**Adopted Regulation Strategy**
**Lake of the Woods Control Board Secretariat**
**June 25, 2015**

The Lake of the Woods Control Board held a Regulation Meeting on June 25, 2015 in Kenora and adopted a regulations strategy for the spring. 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*

Inflow to Lac Seul has been normal for most of the spring and regulation will continue to target normal conditions while remaining prepared to address a return to wetter conditions. Ideal or desirable regulation objectives for the next several months, based on input provided to the Board, include the following:

- When flow capacity exists downstream in Manitoba, the rate of rise on Lac Seul should be controlled so that the lake level remains below upper quartile.
- 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.
- The tourist outfitters' preferred summer maximum level for Lac Seul 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.
- Preferred English River flow at Grassy Narrows is 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.
- Lac Seul level and outflow should be managed to reduce the need to close the Lake St. Joseph diversion with resulting spill down the Albany River. However, the diversion should be closed to reduce impacts in the English and Winnipeg River basins under wet conditions.
- The June 30 target elevation of 356.3 m (1169.0 ft) set at the March 2015 regulation has been delayed to July 15. Since the authority to close the Lake St. Joseph Diversion is triggered at a level of 356.31 m (1169.0 ft) in June, it was felt that this target level was too close to the authority trigger for June and that some additional buffer was warranted.

***B) Strategy***

i) Low Inflow Conditions

- Manage outflows as necessary to achieve and maintain the lake level above 356.0 m (1168.0 ft). If the required reductions would lead to English and/or Winnipeg River flows less than minimum requirements of the provincial power utilities, consultations would be necessary with the OMNR in Red Lake and Sioux Lookout, as well as with the two provincial power companies, to determine an appropriate balance between upstream and downstream conditions.
- Severely restrict outflow to maintain lake levels above 355.5 m (1166.3 ft). Again, consultations would be necessary to appropriately balance upstream and downstream interests.

ii) Moderate Inflow Conditions

- Due to higher inflows and water levels in recent years, strive to keep levels no higher than 356.4 m (1169.3 ft), while balancing with other interests. Outflows should be no higher than 450 $m^3/s$ to achieve these levels.
- Lac Seul outflow should be no lower than 100 $m^3/s$ to have the lake level stay above 356.0 m (1168.0 ft) while satisfying the overall objectives.
- Within the general outflow targets, supply water for hydropower production and for English River fishery concerns.
- If flows on the Winnipeg River in Manitoba are high, use the storage available in Lac Seul to minimize the water released downstream. However, Lac Seul levels throughout the entire regulation period should not be above 356.6 m (1169.9 ft).

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 and the Winnipeg River in Ontario and Manitoba.
- 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.
- Regulate Lac Seul outflow to as high as 500 $m^3/s$ at Ear Falls to prevent the lake level exceeding 356.6 m (1169.9 ft) from July 1 to October 31; the Lake St. Joseph diversion should be reduced to the extent necessary to achieve this and before Lac Seul outflow is increased above 450 $m^3/s$. (The Lake St Joseph Diversion falls under LWCB authority when Lac Seul level is above 356.31 m (1169 ft) in June and above 356.62 m (1170 ft) in July through December.)
- Once the diversion is closed, regulate outflow to as high as 600 $m^3/s$ to prevent the lake exceeding 356.9 m (1170.9 ft), to as high as 800 $m^3/s$ to prevent the lake exceeding 357.1 m (1171.6 ft) and as high as necessary to ensure that the upper storage limit of 357.2 m (1171.9 ft) is not exceeded.

## Lake of the Woods

### *A) Seasonal Considerations*

Inflow to Lake of the Woods is currently median, with Rainy River flow at Manitou Rapids currently near 750 m³/s. Most tributaries upstream of the Namakan chain of lakes have flows in the upper-normal, and some greater than upper quartile. The Secretariat recommends a strategy that keeps the lake between 322.8 m (1059 ft) and 323.1 m (1060 ft) until the end of July under low-normal to upper-normal inflow conditions, followed by a gradual decline into the fall.

