Adopted Regulation Strategy
Lake of the Woods Control Board
October 30, 2024

The Lake of the Woods Control Board held a Regulation Meeting in Kenora and via teleconference on October 30, 2024, when it adopted a Regulation Strategy to guide operations through the beginning of March 2025. 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/regguide/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.

At the time of the Regulation Meeting, flows and levels across the Winnipeg River basin were below normal or in the low-normal range. The summer was characterized by several severe precipitation events interspaced with consistent rainfall leading to high-normal flows across the basin. Starting in August and continuing into September and October, precipitation was low, leading to inflows decreasing significantly and levels in the major lakes decreasing.

On the English river this led to high-normal flows and inflows to Lac Seul which fluctuated between 50th and 75th percentile. Inflows to Lac Seul steadily decreased from their peak in May, reaching 50th percentile values in August and September before rapidly decreasing to 25th percentile or lower in October.

In the South of the basin, flows along the Rainy River and into Lake of the Woods were close to 90th percentile for the entire month of July. After a major rainfall event in early July, inflows started to decline rapidly. Inflows stabilized due to more precipitation for short periods before continuing to decline. In August, inflows dropped from above 90th percentile to below 50th percentile. Since September the basin has received minimal precipitation which has impacted lake levels and tributary flows.

The strategy aims are focused on two periods including regulation until freeze-up (typically mid to end of November) and winter period until early March. With more typical winter conditions forecasted for this year, the strategy specifies key aims and how the Board intends to balance these under a range of possible flow conditions should they develop during the strategy period. The goal of balancing conditions across the entire basin is a complex task given the diverse nature of the different, and sometimes conflicting, interests and the largely unpredictable nature of the hydrology that drives the system.

Lac Seul

A) Seasonal Considerations

Inflows to Lac Seul were in the high normal range throughout the summer but started to decline mid-August. Outflows were reduced in September due to declining inflows, but then briefly increased in October in response to rainfall and to meet the end of October target between 356.0 m and 356.2 m. A return to dry conditions occurred through October. With the potential for low

outflow from Lake of the Woods over the winter, Lac Seul outflow will be required to provide the balance of flow for minimum hydropower demands. Ideal or desirable regulation objectives for the next several months, based on input provided to the Board, include the following:

- Operate Lac Seul primarily as a hydropower reservoir to meet winter operation requirements of downstream hydropower plants and provide core winter power demands in Ontario and Manitoba, but with consideration of other interests.
- To the extent possible, limit winter drawdown on Lac Seul to provide good spring spawning conditions and protect eggs of fall spawning fish (i.e. to minimize whitefish egg exposure and mortality).
- Regulate Lac Seul outflow to assist in providing satisfactory freeze-up conditions on the English and Winnipeg Rivers (for both level concerns and to avert frazil ice problems) as well as on Lac Seul.
- Use Lac Seul storage to offset Lake of the Woods high/low outflow 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.
- Preference voiced by hydropower interests is to drawdown Lac Seul to the lower end of the early March regulation targets for all inflow scenarios for hydropower production over the winter.

B) Adopted Strategy

Short-term Regulation (until freeze-up, which is typically mid to end November)

- Gradually adjust outflows to those desirable for winter outflow and end-of-winter drawdown targets.
- Maintain outflow no lower than 150 m^3/s.
- The Lac Seul freeze-up level should preferably be no higher than 356.5 m (1169.6 ft) with outflow no higher than 400 m^3/s and Winnipeg River flows in Manitoba below 1400 m^3/s (to avoid frazil ice problems).
- Combined with Lake of the Woods regulation, maintain minimum Winnipeg River flows above 170 m^3/s until mid-November and then above 340 m^3/s until end of November at Slave Falls in Manitoba.
- The usual end-of-October target level between 356.0 and 356.2 m (1168.0 ft and 1168.6 ft) (25^{th} to 35^{th} percentile) is realistic and should be reasonably attainable under expected conditions.
- If inflow rises, increase outflow as appropriate to provide a reasonable balance between increased outflow and higher lake level, with due consideration of impacts on the English and Winnipeg Rivers given current low flows and levels.
- Should high inflow conditions develop, Lac Seul should be regulated to target for an end of October water level below 356.35 m (1169.1 ft) and outflow should remain below 600 m^3/s. The Lake St. Joseph diversion outflow should be reduced to the extent necessary before Lac Seul outflow is increased above 500 m^3/s. (The Lake St Joseph Diversion falls under LWCB authority when Lac Seul level is above 356.62 m (1170 ft) during the period of July through December.)

