conditions on the Winnipeg River in Manitoba.
- Target for flows in the Winnipeg River in Manitoba between 675 and 960 m^3/s.

iii) High Inflow Conditions
- Balance Ear Falls outflow with the rise in Lac Seul level to reduce flood risk both on Lac Seul and on downstream areas such as Pakwash Lake.
- An effort should be made to maintain Lac Seul levels (or projected levels) below upper decile through May, with a transition to near upper quartile by the end of June. Outflows should remain below 450 m^3/s for moderately wet conditions, below 500 m^3/s for most conditions and below 600 m^3/s in all but extreme conditions.
- Under very wet conditions, maintain Lac Seul level to no higher than upper decile at the end of June with outflow no higher than 600 m^3/s.
- Increase to as much as 800 m^3/s to keep the level below 357.1 m (1171.6 ft).
- When Lac Seul is above the level at which the Lake St. Joseph diversion comes under Board jurisdiction (356.01 m / 1168.0 ft until the end of May; 356.31 m / 1169.0 ft for June), the diversion flow should be reduced before increasing Lac Seul outflow to more than 500 m^3/s.

Lake of the Woods

A) Seasonal Considerations

Lake of the Woods will likely end the winter near its median March 31 level, or about 10 to 15 cm (4 to 6 in) above the lower quartile level of 322.35 m (1057.6 ft). The Board has stated that it would generally prefer a lower quartile end of winter level to reduce the risk of higher summer lake levels. The higher level this year is due to balancing conditions with the high flows and levels on the Winnipeg River in Ontario and Manitoba and will be within the range set out in the Board's winter strategy adopted in October. Currently, conditions and forecasts do not give any indication of either wetter or drier than normal spring conditions. Therefore, the strategy will be one of taking the "middle road" and balancing interests/needs while responding to conditions as they develop. The points below reflect a number of ideal or desirable regulation objectives over the next few months, based on input provided to the Board.

- Adjust lake level and outflow to achieve a balance between upstream and downstream interests, as inflow dictates.
- Minimize ice damage when possible. Ice damage is greater in the spring if there are rapid changes in levels (on either the lake or the river) and especially if the level rises while there is still a solid ice cover.
- The preferable end of April level for the Lake of the Woods fishery is no lower than 322.5 m (1058 ft). Higher levels would be beneficial to northern pike.
- Regulate to avoid, to the extent possible, any reductions in outflow or any large increases in outflow during the spring spawning season on the Winnipeg River (late April to early June).
- For loons on the Winnipeg River, flow changes during the incubation period (approximately mid-May to the end of June) should be minimized.
- A summer Lake of the Woods level 10-15 cm (4-6 in) below the summer peak median level of 323.14 m (1060.2 ft) is desired for south shore residents. These criteria would result in a peak summer level of about 323.0 m (1059.7 ft).
- For wild rice on Lake of the Woods and the Winnipeg River, maintain lower lake and river levels and minimize level and flow increases during the floating leaf stage in June and early July
- For piping plovers on Lake of the Woods, maintain lower lake levels and minimize lake level increases during their nesting and rearing season of May, June and July.
- Within the regulation parameters for Lake of the Woods, regulate outflows to assist in meeting targets/preferences for the Winnipeg River in Manitoba.

B) Strategy

To March 31 (Drawdown Period***)***

Allow the lake level to continue declining only very slowly to month-end, with a March 31 level between lower quartile and median (322.35 to 322.46 m / 1057.6 to 1057.9 ft). Outflows should not be increased unless prolonged high inflows are projected.

After March 31 (Refill Period)

Refill of Lake of the Woods is largely dependent on spring rainfall and is highly variable. There is no single outflow that can accommodate the range of possible future conditions at this time of year. Lake level and flow outlooks must be continually updated and outflows adjusted in response to changes in conditions or forecasts.

i) Low Inflow Conditions
- Adjust outflows as necessary, subject to minimum flow requirements as recommended by the

Ontario Ministry of the Environment, to keep the lake from declining. If possible, have the lake maintain at least a 10 %ile level, with outflows no lower than 100 m^3/s.

- Assess conditions immediately before spawning begins in the Winnipeg River so that outflows can be set to prevent, as much as possible, the need for further flow reductions during the spawning season (late April to early June), while ensuring the lake level does not decline.
- Target for a lake level above lower quartile at the end of June (322.73 m / 1058.8 ft) if possible, with outflow no lower than 200 m^3/s.
- If inflow remains low throughout the refill period, outflow should be adjusted to maintain a balance between upstream and downstream interests. Note that during the 1977 drought, minimum outflows during the April to June period were close to 60 m^3/s. However, with the mill closed, dilution requirements for the river are lower now than they would have been during the 1970's.

ii) Moderate Inflow Conditions

- Assess conditions immediately before spawning, as described under "Low Inflow Conditions" above.
- Outflow increases should be kept moderate during the spawning period and reductions should be minimized.
- Set outflow to as much as 800 m^3/s to prevent the peak lake level from exceeding 323.09 m (1060 ft) for the benefit of Lake of the Woods cottagers, if inflow is no higher than median.
- Attempt to keep the summer lake level 10-15 cm (4-6 in) below the summer peak median level of 323.14 m (1060.2 ft) in accordance with the commitment made by the Board following the high water year of 2001. To achieve this, the lake level targets would be approximately 322.7 m (1058.7 ft) for the end of May and 322.9 m (1059.4 ft) at the end of June. Try to balance this with avoiding outflows in excess of the generation capability at Kenora and optimizing hydroelectric generation downstream.
- Through late May and June, attempt to limit Lake of the Woods outflow changes that would adversely affect nesting loons on the Winnipeg River.
- Through June (and early July), try to manage lake levels to limit the rate of rise for wild rice.
- By managing LW outflows, along with LS outflows, try to maintain Nutimik Lake levels in the preferred range.

iii) High Inflow Conditions

- Balance higher water levels on the lake with the impact of increased outflows downstream, both in Ontario and Manitoba.
- Do not increase outflow above 800 - 900 m^3/s to keep the lake level (or projected level) below upper quartile in June (approximately 323.2 m / 1060.4 ft). A flow of 900 m^3/s on the Winnipeg River would cause the level below the Norman Dam to be about 1.4 m (4.6 ft) above normal; upper quartile level is 0.2 m (8 in) above median on the lake.
- Increase outflow as necessary to prevent the lake level (or the projected level) from rising above 323.47 m (1061.25 ft), which is the legislated top of the normal operating range. Note however, that the Convention and Protocol states "during periods of excessive precipitation the total discharge from the lake shall, upon the level reaching 1061 sea-level datum, be so regulated as to ensure that the extreme high level of the lake shall at no time exceed elevation 1062.5 sea level datum". In future years, the Board may wish to consider making use of this flood storage during periods of high inflow.
- An attempt should be made to keep outflow increases to a maximum of 100 m^3/s per week, except during the spawning season when it would be desirable to not exceed 50 m^3/s per week. Note however, that persistent higher inflows could necessitate inflow increases of 200 m^3/s per week or more.