Ideal or desirable regulation objectives for the next several months, based on input provided to the Board, include the following:

- Adjust lake level and outflow to achieve a balance between upstream and downstream interests, as inflow dictates.
- For loons on the Winnipeg River, flow changes during the primary incubation period (normally to about the end of June) should be avoided. About 4½ to 5 weeks of relatively steady flows are needed for nesting success. Loons can make a second or third attempt, which means they could be on their nests into August for late nesting.
- A peak summer level of 323.0 m (1059.7 ft) is desired for Lake of the Woods' south shore residents.
- For piping plovers on Lake of the Woods, maintain lower lake levels and minimize lake level increases during their nesting and rearing season, which could extend to mid-July.
- For wild rice, the most important period for controlled and stable water levels is during the floating leaf stage from early June to mid-July. During this period, the optimal level of Lake of the Woods is between 322.5 m (1058 ft) and 322.8 m (1059 ft), although the most important consideration is that water level increases be gradual.
- Water level is also important during wild rice harvesting, which runs from about mid-August to mid-September on Lake of the Woods. If the water level is too high, the top of the plant will be too close to the water. If water levels are too low, the crop may be inaccessible to the harvesters' boats or canoes. Levels near 322.8 m (1059 ft) seem to be satisfactory.
- A significant drop in river level during the period up to mid-July could adversely impact sturgeon spawning and fry development on the Winnipeg River. The actual period of concern may vary and may be better defined by district fishery biologists.
- For recreational users on Lake of the Woods, maintain water levels in the range of 322.8 to 323.1 m (1059 to 1060 ft).
- 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*

i) Low Inflow Conditions

- If possible, avoid outflow reductions that would impact sturgeon eggs and larvae (possibly to mid-July).
- Reduce outflow to as low as 150 $m^3/s$ to prevent the lake from declining below 322.7 m (1058.7 ft) for July through September and below 322.6 m (1058.4 ft) in October. Maintain, or reduce, outflow to as low as 100 $m^3/s$ to prevent to lake from declining below 322.5 m (1058.1 ft) through the regulation period.
- If Lake of the Woods level drops below 322.2 m (1057.1 ft) reduce outflow to 70 $m^3/s$, following consultations with OMNRF and OMOECC regarding fishery and water quality

concerns.

ii) Moderate Inflow Conditions

- Set outflows to target a summer level of 322.9 m (1059.5 ft) with outflows in the 300 to 700 $m^3/s$ range.
- Increase outflow to as high as 800 $m^3/s$ to keep the lake level from exceeding 323.1 m (1060.0 ft).
- Balance attempts to achieve the above preferred summer levels range with consideration of the impacts of outflows on downstream interests in both Ontario and Manitoba.
- Attempt to limit Lake of the Woods outflow changes that would adversely affect nesting loons on the Winnipeg River.
- If possible, outflow reductions should be avoided during the period when sturgeon eggs or larvae could be impacted (possibly to mid-July).
- Try to manage lake levels to limit the rate of rise of the lake for wild rice during the floating leaf stage and to benefit the piping plovers nesting at Windy Point and on the Sable Islands.
- Lake of the Woods should be regulated to target for an end of October water level between 322.8 m (1059.0 ft) and 323.0 m (1059.7 ft) with a preferred level no higher than 322.9 m (1059.4 ft) with outflow between 300 and 700 $m^3/s$.

iii) High Inflow Conditions

- Balance higher water levels on the lake with the impact of high outflows downstream, both in Ontario and Manitoba.
- An outflow of about 900 $m^3/s$ would be appropriate to keep the lake level (or projected level) below 323.3 m (1060.7 ft). However, under some circumstances, it may be appropriate to adjust outflows to accommodate changing inflows, to provide a storage buffer to reduce the risk of higher lake levels or outflows, or to provide relief to the lake or river.
- Outflow should be set as necessary to try 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”.
- An attempt should be made to keep outflow increases/reductions to a maximum of 100 $m^3/s$ per week. Note, however, that conditions in the past have frequently necessitated outflow changes of 200 $m^3/s$ or more per week.