Early March Targets (after freeze-up)

- Regulate the level of Lac Seul so that the level on March 1st is limited to a maximum of 355.5 m (1166.3 ft), and preferably no higher than 355.15 m (1165.2 ft).
- The end-of-winter (April 15) target level for Lac Seul should be evaluated in March at the LWCB Regulation meeting to account for conditions and forecasts at that time.

i) Low Inflow Winter Conditions

- Winter outflow should be no lower than 150 m^3/s, with a core winter flow no lower than 230 m^3/s.
- Communicate with First Nation communities on Lac Seul and the English River, and with Grand Council Treaty #3 to keep communities informed of the low water conditions and to assist in the determination of an appropriate balance of upstream and downstream interests.
- Combined with Lake of the Woods regulation, winter core period flows on the Winnipeg River in Manitoba should be no lower than 625 m^3/s to meet minimum winter peak power demands with a March 1st elevation preferably no lower than 354.6 m (1163.4 ft). This objective takes into consideration low outflow from Lake of the Woods.
- If flows are greater than 675 m^3/s on the Winnipeg River in Manitoba, the March 1st elevation should not be allowed to decline lower than 354.8 m (1164.0 ft).

ii) Moderate Inflow Winter Conditions

- Winter outflow should be between 200 and 450 m^3/s with a core winter flow of between 300 and 400 m^3/s.
- The March 1st elevation should be no lower than 354.87 m (1164.4 ft) to meet Winnipeg River flow targets of winter core period flows between 675 and 960 m^3/s at Slave Falls.
- If flows on the Winnipeg River in Manitoba are greater than 960 m^3/s, (and subject to flood risk constraints), the end-of-winter target level should be the higher of these two options:
    a. The level coinciding with a maximum drawdown of 1.5 m (4.9 ft) or
    b. An elevation no lower than the fisheries spring target level of 354.8 m (1164.0 ft).
- If additional storage in Lac Seul is required, target for a March 1st level no higher than 355.6 m (1166.7 ft), and preferably no higher than 355.5 m (1166.3 ft), subject to flood risk constraints.

iii) High Inflow Winter Conditions

- Regulate Lac Seul outflow to as high as 500 m^3/s to prevent the lake exceeding a March 1st level of 355.6 m (1166.7 ft).
- Communicate with First Nation communities on Lac Seul and the English River, and with Grand Council Treaty #3 to keep communities informed of the potential for flooding and to assist in the determination of an appropriate balance of upstream and downstream interests.
- If 500 m^3/s is insufficient outflow to stay below 355.6 m (1166.7 ft), aim to limit or close the diversion into Lac Seul whether or not the Lake St. Joseph diversion is under LWCB authority. (Note: The Board only has authority to restrict diversion flow when Lac Seul

exceeds 356.62 m in November and December, and 356.31 m from January to March. However, Manitoba can restrict diversion flow when Winnipeg River flows in Manitoba exceed 963 m^3/s and Ontario Power Generation (OPG) can also be requested to restrict diversion flow voluntarily.)

- Once the diversion is closed, increase outflow to the extent necessary to ensure that the March 1st lake level is no higher than 355.8 m (1167.3 ft).
- Combined with Lake of the Woods regulation, strive to keep Winnipeg River flows in Manitoba at Slave Falls below 1600 m^3/s through the winter.

Lake of the Woods

A) Seasonal Considerations

Lake of the Woods levels remained above normal over the course of the summer due to large inflows from several major precipitation events and large flows from upstream Rainy Lake. During the month of August and continuing through September and October, low rainfall amounts and decreasing flows from Rainy Lake led to decreasing lake levels. Lake of the Woods level is currently just below the normal range at 20th percentile for this time of year while inflows are currently below 5th percentile. General 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. Plan winter drawdown to provide the appropriate balance between the various interests.
- Regulate Lake of the Woods outflow to assist in providing satisfactory freeze-up conditions on the Winnipeg River to avoid frazil ice problems and a high freeze-up level.
- Limit winter drawdown on the lake to provide good spring spawning conditions and to protect the eggs of fall spawning fish.
- Limit winter drawdown to the extent possible to reduce potential damage from ice.
- Within the regulation parameters for Lake of the Woods, regulate outflow to assist in meeting targets/preferences for the Winnipeg River in Manitoba.
- Preference voiced by interest groups is to drawdown Lake of the Woods to the lower end-of-winter regulation targets for all inflow scenarios to mitigate flood risk in the spring.

B) Adopted Strategy

Short-term Regulation Strategy (until to freeze-up, which is typically mid to end November)

- If dry conditions persist, conserve water to the extent possible, while balancing upstream and downstream interests.
- Target for a Lake of the Woods level at freeze-up between 322.55 and 322.8 m (1058.2 to 1059.1 ft), with outflow preferably between 150 and 450 m^3/s. If high or low inflow precludes the preferred conditions, then adjust both level and outflow without deviating from the target range more than necessary.
- Combined with Lac Seul regulation, adjust Lake of the Woods outflow to meet Winnipeg River minimum flow at Slave Falls in Manitoba of 170 m^3/s up to November 15, and 340 m^3/s from November 16 to 30.

- Combined with Lac Seul regulation, target to keep Winnipeg River flows in Manitoba below 1400 m^3/s during the critical ice cover formation period to prevent frazil ice problems.
- Due to concerns over freezing of domestic water lines along the Winnipeg River, increase Lake of the Woods outflow to at least 250 m^3/s, if feasible, before an insulating layer of ice and snow forms on the river.

Core Winter Period and End-of-winter Levels (typically end of March)

- The Board's end-of-winter target level, based on factors other than winter inflow, has typically been 322.38 m (1057.7 ft) and preferably no higher than 322.5 m (1058.0 ft). However, the actual end-of-winter level will vary depending on the winter inflow received, as noted in sections iii) to v) below.
- The preferred end-of-winter level for fishery interests as defined by the Ontario Ministry of Natural Resources and Forestry (MNRF) is no lower than 322.5 m (1058.0 ft), subject to consideration of potential negative impacts downstream. In addition, for fall spawning fish, the preferred maximum drawdown during the winter is no more than 30 cm (1.0 ft). However, for south shore property owners, who would like to see lower summer levels, lower end-of-winter levels would be preferable. The Minnesota Department of Natural Resources (DNR) supports this position and has stated that lower water levels do not negatively impact the fishery in their portion of the lake.
- The preferred winter flow for FirstLight, to maximize their hydropower production, is 400 to 450 m^3/s at the Lake of the Woods outlet. OPG would prefer flows closer to 575 m^3/s at Whitedog Falls and Manitoba Hydro's flow preference for the Winnipeg River at Slave Falls is 675 to 960 m^3/s.
- Aim to adjust Lake of the Woods outflow to set a stable core winter flow on the Winnipeg River by freeze-up and to avoid large shifts in river level that could affect ice cover and shorelines.

iii) Low Inflow Conditions
- Winter outflow should be no lower than 125 m^3/s and preferably no lower than 200 m^3/s to assist with winter heating of hydropower stations.
- If outflow is greater than 125 m^3/s, the end-of-winter elevation should be no lower than 322.34 m (1057.5 ft).
- Combined with Lac Seul regulation, try to achieve flows on the Winnipeg River in Manitoba no lower than 625 m^3/s between December 1 and February 15 to meet minimum winter peak period power demands. To do this, preferentially increase Lac Seul outflow and try to maintain an end-of-winter level on Lake of the Woods no lower than 322.34 m (1057.5 ft) in case of continued drought conditions in the spring.
- If inflow allows, and combined with Lac Seul regulation, increase outflows to achieve a flow of 675 to 960 m^3/s at Slave Falls with an end-of-winter level no lower than 322.4 m (1057.6 ft).

iv) Moderate Inflow Conditions
- Winter outflow should be between 300 and 700 m^3/s with a preferred end-of-winter level of 322.38 m (1057.7 ft), but not above 322.5 m (1058.0 ft).

- Combined with Lac Seul regulation, winter core period flows (between December 1 and February 15) on the Winnipeg River at Slave Falls in Manitoba should be between 675 and 960 m^3/s.

v) High Inflow Conditions
- Adjust outflow as necessary to target an end-of-winter level no higher than 322.60 m (1058.4 ft) while considering the impact of increased outflow downstream, both in Ontario and Manitoba, in balance with higher water levels on the lake.
- If winter conditions indicate above normal risk of high spring inflow, aim for end-of-winter level no higher than 322.40 m (1057.7 ft) with outflow no higher than 700 to 800 m^3/s,
- Communicate with First Nation communities on Lake of the Woods and the Winnipeg River, and with Grand Council Treaty #3 to keep communities informed of the potential for flooding and to assist in the determination of an appropriate balance of upstream and downstream interests.
- Combined with Lac Seul regulation, strive to keep Winnipeg River flows in Manitoba below 1600 m^3/s through the winter.